



Influencing Factors on Intention to Vaccinate Against COVID-19 in College Students

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Purpose: This cross-sectional study aimed to identify factors affecting coronavirus disease 2019 (COVID-19) vaccination intention. **Methods:** For an anonymous online survey, recruitment notices were posted on an anonymous community by each university, and an online survey was conducted through online form from June to July 2021. COVID-19 knowledge and health-protective behavior were measured using a questionnaire based on previous literature and reflecting the Korea Centers for Disease Control and Prevention's COVID-19 Response Guidelines. The psychological antecedents of vaccination were measured by 5C scale. **Results:** Two-hundred and ninety-four college students (women 67.3%) answered the survey; 179 (60.9%) reported that they would accept a COVID-19 vaccine. The mean scores for COVID-19 knowledge and health-protective behavior were 22.97 ± 5.33 (out of 35) and 9.92 ± 2.22 (out of 12), respectively. For the psychological antecedents of vaccination, the mean scores for confidence, collective responsibility, calculation, complacency, and constraints were $4.45 (\pm 1.24)$, $5.61 (\pm 1.09)$, $5.09 (\pm 1.18)$, $2.42 (\pm 1.11)$, and $2.37 (\pm 1.19)$ out of 5 points, respectively. The confidence, calculation, and collective responsibility were associated with vaccination intention. Additionally, the top reason for those who were less prone to accept vaccination against COVID-19 was concern about vaccine safety. **Conclusion:** The higher the confidence in the vaccine and the higher the collective responsibility, the higher the vaccination intention. As it is a factor related to an individual's perception of COVID-19 information, it is necessary to increase confidence in the vaccines through obtaining accurate information on the safety, effectiveness, and side effects of the COVID-19 vaccines and vaccination.

Key Words: COVID-19; Vaccines; Intention

국문주요어: 코로나19, 백신, 의도

INTRODUCTION

The coronavirus disease-19 (COVID-19) occurred in China in December 2019 and spread worldwide, resulting in a global pandemic [1]. In South Korea, the first COVID-19 patient occurred in January 2020, and the fatality rate is so far about 1.62% [2]. Regarding the proportion of confirmed cases in South Korea by age, the proportion of COVID-19 among college students aged 20 to 29 years old is 14.95%, which is about twice as high as the figure of 6.92% among those aged 10 to 19 years old

[2]. There is no specific treatment for COVID-19, and preventive behaviors such as hand washing, wearing a mask, and social distancing have been emphasized [3]. Since December 2020, several vaccines using mRNA or adenovirus vector have been developed and are being administered in many countries [4]. Vaccination and adherence to preventive behaviors are important ways to manage the COVID-19 pandemic [5].

Vaccines trigger the activation of the immune system against pathogenic microorganisms, thereby providing defense against concerned diseases [6]. Vaccines may cause adverse reactions other than disease

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prevention. Adverse reactions such as fever, muscle pain, and headache have been reported during the development of the COVID-19 vaccines, but fatal adverse reactions are not common [2]. Regardless of the efficacy of the vaccines, severe side effects associated with vaccination may lead to vaccination avoidance [7]. In the 2015 national survey on vaccination in Korea, most people were aware of the need for vaccination, but they were not 100% sure about the safety and efficacy of vaccines and have anxiety about associated side effects [8]. A previous study regarding H1N1 influenza virus vaccines found that higher perceived benefit of vaccination was associated with higher vaccination intention [9]. The major reason negative for COVID-19 vaccination was reported to be anxiety that the vaccines were developed too quickly and thus are not safe [10].

Considering the characteristics of college students in their 20s who have less fear of novel diseases compared to other age groups and live actively, vaccination is essential for them to maintain their health and prevent the spread of the infection to other members of society [11]. However, early adults, to which most college students belong, do not recognize the need for vaccination due to their concerns about potential unknown side effects of the vaccines and their development process. About 25% of US medical students hesitated to get the vaccine, citing concerns about serious vaccine side effects and lack of trust in the information received from public health professionals [12]. Loomba et al. reported socioeconomic status, age, political orientation, confidence in vaccines, and knowledge and information about COVID-19 as factors influencing intention to vaccinate against COVID-19 [13]. Therefore, this study investigated the association between COVID-19 knowledge, health protection behavior, the psychological antecedents of vaccination, and vaccination intention among Korean college students.

METHODS

1. Study design

This is a cross-sectional study to identify factors affecting intention to vaccinate against COVID-19 among college students.

