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Original Article

Healthcare Students' Perception of Social Distancing During the 2019 Coronavirus Pandemic: A Cross-Sectional Survey

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Abstract

Background: Since the implementation of social distancing practices during the global Coronavirus Disease 2019 (COVID-19) pandemic there have been a myriad of definitions for 'social distancing.' The objective of this study was to determine students' awareness of the various definitions of social distancing, how strictly they adhered to social distancing guidelines, and how they perceived the importance of various social distancing practices. **Methods:** This cross-sectional survey was distributed via email to students at Emory-affiliated graduate schools, including the Medical, Nursing, and Public Health Schools. **Results:** Of the 2,453 recipients of the survey, 415 students responded (16.9% response rate). The majority of respondents were medical students (n=225, 55.6%). Of the respondents, 357 noted that they "frequently" or "always" abided by social distancing. The most common definition of social distancing with which respondents were familiar was that of the Centers for Disease Control and Prevention (CDC) (n=276 of 369 responses, 74.8%). There were significant differences across groups when grouping students by the definition of social distancing that they were aware of, the social distancing guideline they most closely followed, and their school of attendance regarding the importance of specific social distancing examples ($p<0.05$ for each). **Conclusion:** A survey of healthcare students identified differences in the importance of social distancing practices based on the definition of social distancing that they were aware of. The results of this study underscore the importance of having unified definitions of public health messaging, which ultimately may impact disease spread.

Key Words: Coronavirus, SARS-CoV-2; COVID-19; Social Distancing; Public Health; Students; Medical (Source: MeSH-NLM).

Introduction

On March 11, 2020, the SARS-CoV-2 virus (COVID-19) was declared a pandemic by the World Health Organization (WHO).[1] The virus, with striking transmissibility through large respiratory particles, has caused substantial morbidity and mortality across the world. The exponential growth dynamics of the virus[2] and failed efforts to control the spread burden not only healthcare resources and services, but also economies, education, and the psychological wellbeing of the general population, particularly students.[3] With limited knowledge of how to treat and contain the virus throughout the first half of 2020, organizations like the Centers for Disease Control (CDC) in the United States, the WHO, and the White House in Washington, DC published guidelines for behavior, including 'social distancing'.[4]

While various media and health organizations have encouraged the practice of social distancing, there appears not to be one unified definition for what social distancing entails.[5-7] The CDC defined social distancing as, "remaining out of congregate settings, avoiding mass gatherings, and maintaining distance (approximately six feet or two meters) from others,"[7] the WHO instructed that people should maintain, "at least one meter (three feet) distance between yourself and anyone who is coughing or sneezing,"[6] while the White House made no mention of physical distancing, instead encouraging working from home and avoiding social gatherings in groups larger than ten people.[5] The myriad [illegible] on the potential spread of SARS-CoV-2.

In the United States, there are a variety of advanced educational programs for students who have an interest in the healthcare field. These programs include Doctor of Medicine (MD), Registered Nurse, Physician Assistant, Physical Therapist, and Master and Doctor of Public Health. Students in these fields undergo two to four years of education related to public health, science, physiology, biology and/or infectious diseases. Given their graduate level education on these topics, these students have an above average understanding of human diseases as well as advanced training in healthcare, which supposedly helps them to better understand and appreciate the nuances of the COVID-19 pandemic. As such, they are an important subgroup of interest to evaluate how the lack of a unified response to the pandemic has influenced behavior, as they hypothetically understand the risks of the disease more so than the general public. The objective of this study was to determine students in the healthcare field's awareness of the various definitions of social distancing, their adherence to social distancing guidelines, and their understanding of the importance of various social distancing activities.

