

## Coronavirus Pandemic

# Perception and practice of social distancing among Egyptians in COVID-19 pandemic

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### Abstract

**Introduction:** Social distancing is principally intended to reduce infectious disease transmission by decreasing interactions among people in a broader community. Keeping social distancing is an essential public health measure to resist the COVID-19 pandemic.

**Methodology:** a cross sectional study was conducted among 1,036 Egyptians using an online questionnaire between 5 and 10 May 2020.

**Results:** There was significant association between the practice of social distancing and some sociodemographic factors as sex, age, education, working status, and place of residence at  $p$  value  $< 0.001$  and with community of residence at  $p$  value 0.021.

**Conclusions:** Egyptians had good perception for social distancing to prevent transmission of COVID 19, but they were not strictly practicing it.

**Key words:** Social distancing; COVID-19; perception; practice; Egypt.

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### Introduction

Pneumonia associated with coronavirus disease (COVID-19) appeared in Wuhan, China, in December 2019 [1]. It is highly infectious and has fast spread to many other areas of China and has transmitted to more than twenty countries by 30 January 2020 [2]. By the middle of February 2020, it was found that 44,653 cases and 1,113 deaths have been recorded in China and 395 cases and 1 death have been reported from other 24 countries [3,4]. This pandemic of COVID-19 has great attention all over the world not merely within China [5]. The World Health Organization (WHO) has considered COVID-19 a public health emergency of international concern on 30 January 2020 [6]. By 2 April 2020 more than one million people were confirmed to have COVID-19 and more than 50,000 people have died all over the world [7].

The delay in application of prevention and treatment of the infectious disease may participate to widespread of the epidemic [8]. We need rigorous application of traditional public health measures to limit the transmission of COVID-19 disease especially with the absence of vaccines and antivirals. The main goal of these public health measures is to prevent person-to-person spread of infection by separating people to interrupt transmission of disease. The best available

measures are isolation, quarantine, social distancing, and community containment [9].

Social or physical distancing is defined as intentionally increasing the physical space between people to avoid spreading illness [10]. Staying at least six feet away from other people minimizes the chances of infection with COVID-19 [10]. WHO recommended to maintain at least three feet or one metre distance between yourself and any coughing or sneezing person who is spraying small liquid droplets from nose or mouth which possibly contain COVID-19 virus as you may inhale these droplets and be infected [11]. Centres for Disease Control and Prevention defines social distancing as avoiding of mass gatherings and maintaining a distance of 6 feet or 2 meters away from other people [12]. It was found that, more than two meters or six feet distant from hospitalized patients' beds, the COVID-19 virus's genetic material was detected. This finding means that even keeping a physical distance by at least two meter could not be sufficient to restrict spread of the virus [7].

“Social distancing” is particularly designed to reduce disease transmission by decreasing interactions between people in a broader community, in which individuals may be infectious but have not yet been diagnosed, may be infectious but asymptomatic or in

the pre-symptomatic phase [13,14]. Also, social distancing is specifically beneficial in settings where community transmission is believed to have already occurred, however the linkages among cases were still unclear, and restrictions placed only on exposed persons which is considered insufficient to inhibit further transmission. Approaches for social distancing include closure of schools or office buildings, suspension of public markets, and avoidance of gatherings [13]. The Centres for Disease Control and Prevention mentioned that, the best way to prevent COVID-19 disease is to avoid exposure to this virus which can be achieved by maintaining social distancing [15].

Some studies have been published, about COVID-19 infection's epidemiology, preventive measures, and the essential role of quarantine measures and social distancing [1,5,9], but not stressing on studying the people's perception of social distancing and its practice especially in the developing countries.

Therefore, the objective of this study was to assess the perception and practice of social distancing and related factors among Egyptians in COVID-19 pandemic.

## Methodology

### *Study Design and Participants*

A cross sectional study was conducted among Egyptian citizens residing in different governorates in Egypt through convenience sampling. Sample size was calculated using n4studies application (Songkhla, Thailand) to be 1153 based on infinite total population, prevalence of the factor under study 50%, design effect 3 and confidence level 95%. However, 1036 had participated in the study with response rate 90%. The study was conducted in the period between 5 May and 10 May 2020.