2. Participants

The participants were recruited among college students across the country as the target population via convenience sampling. The sample size for logistic regression analysis was calculated to be 244 with a signif-

icance level of .05, a power of .80, and OR 1.58 [14] using the G*Power 3.1 program. Considering a drop rate of 20%, a total of 293 participants was finally calculated.

3. Variable measurement

1) COVID-19 Vaccination intention

COVID-19 vaccination intention was measured by asking the participants to respond with “yes,” “I do not want to be vaccinated,” or “I don’t know” to the question: “Do you want to be vaccinated when it is possible to receive the vaccine against COVID-19?” For those who responded with “I do not want to be vaccinated” or “I do not know,” the reasons were further identified using items reported in a previous study [7].

2) COVID-19 knowledge

COVID-19 knowledge was measured with items based on the previous study [15] and Korea Disease Control and Prevention Agency (KDCA) COVID-19 Response Guidelines (for local governments) version 9-5-1 [16]. After researchers translated the knowledge items of the previous study [15] into Korean, researchers checked the knowledge items based on the KDCA COVID-19 response guidelines. Translation validity and content validity were checked from an infectious diseases specialist and two advanced nurse practitioners for infection control (all items = 1.0). This consists of a total of 35 items including 19 general items related to COVID-19, eight items regarding symptom and sign, eight items regarding transmission including wearing a mask and fatality rate. The approximate fatality rate during the study period was estimated to be 1.3%. Responses were deemed correct if they were below 3%. Each item was scored 1 point for a correct answer, and 0 points for “I don’t know” and an incorrect answer (ranged from 0 to 35 points). A higher score indicates higher COVID-19 knowledge. In this study, Kuder-Richardson (KR)-20 was .82.

3) Health-protective behavior

Health-protective behavior was measured with items based on the previous study [15] and KDCA COVID-19 Response Guidelines (for local governments) version 9-5-1 [16]. After researchers translated the health-protective behavior items of the previous study [15] into Korean, researchers checked the health-protective behavior items based on the KDCA COVID-19 Response Guidelines. Among the 13 items regarding major health-protective behaviors to prevent the spread of COVID-19,

one item that is not appropriate for college students was excluded (reducing or avoiding sending children to school, day care center, or kindergarten). Translation validity and content validity were checked from an infectious diseases specialist and two advanced nurse practitioners for infection control (all items = 1.0). All items were scored 1 point for “yes” or 0 point for “no” (ranged from 0 to 12 points). A higher score indicates better health-protective behavior. In this study, KR-20 was .76.

4) Psychological antecedents of vaccination

The psychological antecedents of vaccination were measured using the “5C psychological antecedents of vaccination” scale developed by Betsch et al. [17]. This tool consists of five domains (confidence, complacency, constraints, calculation, and collective responsibility) with a total of 15 items [17]. After translating into Korean by researchers, translation validity and content validity were checked from an infectious diseases specialist and two advanced nurse practitioners for infection control (all items ≥ 0.9). Each item was scored from 1 point for “strongly disagree” to 7 points “strongly agree.” One item on collective responsibility was reverse-coded as it was an inverse question. A higher mean score for each domain indicates more strongly agreeing with the respective domain. Cronbach’s α was .85 for confidence, .76 for complacency, .85 for constraints, .78 for calculation, and .71 for collective responsibility in validation study [17]. In this study, Cronbach’s α was .78 for confidence, .72 for complacency, .77 for constraints, .76 for calculation, and .60 for collective responsibility.

4. Data collection

Data was collected through an online survey of college students from June to July 2021. Recruitment notices were posted on an anonymous online community (“Everytime”) of 34 universities across the country. In the recruitment notice, a QR code or the survey URL along with a brief description of this study were provided. When individuals access the online form by QR code or the survey URL voluntarily, individuals can read the purpose and methods of this study, and information on the confidentiality of personal information, and withdrawing from participation. Participants provided informed consent before they could proceed to the survey, and the questionnaire took about 10 minutes. By July 12, a total of 296 students had completed the survey. A total of 294 completed questionnaires excluding two with inappropriate answers (the answer was the same for all questions even though the inverse question is

included) could be used for the final analysis, and the survey was thus ended.

5. Data analysis

The data were analyzed using SPSS Statistics 25.0 program. The general characteristics of the participants and COVID-19 vaccination intention were analyzed by frequency and percentage. The COVID-19 knowledge, health-protective behavior, and psychological antecedents of vaccination were analyzed by mean and standard deviation. Differences in vaccination intention according to the general characteristics of the participants were analyzed using chi-square analysis. Differences in COVID-19 knowledge, health-protective behavior, and psychological antecedents of vaccination according to vaccination intention were analyzed using independent t-test. Factors affecting vaccination intention were analyzed by logistic regression analysis.

