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A Web-Based Survey of COVID-19 Pandemic and its Impact on Physical, Recreational, Mental Health and Socio-Economic Factors of General Population of India

Vandana Esht[1]*, Shana Quraishi[1], Harshita Rajan Ghosalkar[1], Sorabh Sharma[2] and Gerish Atri[3]

[1]Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar Deemed to be University, Mullana, Ambala District, Haryana, India.

[2]Department of Physiotherapy, Punjabi University, Patiala, India.

[3]Department of Community Medicine, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Science Rohtak, Haryana, India.

ABSTRACT

Long duration of quarantine has shown to significantly influence lifestyles of the entire population. The study was taken to determine the impact of the COVID-19 Pandemic era on physical, mental, recreational and socio-economic factors of the general population of India. Four hundred and forty healthy volunteers were enrolled from different zones of the country using chain-referral sampling in a web-based E-survey on Google form platforms. A structured and validated questionnaire consisting of participants' demographic details, physical, mental, recreational and socio-economic changes during the COVID-19 Pandemic was sent via social networking sites (WhatsApp, Facebook, and Messenger). The association between demographic characteristics and self-reported physical, mental, recreational and socio-economic changes by participants during COVID-19 crisis was analyzed using chi square and spearman rho test. The response rate to survey was (sent to 500 individuals; 440 reverted back) 88%. The demographic characteristics were significantly associated with physical, mental, recreational and socioeconomic changes observed during the ongoing COVID-19 crisis among the general population ($p < 0.05$). Strict compliance was observed among (n=239) 54.31% participants who were staying indoors all the time during the Lockdown phase. (n= 238) 54.18% reported they were regularly performing moderate-intensity activities (50%-70% Max. HR), (n=282) 64% were indulging in recreational activities and (n=322) 73.18% participants were doing regular household chores. (n=269) 61.13% self-reported being happy. Financial loss was perceived by (n=230) 52.27% of participants. Amid all this external state of crisis significantly large proportion of participants were observed being in a happy relaxed state of mind and also utilized this time to gain health benefits and pursue their hobbies. Overall Participants self-reported an enhanced sense of wellbeing.

KEY WORDS: HEALTH, PANDEMIC, POPULATION, PSYCHOLOGICAL, SOCIAL.

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INTRODUCTION

Within a span of a few months a situation of disconsolation and confusion has been created by a rapidly evolving novel form of coronavirus (COVID-19) (Gupta et al. 2020). In many countries and territories, the situation is being compared to "the end of the world", raising a concern about the scarcity of basic facilities and health services for all human races. The WHO declared it as a pandemic

and also a major disaster source of the 21th century (Amawi et al. 2020; Preskorn, 2020).

Social distancing is widely practiced all over the world to prevent the transmission of this life-threatening viral infection. Being the second most populous country with insufficient medical resources and enormous demands, India is at a high risk of facing irremediable damage. Keeping in frame the rising critical situation, on 24th March, 2020, the Prime Minister of India announced the 21 days lockdown as reported in Hindustan times, March 23, 2020.The duration has further been extended thrice; first till 3rd May then 17th May 2020 and finally till 31st May 2020 respectively. Unlock phase started from 1st June 2020 and has seen lesser shift in current lifestyle of most of the population in country. Quarantine, Isolation and social distancing are being practiced either voluntarily or mandatory to check further spread of COVID-19 (Khanna et al. 2020). Previous outbreaks witnessing quarantine imposition reported of emotional disturbances and generated substantial anger (Brooks et al. 2020).

Also being homebound increases the rate of sedentary lifestyle. However, flipping the coins on the other side, a positive approach can enhance mental and general wellbeing of the Individuals by utilizing this time with family and practicing recreational activities. Both physical and mental health is considered vital for overall wellbeing of an individual in long run. Global humanitarian crisis of the COVID-19 pandemic, mental health issues have been reported from all over the world (Roy et al. 2020). During the early stages of the pandemic in India, this study was focused mainly to assess its physical, mental, recreational and socio-economic factors. Lockdown and concern about the disease's future effects and transmission had a huge impact on people's lives. Because of the high death tolls and global spread of COVID -19, people are becoming increasingly worried. This could assist policymakers in designing systematic interventions. The whole situation impacts physical, psychological, social and economic domains of society and may have a long-lasting impact on public health (Varshney et al. 2020).

