ORIGINAL ARTICLE

# Communication Styles, Care- Seeking and Preventive Behaviors in COVID-19 Patients in Northwest of Iran

Asghar Tanomand[1], PhD;
Hossein Safari[2], PhD;
Sedigheh Salavati[1], PhD;
Ali Soleimani[1], PhD;
Arman Latifi[1], PhD

## Abstract

**Background:** The most important way to prevent COVID-19 is to observe health behaviors such as keeping social distance from one another. After getting COVID-19, care-seeking behaviors can affect the severity of the disease. The current study aimed to investigate and compare the communication styles, care-seeking, and health behaviors in patients with COVID-19.

**Methods:** A cross-sectional study was performed using a self-administered questionnaire on patients with COVID-19 in Maragheh in 2020. The study population included 450 people selected using simple random sampling. Chi-square, one-way ANOVA, and Pearson Product Moment Correlation tests were used to compare communication styles, care-seeking, and health behaviors among outpatients and inpatients with COVID-19. Data were analyzed using SPSS 23 software.

**Results:** The first place to seek treatment for outpatients and inpatients with COVID-19 was health centers (28.2%) and hospitals (44.5%), respectively. In terms of communication behaviors, close contact of family members with others at work, getting the disease from close friends or colleagues (45.8%), and having a history of contact with an infected COVID-19 person (43.5%) were the most reported items by outpatients. On the other hand, hospitalized cases reported close contact of family members with others at work (62.4%), attending physicians' offices (43.8%), and attending gatherings (41.2%) more than other communication behaviors (P<0.0001).

**Conclusion:** Care-seeking behavior is more appropriate among outpatients than inpatients, and preventive behaviors are more stable in outpatients than inpatients. Therefore, health education interventions in the community should focus on correcting care-seeking behaviors and promoting good social communications.

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[1]Maragheh University of Medical Sciences, Maragheh, Iran
[2]Health Promotion Research Center, Health School, Iran University of Medical Sciences, Tehran, Iran

**Correspondence:**
Sedigheh Salavati, PhD;
Maragheh University of Medical Sciences, Maragheh, Iran
**Tel:** +98 9141785020
**Email:** s.salavati@mrgums.ac.ir
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## Introduction

The first cases of COVID-19 in Iran were confirmed on February 19, 2020, in Qom ,the central province, and then it quickly spread to other cities.[1] This is a disease whose clinical manifestations range from an overnight common cold to severe pneumonia, leading to the fatal acute respiratory syndrome.[2] So far (until April 2021), more than 62,000 people have been killed in the country due to COVID-19.[3]

Preventive and hygienic behaviors are the most important way to prevent COVID-19 infection. Health

behaviors are a set of actions people take to maintain or improve their health, reduce health problems, and uphold a balanced physical condition.[4] Regarding COVID-19 disease, health behaviors that are emphasized by the World Health Organization (WHO) include wearing a mask, frequent hand washing, observing a physical distance of two meters, covering the mouth and nose when sneezing and coughing, avoiding facial touch and having proper ventilation in closed areas.[5] Evidence suggests the impact of demographic and socioeconomic characteristics on the occurrence of health behaviors against COVID-19.[6-9] Assessing the COVID-19 patients' health behaviors based on the severity of the disease can provide valuable findings to health policymakers at local levels.[10] Evaluation of health behaviors usually relies on self-reporting, which often asks about the person's past behaviors.[11]

Among health behaviors, maintaining social distance is emphasized. Therefore, individuals' approaches in social interactions affect possibility of getting the disease and the severity of the disease. For example, presence in crowded places, parties, lack of physical distance in the workplace and society, interaction with people suspected of having the disease, etc., can increase the risk of COVID-19.[12, 13]

Maintaining one's social distance can also be affected by socio-economic variables such as income, ethnicity, education, etc.; social mechanisms affect the spread of the virus.[14, 15] Identifying the factors related to social interactions that have the greatest impact on getting the disease is important in designing strategies to deal with the disease.

The COVID-19 pandemic can also affect people's treatment-seeking behaviors. Treatment-seeking behavior refers to any action people take during illness and health problems to find an appropriate treatment.[16] In the COVID-19 pandemic, the correct and timely behavior to seek treatment can reduce the severity of the disease and make treatment less challenging.[17]

The city of Maragheh is located in the south of East Azerbaijan, which according to the census of 2016, had a population of 177,750, and the first COVID-19 case was reported in mid-March 2019 in this city. Furthermore, the city was in red status according to the National Classification of Diseases during four months before the study. Therefore, the researchers decided to evaluate the differences between patients' interaction styles in the community, their health behaviors, and treatment-seeking behaviors based on the severity of the disease to provide a good guide for health policymakers to design health education and promotion programs for delivering health services in the city.