Methods

Setting and Participants

An anonymous, internet-based survey was administered from April 17, 2020, to May 3, 2020, to 2,453 students in healthcare programs at Emory University, specifically students enrolled in on-campus education at [illegible] Emory University School of Medicine (n=839), the Woodruff School of Nursing (n=794), and the Rollins School of Public Health (n=776). All schools are located on Emory

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University's main campus in Atlanta, Georgia, USA. Within the School of Medicine, students from the medical doctorate, physician assistant, and physical therapy programs were invited to respond; the programs within the Schools of Medicine were selected by convenience sampling. All students in the nursing school and public health school were invited to respond. The study was exempted from review by the Emory University Institutional Review Board (STUDY00000394). Informed consent was obtained from all survey participants; research conformed to the principles embodied in the Declaration of Helsinki.[8]

Survey

The fifteen-question survey was created on SurveyMonkey™ through author collaboration and then distributed via email. The survey contained demographic questions as well as questions that assessed (1) students' awareness of multiple organization's definitions of social distancing, (2) which social distancing guidelines students followed most closely, (3) the frequency at which students were abiding by these guidelines, (4) the relative importance of recommendations and examples of social distancing practices, (5) whether the students experienced symptoms of COVID-19, and (6) whether students believed others were abiding by social distancing guidelines. The definitions of social distancing were from the Centers for Disease Control and Prevention (CDC) and the WHO; guidelines for social distancing practices were from the CDC, WHO, and President Trump's Coronavirus Guidelines for America.[5-7] Survey questions were multiple-choice questions, with the exception of one question that asked students to elaborate on whether they believed others were abiding by social distancing guidelines in a free text format. All multiple-choice questions offered a selection option of "prefer not to say."

All multiple-choice questions allowed for only one answer except for the question instructing respondents to mark which of the definitions of "social distancing" they were familiar with. This question allowed for multiple answer choices, including the CDC's definition, the WHO's definition, uncertain, none of the above, and prefer not to say. The survey question relating to the frequency of which students practiced social distancing was assessed on a Likert scale with options including always (100% of the time), frequently (75%-99% of the time), occasionally (50-74% of the time), rarely (25-49% of the time), very rarely (1-24% of the time), or never (0% of the time). The survey questions assessing the importance of 19 different actions or practices as they pertain to social distancing had participants rank each action or practice on a 5-point Likert scale: very important (5), important (4), moderately important (3), slightly important (2), and not important (1).

Analysis

Statistical analysis was conducted using SAS Version 9.4. Descriptive statistics for each variable were reported. For results in Table 1, frequencies and their percentages were shown for categorical variables; Chi-square test or Fisher's exact test was employed if appropriate. For numerical covariates displayed in Table 2, the mean and standard deviation were calculated and presented; one-way ANOVA tests were performed if appropriate. In order to evaluate if students' identification of one definition of social distancing was responsible for a significant difference in results, Tukey's test for post-hoc analysis was conducted. Paired sample t-test was used for comparing "six" and "three" feet for those who said that they followed WHO guidelines. The significance level was set at 0.05. Free responses were independently coded by two medical students (D.L.B. and K.W.R.); discrepancies in qualitative coding were resolved by consensus. Themes and representative quotes were presented. Missing data were excluded from calculations.

Results

Of the 2,453 recipients of the survey, 415 students responded (16.9% response rate). The majority of respondents were female (n=304, 75.1%). The medical doctorate program was the program with the most respondents (n=225, 55.6%, ***Table 1***). Students most commonly noted that they "frequently" or "always" practiced social distancing, defined as practicing social distancing 75-100% of the time (n=357, 96.7%, ***Table 1***). Respondents were most familiar with the CDC's definition of social distancing (n=276, 74.8%, ***Table 1***). 96 respondents (26.0%) were uncertain or not familiar with either the CDC's or the WHO's definition of social distancing.

There were statistically significant differences in students' assessment of importance of three examples of social distancing when grouping students by the social distancing definition (either WHO, CDC, Both, Neither, or Uncertain) that they were aware of. These three examples included "increasing physical space between workers at worksite[s]," "stay[ing] at least six feet" and "at least three feet away from other

Table 1. Study Respondent Demographic Information and Social Distancing Practices (n=415).

