

# 코로나19 예방행동 영향요인의 탐색: 우리나라 대학생의 사회적 거리두기를 중심으로

## Exploring Predictors of Preventive Behavior against COVID-19: Centered on Korean Collegians' Social Distancing

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### 요약

2019년말 처음으로 코로나19가 보고된 이래로 2년 이상 동안 전세계는 팬데믹으로 고통을 받고 있다. 우리나라 정부는 주도적으로 코로나19 방어를 위해 다양한 예방정책을 펼쳤다. 일부 예방정책은 국민에게 고통과 불편을 다소 초래했다. 이러한 맥락에서 어떠한 요소들이 한국인들의 사회적 거리두기 동참에 영향을 미쳤는지를 이해하는 것이 본 연구의 목적이다. 본 연구는 116명의 대학생을 대상으로 편의적 표집방법을 통해 구글의 온라인 서베이도구(Google Form)을 활용하여 조사를 실시하였다. 조사는 2020년 12월 30일부터 2021년 1월 8일까지 10일간에 걸쳐 이루어졌다. 본 연구는 지각된 취약성, 지각된 심각성, 지각된 건강상태, 관여수준 및 정부정책에 대한 신뢰를 단계적 방법(stepwise method)으로 다중회귀방정식에 투입하여 분석하였다. 분석결과 최종모델에서 지각된 취약성, 관여수준, 및 정부정책에 대한 신뢰가 사회적 거리두기 의도에 영향을 미쳤다. 이러한 결과는 사람들이 코로나19에 대해 취약하다고 인식할수록, 또 사람들의 코로나19에 대한 관여수준이 높을수록, 그리고 사람들이 정부정책에 대해 신뢰할수록, 거리두기 실천에 더 동의한다는 것을 의미한다.

■ 중심어 : | 코로나 19 | 사회적 거리두기 의도 | 지각된 취약성 | 지각된 심각성 | 지각된 건강상태 | 관여수준 | 정부정책에 대한 신뢰 |

### Abstract

For over two years, after COVID-19 was first reported in the last quarter of 2019, the world has suffered from the pandemic. The Korean government has taken an initiative and has implemented a variety of policies to protect people from COVID-19. These policies have resulted in some suffering and inconvenience for people. In this context, we aim to find out what factors influence Korean college students' intention to social distance. We surveyed with Google's online survey tool(Google Form) for 116 Korean college students using a convenient sampling from December 30, 2020, to January 8, 2021. We put perceived susceptibility, perceived severity, perceived health status, level of involvement, and trust in the policy as independent variables into a multiple regression equation using the stepwise method. We found that intention to social distance was predicted by perceived susceptibility, level of involvement, and trust in the policy in the final model. The findings mean that the more people perceive themselves susceptible to COVID-19, and the more they get involved with COVID-19, and the more they trust their governmental policies on COVID-19, the more they agree on social distancing.

■ keyword : | Covid-19 | Intention to Social Distance | Perceived Susceptibility | Perceived Severity | Perceived Health Status | Level of Involvement | Trust in the Government Policy |

\* 본 연구는 극동대학교 교내학술연구지원(FEU2021R11)으로 수행되었습니다.

접수일자 : 2022년 07월 07일

심사완료일 : 2022년 08월 29일

수정일자 : 2022년 08월 29일

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## I. Introduction

COVID-19, since it occurred in the last quarter of 2019, has made the world drive into pandemics. During two years since the disease was first reported, 285 million confirmed COVID-19 cases and 5.42 million deaths have been reported in the world. In the same period in Korea, 626,000 confirmed cases and 5455 deaths occurred[1]. Every country has done its best to protect its people's health against COVID-19 with available policies. In particular, of the policies, Korea has recommended social distancing and vaccination against COVID-19 for the people. Some countries have forced intermittent lockdowns, whereas Korea recommends relatively moderate ways like wearing the anti-virus mask, washing hands, social distancing, and vaccination.

Thanks to the people's cooperation, Korea is more successful in controlling COVID-19 than other countries like the US and European countries. Korean people's cooperation is broadly divided into three categories of preventive behaviors: individual hygiene, such as wearing a mask, washing hands, and coughing on the sleeve; social distancing; and vaccination.