6. Ethical considerations

This study was conducted after obtaining approval from the Institutional Review Committee (IRB No: SBR-SUR-21-259). The survey was conducted with only those who read the description of this study and voluntarily agreed to participate. The participants were informed that they could withdraw at any time, and that personal information would be kept confidential and anonymous.

RESULTS

1. General characteristics and COVID-19 vaccination intention

Of the 294 participants, 198 (67.3%) were women. The mean age was 21.29 ± 1.85 years old ranging between 18 and 26 years old. The senior students (34.4%) were the highest proportion. The number of those living in metropolitan areas (69.7%), those with a moderate economic status (68.7%), and those with a moderate political orientation (64.3%) were high. Only 112 (38.1%) reported that they were vaccinated against influenza each year. Many participants reported that they were afraid of COVID-19 (76.9%) and that they were at risk of contracting the virus (75.9%). The most common sources of information related to COVID-19 were broadcasting (43.2%), but it was similar to social network service (SNS, 42.2%). Regarding the question for COVID-19 vaccination intention, 179 (60.9%) participants responded positive and 115 (39.1%) did not want to be vaccinated (Table 1).

Table 1. Differences of COVID-19 Vaccination Intention according to Characteristics

(N = 294)

Characteristics	Categories	Total n (%)	Vaccination intention, n (%)		χ^2 (p)
			Yes 179 (60.9)	No 115 (39.1)	
Gender	Men	96 (32.7)	61 (34.1)	35 (30.4)	0.42 (.516)
	Women	198 (67.3)	118 (65.9)	80 (69.6)	
Grade	Freshman	60 (20.4)	34 (19.0)	26 (22.6)	2.80 (.424)
	Sophomore	78 (26.5)	46 (25.7)	32 (27.8)	
	Junior	55 (18.7)	31 (17.3)	24 (20.9)	
	Senior	101 (34.4)	68 (38.0)	33 (28.7)	
Major	Healthcare	66 (22.4)	47 (26.2)	19 (16.5)	4.84 (.184)
	Engineering	124 (42.2)	71 (39.7)	53 (46.1)	
	Liberal and social	80 (27.2)	49 (27.4)	31 (27.0)	
	Fine art	24 (8.2)	12 (6.7)	12 (10.4)	
Living area	Capital	205 (69.7)	126 (70.4)	79 (68.7)	0.10 (.795)
	Noncapital	89 (30.3)	53 (29.6)	36 (31.3)	
Economic status	High	33 (11.2)	19 (10.6)	14 (12.2)	1.09 (.579)
	Medium	202 (68.7)	127 (71.0)	75 (65.2)	
	Low	59 (20.1)	33 (18.4)	26 (22.6)	
Political orientation	Conservatives	46 (15.6)	25 (14.0)	21 (18.3)	11.01 (.004)
	Moderate	189 (64.3)	107 (59.8)	82 (71.3)	
	Liberals	59 (20.1)	47 (26.2)	12 (10.4)	
Influenza vaccination	Yes	112 (38.1)	68 (38.0)	44 (38.3)	0.00 (.963)
	No	182 (61.9)	111 (62.0)	71 (61.7)	
Fear for COVID-19	Yes	226 (76.9)	140 (78.2)	86 (74.8)	0.46 (.496)
	No	68 (23.1)	39 (21.8)	29 (25.2)	
Perceived risk of infection with COVID-19	Yes	223 (75.9)	133 (74.3)	90 (78.3)	0.60 (.439)
	No	71 (24.1)	46 (25.7)	25 (21.7)	
COVID-19 information source	Broadcasting	127 (43.2)	78 (43.6)	49 (42.6)	0.16 (.925)
	SNS	124 (42.2)	74 (41.3)	50 (43.5)	
	Other	43 (14.6)	27 (15.1)	16 (13.9)	

COVID-19 = coronavirus disease 2019; SNS = social network service.

There was a difference in COVID-19 vaccination intention according to only political orientation ($\chi^2 = 11.01, p = .004$), and there was no significant according to other characteristics (Table 1).

