



Original Article

Physical distancing during COVID-19 pandemic among adults in India- A gap analysis

Deepthi R¹, Anil NS², Suhitha R Das^{3*}, Karthik C³, Mohammed Athif³

1. Associate Professor, Department of Community Medicine, ESIC-MC & PGIMSR, Rajajinagar, Bengaluru, Karnataka.
2. Professor and Head, Department of Community Medicine, ESIC-MC & PGIMSR, Rajajinagar, Bengaluru, Karnataka.
3. Tutor, Department of Community Medicine, ESIC-MC & PGIMSR, Rajajinagar, Bengaluru, Karnataka.

Abstract

Background: COVID-19 pandemic has altered livelihood of people around the world in terms of increased morbidity, mortality and loss of QALY (Quality adjusted life years). Physical distancing, Personal Protective Equipment use, disinfection and hand washing practice are the mainstay in preventing the disease. There is increase in cases despite wide knowledge dissemination.

Aim: To study the knowledge, attitude and practice of physical distancing among general population and to determine knowledge practice gap regarding physical distancing among them.

Methods: Cross sectional study design with snowball sampling technique was employed. Sample size was 647. Online based questionnaire was distributed through various social media applications and through Email.

Results: 418(64.60%) belonged to age group 18-24 years and 357(55.18 %) were females. Correct knowledge of 93.2%, right attitude of 89.99% and average correct practice of 56.09% was obtained. Knowledge practice gap of 22.2% was found. Significant higher correct knowledge and practice was found among Age < 25 years, who studied up to graduate, unmarried and females as compared to their counter parts. (<0.05)

Conclusion: The study has helped to identify the knowledge practice gaps (22.2%) and behavioural patterns which will further help to implement effective interventions. The study has provided a deep identification and understanding of variables that may possibly influence the perspectives and practices towards physical distancing in COVID-19.

Key words: Physical distance, COVID-19, pandemic, knowledge, attitude, practice.

Introduction

The coronavirus disease 2019 (COVID-19) emerged in Wuhan, China at the end of 2019 and was declared a global pandemic by the World Health Organisation (WHO) on 12th March 2020.¹ India reported its first COVID-19 case on 30 January 2020, in Kasaragod town in the state of Kerala.²

It primarily spreads to humans through near contact and contaminated surfaces, often via small droplets produced by the infected person through coughing, sneezing or talking.³

To control the disease, the World Health Organization recommended that countries should strengthen case detection, track and monitor contacts, practice isolation from close contacts and isolate cases.⁴

Among the preventive measures the best method with long lasting effect would be physical distancing which is a non-pharmaceutical intervention. Physical distancing reduces chances of human transmission of the virus.⁵

Physical distancing, previously called as "social distancing," means keeping a safe space of at least six feet (about two arms' length) between yourself and people other than your household.³ The

*Corresponding Author

Dr. Suhitha R Das

Tutor, Department of Community Medicine,
ESIC-MC & PGIMSR, Rajajinagar, Bengaluru,
Karnataka, India – 560010.

Mobile No: 8867330494

E-mail: drsuhiharish@gmail.com.

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measures include school and workplace closures, cancellation of public events, restrictions on mass gatherings, public transport closures, stay-at-home orders, restrictions on internal movements, and international travel controls.⁶ Governments had been issuing advisory to the people to maintain social distancing to stop the community spread. However, despite several appeals, the social distancing strategy has not been considered seriously and there is a gap in the practice.⁷

Several studies have shown that the KAP level in individuals is associated with effective prevention and management of illness and promotion of one's own health.⁸⁻¹¹ On the contrary, deficiencies in KAP are linked to poor health and maladaptive disease preventive behaviour.^{8,10,11} Hence we conducted this study to determine the (KAP) of physical distancing, which is one of the major preventive strategies to control the spread of COVID 19 among general public.

Materials and methods

A cross sectional study design was adapted to study the knowledge, attitude and practice of physical distancing. Snowball sampling technique was employed to collect the required sample. Adults (≥ 18 years) were included in the study.

As there are no previous studies placing physical distancing as the principal question, we have considered 50% as the presence of knowledge which provides maximum sample size. To estimate a sample size of 50% prevalence of knowledge about physical distancing at 95% confidence levels with 5 % precision, 384 subjects have to be studied. Considering a non-response rate of 20%, a final sample size of 464 was arrived. However we received responses from 647 participants who were included for analysis.

Subjects who provided informed consent, who could understand and write English, who could use technology like WhatsApp or emails were included in the study. Subjects who declined to respond even after three reminders in 45 days were not included in the study.