Preventive behaviors ask people for some sacrifices and inconveniences. There was some resistance to the preventive policies. However, most people supported policies to protect their individual and social health as well. To beat COVID-19 and overcome the pandemic, their cooperation would continuously be asked for. To continuously ask people's cooperation, the government needs to understand what factors influence their prevention behaviors. Therefore, we aim to find out what factors influence

Koreans to take preventive actions against COVID-19, especially social distancing. Identifying the factors, practically, we would have a better idea of how to conduct future COVID-19 policies. Academically, we would also get a conceptual understanding of how individuals behave in terms of pandemic prevention.

## II. Theoretical Background and Research Questions

In the early 1950s, social scientists in the US Public Health Service suggested Health Belief Model (HBM), which explains the failure of people to adopt disease prevention strategies or screening tests for the early detection of disease. Then, HBM has been applied in diverse fields of health promotion and validated. HBM has been frequently used in health behavioral studies and is reported to show high explanation [2]. HBM is grounded on the premise that people's willingness to change their health behaviors is primarily due to their health perceptions.

HBM addresses some concepts, including perceived threat, behavioral evaluation, and the cue to action. Of concepts, perceived threat is a salient and key concept and consists of two components: perceived susceptibility and severity. As is known, perceived susceptibility presents a subjective assessment of the risk of having health problems. People will act to reduce their risk of developing a health problem, according to HBM, if they perceive that they are susceptible to a specific health problem. Perceived severity refers to the extent to which an individual subjectively perceives a disease's state of seriousness[3]. Perceived

severity depends on factors related to the current reality and anticipation of future events. In the context of COVID-19, a previous study has validated that the higher the perception of the severity of disease, the more proactive health-protection behavior people engage in[4]. Accordingly, perceived susceptibility and severity would predict preventive health behaviors such as social distancing. We set up the following research questions:

RQ1. In the context of COVID-19, what effect does perceived susceptibility have on preventive behaviors?

RQ2. In the context of COVID-19, what effect does perceived severity have on preventive behaviors?

Another aspect that influences people's health behaviors is their own perception of their current health status. Perceived health status, or perception of current health status, is an internal behavioral cue that refers to an individual's perception and symptoms of their own health status. The concept is a credible index related to an individual's general health status, comprising both objective health status and subjective health management[5][6]. Perceived health status is defined as an individual's awareness of his or her health status before symptoms occur, and it influences health behavior[6][7]. According to Pender's health promotion model[8], perception of current health status influences preventive behavior. In the context of COVID-19, we could also assume that perceived health status influences preventive behaviors against COVID-19, such as social distancing. The research question is set forth the following:

RQ3. In the context of COVID-19, what effect does perceived health status have on preventive behaviors?

Involvement, derived from the ego-involvement of social judgment theory, is a variable that measures the amount of arousal or interest in a stimulus object or situation at the individual level[9]. Since being first introduced into the study of consumer behavior by Krugman[10], involvement has been a potentially important mediator of consumer behavior and has been applied frequently to explain people's decision-making. Consumers' attitudes toward purchasing would differ according to their level of involvement, that is, how much they are interested in products and how significant they consider products. The decision-making process related to purchasing would also differ according to the type of involvement, that is, which type of interest in products to purchase [6][11]. In the context of COVID-19, like other decision-making, we could health behavior related to COVID-19 would depends on the level of involvement. Accordingly, we set forth a research question as follows:

RQ4. In the context of COVID-19, what effect does the level of involvement have on preventive behaviors?

Moreover, pandemic makes people reconsider the role of government. As COVID-19 spreads across borders, each government's ability to cope with the pandemic has become critical. Each government has tried to prevent the spread of COVID-19 in the country and to reduce the number of deaths. Since the pandemic outbreak, each government has taken

the initiative to implement policies related to COVID-19 such as social distancing, lockdown, and vaccination. A few people in some countries criticized and opposed the policies on the grounds that they restricted individuals' rights and freedoms. Relatively, there is less resistance to government policies in Korea than in some countries. In Korea, most people agree with the government's policies, and as a result, Korea has had some success in controlling COVID-19. People's agreement with the policies is based on their perceived trust in government policies. Within government and people, there is an asymmetry in information related to pandemics. People's active cooperation is the key to effective prevention and control of COVID-19. The more people have trust in government policies (trust in the policy), the more successful the prevention and control of COVID-10 will be. In the context of COVID-19, we assume that trust in the policy would influence preventive behaviors. Therefore, research questions are set forth as follows:

RQ5. In the context of COVID-19, what effect does trust in the policy have on preventive behaviors?