### *Inclusion criteria*

Egyptian citizens 18 years of age and above currently residing in different governorates in Egypt.

### *Ethical considerations*

The purpose of the study was stated in the cover page of the questionnaire. Participation was voluntary and the anonymity was preserved. Data collection started after getting the approval from Zagazig University institutional review board.

### *Research tools*

A structured questionnaire designed by the researchers and guided by BMJ Best Practice COVID-

19 was distributed through social media platforms [16]. The questionnaire consisted of 3 sections.

First section was used to collect data about socio demographic characteristics of the participants as gender, age, education, working status and place and community of residence.

Place of residence was divided into high populated governorates (Cairo, Giza and Alexandria) and low populated governorates.

Second section included 7 questions asking about perception of social distancing and answers were presented as three point Likert scale with total score 21. Cut off point was taken at the 20 which is the median of the data, where  $\leq$  median was considered to be poor perception and above the median was considered to be good.

There was one question for general perception of COVID 19 either they perceive it as a serious disease or a controllable one.

Fourth section comprised 6 questions about practice of social distancing and answers were presented as yes, no and sometimes. Answers of 5 questions were coded as 2 for yes, 1 for sometimes and zero for no and there was one reversed scoring question with total score 12. Then cut-off was taken at 10 which is the median of the data, where  $\leq$  median was considered to be poor practice and above the median was considered to be good.

### *Data management*

Data Analysis was done using SPSS version 24, IBM Corp (NY, United States). Data was presented in descriptive form as number and percentage. The association between social distancing and socio demographic factors was assessed using Pearson chi square with significance level ( $p \leq 0.05$ ). Multiple linear regression analysis of predictor variables on Social distancing practice was done using dichotomous variables (gender, age, education, place of residence, working status, community of residence and perception about COVID 19) and continuous variables (perception of social distancing), while social distancing practice was presented as continuous variable at  $p$  value  $\leq 0.05$ .

## Results

The total number of the participants were 1036. 63.7% of them were females and 55.2% aged more than 30 years. 69.5% of the participants had higher education and 54.8% of them were working. 88.8% of participants were living in urban area and 62.2% of them were living in low populated governorates. 97.3% of participants

perceived COVID 19 as a controllable disease (Table 1).

Participants in this study perceived that, their existence in social gatherings, frequent visits to markets, moving with different transports, going to work daily increase their chance to be infected with COVID-19 by 88.4%, 96.1%, 97.3% and 89.5% respectively. Also, they believed that, schools closure, closing studying centres and curfew may protect them from being infected by 94.2%, 94.2% and 88.8% respectively. 69.9% of participants had overall good perception of social distancing. (Table 2)

Table 3 showed that, 84.6% went out only if necessary, 85.7% only went out to buy their necessary stuff, 64.5% avoided family gatherings, 83% avoided meeting with friends, 19.3% went work daily and 71% kept enough distance when dealing with people. 81.9% of participants had overall poor social distancing.

Males, participants aged more than 30, participants who had higher education, working participants and participants living in low populated governorates had significant good social distancing practice by 24.5%, 25.2%, 24.4%, 29.6% and 22.4% respectively by  $p$  value < 0.001, and those who were living in urban community had significant good social distancing practice by 19.1% at  $p$  value = 0.021 (Table 4).

Multiple linear regression analysis revealed that, increased score of perception about social distancing, higher education, working and living in urban communities positively contribute to practice of social distancing with high statistical significance while being a female negatively contribute to practice of social distancing with high statistical significance (Table 5).