An online survey questionnaire was prepared using Google forms. Questionnaire was pre tested for its content and understanding . Criteria validation of the questionnaire was done by pilot testing on 20 individuals. Suitable corrections were made. Chronbachs alpha was calculated for individual questions, the ones with value >0.77 was used in the final questionnaire. This Pre- designed, pre tested and semi structured questionnaire included five sections, namely demographic aspects (seven questions), knowledge (nine questions), attitude (eight questions), practices (eight questions) about

physical distancing and the reasons for not practicing physical distancing during COVID-19 pandemic.

An online survey was posted to friends, relatives, students, colleagues via social media platforms (Facebook and WhatsApp) and through Email and requested participants to share further to facilitate snowball sampling. Study subjects were educated about the purpose, risks, and benefits of the survey. They were informed that they could withdraw from the study for any reason and at any time, followed by which informed electronic consent was taken. The data collection period was two months, September and October 2020.

Data was analysed in Epi info software version 7.2.4, which is a free data management analysis and visualization tool, designed specifically for public health community. This is developed and used through CDC. Descriptive statistics were conducted for the socio demographic variables, COVID-19 status and knowledge attitude and practices of physical distancing. Difference between two proportions was assessed by two tailed chi square test with a significant level of $p < 0.05$.

Results

Table 1, shows the Socio demographic characters of the study population. In the current study, 418 (64.60%) belonged to age category 18-24 years. A total of 357(55.18%) participants were females. 304(46.98) study subjects fell into the category of Professional and Graduates. A larger number of 400 (61.82%) subjects were not working/unemployed/students which comply with the majority of unmarried participants (71.56%).

There were 118(18.2%) primary contacts of COVID-19. 175(27%) members were tested for COVID -19 out of which 33(5.1%) tested positive.

In the study, 12 subjects out of 647 said that they had not heard of physical distancing. The 12 members are excluded from the further analysis of knowledge, attitude and practice of physical distancing analysis.

Table 2, depicts the responses of participants on knowledge about physical distancing during COVID-19. To assess the knowledge, questions regarding importance of physical distancing, distance to be maintained, places and situations to be followed were used. The questions testing the knowledge were divided into two categories, correct knowledge and incorrect knowledge based on the right answers selected by participants. Out of the nine questions, "Physical distancing prevents the opportunities of coming in contact with contaminated surfaces" garnered more incorrect response. Average correct

knowledge about COVID-19 was 93.2% for all the nine questions. When study participants were asked to self-rate their knowledge on COVID, 208 (32.75%) reported excellent knowledge on COVID, 297 (46.77%) good, 126 (19.84%) fair and only 3(0.47%) poor and 1(0.15%) as very poor.

Average correct attitude towards physical distancing was reported by 89.99% of participants. More than 85%of the subjects showed positive attitude towards practice questions, when they have symptoms, physical distancing to be maintained in public places, work places and households.

Table 3, shows the responses of participants on practice of physical distancing in COVID-19. Questions regarding practice of physical distancing, places and situations to be followed were used to assess the practice. Questions testing the practice were classified as two categories, correct practice and incorrect practice based on the right answers selected by participants. Out of the eight questions, “physical distancing followed in household” scored only 18.26% correct answer. Of all the eight questions, average correct practice of physical distancing in these instances was 56.09%, which is prominently less compared to correct knowledge percentage.

Table 4, depicts the knowledge practice gap in the study population. It shows a vast knowledge practice in all the four questions. Even though the theoretical knowledge of the participants seems to be adequate, the practicality of the same is questionable. This clearly depicts the gap between the knowledge and practice which can be bridged by correct attitude.

Table 5, shows the association of select characteristics with adequate knowledge and practice. Seventy five per cent of correct knowledge and correct practice is considered adequate knowledge and practice. Therefore score of ≥ 7 for knowledge, ≥ 6 for practice was considered as adequate for individuals. Subjects whose age $<$ 25 years, females and unmarried had significantly better adequate knowledge compared to their counterparts. Subjects whose age $<$ 25 years, education up to a graduate and unmarried had significantly better adequate practice compared to their counterparts.

Table 6, depicts the reasons for following and not following physical distancing. The top five reasons to follow were it’s a major preventive measure, it will limit the spread of disease, protection of both oneself and others, family members safety and its prominence. Out of the ten reasons forgetting,

questioning practicality, unavoidable socialising and meeting people, presuming people around are healthy were the top five reasons stated for not practising physical distancing.

