J Korean Med Sci. 2022 Apr 18;37(15):e118
https://doi.org/10.3346/jkms.2022.37.e118
eISSN 1598-6357·pISSN 1011-8934

JKMS

Original Article
Global Health

Perceived Physical and Mental Health and Healthy Eating Habits During the COVID-19 Pandemic in Korea

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Received: Dec 22, 2021
Accepted: Mar 21, 2022
Published online: Apr 6, 2022

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ABSTRACT

Background: The coronavirus disease 2019 (COVID-19) pandemic has disrupted the lives of people around the world since 2020. This study aims to reveal perceived impact of the coronavirus pandemic on physical and mental health and eating behaviors among people with disabilities and without disabilities in South Korea, as compared to other countries.
Methods: A secondary analysis of a prospective cross-sectional study which was conducted with a web-based global survey.
Results: Among the 3,550 responses from 65 countries, 2,621 responses with nation information were set as full data, 189 for South Korea and 2,432 for other countries. In Korea, there was no significant difference in healthy lifestyle behaviors between people with and without disabilities before the COVID-19 pandemic. Perceived physical and mental health and changes in eating habits during the COVID-19 pandemic showed no significant difference between people with and without disabilities in Korea. There were significant differences in physical health and dietary habits, but no differences in its effect on mental health between

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Disclosure
The authors have no potential conflicts of interest to disclose.

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people living in Korea and other countries in both people with and without disabilities groups. In other words, more than 60% of people in all groups (disability vs. non-disability, Korea vs. non-Korea) reported worse mental health than before the COVID-19 pandemic. **Conclusion:** In Korea and other countries, mental health showed a tendency to deteriorate regardless of the presence or absence of disability during the COVID-19 pandemic. In terms of healthy eating habits, Koreans were relatively less affected than people from other countries.

Keywords: COVID-19; People with Disabilities; Healthy Lifestyles; Lack of Physical Activity; Mental Health

INTRODUCTION

COVID-19 hit the world in early 2020, and the COVID-19 pandemic disrupted the everyday life of people worldwide for over two years. The negative effects of COVID-19 pandemic were decreased physical activity, increased screen time, sedentariness, weight gain, poor mental health, and financial problems.[1-7] COVID-19 restrictions affected vulnerable groups, such as people with physical or intellectual disabilities, more severely.[8] Over 90% reported a negative impact on mental health, and 61% reported a reduction in physical activity levels.[8] Additionally, healthcare accessibility and access to facilities in the disabed community were decreased, leading to a risk of isolation.[9,10]

South Korea is said to have coped relatively well with the pandemic.[11,12] Comparing the death toll, South Korea, the United States, and the United Kingdom have 60.56, 2,378.07, and 2,127.16 deaths per million, respectively, up to November 2021.[12] In addition, South Korea became one of the first high-income countries to see its economy recover to pre-pandemic levels in the first quarter of 2021 (the second-best performance behind China).[12] Naturally, various policies have been criticized, and as the situation continues to change, policies continue to evolve.[13,14]

Various reports, including problems caused by the COVID-19 pandemic, are frequently reported in Korea.[15] A recent article stated that middle and high school students from Daegu (the city that first experienced the rapid spread of the Coronavirus in Korea) experienced lots of mental difficulties such as depression and anxiety.[16] Another cross-sectional study demonstrated that about 20% of people are at a high level of traumatic stress, depression, anxiety, and suicidal risk.[17] Similar results were shown in Busan that 30% had depression, and about 22% showed anxiety in a study with a self-reported questionnaire.[18] It has also been suggested that there has been enormous psychological burden on frontline healthcare workers during the COVID-19 pandemic.[19,20]

However, most Korean reports were cross-sectional studies, so they represented the current situation, but the comparison to the situation before the pandemic was not clear. In addition, there were data from groups such as the general people and healthcare workers but reports on the physical and mental effects on people with disabilities were rare.