The objective of our study was to determine the impact of ongoing COVID-19 Pandemic on physical, mental, recreational and socio-economic factors of the general population of India and will also be helpful to frame better strategies to cope with current situation (Varshney et al. 2020). This study can have potential limitations. A post pandemic survey also needs to be done which can later on explain the impact on physical, recreation, mental health and socio-economic factors once the pandemic is over.

MATERIAL AND METHODS

The study protocol was approved by the Institutional Ethics Committee (IEC) of Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala district, Haryana (IEC-114F) and is in accordance with the National ethical guidelines for Biomedical and Health Research involving human subjects-ICMR guidelines (Revised 2017) and guidelines of Helsinki declaration 2013. Participation and return of completed survey were implied as Consent by the participant. At 95 % of Confidence level, the Minimum required Sample Size for this online Cross-sectional Survey was estimated to be 384 with 5% margin of error (Sakpal, 2010).

Anticipating 10 % of online forms being incomplete, the target sample size was set at 427. However a total of 440 complete responses were obtained for the present study and were used for statistical analysis. The individual data was collected from all the participants in the month of April 2020 and May 2020 using chain referral sampling method. The General population belonging to all the age groups and gender; who were able to understand English language and had access to social networking sites was included from various regions of the country (Pourhoseingholi et al. 2013).

A self-structured and validated questionnaire was used to collect comprehensive information about impact of ongoing COVID-19 lockdown on the general population of India. It consists of 30 questions which included Demographic details, daily activities routine modification if any; amid lockdown period, perceived stress or anxiety levels, Physical and sedentary activity during lockdown, Diet and weight fluctuations, Mood swings, social and family interaction, recreational activities and perception about the financial loss during lockdown period. Objective questions were formulated to access all the items in the questionnaire. The questionnaire was validated using face validity and pilot testing of Questionnaire on 50 Individuals. The likert questions included in the questionnaire had test value >0.6 using Cronbach's Alpha (CA) indicating a higher internal consistency (Pourhoseingholi et al. 2013).

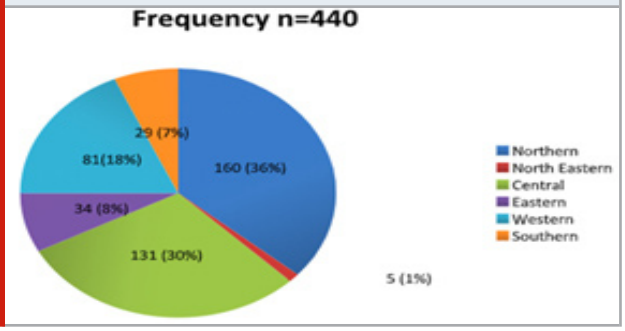
The questionnaire was included in the Google form Link: https://docs.google.com/forms/d/e/1FAIpQLSdsxRd4UEjvJDABNSrCF7OYP_FyaRC_cn-_M_NjtBElvdajrg/viewform and was circulated on various social media sites (WhatsApp, Facebook, and Messenger). The statistical software, SPSS version 20 was used at 95% confidence interval. Response rate of survey was calculated. Categorical data was represented with total number of participants and frequency as percentages n (%). Chi square and Spearman Rho tests were used to find difference and associations between demographic variables and participants' responses at 0.05 levels of significance.

RESULTS AND DISCUSSION

The survey link was forwarded to 500 individuals and complete forms were obtained from 440 participants. Majority of participants belonged to Northern, Western and Central zones of country (Figure 1) and were in the age group of 20-40 years (n= 383; 87.05%); majority were residing in the cities (n= 342; 77.3%). Henceforth the results of our study are ought to be generalized to

above mentioned characteristics of participants. The participants' response to questionnaire items in terms of number of sample (n) and frequency in brackets (%) is tabulated in Table 1. In Table 2, the association between demographic characteristics and participant response to physical, mental, recreational and socio-economical changes during the Pandemic has been represented (Singh and Misra 2009).