Demographic Characteristics	n (%)
Age: 25-29 years of age group (n=405)	232 (57.3)
Gender	
Male	100 (24.7)
Female	304 (75.1)
Non-Binary	1 (0.2)
Other/Missing	10
Race	
White or Caucasian	283 (69.9)
Black or African American	41 (10.1)
Asian or Asian American	47 (11.6)
Two or More Races	22 (5.4)
Other	8 (2.0)
Prefer not to say	4 (1.0)
Missing	10
Ethnicity	
Hispanic	26 (6.4)
Non-Hispanic	375 (92.6)
Prefer not to say	4 (1.0)
Missing	10
Degree Program Enrollment	
Medical School – Medical Doctorate Program	225 (55.6)
Medical School – Physician Assistant Program	43 (10.6)
Medical School – Physical Therapy Program	15 (3.7)
Nursing School	45 (11.1)
Public Health School	43 (10.6)
Other / Prefer not to say	28 (6.9)
Not currently enrolled in degree program	6 (1.5)
Missing	10
Which of the following organization's definitions of "social distancing" are you familiar with?[a,b] (n=369)	
World Health Organization	152 (41.2)
Center for Disease Control	276 (74.8)
Uncertain	83 (22.5)
None of the above	13 (3.5)
Which of the following guidelines for "social distancing" do you most closely follow?[b] (n=369)	
World Health Organization	27 (7.3)
Centers for Disease Control and Prevention	215 (58.3)
President Trump's Coronavirus Guidelines for America	4 (1.1)
My own understanding of 'social distancing'	94 (25.5)
Uncertain	27 (7.3)
None of the above	2 (0.5)
Since March 1, 2020, how often have you practiced 'social distancing'?[b] (n=369)	
Always	96 (26.0)
Frequently	261 (70.7)
Occasionally	10 (2.7)
Rarely	1 (0.3)
Very Rarely	1 (0.3)
Never	0
In general, do you believe that people other than yourself are abiding by 'social distancing' practices?[b] (n=369)	
Yes	257 (69.7)
No	110 (29.8)
Prefer not to say	2 (0.5)

Legend: [a] Multiple selections allowed. [b] The n = 369 as 46 individuals did not respond to these questions.

Table 2. Respondents' Ranking of Importance of Examples of Social Distancing as Provided on the Study Survey when Grouping Respondent's by Social Distancing (1) Definitions, (2) Guidelines they follow, and (3) Students' Program Enrollment.

