

Research Paper

Investigating the Effects of COVID-19 Prevalence on Demographic Variables and Its Relationship With Social Participation



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ABSTRACT

Background: Because COVID-19 has become a pandemic, public health measures to cut off human-to-human transmission may include quarantine and social isolation. This study aims to demonstrate the effects of the COVID-19 pandemic on demographic variables and their relationship to the level of social participation during the pandemic.

Materials and Methods: In June 2020, the community integration questionnaire (CIQ) was transcribed along with the required demographic information on a web-based platform. A total of 461 people (Mean±SD age: 36.86±5.8 years) completed the questionnaire in a cross-sectional study. The effects of COVID-19 on social interaction were then calculated by analyzing the community integration questionnaire scores before and after the outbreak of COVID-19 and the data were analyzed using the SPSS software, version 26.

Results: Quarantine measures had the most damage in the reference group (participants under 24 years old) ($P < 0.001$) compared to before the COVID-19 outbreak. Except for participation in productive activities (compared to the elderly) ($P < 0.001$), in all cases and among all age groups, integration and the total score of the questionnaire decreased.

Conclusion: Psychosocial stress and reduced participation in social and life spheres are the results of quarantine measures and social distancing. Meanwhile, the participation rate of the under 24 years old age group significantly decreased in all areas. Following that, the older age group had a significant decrease in social participation. The results of this study can be used to prioritize the vaccination of different people in the community according to the amount of damage caused by COVID-19.

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1. Introduction

Social participation, an important component of social capital, has been proposed as one determinant of health status [1]. It is defined as the social sharing of individual resources and is related to how actively a person takes part in social activities, such as religious, leisurely, volunteer, and political groups. Social participants can select their activity patterns and choose activities that they find interesting and satisfying. Previous studies have indicated that social participation is significantly associated with self-rated good health [2]. Participation has been associated with poorer self-rated health in the elderly [3], while social participation contributes to better health ratings in both men and women [4]. Thus, it is plausible that people who are more involved in their communities have greater support and good health status.

According to the [World Health Organization \(WHO\)](#), viral diseases continue to occur and are a serious public health problem [5]. Over the past 20 years, several viral diseases have occurred, such as SARS-CoV in 2002-2003 and H1N1 flu in 2009. Middle East coronavirus syndrome (MERS-CoV) was first diagnosed in 2012 in Saudi Arabia [5]. On February 11, 2020, [WHO Director-General](#) announced the disease caused by the new COVID, as COVID-19, which stands for coronavirus 2019. COVID-19 is an acute respiratory disease that has recently been spread worldwide and is fatal with a 2% mortality rate. Governments around the world are trying to reduce the devastating effects of the virus through various countermeasures, such as travel restrictions, quarantine, and social distancing. In such cases, due to social distancing and isolation measures and in some cases at-home quarantines, people's social participation in activities of daily living is reduced [6]. COVID-19 is considered this century's greatest global health problem and challenges scientific and political authorities to identify the most adequate clinical, epidemiological, economic, and social approaches to this disease. Experts agree that there is insufficient scientific knowledge on the novel coronavirus [7]. In this context, uncertainties prevail as to which actions and policies need to be taken to contain and mitigate the pandemic [8].

Two main strategies have been adopted in the fight against COVID-19. One relates to the structuring and expansion of the health systems' hospital care. Given the high pathogenicity and virulence of SARS-CoV-2, governments in various countries seek to expand the supply of clinical and intensive care beds dedicated to severe cases of COVID-19, thereby saving the lives of patients with complications from the disease. The other priority strategy involves the restriction of social contact. This strategy is more comprehensive, comprising the health system component, and dealing with

broader action by society to reduce circulation and contact between persons, thus slowing the incidence of the disease and delaying the plateau in the pandemic curve. This measure decreases the exponential demand for healthcare and seeks to minimize the mortality resulting from the lack of care generated by the overload of health systems [9].