Figure 1: Frequency and percentage (in brackets) n (%) of country (India) zone wise distribution of participants (n=440)



COVID-19 is the third human epidemic that has occurred in the last two decades, triggering clinical manifestations of infectious, digestive and systemic disorders, manifested mainly by pneumonia. Amid lack of specific antiviral drugs or vaccines; quarantine is the only best preventive measure. India had been in a lockdown phase from 24th of March to 31st May 2020. Unlock phase has also seen lesser shift in current lifestyle of most of the population in country. In this cross-sectional survey, we provided an insight to the ongoing COVID-19 Pandemic on physical, mental, recreational and socio-economic dimensions of the general population of India. The response rate to survey was calculated to be 88% (Singh and Misra 2009).

Table 1. Frequency and percentages (in brackets) of participants' response n (%) to physical, mental, recreational and socio-economic changes during COVID-19 lockdown phase (n= 440)

S. No.	VARIABLE		Frequency (Percentage)
1.	Physical and Sedentary Activities during the COVID-19 lockdown phase		
a.	Stepping out of House	Not at all	239 (54.31)
		Sometimes	157 (35.68)
		Often	19 (4.32)
		Most of the time	17 (3.86)
		all the time	8 (1.82)
b.	Daily Physical activity	Decreased	259 (58.86)
		Increased	110 (25.0)
		Unchanged	71 (16.14)
c.	Doing any Household chores	Yes	322 (73.18)
		No	118 (26.82)
d.	Moderate intensity Exercises regularly (50%-70% Max. HR)	Yes	238 (54.09)
		No	202 (45.91)
e.	Meditation regularly	Yes	126 (28.64)
		No	314 (71.36)
f.	Total duration of time spent on physical activity in a day	NIL	67 (15.23)
		Up to 30 minutes	132 (30.0)
		30-60 minutes	126 (28.64)
		>60 minutes	115 (26.14)
g.	Daily Sleep duration	Decreased	67 (15.23)
		Increased	216 (49.09)
		Unchanged	157 (35.68)
h.	Time spent on Mobile, Laptop, Television, other gadgets per day	Decreased	20 (4.54)
		Increased	346 (78.64)
		Unchanged	74 (16.82)
i.	Workload in a day	Decreased	179 (40.68)
		Increased	143 (32.5)
		Unchanged	118 (26.82)

Table 1 Continue

j.	Routine Appetite	Decreased Increased Unchanged	78 (17.73) 186 (42.27) 176 (40.0)
k.	Body weight	Decreased Increased Unchanged	54 (12.27) 151 (34.32) 235 (53.41)
l.	Changes in body weight	0 <2 kg 2-4 kg >4 kg	1 (0.23) 239 (54.32) 189 (42.95) 11 (2.5)
2.	Self-reported mental Health of participants during the COVID-19 lockdown phase		
m.	Present State of mind Happy	Sad 269 (61.13)	171 (38.86)
n.	Do you Feel	Lazy Active	269 (61.14) 171 (38.86)
o.	Mood nowadays	Relaxed Stressed	294 (66.82) 146 (33.18)
p.	Worry or tension about daily routine	Not at all Sometimes Often Most of the time All the time	97 (22.05) 206 (46.82) 52 (11.82) 60 (13.64) 25 (5.68)
q.	Worry or tension about being infected with COVID-19	Not at all Sometimes Often Most of the time all the time	93 (21.14) 194 (44.09) 46 (10.45) 71 (16.14) 36 (8.18)
r.	Worry or tension about your loved ones being infected with COVID-19	Not at all Sometimes Often Most of the time All the time	40 (9.09) 153 (34.77) 66 (15.0) 101 (22.95) 80 (18.18)
3.	Recreational activities during the COVID-19 lockdown phase		
s.	Pursuing Hobbies, recreational activities	Yes No	282 (64) 158 (35.9)
4.	Socio-economic factors during the COVID-19 lockdown phase		
t.	Enjoying family time	Yes No	381 (86.59) 59 (13.4)
u.	Communication and relation with family members has improved	Yes No	371 (84.31) 69 (15.68)
v.	Feeling about the lockdown	Necessary Unnecessary	421 (95.68) 19 (4.32)
w.	Should Government increase the lockdown Period	Yes No	424 (96.36) 16 (3.64)
x.	Financial loss	Yes No	230 (52.27) 210 (47.72)

COVID-19 Pandemic Impact on Physical health: Previous Studies have proved that confinement, lack of daily routine and decreased social and physical interaction with others have often resulted in boredom, dissatisfaction and a sense of alienation from the rest of the world that was distressing to the participants (Singh and Misra 2009). However, in our study (n= 171) 38.86% of total participants felt active during these days. (n=238) 54.18% reported they were regularly doing moderate intensity exercises at 50%- 70% of maximum heart

rate and 312 (73.18%) participants were doing various household chores regularly. Only (n=11) 2.5 % of total participants felt an increase beyond 4 kg in their body weight (Table 1).