## Methods

This cross-sectional study was conducted in Maragheh, a city in northwestern Iran (East Azerbaijan Province) with a population of 177079 in 2020. The study population included all residents of Maragheh with a positive PCR test for COVID-19 during the two months of November and December. The sample size was estimated to be 450 using the Morgan method.

The main inclusion criteria were a positive PCR test during the two months of November and December and willingness to participate in the study. It is worth mentioning that there was no limitation on the participants' age or their place of residence. ICU and hospitalized patients who did not have the physical ability and consciousness to complete the questionnaire were excluded from the study.

A simple random sampling method was used for selecting the samples. Each person with a positive test result was assigned a number, and samples were selected using a table of random numbers. For those patients who were hospitalized at the time of data collection, one of the ward nurses referred to them explained the study's objectives, and then completed the questionnaire by interviewing the patients. Before starting the study, The interviewer was trained on how to ask questions during the training session.

The patients, who were home-quarantined and recovered at home or were discharged from the hospital, received a text message containing the questionnaire link. Then, they got the necessary information during the telephone call to complete the questionnaire.

The researchers designed a questionnaire using studies on health protection behaviors against COVID-19 and the demographic characteristics of COVID-19 patients. It was used for data collection.[7-9, 18, 19] The questionnaire was designed using online and web-based tools.

The questionnaire consisted of three main sections and 36 questions:

- The first part includes questions on treatment-seeking behaviors, type of underlying diseases, and finally, the patient's feeling of illness (12 questions)

- The second part includes the patient interaction styles (12 questions)

- The third part includes questions about the individual's health behaviors (4 questions)

- The fourth part covers the patient's demographic, social, and economic characteristics (8 questions)

The validity of the questionnaire was reviewed and confirmed during a specialized panel session with the participation of 5 specialists in health management, health education and promotion, health policy, and epidemiology areas. The reliability of the questionnaire was estimated to be 0.84 using Cronbach's alpha test.

In this study, the severity of illness was the

dependent variable (including being hospitalized or outpatient treatment at home) and health behaviours, social interaction style, and treatment-seeking behavior were independent variables. After completing the questionnaires, data were extracted from the website and transferred to SPSS-23 software. Descriptive data were presented in the form of Tables and graphs of descriptive statistics and frequency percentages with a 95% confidence interval. Our goal was to explore the difference in health behavior, treatment-seeking behaviors, and social interaction style between inpatients and outpatients, so Chi-square, one-way analysis of variance, and Pearson correlation tests were used to determine the differences between health behaviors in outpatients and inpatients and also to determine the differences between social interaction styles and differences in treatment-seeking behaviors in both groups of the patients.

## Results

A total of 451 patients with COVID-19 were studied, of which 274 (60.8%) were hospitalized, and 177 (39.2%) were outpatient cases.

The mean age of outpatients and inpatients was 40.5±12.5 and 53.6±16.07, respectively, and the mean age of inpatients was significantly higher than outpatients (P<0.0001, F=16.6, df=431.3). About half of the patients in both outpatient (54.8%) and inpatient (50.7%) groups were women, and there was no significant relationship between gender and disease severity (X2=0.7, P=0.3). Among the respondents, 45.2% of outpatients and most hospitalized patients (83.6%) were married, and there was no significant relationship between marital status and the severity of the disease (X2=0.78, P=0.4).

About half of the outpatient cases (57.1%) were employed in the public sector, and 17.5% were homemakers. Among hospitalized patients, 40.5% were homemakers, and 12.4% were employed in the public sector. The Chi-square test results showed that the difference in the employment status of hospitalized and outpatient cases was significant (X2=114.7, P<0.0001).

Most outpatient cases had diploma (25.4%) and B.Sc (40.1%) degrees, and most inpatient cases were illiterate (35.8%) and had undergraduate degrees (27.4%). The difference between the educational status of inpatient and outpatient cases was statistically significant (X2=115.5, P<0.0001).

The results related to treatment-seeking behavior showed that the first place to seek treatment by outpatient cases (28.2%) was the health center of the place where they were living and this center was a hospital for most inpatient cases (44.5%). In addition, there was a statistically significant difference between the first place for seeking treatment and the severity of the disease (X2=49.18, P<0.0001) (Table 1).