Accordingly, the analysis of community participation in the fight against COVID-19 requires knowing the model of participation used and the space occupied by the population in the social and health systems. Such conceptual demarcations are relevant, given the risk of idealizing community involvement [10] and the development of unrealistic expectations towards participation in adverse political and social scenarios [11]. In addition to endangering human health and eventually death, pandemic diseases can cause irreversible psychological effects [12]. An important factor in the occurrence of psychological distress is the decision to stay at home, which is taken to reduce the rate of disease transmission [12]. After this decision, schools and many businesses were closed. Organized sports events were postponed and social activity levels decreased. The isolation period may cause the occurrence of psychological effects, such as depression and anxiety by leading to changes in people's living conditions, a decrease in social and physical contact, and separation from their loved ones [12, 13].

According to recent research, social participation has decreased significantly since the outbreak of COVID-19 when compared to before the outbreak [14]. This outcome may harm the level of life satisfaction of different people in the community as well as their mental health status [6]. Although social isolation and quarantine measures are effective solutions to slowing the spread of infectious diseases, staying at home can also have negative effects on mental health and several behaviors in life, including social participation and life satisfaction. Recent studies have shown that quarantine measures by COVID-19 increase the number of inactive people [15]. Recent research has also highlighted the need to study and analyze demographic and age variables and their relationship to the prevalence of COVID-19 disease [6]. To help describe the psychosocial effects and impact of the COVID-19 crisis on demographic variables and social participation, our research team conducted an anonymous survey to assess quarantine results and social distancing on psychological status and different lifestyle behaviors during the COVID-19 outbreak. This study aims to investigate the effects of the COVID-19 pandemic on demographic and age variables and their relationship with the degree of integration into home activities, social integration and productivity activities, and their overall relationship with the level of social participation during the pandemic.

2. Materials and Methods

Sample size

According to Morgan's formula [16], the sample size was 384 people, which by considering a 15% drop, a sample of 450 people was sufficient.

Study methods

A total of 461 participants (Mean±SD age: 36.86±5.8 years) participated in a cross-sectional study by filling out the community integration questionnaire (CIQ) online. The study was conducted through an online survey in May and June 2020 in Iran in which the respondents were invited to complete the questionnaire online. The website was available for 2 months to be completed.

The study process and sampling method in this research were as follows: CIQ with the required demographic information, including gender, marital status, level of education, employment status, life status, and disability were transcribed in a web-based format; a global source link (URL) on "porsline.ir" was sent to the participants via WhatsApp, email, and messenger. Then, the participants were invited to complete the survey. The participants and the target population included a long list of students, patients, people with and without disabilities, their families and relatives, and others who could use smartphones, computers, tablets, and laptops.

The inclusion criteria included the following: 1) having a tablet, computer, or mobile phone with an Internet connection that can connect to the designed website and complete the questionnaire, and 2) filling out the questionnaire. The completed questionnaires with incorrect information were excluded from the research process. Furthermore, the questionnaires with the same IPs were also excluded from the review process. The information of all participants was coded and remained confidential with the authors.

Community Integration Questionnaire Scoring

There are two versions of CIQ, one for patients and one for family members. We used the family member's version. This questionnaire is especially sensitive to the scale of productive activities, which can be used to identify barriers to such activities. CIQ includes 3 sub-categories: 1) home integration with 5 items and 10 points, including shopping items, food preparation, daily chores, childcare, and social program coordination; 2) community integration with 6 items and 12 points, including personal finances, the number of times to leave the house to do shopping, leisure activities, meeting friends, doing leisure activities with family or friends, and having a close

friend; 3) integration in purposeful and productive activities with 4 items and 7 points, including the number of getting out of the house per week, work status, educational status, and participation in volunteer activities. The total CIQ score is 29. A total of 12 items out of 15 items of the CIQ questionnaire are scored between 0 and 2. A higher score indicates more independence and better interaction. The validity and reliability of this questionnaire were confirmed for adults in 1994 [17, 18]. Also, the validity and reliability ($ICC \geq 0.70$) of the Persian version of this questionnaire were confirmed in 2013 [19]. The questionnaire items were also adjusted to show the individual's social interaction before and after the COVID-19 pandemic. Therefore, two sets of data were collected: before and after the outbreak of COVID-19.