Table 1: Socio demographic characteristics of participants

Characteristics		N(%)
Age (years)	18-24	418(64.60)
	25-44	159(24.57)
	45-59	62(9.58)
	\geq 60	8(1.23)
Gender	Male	290(44.82)
	Female	357(55.18)
Highest education attained	High school	15(2.31)
	PU and Diploma	328(50.7)
	Graduate	172(26.58)
	Professional	132(20.40)
Occupation	Administrative	19(2.93)
	Clerical	52(8.03)
	Engineer	45(6.95)
	Doctor	59(9.11)
	Teacher	45(6.95)
	Business	27(4.17)
	Not working	400(61.82)
Marital status	Married	181(27.97)
	Separated	3(0.46)
	Unmarried	463(71.56)
Religion	Hindu	563(87.01)
	Muslim	40(6.18)
	Christian	23(3.55)
	Others	21(3.24)

Table 2: Knowledge regarding physical distancing (N=635)

Questions	Agree	Disagree	Neutral
Physical distancing is crucial during COVID 19 prevention	610(96.06)#	14(2.20)	11(1.79)
Minimum of 6 feet or 2 arms distance is needed to maintain physical distancing in COVID 19 prevention	605(95.27)#	5(0.78)	25(3.93)
Only Symptomatic people should compulsorily follow physical distancing	49(7.72)	557(87.7)#	29(4.56)
Physical distancing is necessary only for people with chronic illness	48(7.55)	559(88.02)#	28(4.40)
Physical distancing NEED NOT be implemented in public places	15(2.67)	605(95.3)#	13(2.04)
Physical distancing should be mandatorily implemented in work places	559(94.32)#	14(2.20)	22(3.46)
Physical distancing is NOT necessary with family members	125(19.68)	279(43.93)#	231(36.37)
Physical distancing prevents the opportunities of coming in contact with contaminated surfaces	438(68.97)	105(16.53)#	92(14.48)
Physical distancing protects persons from droplet infection	572(90.07)#	22(3.46)	41(6.45)

#Correct responses

Table 3: Practice regarding physical distancing

Questions	Always	Never	Sometimes
I Practice physical distancing as it is an essential part of my daily routine	395(62.04)#	6(0.94)	235(37.00)
I Practice physical distancing only when I have symptoms	215(33.85)	344(54.27)#	76(11.96)
I Practice physical distancing only when others have symptoms	217(34.17)	338(53.22)#	80(12.59)
I am reluctant or hesitant to ask others to practice physical distancing	64(10.07)	256(40.31)#	315(49.60)
I Practice physical distancing in public places	539(84.87)#	2(0.31)	94(14.80)
I Practice physical distancing in work places	478(75.26)#	9(1.41)	148(23.30)
I Practice physical distancing in house hold	116(18.26)#	190(29.91)	329(51.81)
I Practice physical distancing during coffee or lunch break	384(60.46)#	22(3.44)	229(36.06)

#Correct responses

Table 4: Knowledge practice gap in the study population

Physical distancing	Knowledge(%)	Practice (%)	Gap(%)
While suffering from symptoms	87.7	54.2	33.5
In public places	95.3	84.9	10.4
In work places	94.3	75.3	19.0
With family members	43.9	18.2	25.6
Overall	80.3	58.1	22.2

Table 5: Association of select characteristics with adequate knowledge and practice

Characteristics		Adequate knowledge N (%)	c ² value	df	p value	Adequate Practice N (%)	c ² value	df	p value
Age	<25 years	324(78.83)*	10.034	1	<0.05	284(69.09)*	13.468	1	<0.05
	≥ 25 years	151(67.41)				122(54.46)			
Gender	Male	198(69.96)*	6.341	1	<0.05	186(65.72)	0.707	1	0.400
	Female	277(78.69)				220(62.5)			
Education	Less than graduate	258(77.47)	2.656	1	0.103	229(68.76)*	7.089	1	<0.05
	Graduate	217(71.85)				177(58.60)			
Occupation	Not working	295(74.87)	0.002	1	0.958	253(64.21)	0.034	1	0.852
	Working	180(74.68)				153(63.48)			
Marital status	Married	119(67.23)*	7.464	1	<0.05	95(53.67)*	11.213	1	<0.05
	Unmarried	356(77.72)				311(67.90)			
Primary contact	No	385(74.46)	0.165	1	0.683	335(64.79)	0.892	1	0.344
	Yes	90(76.27)				71(60.16)			
COVID Test performed	No	354(76.62)	2.980	1	0.084	298(64.50)	0.234	1	0.627
	Yes	121(69.94)				108(62.42)			
COVID Test results	Negative	98(70.00)	0.001	1	0.97	92(65.71)	3.38	1	0.066
	Positive	23(69.69)				16(48.48)			

* P <0.05 (statistically significant difference)

Table 6 : Reasons for Practicing and not practicing physical distancing (N=635)