Most outpatient cases sought treatment immediately (37.3%) or 1-2 days (30.5%) after feeling unwell, while the time to seek treatment in hospitalized patients was 3-4 days (22.6%) or it was 7-8 days (21.2%) after feeling ill (Table 2). The Chi-square test results showed a significant relationship between hospitalization and treatment-seeking after feeling ill for three days or more (X2=110.04, P<0.0001).

64.6% of hospitalized patients and 45.2% of outpatient cases reported having at least one underlying disease. Blood pressure and diabetes

**Table 1:** Frequency distribution of the place of treatment after feeling ill in patients with COVID-19

| Place of treatment | Inpatient | | Outpatient | | $X^2$ | P |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| Visiting doctor's office | 96 | 35 | 50 | 28.2 | 49.8 | 0 |
| Going to hospital | 122 | 44.5 | 41 | 23.2 | | |
| Visiting the nearest health center or comprehensive health center | 32 | 11.7 | 65 | 37.6 | | |
| Self-treatment by taking medications | 10 | 3.6 | 5 | 2.8 | | |
| Self-treatment by herbal and traditional medicine | 14 | 5.1 | 16 | 9 | | |
| Total | 274 | 100 | 177 | 100 | | |

$X^2$: chi-square; P: P value

**Table 2:** Frequency distribution of treatment time in patients with COVID-19

| Treatment time | Inpatient | | Outpatient | | $X^2$ | P |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| Immediately after feeling ill | 22 | 8 | 66 | 37.3 | 110.04 | 0 |
| 1-2 days after feeling unwell | 43 | 15.7 | 54 | 30.5 | | |
| 3-4 days after feeling unwell | 62 | 22.6 | 36 | 20.3 | | |
| 5-6 days after feeling unwell | 54 | 19.7 | 8 | 4.5 | | |
| 7-8 days after feeling unwell | 58 | 21.2 | 5 | 2.8 | | |
| 9 days or more after feeling unwell | 35 | 12.8 | 8 | 4.5 | | |
| Total | 274 | 100 | 177 | 100 | | |

$X^2$: chi-square; P: P Value

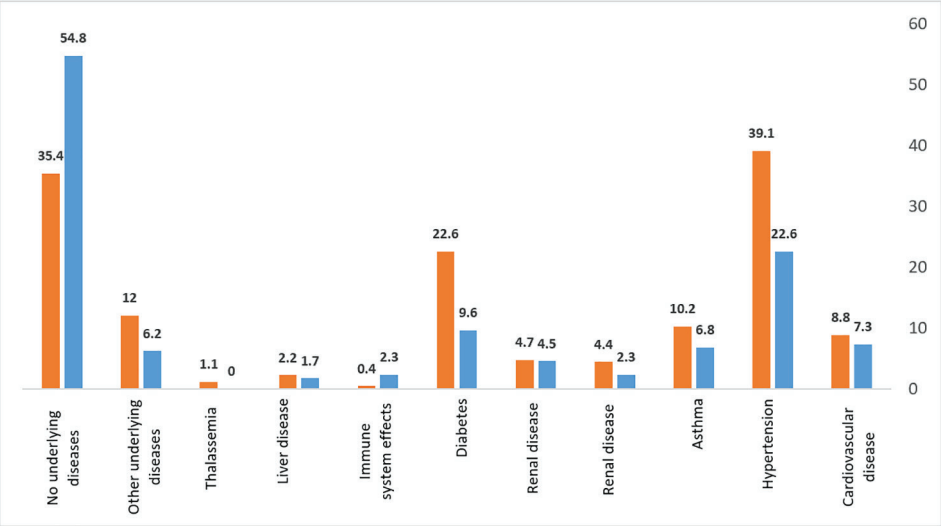


**Figure 1:** Distribution of prevalence of underlying diseases in outpatients with COVID-19

**Table 3:** Frequency distribution of patients' communication/interaction behaviors during the two weeks before COVID-19

| Interaction behaviors styles | Inpatient | | Outpatient | | $X^2$ | P |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| High contact of other family members with others at work | 171 | 62.4 | 81 | 45.8 | 10.6 | 0.001 |
| Attending gatherings | 113 | 41.2 | 63 | 35.6 | 1.44 | 0.2 |
| Attending a doctor's office or diagnostic and treatment center and pharmacy | 120 | 43.8 | 61 | 34.5 | 3.89 | 0.05 |
| Preparing and consuming food from the restaurant, etc. | 64 | 23.4 | 36 | 20.3 | 0.56 | 0.4 |
| History of contact with a COVID-19 patient | 126 | 46 | 77 | 43.5 | 0.61 | 0.7 |
| Having a person with COVID-19 at home before getting the disease | 108 | 39.4 | 37 | 20.9 | 31.2 | 0 |
| Having COVID-19 cases among close friends or colleagues | 107 | 39.1 | 81 | 45.8 | 3.6 | 0.1 |
| Total | 274 | 100 | 177 | 100 | | |