2. COVID-19 knowledge, health-protective behavior, and psychological antecedents of vaccination

The mean scores for COVID-19 knowledge and health-protective behavior were 22.97 ± 5.33 out of 35 points (correct answer rate 65.6%) and 9.92 ± 2.22 out of 12 points, respectively. In the COVID-19 knowledge sub-domain, the mean rate of symptom and sign was the highest at 82.3%, knowledge for transmission 68.5%, and COVID-19 general knowledge 57.4%. For each domain of the psychological antecedents of vaccination, the mean scores for confidence and collective responsibility as positive factors for vaccination were $4.45 (\pm 1.24)$ and $5.61 (\pm 1.09)$, respectively. Meanwhile, the mean scores for complacency and constraints, which are factors that may interfere with vaccination against

COVID-19, were low with $2.42 (\pm 1.11)$ points, and $2.37 (\pm 1.19)$ points, respectively, but the mean score for calculation was high with $5.09 (\pm 1.18)$ points (Table 2).

3. Differences in COVID-19 knowledge, health-protective behavior, and psychological antecedents of vaccination according to COVID-19 vaccination intention

There was no difference in COVID-19 knowledge and health-protective behavior according to COVID-19 vaccination intention, but there was a difference in the psychological antecedents of vaccination (Table 3). The scores for confidence ($t = 10.13, p < .001$) and collective responsibility ($t = 7.01, p < .001$) were significantly higher in those with COVID-19 vaccination intention, whereas the scores for complacency ($t = -3.23, p = .001$), constraints ($t = -5.22, p < .001$), and calculation ($t = -2.94, p = .004$) were significantly higher in those without COVID-19 vaccination intention.

Table 2. Level of COVID-19 Knowledge, Health-protective Behaviors, and Psychological Antecedents of Vaccination (N = 294)

Variables	Mean ± SD	Min	Max	Range	Correct answer rate
COVID-19 knowledge	22.97 ± 5.33	3	35	0-35	65.6%
General	10.91 ± 3.25	1	19	0-19	57.4%
Symptom and sign	6.58 ± 2.49	0	8	0-8	82.3%
Transmission	5.48 ± 1.42	1	8	0-8	68.5%
Health-protective behavior	9.92 ± 2.22	1	12	0-12	
Psychological antecedents of vaccination					
Confidence	4.45 ± 1.24	1	7	1-7	
Complacency	2.42 ± 1.11	1	7	1-7	
Constraints	2.37 ± 1.19	1	7	1-7	
Calculation	5.09 ± 1.18	1	7	1-7	
Collective responsibility	5.61 ± 1.09	1	7	1-7	

COVID-19 = coronavirus disease 2019; SD = standard deviation.

Table 3. Differences of COVID-19 Knowledge, Health-protective Behaviors, and Psychological Antecedents of Vaccination according to COVID-19 Vaccination Intention (N = 294)

Variables	Vaccination intention		t (p)
	Yes	No	
	Mean ± SD		
COVID-19 knowledge	23.27 ± 5.21	22.50 ± 5.49	1.22 (.222)
Health-protective behavior	9.93 ± 2.21	9.91 ± 2.23	0.05 (.957)
Psychological antecedents of vaccination			
Confidence	4.95 ± 1.07	3.66 ± 1.07	10.13 (< .001)
Complacency	2.25 ± 1.10	2.67 ± 1.09	-3.23 (.001)
Constraints	2.09 ± 1.09	2.80 ± 1.22	-5.22 (< .001)
Calculation	4.93 ± 1.23	5.34 ± 1.06	-2.94 (.004)
Collective responsibility	5.95 ± 0.90	5.10 ± 1.16	7.01 (< .001)

COVID-19 = coronavirus disease 2019; SD = standard deviation.

Table 4. Influencing Factors on COVID-19 Vaccination Intention (N = 294)

Variables	Categories	B	SE	Odd ratio (95% confidence interval)	p
Political orientation	Moderate (reference)				.838
	Conservatives	0.24	0.41	1.27 (0.57-2.83)	.555
	Liberals	0.02	0.44	1.02 (0.43-2.41)	.973
Psychological antecedents of vaccination	Confidence	1.00	0.17	2.71 (1.95-3.77)	< .001
	Complacency	0.10	0.17	1.11 (0.79-1.54)	.556
	Constraints	-0.17	0.16	0.85 (0.62-1.17)	.307
	Calculation	-0.45	0.15	0.64 (0.48-0.85)	.002
	Collective responsibility	0.51	0.19	1.67 (1.15-2.44)	.008

COVID-19 = coronavirus disease 2019.