In contrast to age old beliefs a good percentage of males 136 (66.4%) agreed to doing various household chores. A higher percentage of females reported increase in Daily Physical activity and time spent on doing various household chores as well as other physical activities (Table 2). (n=126) 28.64 % of total participants were having daily physical activity between 30-60 minutes equivalent to 100-200 MET minutes/day and (n= 115) 26 (Singh and Misra 2009).

Table 2. An association between demographic characteristics and physical, mental, recreational and socio-economic changes in participants during COVID-19 lockdown phase (n=440).

Independent variable	Category of Independent variable	Dependent Variables
Age (years)	1. <20 years 25 (5.7%) 2. 20-40 years 383 (87%) 3. 40-60 years 25 (5.7%) 4. >60 years 7 (1.6%)	1. Stepping out of House Not at all / Sometimes / Often / Most of the time / All the time 1. 19 (76) / 05 (20) / 0(0) / 01(4) / 0 (0) 2. 206 (53.8) / 140 (36.6) / 19(4.3) / 13 (3.4) / 05 (1.3) 3. 12 (48) / 08 (32) / 0(0) / 03(12) / 02(8) 4. 02 (28.6) / 04(57.1) / 0(0) / 0(0) / 01(14.3) Spearman Rho p= 0.008, Correlation Coefficient= .12 2. Present State of mind Sad / Happy 1. 14 (56) / 11 (44) 2. 149 (38.9) / 234 (61.1) 3. 6 (24) / 19 (76) 4. 2 (28.6) / 5 (71.4) χ^2 value= 4.83, df= 1, p-value= .028
Gender	1. Male 208 (47.27%) 2. Female 232 (52.73%)	1. Stepping out of House Not at all / Sometimes / Often / Most of the time / All the time 1. 81 (38.9) / 101 (48.6) / 8 (3.8) / 13 (6.2) / 5 (2.4) 2. 158 (68.1) / 56 (24.1) / 11 (4.7) / 4 (1.7) / 3(1.3) χ^2 value= 23.5, df= 1, p-value= <.0001 3. Daily Physical activity Decreased / Increased / Unchanged 1. 137 (66.9) / 49 (23.6) / 22 (10.6) 2. 122 (52.6) / 61 (26.3) / 49(21.1) χ^2 value= 10.94, df= 1, p-value= .001 4. Doing any Household chores Yes / No 1. 136 (66.4) / 70 (34.6) 2. 186 (80.2) / 46(19.8) χ^2 value= 12.22, df= 1, p-value= < .0001 5. Total duration (time spent) of Household chores/ Exercises/ Meditation/day

Table 2 Continue

		NIL	Up to 30 minutes	30-60 minutes	>60 minutes
		1. 35(16.8)	73(35.1)	61 (29.3)	39(18.8)
		2. 32(13.8)	59(25.4)	65(28)	76(32.8)
		χ^2 value= 9.20, df= 1, p-value= .002			
		6. Pursuing Hobbies, recreational activities			
		Yes		No	
		1. 121(58.5)		86(41.5)	
		2. 160(69)		72(31)	
		χ^2 value= 5.25, df= 1, p-value= .022			
Education	1. Up to 10th 7 (1.59%) 2. Up to 12th 20 (4.55) 3. Graduation 229 (52.04) 4. Post-Graduation 179 (40.68%) 5. Ph.D. 5 (1.14%)	1. Do you Feel			
		Active		Lazy	
		1. 5(71.4)		2(28.57)	
		2. 7 (35)		13(65)	
		3. 83(36)		146(63.8)	
		4. 73(40.8)		106(59.2)	
		5. 3(60)		2(40)	
		χ^2 value= 11.14, df= 1, p-value= .049			
		2. Doing any Household chores			
		Yes		No	
		1. 1(14.29)		6(85.7)	
		2. 10(50)		10(50)	
		3. 166(72.5)		63(27.5)	
		4. 140(78.2)		39(21.8)	
		5. 5(100)		0(0)	
		χ^2 value= 16.90, df= 1, p-value= <.0001			
		3. Communication and relation with family members has improved			
		Yes		No	
		1. 5(71.4)		2(28.6)	
		2. 16 (80)		4(20)	
		3. 183(79.9)		46(20.1)	
		4. 162(90.5)		17(9.5)	
		5. 5(100)		0(0)	
		χ^2 value= 10.69, df= 1, p-value= .001			
		1. Stepping out of House			
		Not at all	Sometimes	Often	Most of the time	All the time