$X^2$: chi-square; P: P Value

**Table 4:** Frequency distribution of protective behaviors in patients with COVID-19

| Protective behaviors | Type of treatment | Always | Often | Sometimes | Rarely | Never | f | P | df |
|---|---|---|---|---|---|---|---|---|---|
| Wearing the mask outdoors | Inpatient | 135 (49.3) | 82 (29.9) | 36 (13.1) | 9 (3.3) | 12 (4.4) | 53.71 | 0 | 443.4 |
| | Outpatient | 144 (81.4) | 26 (14.7) | 4 (2.3) | 2 (1.1) | 1 (0.6) | | | |
| Avoiding gatherings and crowded places | Inpatient | 81 (29.6) | 98 (35.8) | 72 (26.3) | 21 (7.7) | 2 (0.7) | 17.7 | 0 | 442.2 |
| | Outpatient | 114 (64.4) | 51 (28.8) | 9 (5.1) | 2 (1.1) | 1 (0.6) | | | |
| Frequent hand washing | Inpatient | 109 (39.8) | 85 (31) | 62 (22.6) | 17 (6.2) | 1 (0.4) | 31.67 | 0 | 448.8 |
| | Outpatient | 127 (71.8) | 38 (21.5) | 12 (6.8) | 0 | 0 | | | |
| Avoiding touching facial components | Inpatient | 77 (28.1) | 115 (42) | 65 (23.7) | 14 (5.1) | 3 (1.1) | 0.36 | 0 | 449 |
| | Outpatient | 82 (46.3) | 62 (35) | 25 (14.1) | 6 (3.4) | 2 (1.1) | | | |

F: F value; P: P value; df: degree of freedom

were the most common underlying diseases among the participants (Figure 1). The results showed that the incidence of hypertension (X2=13.24, P<0.0001) and diabetes (X2=12.62, P<0.0001) in hospitalized patients was significantly higher than in outpatient cases.

The score that outpatient and inpatient cases gave to their current health status was equal to 2.51 (08 2.08) and 2.07 (8 1.8), respectively. However, the Pearson correlation test showed that this score had no significant relationship with the number of days passed from getting the disease.

Table 3 shows the results of the communication styles (interactions) of patients with COVID-19. Close and frequent contact of family members with others at work,getting the disease from close friends or

colleagues (45.8%), and having a history of contact with an infected COVID-19 person (43.5%) were the most reported items by outpatients. Hospitalized cases reported close and frequent contact of family members with others at work (62.4%), attending physicians' offices (43.8%), and attending gatherings (41.2%) more than other communication behaviors.

Regarding the behavior of using masks, outpatients (81.4%) always used masks outdoors significantly more than hospitalized patients (49.3%) (F=53.71, P<0.0001). Furthermore, in terms of other behaviors, including avoiding gatherings (X2=67.07, P<0.0001), frequent hand washing (F=52.6, P<0.0001), and avoiding facial touch (F=17.1, P=0.002), a higher percentage of outpatients selected "always" option for such behaviors compared to inpatient cases (Table 4).

## Discussion

This study aimed to investigate the social interaction styles, treatment-seeking behaviors, and health behaviors based on the severity of the disease in patients with COVID-19.

Demographic characteristics of patients showed that higher mean age had a statistically significant relationship with disease severity, and hospitalized patients had a higher mean age. In this regard, our study was in line with some other studies conducted in the world, including studies carried out in the United Kingdom[20], Europe[21], and a systematic study[22] to determine the socio-economic predictors of COVID-19, which showed that age is directly related to the severity of illness and death due to COVID-19. Of course, this relationship's intensity varies in different parts of the world.[23] One of the most important reasons for the higher severity of the disease in the elderly is the greater weakness of the immune system in this age group.