4. Factors affecting COVID-19 vaccination intention

Table 4 presents the impact of confidence, calculation, and collective responsibility among the psychological antecedents of vaccination on COVID-19 vaccination intention after controlling for the political orientation. As the confidence and collective responsibility score increased by one point, the vaccination intention increased by 2.71 times and 1.67 times, respectively. However, as the calculation score increased by one

point, the vaccination intention decreased by 0.64 times.

The reasons for not wanting to be vaccinated was investigated among 115 participants who reported that they did not want to be vaccinated (Table 5). The most common reason for not wanting to be vaccinated was concerns about vaccine safety (84, 73.0%). The second most common reason was lack of trust in vaccines (11, 9.6%), and the third most common reason was lack of trust in the government and the KDCA (7, 6.1%).

Table 5. The Reasons for Not to Get Vaccinated

(N = 115)

Reason	Not to get vaccinated
Specific concerns about the vaccine	86 (74.8)
Side effects, safety	84 (73.0)
Efficacy	2 (1.7)
Lack of trust	21 (18.3)
Vaccines	11 (9.6)
Government and the Korea Disease Control and Prevention Agency	7 (6.1)
Vaccine development or testing processes	2 (1.7)
Distrust unspecified	1 (0.9)
Antivaccine attitudes, beliefs, and emotions	3 (2.6)
Don't need the vaccine (e.g., no at risk)	1 (0.9)
Don't believe the vaccine will work, informed by reference to other bad vaccine experiences, flu shot not working, vaccine won't against mutation organism	1 (0.9)
Fear about vaccines	1 (0.9)
Need additional information	1 (0.9)
Compatibility with personal health conditions (e.g., allergies, comorbid conditions)	1 (0.9)
Others	4 (3.5)
Altruism, wanting higher-risk, individuals to get vaccine first	3 (2.6)
Dislike of needles	1 (0.9)

DISCUSSION

In this study, the mean score for COVID-19 knowledge was similar to a previous study in Iranian university students (23.75 points when converted out of 35 points) using different items [18] but was lower compared to Australian study (26.48 out of 35 points) using similar items [15]. Differences in information sources may be revealed as differences in retained information. More than 80% of the participants obtained information about COVID-19 through broadcasting and SNS in this study and the Iranian study [18]. However, 72% of the participants in the Australian study [15] obtained information from official government websites and major media outlets. Fast-changing and incomplete information, such as SNS information, may increase concerns about COVID-19 [19]. In particular, the total correct answer rate was only 65.6% in this study. Only the symptoms sub-domain showed an 80% correct answer rate. Since knowledge of the general characteristics and transmission of COVID-19 may be related to the need for vaccination and compliance with infection prevention practices, it is necessary to improve the knowledge level by disseminating accurate information about COVID-19 through various channels [18]. The mean score for health-protective behavior was different from previous studies, which was higher compared to the Australian study using similar items [15] but was lower compared to Iranian study by a different tool [18]. The health-protective behavior may differ depending on the severity of COVID-19 at the time of the surveys in each country. In South Korea, the number of confirmed

cases at the time of the survey ranged between 500-600 and high-intensity social distancing was maintained due to the third outbreak. In Australia, COVID-19 cases were few and most were infected from abroad [15]. In Iran, there were more than 5,000 new confirmed and the number of confirmed cases was on a gradually increasing trend.

Among the psychological antecedents of vaccination, the mean score for confidence was lower compared to previous studies for university students in Dutch university [20] and for nurses in Hong Kong [21]. Confidence in vaccines refers to belief in the effectiveness and safety of vaccines [17]. Individuals that do not know exactly about vaccines may have negative attitudes toward vaccines along with low trust [17]. The lack of detailed explanations of the vaccine by governments and the medical community and the negative language by the media could influence public confidence in the vaccine [22]. Controversy over the efficacy according to types of COVID-19 vaccines was and concerns about serious side effects such as thrombosis with thrombocytopenia syndrome have also been raised [23]. As it is an important factor that can reduce trust in vaccination, it should be resolved by providing accurate information through various channels.