**Table 1.** Characteristics of the participants.

Characteristics	n (%)
<b>Gender</b>	
Male	376 (36.3)
Female	660 (63.7)
<b>Age</b>	
≤ 30	464 (44.8)
> 30	572 (55.2)
<b>Education</b>	
High School	316 (30.5)
Higher Education	720 (69.5)
<b>Working status</b>	
Not working	468 (45.2)
Working	568 (54.8)
<b>Place of Residence</b>	
Low populated governorates	644 (62.2)
High populated governorates	392 (37.8)
<b>Community of residence</b>	
Rural	116 (11.2)
Urban	920 (88.8)
<b>Perception about COVID 19</b>	
COVID-19 is a controllable disease	1,008 (97.3)
COVID-19 is a serious disease	28 (2.7)
<b>Total</b>	<b>1,036</b>

**Discussion**

Maintaining social distancing is a fundamental public health measure to fight the COVID-19 pandemic [11,15]. The effectiveness and societal impact of quarantine and social distancing not only depends on governmental decision makers, but also depends on the compliance of the public to those measures.

The aim of this study was to assess perception and practice of social distancing and related factors among Egyptians in COVID-19 pandemic.

**Table 2.** Perception of participants about social distancing.

DO you believe:	Agree n (%)	Neutral n (%)	Disagree n (%)
Your existence in social gathering increase your chance to be infected with COVID-19	916 (88.4)	88 (8.5)	32 (3.1)
Your frequent visits to markets increase your chance to be infected with COVID-19	996 (96.1)	40 (3.9)	0 (0)
Your moving with different transports increases your chance to be infected with COVID-19	1,008 (97.3)	24 (2.3)	4 (0.4)
Going to work daily increase your chance to be infected with COVID-19	928 (89.5)	96 (9.3)	12 (1.2)
Schools closure protect you from being infected	976 (94.2)	56 (5.4)	4 (0.4)
Studying centres closure protect you from being infected	976 (94.2)	52 (5)	8 (0.8)
Curfew protects you from being infected	920 (88.8)	88 (8.5)	28 (2.7)
	<b>Poor n (%)</b>		<b>Good n (%)</b>
Overall perception about social distancing	312 (30.1)		724 (69.9)

**Table 3.** Practice of social distancing among participants.

	Yes	Sometimes	No
	n (%)	n (%)	n (%)
Do you go out only if necessary	876 (84.6)	128 (12.4)	32 (3)
Do you go out to buy only your necessary stuff	888 (85.7)	108 (10.4)	40 (3.9)
Do you avoid family gathering in weekends	668 (64.5)	196 (18.9)	172 (16.6)
Do you avoid meeting with friends	860 (83)	100 (9.7)	76 (7.3)
Do you go to work daily	200 (19.3)	144 (13.9)	692 (66.8)
Do you keep enough space when dealing with people	736 (71)	260 (25.1)	40 (3.9)
Overall practice of social distancing	<b>Poor</b> n (%) 848 (81.9)		<b>Good</b> n (%) 188 (18.1)

**Table 4.** Social distancing practice and some related factors among studied participants.

	Poor social distancing practice	Good social distancing practice	p value
	n (%)	n (%)	
<b>Gender</b>			
Female	564 (85.5)	96 (14.5)	< 0.001*
Male	284 (75.5)	92 (24.5)	
<b>Age</b>			
≤ 30	420 (90.5)	44 (9.5)	< 0.001*
> 30	428 (74.8)	144 (25.2)	
<b>Education</b>			
High school	304 (96.2)	12 (3.8)	< 0.001*
Higher education	544 (75.6)	176 (24.4)	
<b>Working status</b>			
Not working	448 (95.7)	20 (4.3)	< 0.001*
Working	400 (70.4)	168 (29.6)	
<b>Place of Residence</b>			
Low populated governorates	500 (77.6)	144 (22.4)	< 0.001*
High populated governorates	348 (88.8)	44 (11.2)	
<b>Community of residence</b>			
Rural	104 (89.7)	12 (10.3)	0.021
Urban	744 (80.9)	176 (19.1)	
<b>Perception about COVID-19</b>			
COVID-19 is a controllable disease	824 (81.7)	184 (18.3)	0.591
COVID-19 is a serious disease	24 (85.7)	4 (14.3)	
<b>Total</b>	848 (81.9)	188 (18.1)	

\*Highly Significant.