In our study, gender did not have a significant relation with the severity of the disease, and this finding is different from the results of other studies. For example, in a study conducted in different parts of Europe, the risk of death was higher in men with COVID-19 than in women.[21] The reasons for such differences lie in the biological, cultural, social and economic characteristics of the population.

In this study, the employment status was significantly different between outpatient and inpatient cases. Most of the inpatient cases were housemakers, while mostoutpatients had government jobs.

Homemakers are expected to be less present in the community and less exposed to risk factors, so higher severity of the disease in this group can be related to the family pattern in disease spread. It also seems that people working in the public sector are saved from more severe illnesses and hospitalization by seeking timely treatment. One of the reasons for the timely action of government employees for treatment can be their greater job security and the possibility of taking sick leave without fearing losing their job.

In this study, the level of education was significantly inversely associated with the severity of the disease, and the number of people with lower literacy levels was higher among hospitalized patients. This result is similar to the results of other studies. In Sweden, for example, the disease incidence rate was higher in minority groups.[24] Lower levels of socioeconomic determinants, including literacy, are inversely associated with contextual conditions such as general health, nutritional status, treatment-seeking behaviors, and underlying diseases. All of these conditions reinforce COVID-19.[25, 26]

Treatment-seeking behaviors of patients in this study showed that public wards were the first place for seeking treatment by both outpatients and inpatients. Outpatients mostly referred to the comprehensive health centers of their neighborhood and inpatients went to the nearby hospitals. Our study's result differed from a study in Pakistan in which people turned to private sector providers or self-treated themselves for fear of becoming more ill by going to a health facility.[27] Various issues such as economic conditions and cultural and social characteristics can affect this behavior and consequently affect treatment results.[28]

On the one hand, identifying treatment-seeking behaviors is effective in adopting strategies to improve access to health services[16] and on the other hand, it can be a guide for health education interventions in this field because there is evidence of the effect of health literacy on improving treatment-seeking behaviors.[29, 30]

In the present study, outpatient cases received treatment significantly earlier than hospitalized patients, and this result was expected because timely treatment is one of the important factors in preventing the severity of the disease.[31, 32]

In our study, a significant percentage of outpatient and inpatient cases reported having underlying diseases, among which high blood pressure and diabetes were significantly associated with disease severity and hospitalization. This result is similar to the findings of other studies showing that having an underlying disease can increasingly lead to faster and more severe progression of COVID-19.[33] The results of a systematic study also showed that blood pressure was associated with death, disease severity, and the need for ICU in patients with COVID-19, and this association was stronger in men.[34]

Reviewing the interaction styles of patients with COVID-19 in the present study showed that nearly half of the hospitalized patients referred to doctors' offices during the two weeks before the disease. Field observations from doctors' offices and private diagnostic and treatment centers in the city

also showed the accumulation of patients and lack of proper social distancing in most of these centers, which causes the spread of the disease.

Also, the high rate of close encounters with COVID-19 patients, both among hospitalized and outpatient cases in this study, indicates that patients did not properly observe the principles of quarantine. There may be some reasons for such negligence, including the urgency of some patients to be back in society due to livelihood reasons (for example, day laborers, guilds and businesses, etc.) and lack of adequate social and moral responsibility of some patients in adhering to the principles of quarantine, etc. Also, according to the family pattern of the disease in the city, it seems that teaching the principles of distance at home and paying attention to health considerations that other members should consider to prevent disease should have a special place in health promotion training programs in the city.

The self-reporting results of patients' four main protective behaviors against COVID-19 showed that in all behaviors, including wearing masks, hand washing, avoiding gatherings, and avoiding facial touch, a higher percentage of outpatient cases reported significant adherence to these behaviors, which was expected from them.

*Limitations of the Study*

One of the limitations of the present study can lie in the difference between how both outpatient and inpatient groups answered the questionnaire. For example, qThe ward nurse often asked questions from hospitalized patients and then transferred the answers into the questionnaire. However, patients, who were discharged, were home-quarantined, or were recovering at home answered the questionnaire by themselves. Another limitation of this study could be the bias related to forgetting the events and having reminders. This issue was true for those who had some time passed from their onset of the disease and treatment period.

## Conclusion

By identifying the pattern of treatment-seeking behaviors in patients, health education interventions focused on informing the community about timely referral and treatment. Also, the pattern of patient interaction styles and protective behaviors showed the need for implementing interventions aiming to increase people's sensitivity for constant observance of main preventive behaviors and correct observance of quarantine principles in dealing with an infected person, especially if he/she is a family member.

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