Active members of the International Society for Physical and Rehabilitation Medicine (ISPRM) Task Force on Physical Activity for Persons with Disabilities designed a global survey to determine the impact of the COVID-19 pandemic on perceived physical activity levels, mental health, and healthy eating habits in community-dwelling persons with

disabilities, as compared to those without disabilities. The data collected revealed that self-reported health-related behaviors, including physical health, mental health, and healthy eating habits, were worse in those with disabilities compared to those without disabilities (unpublished data). This study was a secondary study of the above study and was conducted to determine the effects of the COVID-19 pandemic on the perceived physical and mental health and healthy eating habits of the persons with and without disability in Korea compared to those of other countries.

METHODS

Setting and participants

The survey questionnaire, including several demographic factors, current functioning and disability, activities and participation, physical activity levels, mental health, and eating habits, were developed, and translated into six official World Health Organization (WHO) languages and Korean. Active members of the International Society of Physical and Rehabilitation Medicine (ISPRM) Task Force on Physical Activity for Persons with Disabilities members designed the questionnaire and reviewed the translations in each language. The survey was done on the community-dwelling adults through e-mail, social networking platforms and a link on the ISPRM.

Statistical analysis

Descriptive quantitative statistics were used for data analysis. A χ^2 test was used to compare the difference among groups (with and without disabilities, Korea and other countries). All statistical tests were performed using R for Windows software (R Foundation for Statistical Computing, Vienna, Austria). $P < 0.05$ was set as the level of significance. For analysis, the degree of disability was classified only as presence or absence, unlike the previous study.

Ethics statement

The study was approved by the Human Research Protection Program Institutional Review Boards at the Yale School of Public Health under protocol 45CFR46.104. Informed consent was submitted by all subjects when they answered the survey.

RESULTS

The survey was administered from September 25 to December 31 in 2020. In total, 3,550 responses were collected from 65 countries. For this analysis, 2,621 responses with information on nationality were set as full data, 189 for South Korea and 2,432 for other countries. Values excluding country information were used for analysis as much as possible, so the total was slightly different for each item.

Demographic factors

There was a difference in demographic factors between South Korea and other countries (**Table 1**). In Korea, the proportion of male respondents were higher (44%) than in other countries (14%). In Korea, people in their 40's accounted for the largest age group, but those aged 25–39 were the highest in other countries. Both groups showed a high educational level, with more than 90% having a college degree. In terms of employment, the percentage of students and unemployed people were low in Korea compared to other countries.

Table 1. Demographic factors of survey respondents

Variables	Korea		Others	
	Disabled	Not disabled	Disabled	Not disabled
Sex				
Female	26 (55.32)	80 (56.34)	1,218 (88.78)	880 (83.02)
Male	21 (44.68)	62 (43.66)	154 (11.22)	180 (16.98)
Age group, yr				
18–24	0 (0.00)	6 (4.23)	33 (2.41)	25 (2.36)
25–39	11 (23.40)	56 (39.44)	787 (57.36)	571 (53.87)
40–60	28 (59.57)	68 (47.89)	481 (35.06)	408 (38.49)
> 60	8 (17.02)	12 (8.45)	71 (5.17)	56 (5.28)
Education				
Postgraduate	10 (21.28)	56 (39.44)	922 (67.20)	704 (66.42)
Bachelor or equivalent	34 (72.34)	82 (57.75)	381 (27.77)	334 (31.51)
Secondary/middle or high school	2 (4.26)	4 (2.82)	63 (4.59)	22 (2.08)
Primary/elementary school	1 (2.13)	0 (0.00)	3 (0.22)	0 (0.00)
No school	0 (0.00)	0 (0.00)	3 (0.22)	0 (0.00)
Employment				
Employed (part-time or full-time)	33 (70.21)	124 (87.32)	1,116 (81.34)	903 (85.19)
Housewife/homemaker	7 (14.89)	5 (3.52)	80 (5.83)	35 (3.30)
Retired	6 (12.77)	10 (7.04)	59 (4.30)	37 (3.49)
Student	0 (0.00)	2 (1.41)	64 (4.66)	53 (5.00)
Unemployed	1 (2.13)	1 (0.70)	53 (3.86)	32 (3.02)

Values are presented as number (%).

Pre-pandemic healthy lifestyle behaviors

Pre-pandemic healthy lifestyle behaviors such as frequencies of physical exercise 30 or more minutes, sufficient fruit vegetable consumption (≥ 5 servings), and sleep hours (≥ 7 hours) showed no significant difference between people with and without disabilities in Korea (**Table 2**).