### III. Method

#### 1. Sample

Participants were chosen through a convenience sampling to solve research questions. The participants are 116 Korean students attending undergraduate and graduate schools. Because most 20-something college students have relatively good health status and COVID-19 would make them less lethal, we

employed participants who would have objective views against COVID-19 and would not be seriously fearful of COVID-19. [Table 1] demonstrates their demographic profiles.

As [Table 1] shows, females make up 55.2% of participants, and males, 44.8%. In terms of grade, graduates share 33.6% of participants; freshmen, 26.7%; sophomores, 12.1%; seniors, 14.7%; juniors, 6.9%. As for major, engineering accounts for 33.6%, while health care accounts for 19.8%, liberal art accounts for 15.5%, social science accounts for 11.2%, art, physical education and others accounts for 11.2%, and natural science accounts for 8.6%. In terms of residence area, 45.7% of participants are residents in Seoul; 33.6% in Gyeonggi-do and Incheon; and 20.7% in other regions. Participants' average age is 23.4 years old(S.D=3.30).

**Table 1. Demographic profile**

	Demographic	N	%
Gender	male	52	44.8
	female	64	55.2
Grade	freshman	31	26.7
	sophomore	21	18.1
	junior	8	6.9
	senior	17	14.7
	graduate student	39	33.6
Major	engineering	39	33.6
	social science	13	11.2
	health care	23	19.8
	liberal art	18	15.5
	natural science	10	8.6
	arts, physical education, & others	13	11.2
Residence area	Seoul	53	45.7
	Gyeonggi-do & Incheon	39	33.6
	others	24	20.7

#### 2. Survey administration

To solve research questions, this study employed a self-reported survey of Korean

college students. We conducted an online survey using Google Form. First, we posted the link to the Google Form where the research questionnaire was displayed on our Facebook page. Then, we asked our followers to fill it out voluntarily and recommended reposting the questionnaire on their Facebook pages to recruit participants from among their followers.

The survey was conducted for 10 days from December 30, 2020, to January 8, 2021. At that time, Korea society was in controversy related to importing the vaccine and vaccinating. Moreover, some side effects of vaccines have been covered in international news. These conditions made some Korean people fearful and worried about their health. Accordingly, the context would be appropriate for this research purpose, which explores what factors influence preventive behavior against COVID-19.

### 3. Measurement

To validate research questions, we employed measurement instruments as independent variables, modified from previous studies [6][12][13]. We entered independent variables into a regression equation to test predictors' effects on dependent variables. Independent variables are as follows: perceived susceptibility, perceived severity, perceived health status, level of involvement, and trust in the policy. Independent variables are derived from earlier studies[6][12][13] and are modified in the context of COVID-19.

**Table 2. The Scale of Measurement**

Independent variable	Alpha
<i>Perceived susceptibility</i> [13] I think there is a lot of fear that I could get COVID-19 I think there are many people around me who are likely to get COVID-19 I think there is a high possibility of getting COVID-19 in the future	0.64

<i>Perceived severity</i> [13] I think I will be abandoned by friends and colleagues if I get COVID-19. I think I'll be abandoned by my family if I get COVID-19. I think I will not be able to maintain a social life if I get COVID-19.	0.61
<i>Perceived health status</i> [6] What is your overall health condition? How do you feel about your health compared to a year ago? How do you feel about your health compared to your peers?	0.88
<i>Level of involvement</i> [6] The issue of COVID-19 is meaningful to me The issue of COVID-19 is important to me The issue of COVID-19 is related to me I am taking a close look at the issue related to COVID-19	0.83
<i>Trust in the policy</i> [12] I believe the government has principles and consistency in the policy of COVID-19 I think the government is responding and coordinating appropriately with the stakeholders and conflicts regarding COVID-19 I think the government has a responsible attitude toward policy activities regarding COVID-19	0.86
<b>Dependent variable</b>	<b>Alpha</b>
<i>Intention to social distance</i> I intend to refrain from going out to reduce the harm to my health during the COVID-19 pandemic I intend to refrain from eating out to reduce the harm to my health during the COVID-19 pandemic I intend to refrain from shopping to reduce the harm to my health during the COVID-19 pandemic I intend to refrain from meeting friends to reduce the harm to my health during the COVID-19 pandemic	0.93