Examples of 'Social Distancing"	Students' Awareness of Social Distancing Definition(s), Mean (SD)				
	CDC Only (n=125)	WHO Only (n=5)	Both (n=43)	Uncertain (n=75)	P-value
Work or engage in schooling from home whenever possible	4.8 (0.45)	4.8 (0.42)	4.8 (0.58)	4.7 (0.62)	0.69
Avoid social gatherings in groups of more than ten people	4.6 (0.55)	4.9 (0.45)	4.9 (0.40)	4.8 (0.55)	0.48
Avoid eating or drinking at bars, restaurants, and food courts	4.8 (0.45)	4.8 (0.53)	4.8 (0.45)	4.8 (0.79)	0.93
Avoid non-essential shopping trips	4.8 (0.45)	4.7 (0.50)	4.6 (0.64)	4.5 (0.84)	0.13
Avoid visiting nursing homes and retirement communities	4.8 (0.45)	4.9 (0.46)	4.9 (0.35)	4.9 (0.43)	0.90
Avoid touching your face	4.4 (0.55)	4.4 (0.84)	4.5 (0.73)	4.2 (1.1)	0.14
Increase physical space between workers at worksite	4.2 (0.84)	4.7 (0.46)	4.6 (0.54)	4.4 (0.87)	<0.010
Staggering work schedules	3.4 (1.82)	4.1 (0.97)	3.9 (1.0)	3.9 (1.0)	0.17
Limit in-person work related meetings	4.4 (0.55)	4.8 (0.50)	4.8 (0.49)	4.6 (0.84)	0.13
Avoid international travel	4.6 (0.55)	4.8 (0.64)	4.8 (0.59)	4.8 (0.54)	0.86
Avoid domestic travel	4.4 (0.89)	4.4 (0.80)	4.4 (0.76)	4.2 (1.1)	0.37
Wear a face mask in public	3.4 (1.5)	3.9 (0.93)	3.8 (0.92)	3.5 (1.1)	0.059
Avoid outdoor exercise	1.8 (1.3)	1.7 (0.83)	1.7 (0.91)	1.8 (1.0)	0.89
Stay at least six feet away from other people	4.6 (0.55)	4.7 (0.54)	4.7 (0.58)	4.4 (0.93)	<0.010
Stay at least three feet away from other people	3.2 (1.8)	4.5 (0.88)	4.4 (0.86)	4.1 (1.2)	<0.010
Avoiding sharing things like towels and utensils	3.8 (1.6)	4.0 (1.1)	4.1 (1.0)	4.0 (1.2)	0.69
Stay at home	4.4 (0.89)	4.6 (0.55)	4.6 (0.71)	4.5 (0.79)	0.62
Avoid having visitors to your home	4.4 (0.55)	4.6 (0.59)	4.5 (0.65)	4.5 (0.83)	0.46
Limit social circle	3.6 (1.7)	4.3 (1.3)	4.3 (1.1)	4.0 (1.4)	0.33
	Social Distancing Guidelines Students' Abide By, Mean (SD)				
Examples of 'Social Distancing'	**CDC (n=215)**	**WHO (n=27)**	**Own Understanding (n=94)**	**Other (n=33)**	**P-value**
Work or engage in schooling from home whenever possible	4.8 (0.45)	4.9 (0.32)	4.7 (0.53)	4.4 (0.90)	<0.010
Avoid social gatherings in groups of more than ten people	4.9 (0.33)	4.9 (0.36)	4.9 (0.52)	4.7 (0.82)	0.047
Avoid eating or drinking at bars, restaurants, and food courts	4.8 (0.51)	4.8 (0.40)	4.9 (0.35)	4.4 (1.1)	<0.010
Avoid non-essential shopping trips	4.7 (0.57)	4.6 (0.69)	4.6 (0.67)	4.2 (1.0)	<0.010
Avoid visiting nursing homes and retirement communities	4.9 (0.37)	4.9 (0.27)	5.0 (0.27)	4.6 (0.79)	<0.010
Avoid touching your face	4.5 (0.74)	4.5 (0.64)	4.2 (1.0)	4.2 (1.2)	0.051
Increase physical space between workers at worksite	4.7 (0.49)	4.7 (0.53)	4.5 (0.74)	4.3 (0.95)	<0.010
Staggering work schedules	4.1 (1.0)	3.9 (1.03)	4.1 (1.0)	3.6 (0.97)	0.027
Limit in-person work related meetings	4.8 (0.47)	4.7 (0.51)	4.7 (0.63)	4.3 (0.98)	<0.010
Avoid international travel	4.8 (0.56)	4.7 (0.53)	4.8 (0.58)	4.6 (0.83)	0.23
Avoid domestic travel	4.4 (0.80)	4.4 (0.84)	4.3 (0.92)	4.0 (1.1)	0.18
Wear a face mask in public	3.9 (0.86)	4.0 (0.92)	3.5 (1.2)	3.3 (1.2)	<0.010
Avoid outdoor exercise	1.7 (0.83)	1.8 (0.89)	1.7 (1.1)	1.8 (1.1)	0.89
Stay at least six feet away from other people	4.7 (0.57)	4.8 (0.43)	4.5 (0.77)	4.4 (0.93)	<0.010
Stay at least three feet away from other people	4.5 (0.82)	4.5 (1.0)	4.0 (1.2)	4.2 (1.1)	<0.010
Avoiding sharing things like towels and utensils	4.0 (1.1)	4.2 (1.1)	4.1 (1.2)	3.8 (1.3)	0.44
Stay at home	4.6 (0.61)	4.8 (0.48)	4.6 (0.66)	4.2 (1.0)	<0.010
Avoid having visitors to your home	4.6 (0.58)	4.6 (0.51)	4.5 (0.84)	4.4 (0.93)	0.31
Limit social circle	4.4 (1.1)	4.2 (1.4)	4.0 (1.4)	3.9 (1.5)	0.075
	Students' Program Enrollment, Mean (SD)				
Examples of 'Social Distancing'	**Medical School (n=225)**	**Nursing School (n=45)**	**PT/PA School (n=58)**	**Public Health School (n=43)**	**P-value***
Work or engage in schooling from home whenever possible	4.8 (0.44)	4.7 (0.80)	4.7 (0.70)	4.6 (0.44)	0.39
Avoid social gatherings in groups of more than ten people	5.0 (0.21)	4.7 (0.73)	4.6 (0.71)	4.9 (0.30)	<0.010
Avoid eating or drinking at bars, restaurants, and food courts	4.9 (0.42)	4.7 (0.77)	4.5 (0.82)	4.8 (0.50)	<0.010
Avoid non-essential shopping trips	4.7 (0.58)	4.4 (0.95)	4.4 (0.82)	4.8 (0.42)	<0.010
Avoid visiting nursing homes and retirement communities	4.9 (0.37)	4.9 (0.29)	4.9 (0.45)	4.9 (0.30)	1.0
Avoid touching your face	4.3 (0.85)	4.7 (0.6)	4.4 (0.95)	4.3 (1.0)	0.068
Increase physical space between workers at worksite	4.6 (0.60)	4.5 (0.7)	4.5 (0.82)	4.8 (0.41)	0.11
Staggering work schedules	4.1 (0.92)	3.6 (1.2)	3.9 (1.1)	4.2 (0.79)	0.024
Limit in-person work related meetings	4.7 (0.55)	4.8 (0.53)	4.6 (0.82)	4.7 (0.56)	0.23
Avoid international travel	4.8 (0.56)	4.7 (0.74)	4.7 (0.67)	5.0 (0.22)	0.13
Avoid domestic travel	4.4 (0.82)	4.2 (1.1)	4.0 (0.95)	4.6 (0.54)	<0.010
Wear a face mask in public	3.8 (0.98)	3.8 (1.1)	3.4 (1.2)	4.0 (0.85)	0.082
Avoid outdoor exercise	1.8 (0.91)	2.1 (1.2)	1.4 (0.63)	1.7 (0.78)	<0.010
Stay at least six feet away from other people	4.6 (0.63)	4.6 (0.82)	4.6 (0.80)	4.8 (0.39)	0.18
Stay at least three feet away from other people	4.3 (0.99)	4.3 (1.0)	4.2 (1.1)	4.6 (0.54)	0.15
Avoiding sharing things like towels and utensils	4.0 (1.2)	4.3 (0.98)	3.9 (1.3)	4.1 (0.99)	0.19
Stay at home	4.6 (0.58)	4.5 (0.79)	4.4 (0.91)	4.7 (0.51)	0.11
Avoid having visitors to your home	4.6 (0.64)	4.5 (0.76)	4.3 (0.84)	4.6 (0.59)	0.011
Limit social circle	4.3 (1.3)	4.2 (1.2)	4.2 (1.3)	4.0 (1.2)	0.84