Perceived physical and mental health and eating habit change during the COVID-19 pandemic

Perceived physical and mental health and eating habit change showed no significant difference between people with and without disabilities in Korea (**Table 3**). In total, 49% reported similar perceived physical health, and 63.4% retained similar eating habits during the COVID-19 pandemic in Korea. However, 44% of Koreans reported that their physical health was worse than before the COVID-19 pandemic, and 66% reported their mental health was unhealthier than before the COVID-19 pandemic.

Table 2. Pre-pandemic healthy lifestyle behaviors in people with and without disabilities in Korea

Category	Frequency	Disabled	Not disabled	*P* value
Physical exercise ≥ 30 min	> 4 days/wk	6 (12.77)	21 (14.79)	
	0–1 days/wk	12 (25.53)	33 (23.24)	
	2–4 days/wk	19 (40.43)	69 (48.59)	
	None	10 (21.28)	19 (13.38)	0.548
Fruit and vegetable intake ≥ 5 servings	> 4 days/wk	12 (25.53)	41 (28.87)	
	0–1 days/wk	7 (14.89)	26 (18.31)	
	2–4 days/wk	26 (55.32)	73 (51.41)	
	None	2 (4.26)	2 (1.41)	0.608
Sleep ≥ 7 hr	> 4 days/wk	16 (34.04)	51 (35.92)	
	0–1 days/wk	7 (14.89)	29 (20.42)	
	2–4 days/wk	19 (40.43)	58 (40.85)	
	None	5 (10.64)	4 (2.82)	0.162
Total		47	142	

Values are presented as number (%).

https://doi.org/10.3346/jkms.2022.37.e118

Table 3. Perceived physical and mental health and eating habit change during COVID-19 pandemic in people with and without disabilities in Korea

Category	Disability	Better than	Same as	Worse than	N/A	*P* value
Perceived physical health	Disabled	2 (4.26)	26 (55.32)	18 (38.30)	1 (2.13)	0.761
	Not disabled	8 (5.63)	67 (47.18)	65 (45.77)	2 (1.41)	
Perceived mental health	Disabled	1 (2.13)	14 (29.79)	31 (65.96)	1 (2.13)	0.954
	Not disabled	2 (1.41)	42 (29.58)	93 (65.49)	5 (3.52)	
Perceived eating habit	Disabled	3 (6.38)	35 (74.47)	9 (19.15)	0 (0.00)	0.235
	Not disabled	23 (16.20)	85 (59.86)	33 (23.24)	1 (0.70)	

Values are presented as number (%).
COVID-19 = coronavirus disease 2019, Better than = better than before, Same as = the same as before, Worse than = worse than before the COVID-19 pandemic, N/A = not applicable.

Table 4. Perceived physical and mental health and eating habit change in Korea and other countries

Category	Disability	Country	Better than	Same as	Worse than	N/A	*P* value
Perceived physical health	Disabled	Korea	2 (4.26)	26 (55.32)	18 (38.30)	1 (2.13)	0.001
		Others	242 (17.64)	408 (29.74)	700 (51.02)	22 (1.60)	
	Not disabled	Korea	8 (5.63)	67 (47.18)	65 (45.77)	2 (1.41)	< 0.001
		Others	220 (20.75)	414 (39.06)	414 (39.06)	12 (1.13)	
Perceived mental health	Disabled	Korea	1 (2.13)	14 (29.79)	31 (65.96)	1 (2.13)	0.262
		Others	89 (6.49)	268 (19.53)	979 (71.36)	36 (2.62)	
	Not disabled	Korea	2 (1.41)	42 (29.58)	93 (65.49)	5 (3.52)	0.060
		Others	79 (7.45)	301 (28.40)	650 (61.32)	30 (2.83)	
Perceived eating habit	Disabled	Korea	3 (6.38)	35 (74.47)	9 (19.15)	0 (0.00)	< 0.001
		Others	443 (32.29)	433 (31.56)	483 (35.20)	13 (0.95)	
	Not disabled	Korea	23 (16.20)	85 (59.86)	33 (23.24)	1 (0.70)	< 0.001
		Others	342 (32.26)	408 (38.49)	301 (28.40)	9 (0.85)	

Values are presented as number (%).
Better than = better than before, Same as = the same as before, Worse than = worse than before the coronavirus disease 2019 pandemic, N/A = not applicable.