**Table 5.** Multiple linear regression analysis of predictor variables on social distancing practice among studied participants.

Model	Unstandardized Coefficients		P value
	B	t	
Constant	- 1.792	- 1.587	0.113
Age (More than 30)	0.192	1.336	0.182
Place of Residence (High populated)	- 0.205	- 1.849	0.065
Gender (Female)	- 0.358	- 3.293	≤0.001*
Perception about Social Distancing	0.436	9.804	≤0.001*
Education (Higher education)	0.449	2.311	0.021
Working status (Working)	0.556	3.699	≤0.001*
Community of residence (Urban)	0.580	3.317	≤0.001*
Perception about COVID-19 (Seriousness)	- 0.631	- 1.851	0.064

\*Highly Significant.

Most of the participants had agreed about different parameters of social distancing perception as their answers were around 95% agree in most questions.

Despite that, overall perception about social distancing was good in 69.9% of the participants, but it was clear that, they were not strictly complying with practicing social distancing as the overall practice of social distancing was 18.1%.

The worst two parameter regarding the practice of social distancing were avoidance of family gathering and keeping enough space when dealing with people. An explanation of the first parameter may be that, the false belief of those participants that their family members are safe from getting the infection which may lead to sudden dramatic increase in the number of cases as their family members may be carriers and symptomatically free.

However, regarding keeping enough space when dealing with people may be difficult in some situations as the Egyptian government could not provide solutions for the overcrowding in public places, transportation means, and lack of strict regulations in the markets due to limited resources which is consistent with what was concluded by two previous studies that, in order to facilitate compliance with social distancing measures, governmental support system should be ready to provide continued measures for social distancing [17,18].

Participants had significant good social distancing practice were living in low populated governorates. This finding could be explained by that, the high populated governorates are depending on the overcrowded public means as subways and buses in their transportation which is not considering the safety rules for social distancing. In addition, the participants with good social distancing practice were in the age group above 30 years which could be explained by that, people in this age usually have families and social responsibilities and this reflects their responsible manner to protect their families and also, in this age they have concerns about their health.

The current study revealed that, the high school participants had poor social distancing practice which could be due to the energetic nature of this group which make them more likely to move all the time.

Working participants had shown significant good social distancing practice and this finding may explained by that, some work places had given their employee instructions to follow distancing in work places and to show a responsible manner to protect themselves and to protect others.

Significant good social distancing practice had been observed in people living in urban community and this observation may be attributed to the different customs and traditions in both communities. In the rural communities the people have intimate social relationships forcing them to participate in social gatherings and occasions furthermore to that, families live in shared homes.

The results of the multiple linear regression model in the current study confirmed that, the most important independent factors affecting the social distancing practice presented in an ascending manner according to their strength were being a female, increased score of perception about social distancing, higher education, working and living in urban communities. While, age, place of residence and perception of COVID-19 weren't considered significant independent variables affecting the social distancing practice.

The present study had certain limitations. Since the sampling method was convenient, it will limit the possibility of generalization of results.

## Conclusions

About 70% of participants perceived that, social distancing measures reduce the transmission of COVID-19. However, around 82% of them were not strictly practicing social distancing. Also, males, participants aged more than 30, participants who had higher education, working participants and those who live in urban community had significant positive contribution to social distancing.

## Recommendations

Further studies are needed to investigate the compliance of public with the long term social distancing. Also, it is necessary to investigate the effectiveness of social distancing in breaking the cycle of COVID-19 transmission. On the society level, measures from the Egyptian authorities are needed; like ensuring the availability of basic life requirements, provision of basic services, and financial compensations for those who lost income in order to facilitate adherence to social distancing. Massive health education campaigns targeting rural areas, women, young people and unemployed Egyptians through community leaders and social media are needed to increase the awareness of the public about the importance of avoidance of family gathering and encouraging contact with families and friends via phone and social media. To avoid dramatic increase in the number of cases, high populated governorates necessitate to apply highly strict measures as increasing

the number of curfew's hours, imposing strict punishments for breaking the rules, and mandatory quarantines of residential areas.

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