Scoring and data analysis

Items related to interaction at home and in the community are rated between 0 and 2. Item 4 (who usually takes care of the children at home?) has 4 options which include "myself alone," "me and another person," "another person alone," and "this question is not suitable for me." Questions 3 and 5 are calculated using the average of items 1, 2, 3, and 5. To rate items 13 through 15, we used the instructions provided by Dr. Barry Wheeler (www.rehabmeasures.org). The demographic information, including age, sex, marital status, occupation, level of education, and disability was also recorded. The data were analyzed using the SPSS software, version 22. Differences between test scores before and after COVID-19 were analyzed using the paired t test.

3. Results

A total of 461 people participated in this study, including 284 women and 177 men (Average age: approximately 37 years). The youngest subject was 11 years old and the oldest was 98 years old. About 22% of the samples had a diploma or lower and the rest had at least one university degree. In this sample, 7 people did not live in Iran. Table 1 lists the characteristics of the study variables.

Table 2 and Table 3 show the relationship between the research variables and integration, respectively. In these tables, the correlation coefficient, Mean±SD, and P are reported. By comparing these two tables, we can compare the effect of COVID-19 on integration by regression coefficients. For example, people with disabilities had lower household integration than people without disabilities (-1.20), while this rate was even higher for post-COVID-19 (-1.80).

4. Discussion

Understanding the psychosocial consequences of restrictive measures on demographic variables allows for better decision-making. This study aimed to investigate the effects of quarantine and social distancing given the prevalence of COVID-19 on demographic variables and its relationship to participation in daily life activities and social interactions, based on the data extracted from the responses of 461 subjects. This study complemented the results of a previous study [14]. The results provided by 461 participants showed that restrictive measures during the outbreak of COVID-19 have negative effects on demographic variables, especially on age and gender and their relationship with social participation.

According to the results of our study, the rate of participation in the home for men before the COVID-19 prevalence was lower than for women (-1.95), which increased after the outbreak of the COVID-19 pandemic when compared to women (0.99). This indicates more housekeeping and participation at home for men. Also, the level of social integration of men compared to women has increased after the COVID-19 outbreak (from 0.58 to 1.34), which indicates a decrease in the level of social participation of women compared to before the COVID-19 outbreak. This result can be explained by the effects of social distancing and its greater impact on women. In addition, the rate of participation in productive and purposeful activities of men compared to women

has increased after the COVID-19 outbreak (from 0.82 to 0.87), which indicates a decrease in women's participation in productive and purposeful activities after the outbreak of COVID-19 when compared to men. The total score of the CIQ in men increased after the COVID-19 prevalence (from -0.55 to 1.15), which indicates an increase in the overall participation of men compared to women after the COVID-19 outbreak. The reason for this can be found in the quarantine measures and the greater impact of these measures on reducing the overall participation of women.

The level of home integration in all 3 age groups (compared to the reference age group under 24) has increased after the COVID-19 outbreak. The home integration rate of young people (in the age range of 25 to 44 years) increased from 2.04 to 2.49, middle-aged people (in the age range of 45-64 years) from 2.78 to 2.85, and the elderly (65 years and older) from 3.76 to 4.50. This result indicates an increase in staying at home in all age groups and more participation in household chores. In the meantime, the rate of participation in the home of older people has been higher.

Before the outbreak of COVID-19, the level of social integration in all 3 age groups was lower than the reference age group (below 24 years). After the outbreak of COVID-19, this rate was higher in all age groups compared to the reference age group and has turned positive. Meanwhile, the rate of social integration among young people has increased from

Table 1. Characteristics of research variables

Variables	Characteristics	No. (%)
Gender	Female	284(61.4)
	Male	177(38.4)
Disability	Not disabled	447(97)
	Disabled	14(3)
Education	Bellow diploma	19(4.1)
	Diploma	82(17.8)
	Bachelor's degree	190(41.2)
	Master's degree or higher	170(36.9)
Country	Iran	454(98.5)
	Abroad	7(1.5)
City	Under 500 thousand population	100(21.7)
	Between 500 thousand and 1 million	61(13.2)
	More than 1 million	300(65.1)
Age (y)	Under 24	83(18)
	25 - 44	252(54.7)
	45 - 64	118(25.6)
	More than 65	8(1.7)