More people from other countries reported that their physical health was worse than before the pandemic than Koreans in both disabled and not disabled groups (**Table 4**). In terms of mental health, more than 60% of people reported worsening in both Korea and other countries. Three-quarters of Koreans with disabilities maintained the same eating habits. However, it improved in other countries, remained similar, or worsened, accounting for about one-third in each group.

DISCUSSION

A decrease in physical activity is one of the most cited effects of the COVID-19 pandemic could be attributed to lockdown periods.[1,3,4,8] In Korea, although sports centers were closed and working from home was recommended for several weeks in 2020, perceived physical health was largely maintained compared to other countries. This might be because outdoor activities were permitted while wearing a mask, and home exercise using online programs became popular. Since a self-report survey was conducted rather than objective observations, responses may differ depending on socio-cultural backgrounds.

However, mental strain was a global phenomenon. Most respondents reported that their mental health was strained compared to before the pandemic. Lockdowns, quarantine, social distancing, and wearing masks in public were widespread impacts of the COVID-19 pandemic. All these may have interrupted social communication and led to social isolation.[2] Loneliness and social isolation frequently co-occur, and loneliness has several adverse impacts on mental health.[5] Therefore, using devices such as smartphones to enable interaction with people and to maintain relationships with close people such as family members were essential in the current

https://doi.org/10.3346/jkms.2022.37.e118

situation where the end was uncertain. In addition, we need policies to pay attention to mental health and social isolation and to supplement it socially and institutionally.

In Korea, healthy eating habits were largely maintained during the COVID-19 crisis compared to other countries. In a study from China, about 30% reported an increased frequency of vegetable and fruit intake after the outbreak of COVID-19.[6] However, Ammar et al. reported that meal patterns became unhealthier during confinement. The type of food, eating out of control, having a snack between meals, or a late-night snack was significantly increased during the COVID-19 home confinement period.[21]

In the case of healthy eating habits, different results can come out depending on the country and interpretation of the question. In this study, questions attributed to healthy eating habits recommended by the WHO were investigated, recommendations of 5 portions per day of fruit and vegetable consumption to prevent non-communicable diseases, and several micronutrient deficiencies.[22] In Korea, another possible reason for maintaining usual eating habits was that there were no significant difficulties in buying food or necessities or hoarding for about two years, except a shortage of masks in early 2020. As the time spent at home increased, non-face-to-face shopping was preferred, and online shopping sales increased by an average of 20–30% in Korea.[23]

The results in Korea differed from the main results of the original study, which suggests that COVID-19 had an outsized impact on healthy behaviors in people with disabilities compared to those without disabilities (unpublished data). People with disabilities were more likely to report worsening physical and mental health and dietary habits when compared to pre-pandemic levels. However, in Korea, there was no difference between people with disabilities and those without disabilities in their perceived physical and mental health and healthy eating habit changes in this study. It was an unexpected result as there is a known gap in health-related quality of life between people with and without disability in Korea.[24-28] It was observed that people without disabilities reported worse physical health and eating habit in people without disabilities compared to people with disabilities in Korea (**Table 3**). This result is probably because people without disabilities were more active before the Pandemic. The first reason for the different results might be the limited number of respondents in Korea. Therefore, the difference between the disabled and the non-disabled might not have been perceived. Secondly, since most of the subjects had a high education background and were employed in both disabled and non-disabled populations, the results of this study should be viewed as study limitation. However, this study is meaningful as there are scarce reports on the impact of COVID-19 in people with disabilities in Korea.

This study showed the effect of the COVID 19 epidemic on physical and mental health and eating habits in those with and without disabilities in Korea. It was possible to compare its impact with other countries. In Korea, it can be concluded that mental health was significantly affected regardless of the presence or absence of disability rather than physical health or a healthy diet.

ACKNOWLEDGMENTS

We would like to thank all the respondents who participated in this study and Kangxin Wang for handling the complicated responses of survey.

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