Legends: PT: Physical Therapy; PA: Physician's Assistant; CDC: Centers for Disease Control and Prevention; WHO: World Health Organization. * p-value calculated by ANOVA

people" (***Table 2***, P<0.05 for each). Specifically, the "uncertain" group was significantly different from the CDC only group. Similarly, when grouping students by the social distancing definition that they most closely followed, there were significant differences in the assigned importance of 12 of 19 social distancing examples ***(Table 2)***. Finally, when grouping students based on the school that they attend there were significant differences in mean ranked importance in seven of 19 examples of social distancing practices ***(Table 2)***. There was no association between respondents' awareness of social distancing definitions and the guidelines that they said they followed. Students who identified as following WHO guidelines felt it was more important to remain six feet from other people as opposed to three feet (mean (SD): 4.8 (0.40), 4.3 (1.0), respectively; p=0.017).

The majority of respondents (69.7%) felt that people other than themselves were abiding by social distancing practices, though many expressed doubts of adherence (n=257, 69.7%, Table 1). ***Table 3*** shows the key themes of respondents' views on the social distancing practices of others. Notably, 13 respondents felt that those who were not abiding by social distancing practices were acting as a result of misinformation ***(Table 3)***.

Table 3. Key Themes of Survey Respondents' Views on Social Distancing Practices of Others with Representative Quotes of these themes from Respondents on the Study Survey.