Table 2. Relationship between demographic variables and pre-COVID-19 integration

Variables	Characteristics	Mean±SD			
		Home Integration	Social Integration	Productive Activities	Total
Gender	Female	-	-	-	-
	Male	0.24±1.95	0.58±0.16	0.82±0.14	-0.55±0.32
	P	<0.001	<0.001	<0.001	0.090
Disability	Not disabled	-	-	-	-
	Disabled	0.70±1.20	0.45±2.69	0.39±1.11	0.93±4.91
	P	0.110	<0.001	0.004	<0.001
Education	Below diploma	-	-	-	-
	Diploma	0.64±0.42	1.06±0.41	0.75±0.36	2.22±0.85
	P	0.518	0.010	0.035	0.009
	Bachelor's degree	0.75±0.61	0.98±0.39	1.12±0.34	2.85±0.81
	P	0.219	0.012	0.001	<0.001
	Master's degree or Phigher	0.62±0.60	1.26±0.40	2.08±0.35	3.94±0.83
	P	0.338	0.002	<0.001	<0.001
Country	Iran	-	-	-	-
	Abroad	0.98±0.82	0.62±1.09	0.54±0.06	1.29±0.21
	P	0.402	0.080	0.909	0.869
City	Under 500 thousand	-	-	-	-
	Between 500 thousand and 1 million	0.52±0.41	0.52±0.26	0.23±0.16	1.20±0.55
	P	0.210	0.048	0.482	0.028
	More than 1 million	0.38±0.30	0.19±0.19	0.17±0.01	0.57±0.40
Age (y)	P	0.213	0.331	0.959	0.153
	>24	-	-	-	-
	25-44	2.04±0.34	0.22±0.24	0.20±0.18	1.62±0.45
	P	<0.001	0.270	0.352	<0.001
	45-64	2.78±0.38	0.25±0.08	0.22±0.17	2.53±0.51
	P	<0.001	0.755	0.436	<0.001
<65	3.76±0.99	0.64±0.15	0.58±1.82	1.79±1.32	
P	<0.001	0.820	0.002	<0.001	

Table 3. Relationship between demographic variables and post-COVID-19 integration

Variables	Characteristics	Home Integration	Social Integration	Productive Activities	Total
Gender	Female	-	-	-	-
	Male	0.99±0.70	1.34±0.16	0.87±0.14	1.15±0.37
	P	0.161	<0.001	<0.001	0.002
Disability	Not disabled	-	-	-	-
	Disabled	0.71±-1.80	0.46±-0.99	0.41±-1.02	1.06±3.81
	P	0.012	0.030	0.013	<0.001
Education	Below diploma	-	-	-	-
	Diploma	0.66±-0.31	0.67±0.42	0.44±0.38	0.98±0.80
	P	0.638	0.112	0.240	0.414
	Bachelor's degree	0.62±0.07	0.40±0.15	0.51±0.36	0.92±0.73
	P	0.905	0.715	0.149	0.428
	Master's degree or Phigher	0.64±-0.07	0.53±0.41	1.41±0.36	1.88±0.95
Country	Iran	-	-	-	-
	Abroad	1±0.89	0.64±-0.56	0.57±-0.02	1.48±0.31
	P	0.371	0.376	0.968	0.836
City	Under 500 thousand	-	-	-	-
	Between 500 thousand and 1 million	0.42±0.29	0.27±0.11	0.24±0.12	0.63±0.53
	P	0.488	0.675	0.612	0.400
	More than 1 million	0.31±0.19	0.20±0.19	0.18±0.08	0.46±0.46
Age (y)	>24	-	-	-	-
	25-44	2.49±0.33	0.31±0.22	0.23±0.20	3.03±0.49
	P	<0.001	0.174	0.247	<0.001
	45-64	2.85±0.37	0.74±0.25	0.39±0.23	3.97±0.56
	P	<0.001	0.004	0.089	<0.001
	<65	4.50±0.95	1.59±0.66	0.59±-0.85	5.24±1.44
P	<0.001	0.016	0.150	<0.001	