We set the intention to social distance as the dependent variable in the context of COVID-19. To measure the intention to social distance, we asked 15 college students to describe social distancing related to COVID-19. We abbreviated their statements to four items to be used as measurement instruments, grouped according to similarity. [Table 2] lists the items of variables and Cronbach's alpha.

We asked participants to mark a check on five-point Likert scales, anchored with "strongly disagree(1)" to "strongly agree(5)" to measure the variables.

#### 4. Statistical analysis

To validate research questions, we employed linear multiple regression analysis using SPSS 22. Inputting independent variables in multiple regression analysis was conducted in a stepwise selection method that easily compares impact sizes among significant predictors. Independent variables were measured with the plural items and then they were computed to mean values, which were input into regression equations. The sample size of this research is 116, which is appropriate for a linear multiple regression test because the sample size is greater than 50, ten times the number of independent variables[14].

We examined multicollinearity and independence of residuals to determine whether the key assumptions of multiple regression analysis are satisfied. Multicollinearity is evaluated through the tolerance value and VIF value. When tolerance is less than 0.10 and VIF is greater than 10, multicollinearity is determined to be too high to be good. We determine the independence of residuals with the Durbin-Watson statistic that ranges from zero to four. If the statistic is close to zero or four, the independence of residuals is problematic, and if the statistic is close to two, the independence of residuals is good[6][15].

#### IV. Findings

Before analyzing multiple linear regression to solve the research questions, we computed Cronbach's alpha to confirm the reliability of measurement scales. As shown in [Table 2], every construct had over the threshold of Cronbach's alpha, or  $\alpha \geq 0.60$  [12][16]. Thus, the

constructs were suitable to put into the regression equation.

**Table 3. Result of Multiple Linear Regression**

model	$\beta$	$t$	$p$	$R^2$	toler-ance	VIF		
1	(intercept)	13.01	<.001	.12	1.00	1.00		
	susceptibility	.35	3.99				<.001	
2	(intercept)	8.56	<.001	.17	.91	1.10		
		susceptibility	.28				3.13	.002
	involvement	.22	2.44	.016	.91	1.10		
3	(intercept)	6.59	<.001	.20	.91	1.10		
		susceptibility	.29				3.22	.002
		involvement	.22				2.42	.017
		trust in the policy	.17				2.01	.047
Durbin-Watson				1.94				

This research conducted multiple linear regression analysis with the stepwise option through SPSS 21. First, to check whether the basic assumption of multiple regression, or the avoidance of multicollinearity and the independence of residuals, would be satisfied, we inspected tolerance, VIF, and Durbin-Watson statistics. As shown in [Table 3], each model has a tolerance greater than 0.10 and a VIF less than 10. Namely, there is no issue of multicollinearity. The Durbin-Watson statistic has a 1.94 value, which is close to two. The independence of residuals is not an issue as well.

We conducted multiple linear regression analyses using the stepwise method in SPSS software to estimate the effect of the independent variables on the dependent variable. As is known, the stepwise method enables easy comparison of the effect sizes of the significant predictors. The stepwise method explores an optimal regression equation by excluding independent variables with statistical non-significance. In terms of statistical procedures of stepwise method, independent

variables were input into the regression equation in order of the power of explanation and the statistical significance of the regression coefficient, and then predictors with over 0.05 of the significance of the coefficient were excluded.