Table 2 Continue

Occupation	1. Student 182 (41.36%) 2. Unemployed 36 (8.18%) 3. Employed 214 (48.63%) 4. Retired 8 (1.82%) 9	1. 116(63.7) 2. 18(50) 3. 101(47.2) 4. 4(50)	58(31.9) 15(41.7) 80(37.4) 4(50)	3(1.6) 0(0) 16(7.5) 0(0)	3(1.6) 2(5.6) 12(5.6) 0(0)	2(1.1) 1(2.8) 5(2.3) 0(0)
		Spearman Rho p= 0.000, Correlation Coefficient= .174				
		2. State of Mind				
		Sad	Happy			
		1. 84(46.2) 2. 13(36.1) 3. 71(33.2) 4. 3(37.5)	98(53.8) 23(63.9) 143(66.8) 5(62.5)			
		χ^2 value= 6.54, df= 1, p-value= .011				
		1. Physical Activity				
		Decreased	Increased	Unchanged		
	1. Village 36 (8.18%) 2. Town	1. 16 (44.4) 2. 30 (48.4) 3. 213 (62.3)	15 (41.7) 20 (32.3) 75 (21.9)	5 (13.9) 12 (19.4) 54 (15.8)		
		Spearman Rho p= 0.021, Correlation Coefficient= .110				
Residence	62 (14.09%) 3. City 342 (77.73%)	2. Doing any Household chores				
		Yes	No			
		1. 23 (63.9) 2. 37 (59.7) 3. 262 (76.6)	13(36.1) 25 (40.3) 80 (23.4)			
		χ^2 value= 6.98, df= 1, p-value= .008				

* Frequency of participants and Percentages (in brackets) are represented as n (%).

14% were spending>60 minutes in a day equivalent to >200 MET minutes/day of energy expenditure hence fulfilling the guidelines of American Heart association for moderate intensity activity to maintain cardiovascular health as well as adult Physical activity per day recommendations (Fuzeki and Banzer 2018). Thus, it can be assumed that the majority of participants utilized COVID-19 lockdown time to gain health benefits (Ruegseggar and Booth 2018). Education was also found to be positively associated with doing household chores (p value < .0001) (Table 2). A high percentage of city population 262 (76.6%) denoted an increase in doing household chores (p value .021) (Table 2). As the city households rely more on maids for their daily household chores, this lockdown phase has caused them to be more self-dependent on these aspects of life (Fuzeki and Banzer 2018).

COVID-19 Pandemic Impact on Mental Health: Studies have recommended that open wellbeing crises can have numerous mental impacts on the overall population, which can be communicated as anxiety, fear, stress, and apprehension. The developing mental wellbeing issues related to this world-wide occasion may advance into long-lasting wellbeing issues, segregation and stigma (Roy et al, 2020). But surprisingly, the results from our study reported a different scenario where (n= 294) 66.8% of study sample reported that their mood is relaxed now days and (n= 269) 61.13 % stated of being in a Happy State of Mind (Table 1). A Positive association between Age and State of Mind of Participants revealed that as the age of participants increased, they were reportedly in a Happier State of Mind (p Value 0.28). The percentage was also found highest among the employed section of Participants (n=143; 66.8%) (p value .011); Table 2.