-0.24 (before the outbreak of COVID-19) to 0.31 (after the outbreak of COVID-19), middle-aged people from -0.08 to 0.74, and the elderly from -0.15 to 1.59. This result indicates an increase in the participation and integration of the elderly compared to younger people after the outbreak of COVID-19. Following them, middle-aged people experienced the highest level of social integration after the COVID-19 outbreak compared to young people.

Before the outbreak of COVID-19, participation in productive and purposeful activities was lower in all three age groups compared to the reference age group. After the COVID-

COVID-19 outbreak, this rate was higher in the young and middle-aged group and lower in the older age group) compared to the reference age group). Meanwhile, the level of integration in productive activities among young people has increased from -0.18 (before the COVID-19 outbreak) to 0.23 (after the COVID-19 outbreak), middle-aged people from -0.17 to 0.39, and the elderly from -1.82 to -0.85. These results show that the rate of productive activities in the reference group (less than 24 years) has decreased compared to before the COVID-19 outbreak, and among these, the rate of integration in productive activities in the middle-aged group has increased the most. The above results indicate that quarantine

measures have suffered the most in the reference group (under 24 years) compared to before the COVID-19 outbreak, except for participation in productive activities (compared to the elderly) in all cases and among all the age groups, their integration and the total score of their questionnaire has decreased. This result can be explained by social restrictions, reduced involvement in activities, quarantine measures, and distancing measures taken by government agencies to curb the spread of the virus [20].

During a similar crisis (the prevalence of SARS between 2002 and 2004), previous research has shown several negative effects of quarantine measures on social participation that have been associated with reduced individual well-being [21, 22]. These negative cases have also been reported in recent COVID-19 reports, highlighting that people in quarantine report more symptoms of mental distress. In addition, some of these symptoms appear to persist long after the end of quarantine [23]. With previous negative results from the COVID-19 pandemic in social participation, the present findings support previous reports and demonstrate the risk of socio-psychological stress in the period of quarantine and social distancing.

The results of our research show the impact of COVID-19 on various aspects of life in society. Among these results, the disruption in activities related to the social sphere has received the greatest impact from the prevalence of the COVID-19 pandemic in all age groups. However, the outbreak of the COVID-19 pandemic has affected all areas related to daily life activities. The results of the present study can be used to prioritize vaccination of different age groups. Also, in these circumstances, by observing social distancing and increasing vaccination of two sensitive and vulnerable groups of under 24 age group and old people, it is possible to increase the level of higher education activities in young people (in person or using information and communications technology programs) and also expand social activities in older adults (such as attending social and recreational programs and expanding the national information network).

Study limitations

No tool was used to remove the duplicate results. However, it was ensured that multiple responses were not recorded through the same IPs. Given that quarantine at home and social distancing were unexpected measures in most countries, we could not conduct a pre-quarantine poll to be ideal in terms of control.

Suggestions for future research

The strength of this study is that the data were widely distributed in Iran via a completely anonymous survey, and despite the limitation of the COVID-19 pandemic, the data were collected quickly. In future studies, we suggest that different cultural variables and the relationship between these variables and social participation be investigated.

5. Conclusion

Our results from the data provided by 461 participants in an online survey show psychosocial stress and reduced participation in social and life spheres because of quarantine measures and social distancing. Meanwhile, the participation rate of the under-24 age group has decreased significantly in all areas. Following that, the older age group experienced a significant decrease in social participation, which shows that more attention was paid to these two groups during the COVID-19 pandemic. The results of this study can be used to prioritize the vaccination of different people in the community according to the amount of damage caused by COVID-19.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the [University of Social Welfare and Rehabilitation Sciences](#) (IR.USWR.REC.1399.228).

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declare no conflict of interest.

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