Themes	Number of Responses; Representative quotes
The respondent states agreement that they and/or others do practice social distancing	142; "I believe that the vast majority of people are doing the best they can as they see it to socially distance."
Group gatherings as seen in person, on the news, or social media	71; "I have also seen other people blatantly breaking social distancing recommendations on social media."
Mention of maintaining physical distance between individuals as an example of social distancing	58; "When I go to the grocery store, many people are less concerned about maintaining a buffer of space between them and other people."
Acknowledgement of people ignoring or not abiding by social distancing recommendations (non-specific)	51; "I don't have the impression that the broader public is abiding by the practices I am following."
Use of masks and personal protective equipment	27; "In the grocery stores, only 30% [of people] or so wear masks."
Changes in essential trip frequency	23; "I watch others be intentional about not going out into the community more than necessary."
Social distancing practices influenced by policies on business and venue closures / opening	18; "Most non-essential businesses are closed; people don't have much of a choice."
Changes in road congestion	16; "Everything outside is empty and there is no traffic."
Mention of changes to work and school related practices due to social distancing policy	16; "People in my neighborhood are mostly working from home."
Lack of access to credible information or misinformation influencing social distancing practices	13; "I also see the rampant spread of misinformation and just pure blind ignorance prevalent in society today, so I wonder if the number of people following the guidelines is as high as I hope."
Social Distancing practices vary based on geographic location	10; "My family is in California so there is a shelter in place there right now."
Social Distancing practices are a violation of freedom and human rights	9; "There are many who believe that the measures being imposed are in some way violating their freedom and therefore are against it."
Emotions and fears dictating social distancing practices	6; "Others may not see COVID-19 as a threat to them so they choose to not make any changes to protect themselves."

Discussion

The results of this study demonstrate that different social distancing definitions influenced the importance with which respondents ranked specific social distancing practices. There were significant differences between how important "Increasing physical space between workers at worksite" was depending on which definition of social distancing the student was aware of (CDC, WHO, White House, own definition). This study also highlights the impact of misinformation and uncertainty on social distancing practices: 25.5% of students' felt that they practiced their own understanding of social distancing and an additional 7.3% were uncertain of which guidelines they were following. Regardless of which guidelines the respondents followed, 96.7% of respondents felt that they practiced some form of social distancing 75-100% of the time. This is a slightly higher percentage than previously reported data, which suggested that Americans' "always" or "very often" complied with social distancing guidelines 93% of the time.[9]

As demonstrated in this study, the varied and changing definitions of the term 'social distancing' and social distancing guidelines can create confusion amongst individuals regarding proper practices to abide by, even across students in professional healthcare programs. Further exemplifying this confusion is that students abiding by WHO guidelines felt it more important to remain six feet away from other people as opposed to three feet, the key difference between the two guidelines.

Within the field of healthcare, unclear definitions can make it challenging to understand disease prevalence and trends,[10] can lead to biases in assessments of conditions,[11] and can present challenges in assessing the effectiveness of policy outcomes.[12,13] Leaving policy criteria subject to interpretation, or having conflicting criteria, is ultimately detrimental to the success of a policy.[13] Given that local and state governments utilize federal guidance to inform their social distancing planning efforts,[14] unclear social distancing definitions and guidelines can be particularly problematic. This is most clearly seen by past attempts at social distancing during prior viral outbreaks, where there was varied implementation of social distancing practices due to variation between and within international, federal, and state policies.[15,16] Furthermore, inconsistent and unclear messaging in the COVID-19 public health response has led to notable differences in self-reported knowledge, attitudes, and behavior related to COVID-19.[17]

Studies have shown that relaxing social distancing guidelines without instituting compensatory practices, like case-detection, isolation, and contact-tracing, may result in a resurgence of COVID-19 disease activity.[18] Other studies call for prolonged and intermittent social distancing into 2022 as resurgences could result in potentially more deadly waves of disease.[19] With the potential of disease resurgence, the importance of a clear definition of social distancing and promoting a unified set of guidelines for physical distancing is paramount.

Limitations of this study included convenience sampling, response bias, and a small sample size in this single-center study. Respondents were mostly from the medical school, despite the majority of survey recipients being enrolled at either the Public Health School or the Nursing School; however, the survey was conducted in the midst of the COVID-19 pandemic, with each school implementing different educational restrictions. Emory University's proximity and association with the CDC could have impacted respondents' awareness of national guidelines. Finally, the survey was not validated. Future research should include conducting follow-up surveys across different timepoints to improve understanding of changes in perception of social distancing practices. In addition, broadening the distribution of the survey to non-healthcare students across a diverse geographic location could improve the study's generalizability and highlight geographic variability in social distancing practices.

Conclusion

A survey of healthcare students identified significant differences in the mean importance of various social distancing practices based on the definition of social distancing that they were aware of. The results of this study can help inform the larger public health community in understanding what social distancing means to a group of students receiving professional level education in the healthcare sector and underscores the importance of having a uniformed definition and guidelines for practicing social distancing during the COVID-19 pandemic.