The results indicated that the lockdown period provided a break from routine life and the aged employed section of society found this time as relaxing and henceforth were in a happy State of Mind. Also, physical and mental health has an intriguing direct relationship. Duration of quarantine, fear of infection, frustration and boredom are the major stressors during quarantine (Gupta et al, 2005). It is worth noting that, due to lockdown, 206 (46.82%) of the study sample reported sometimes feeling worried or tensed about their everyday routine while

only 25 (5.68%) were worried all the time. Along with it 36 (8.18%) were having fear all the time of getting themselves infected with the coronavirus.

While comparatively a relatively higher percentage of 80 (18.18%) participants feared of their loved ones being infected (Table 1). The tendency to feel more concerned towards near ones had been reported earlier as well among Indians in the week, May 11 2020. It can be exposed to more barriers in accessing timely health services, because of discrimination associated with mental ill-health in health-care settings mental health disorder co morbidities to COVID-19 will make the treatment potentially less effective and more challenging. People with mental health conditions could be more substantially influenced by the emotional responses brought on by the COVID-19 pandemic, resulting in relapses or worsening of an already existing mental health condition because of high susceptibility to stress compared with the general population (Talevi et al. 2020).

COVID-19 Pandemic Impact on Recreational dimensions: This lockdown period has been taken as an opportunity by people to indulge themselves in extracurricular activities like painting, dancing, gardening etc. 282 (64%) participants were pursuing their hobbies or other recreational activities (Table 1). Pursuing one's hobbies has shown carryover effects later in the day. It helps one to engage time in something they enjoy doing and also improves both Physical and mental health (Takeda, 2015). Since a higher percentage of individuals were spending time on their hobbies and other recreational activities this could be one of the reasons that the majority of participants reported being relaxed and happy in our study (Takeda, 2015).

A Positive association was found between a higher percentage of female participants being engaged in their hobbies and other recreational activities (p value .001) (Table 2). Also, a remarkable increase in the usage of laptop, mobile and television has been reported by 78.8% of the study sample (n=346) (Table 1). Having a working versatile phone is presently a need, not a luxury, and those venturing off a long flight to enter isolate will likely welcome charger or connector more than anything else (Takeda, 2015).

COVID-19 Pandemic Impact on Socio- Economic dimensions: As shown in Table 1, 239 (54.31%) reported that they were never stepping out of their houses. Interestingly, (n=381) 86.6% of study samples reported that they are enjoying their family time at home and 84.3% of study samples (n=371) felt that their communication and relation has been improved with their family members during the lockdown period, which is truly a positive impact on the general population. A positive association (p value.001) was found between higher the Education level more improved were communication and relation with family members of participants (Table 2).

Participants residing reported an improved relation and better communication with family members. This study reported 95.7% of sample size feels that this lockdown was a necessary step to be taken by the government. Also (n= 424) 96.4% of participants think that the government should increase the lockdown period if cases of coronavirus increase in India, which reflects that this whole lockdown period is being taken in a positive manner by the general population of India (Bashir et al. 2020).

At the cost of Economy, the Government of India prioritizes saving as many lives as possible. Increased workload per day had been reported by (n= 143) 32.5% of total participants. Still the Indian Economy is estimated to lose more than $4.5 billion each day during this lockdown phase (Businessline, 2020). So, it is quite obvious to have a fear of financial loss in the general population during the lockdown period. This is supported by our findings which suggest that 52.27% of study samples have faced a financial loss during the lockdown period. Age has found to be positively associated (p value 0.028) with financial loss reported by participants (Table 2). The study outcomes will provide practical guidance on strategies and will help to design a better protocol for lockdown period in future.

COVID-19 could be a wakeup call for greater global empathic solidarity, great logical education, trust between individuals and public authorities, and better international participation; all due to new crises and untrue divisions rolling on the skyline (Bashir et al. 2020). Recent COVID- 19 researches indicate that residential areas with lower mean income are likely to be at a greater danger of getting infected than areas with higher income as a research project about New York City has shown that poor residential areas have a much higher infection rate than other areas of the city. As a result, we can confidently assume that socioeconomic demographics are at the core of the COVID-19 pandemic, which explains why heavily populated areas have higher infection and mortality rates (Bashir et al. 2020).

CONCLUSION

This research survey sought to document a variety of quarantined people's perspectives in order to better understand their needs and concerns. Amid COVID-19 spread in country along with an active lifestyle, social distancing, basic precautionary measures, maintenance of personal hygiene and special attention to high-risk population is necessary to tackle this situation.

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