[Table 3] shows the results of multiple linear regression analysis with the stepwise method, which indicates the effects of predictors on intention to social distance. We got the three-step model, in which three independent variables predict the dependent variable. Specifically, in the first model, perceived susceptibility predicts intention to social distance with an R2 statistic of 0.12 ( $\beta=.35$ ,  $t=3.99$ ,  $p<.001$ ). The second model demonstrates that perceived susceptibility ( $\beta=.28$ ,  $t=3.13$ ,  $p<.01$ ) and level of involvement ( $\beta=.22$ ,  $t=2.44$ ,  $p<.05$ ) predict the dependent variable with a 17% explanation. Finally, in the third model, intention to social distance is affected by perceived susceptibility ( $\beta=.29$ ,  $t=3.22$ ,  $p<.01$ ), level of involvement ( $\beta=.22$ ,  $t=2.42$ ,  $p<.05$ ), and trust in the policy ( $\beta=.17$ ,  $t=2.01$ ,  $p<.05$ ) with the explanation of 20%.

In summary, of the presented research questions, RQ1, 4, and 5 are validated. In the final model, perceived susceptibility has the most powerful effect on intention to social distance. Following that, the level of involvement and trust in the policy influence the dependent variable.

## V. Conclusion

Since COVID-19 was first featured in the last quarter of 2019 in China, formidably confirmed cases and deaths have appeared around the

world. As a futurist predicts[18], the impact of COVID-19 will cast shadows over decades ahead, in both bad and good ways. Therefore, to lessen the bad impact, every country has done its best to defend against COVID-19. The Korean government has taken an initiative and has implemented a variety of measures to protect people from COVID-19. The government has launched a series of campaigns for personal hygienic behaviors like washing hands, wearing anti-virus masks, and coughing on the sleeve, has enforced social distancing, and has encouraged vaccination to defend against COVID-19. These preventive measures aroused some resistance from the people. Business restrictions and gathering bans, which are part of social distancing, have seriously damaged the self-employed, caused so much inconvenience to people, and caused some organizational resistance, though most people obeyed the measures. Accordingly, this study aims to identify what motivates people to participate in social distancing even though they believe they have suffered and sacrificed.

To achieve the study aim, we put perceived susceptibility, severity, health status, level of involvement, and trust in the policy as independent variables into a multiple linear regression equation with the intention to social distance as a dependent variable through the stepwise method in SPSS 21. Through the analysis, we got the following findings:

In the first model, perceived susceptibility influenced intention to social distance ( $\beta=.35$ ,  $t=3.99$ ,  $p<.001$ ). Perceived susceptibility ( $\beta=.28$ ,  $t=3.13$ ,  $p<.01$ ) and level of involvement ( $\beta=.22$ ,  $t=2.44$ ,  $p<.05$ ) predicted intention to social distance in the second model. In the final model, social distancing was predicted by

perceived susceptibility ( $\beta=.29$ ,  $t=3.33$ ,  $p<.01$ ), level of involvement ( $\beta=.22$ ,  $t=2.42$ ,  $p<.05$ ), and trust in the policy ( $\beta=.17$ ,  $t=2.01$ ,  $p<.05$ ) with the explanation of 20%. Perceived severity and perceived health status did not have a statistically significant effect on social distancing. In terms of the size of the influence, susceptibility had the most powerful effect on the dependent variable and was followed by the orders of involvement and trust in the policy.

Consequently, the findings mean as follows: the more people perceive themselves susceptible to COVID-19, and the more they get involved with COVID-19, and the more they trust their governmental policies on COVID-19, the more they agree on social distancing. Accordingly, in a pandemic context, to effectively prevent an epidemic, practitioners in the public health service field should make people perceive themselves as susceptible. As well, the practitioners, especially officials, should encourage people to be involved in the disease, and the government should administer the policies consistently and trustfully.

Finally, the following are suggestions for future studies. This study employed college students as subjects. The subjects are relatively healthy and active, and their attitudes toward social distancing would differ from other generations. Therefore, the findings are somewhat problematic to generalize, but we get a clue to grasping an understanding relevant to preventing an epidemic. The following study needs to employ diverse participants to generalize findings. As well, to set up the policy elaborately, a future study needs to segment the subjects of investigation according to demographics like gender and generation, or whether participants have underlying diseases.

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