References

1. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19, 11 March 2020. Available from: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020. Last updated March 11, 2020; cited February 18, 2021.
2. Shim E, Tariq A, Choi W, Lee Y, Chowell G. Transmission potential and severity of COVID-19 in South Korea. Int J Infect Dis. 2020 Mar 22;93:339-44.
3. Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res. 2020 Apr 2;287:112934.
4. Mahase E. Covid-19: UK starts social distancing after new model points to 260 000 potential deaths. BMJ. 2020 Mar 19;368:m1089.
5. Ritschl PV, Nevermann N, Wiering L, et al. Solid organ transplantation programs facing lack of empiric evidence in the COVID-19 pandemic: A By-proxy Society Recommendation Consensus approach. Am J Transplant. 2020 Apr 24;20(7):1826-36.
6. World Health Organization. Coronavirus disease (COVID-19) advice for the public. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public. Last updated February 16, 2021. Cited February 18, 2021.
7. Centers for Disease Control and Prevention. Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 (COVID-19) Exposures: Geographic Risk and Contacts of Laboratory-confirmed Cases. Available from: https://www.cdc.gov/coronavirus/2019-ncov/php/risk-assessment.html. Last updated February 2, 2021. Cited February 18, 2021.
8. General Assembly of the World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. J Am Coll Dent. 2014 May 9;81(3):14-18.
9. Gallup. Americans Still Social Distancing, but Less Vigilant. Available from: https://news.gallup.com/poll/309611/americans-social-distancing-less-vigilant.aspx. Last updated April 30, 2020. Cited May 22, 2020.
10. Fruhbeck G. Childhood obesity: time for action, not complacency. Definitions are unclear, but effective interventions exist. BMJ. 2000 Feb 5;320(7231):328-329.
11. Nord E. Disability weights in the Global Burden of Disease 2010: unclear meaning and overstatement of international agreement. Health Policy. 2013 Apr 24;111(1):99-104.
12. Rodziewicz TL, Houseman B, Hipskind JE. Medical Error Prevention. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020.
13. Pollack Porter KM, Rutkow L, McGinty EE. The Importance of Policy Change for Addressing Public Health Problems. Public Health Rep. 2018 Nov 15;133(1_suppl):9S-14S.
14. Uscher-Pines L, Schwartz HL, Ahmed F, et al. School practices to promote social distancing in K-12 schools: review of influenza pandemic policies and practices. BMC Public Health. 2018 Mar 29;18(1):406.
15. Katz R, Vaught A, Simmens SJ. Local Decision Making for Implementing Social Distancing in Response to Outbreaks. Public Health Rep. 2019 Jan 19;134(2):150-154.
16. Kraemer JD, Siedner MJ, Stoto MA. Analyzing Variability in Ebola-Related Controls Applied to Returned Travelers in the United States. Health Secur. 2015 Sep 9;13(5):295-306.
17. Wolf MS, Serper M, Opsasnick L, O'Conor RM, Curtis L, Benavente JY, et al. Awareness, Attitudes, and Actions Related to COVID-19 Among Adults With Chronic Conditions at the Onset of the U.S. Outbreak: A Cross-sectional Survey. Ann Intern Med. 2020 Jul 21;173(2):100-109.
18. Tuite AR, Greer AL, De Keninck S, Fisman DN. Risk for COVID-19 Resurgence Related to Duration and Effectiveness of Physical Distancing in Ontario, Canada. Ann Intern Med. 2020 May 28;173(8):675-8.
19. Kissler SM, Tedijanto C, Goldstein E, Grad YH, Lipsitch M. Projecting the transmission dynamics of SARS-CoV-2 through the postpandemic period. Science. 2020 May 22;368(6493):860-868.

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Author Contributions

Conceptualization: DLB, KWR, TWB; Data Curation, Investigation, Project Administration, Resources & Writing – Original Draft Preparation: DLB, KWR; Formal Analysis: DLB, CZ; Methodology: DLB, CZ; Software: DLB, CZ; Supervision: TWB; Validation: CZ; Writing – Review & Editing: DL, KWR, TWB.

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