The mean scores for complacency, constraints, and calculation for vaccination was higher compared to Dutch university student study [19] but lower compared to Hong Kong nurses' study [20]. Complacency refers to a feeling that the vaccine-preventable disease has low risk or thinking that a vaccine is not needed [17]. Wismans et al. [20] found that as descriptive norm for COVID-19 was higher, the level of complacency

was lower and vaccination intention was higher. Meanwhile, the constraints of vaccination reflect barriers related to geographic accessibility, comprehension (language or health literacy), and economic status [17,20]. Travel time or inconvenient procedures for vaccination can also act as barriers [17]. This result is thought to be due to differences in access to medical institutions and in national economy or welfare levels among countries. In terms of GDP, the economy is in the order of South Korea, the Netherlands, and Hong Kong. However, the welfare in Netherlands ranks fourth among OECD countries [24]. To reduce the constraints of vaccination, it is a meaningful approach to enhance the national welfare policies for vaccination, such as vacations after vaccination and therapeutic compensation for side effects of vaccine. Calculation, as another psychological antecedent of vaccination, is related to perceived risk of infections and vaccination after individuals' engagement in information searching [17]. Individuals' negative perceptions of infection and vaccines can change their views about the risk, leading to the increase of calculation scores. The misinformation may be usually ignored, but it may increase individuals' anxiety during a prolonged pandemic such as the current situation. Therefore, efforts to prevent an infodemic through false or misleading information can be important to increasing vaccination uptake.

The mean score for collective responsibility was lower compared to the Dutch university student study [20] but higher compared to Hong Kong nurses' study [21]. Collective responsibility refers to willingness to protect others through own vaccination [17]. The Dutch university student study was conducted at the beginning of the pandemic, and Hong Kong was a successful country in the early stages of quarantine. Korea was at a time when the number of confirmed cases increased due to the third wave. In other words, the difference in the risk of exposure to COVID-19 at the time of the study may be related to collective responsibility. However, all the three studies revealed that the score for collective responsibility among the psychological antecedents of vaccination was the highest.

The results of the current study revealed that confidence, calculation, and collective responsibility among the psychological antecedents were the factors affecting vaccination intention. It was different from the results of previous studies [20,21] reporting that confidence, complacency, and collective responsibility were the factors affecting vaccination intention.

The confidence among significant factors is considered the most im-

portant in practice. Since COVID-19 vaccination is an individual's voluntary choice and individuals are to be vaccinated with their consent, trust based on accurate information on the positive and adverse effects of the vaccination should be provided to ensure a high vaccination rate. Calculation is the deliberation for vaccination [17]. The results of consideration may vary depending on what information individual has and can be approached [7,18]. Therefore, it is necessary to continuously explain that vaccines are an effective strategy against COVID-19, adverse reactions of COVID-19 vaccines can be treated and safer than COVID-19 infection. This can be improved when the government, which determines the quarantine policy, communicates effectively with the people at various levels. In fact, European Union established an official website for countering false information to improve the quality of information and to strengthen the public's media literacy [25]. The significance of collective responsibility on vaccination intention is consistent with those of a previous study [26] revealing that attitude toward vaccines was affected by civic responsibility for population health or the value of social solidarity. In addition, Wisnans et al., [20] suggested that collective responsibility was directly related to altruism toward others. Therefore, vaccination campaigns with focus on the psychological characteristics of collective responsibility and the meaning and importance of herd immunity can be a strategy to inspire individual altruism and increase vaccination intention.

In this study, COVID-19 knowledge and health-protective behavior was found to not be significantly associated with COVID-19 vaccination intention. Loomba et al. [13] involving a randomized online population revealed that false information on COVID-19 lowered vaccination intention. A previous study regarding HPV vaccination [27] also reported that infection-preventive behavior was not significantly associated with HPV vaccination intention. However, scientific evidence-based knowledge is related to attitudes toward the vaccines and preventive behavior [28]. Therefore, efforts are needed to provide evidence-based accurate information and further studies on these topics are also needed.

CONCLUSION

This study identified factors affecting COVID-19 vaccination intention among college students in South Korea. The confidence in vaccination, calculation (personal consideration), and collective responsibility significantly influenced vaccination intention, all of which were factors

affected by accurate information. Therefore, it is necessary for healthcare professionals and the government to provide accurate information about the COVID-19 vaccines and to implement public awareness programs regarding the positive effects of vaccination and misconceptions about the adverse effects of the vaccines.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

AUTHORSHIPS

KMS, KDY, KSY, KHM, PSR, SDS, LSH, CEC, and SEJ contributed to the conception and design of this study; KHM and LSH collected data; PSR, LSH, CEC, and SEJ performed the statistical analysis and interpretation; KMS, KDY, KSY, KHM, PSR, SDS, LSH, and CEC drafted the manuscript; PSR, LSH, and SEJ critically revised the manuscript; SEJ supervised the whole study process. All authors read and approved the final manuscript.

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