Reasons for practicing (n= 635)	N (%)
It is one of the major preventive measures of COVID-19	507 (79.8)
It will limit the spread of COVID-19	444(69.9)
It will protect not only me, but others also	431(67.9)
Family members will be safe	356(56.1)
Better to be safe than sorry	151(23.8)
To avoid penalty laid down by the Government	53 (8.3)
As my friends and family members insist, I follow physical distancing	12 (1.9)
I am worried what others might think	9 (1.4)
Reasons for not practicing	N (%)
I forget at times	302 (47.6)
Not practical to follow	171 (26.9)
Inevitable socializing is important (tea/coffee/food)	154 (24.3)
Cannot avoid as meeting is a part of my job	139 (21.9)
I know everyone at my workplace, so it is safe	69 (10.9)
Need not worry about family members	66 (10.4)
PPE usage and disinfection is more important than physical distancing	58 (9.1)
I will not be affected as I am healthy and have good immunity	20 (3.1)
I cannot agree that it protects against the disease	19 (3)
Falling sick depends on my fate/karma/destiny	16 (2.5)

Discussion

The ongoing COVID 19 pandemic has taken the toll of lacs of lives of people & millions of people are getting infected daily throughout the world. The frequency of COVID-19 in our study was 5.63% which is in compliance with our national statistics of 5.5%.¹² With the COVID-19 vaccine in a nascent stage, preventive measures play an major role in control of the disease spread and infection reduction. This mandates the importance of adherence of public to preventive measures, which is determined by their knowledge, attitudes, and practices. Physical distancing is one of the major preventive strategies to control the spread of COVID 19 among general public.

We observed that knowledge scores were high among the participants of the study. High rate of correct answers in the knowledge questionnaire may be attributed to the high educational level of the participants (98% of the participants have completed metric level) and the severity of the public health program. This high knowledge may also be due to the conduction of study amidst COVID-19 outbreak. During this time, individuals and their family members may have obtained knowledge about COVID-19 and its transmission through mass media and social platforms. The significant association observed between educational status, age and knowledge, supports it. Furthermore, previous study revealed heterogeneous results on the knowledge, attitudes, and practices of health care workers towards preventive measures of COVID 19.¹³

When performing KAP surveys in other infectious diseases the knowledge score was significantly associated with attitudes and practices scores. Participants with a high level of knowledge exhibited more positive attitudes and perceptions towards preventive measures and were engaged in more prevention practices. Others have previously reported similar associations. This did not follow the behavioural change model, which explained that good knowledge would contribute to a positive attitude, which in turn increases the appropriate practice.¹⁴ Better knowledge may result in positive perceptions and attitudes and therefore in good practices, thus aiding in the prevention and management of infectious diseases.

A lot of studies have been done on KAP of physical distancing, however in depth analysis of physical distancing KAP is presented in our study. In a study by Maharshi et al, the physical distancing practice was found to be 92.2% which was not in comparison with our study which was 62.04%. The difference can be because of the in depth questioning that has been asked in our study the questions were elaborated.¹⁵ In a study conducted at Philippines report 32.4% social distancing as a preventive

measure of COVID 19 among general population.¹⁶ This low levels of practice may be because the study took place in the initial stages pandemic and lower political commitment in that country.

Although the modes of SARS-CoV-2 spread have not been fully understood, studies have proven that the disease is primarily transmitted when in close contact of a carrier or a patient via respiratory droplets produced with coughing or sneezing. Physical distancing is recommended for the general population in order to prevent disease transmission.¹⁷ One of the most disturbing findings in our study was that, though the theoretical knowledge of the participants seems to be adequate, the practicality of the same is questionable especially following physical distancing from symptomatic persons.

Although 87.7% of the participants perceive that irrespective of the health status physical distancing should be maintained in order to prevent the disease transmission, only 54.2% of participants are strictly practicing that and the rest of 33.5% participants wait for the symptoms to manifest to follow physical distancing. Moreover, 25.6% of the participants are reluctant to follow physical distancing in household despite being known that it should be followed even in the household. 10% of the participants are not maintaining physical distancing in public places and 19% of the participants are failing to follow physical distancing norms in work places. It was noted that 51.2% participants are saying that its not practical to follow physical distancing always and 48% of the participants are not motivated enough to avoid social gatherings.

Social distancing is a natural response to the threat of infection from other people and that has been seen for long during severe epidemics^{18, 19} but can have notable socioeconomic impact.²⁰ Given the low rank of practices towards physical distancing in a country like India with billions of population, the immediate organization of a campaign aimed at general population that addresses physical distancing seems mandatory.

This study has helped in identifying the knowledge practice gaps and behavioural patterns which will further help to implement effective interventions. The study has provided a deep identification and understanding of variables that may possibly influence the perspectives and practices towards physical distancing in COVID-19. Practical solutions, innovations, behaviour change communication and clear policies need to be laid down to bridge this gap and efficiently prevent COVID -19. We recommend further studies including older age group, illiterates and people living in rural area to get a clear picture of physical distancing in entire country.

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