

## RESEARCH ARTICLE

# Travelers' knowledge, attitude, practice towards COVID-19 and associated factors at the bus station of Mizan-Aman town, southwest Ethiopia, 2021

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## Abstract

**Background:** Overcrowded situations; such as mass transport, can highly expose people to the novel coronavirus infection unless strictly adhered to preventive measures recommended by the health authorities. This study aimed to assess traveler's knowledge, attitude, practices towards COVID-19, and associated factors at the bus station of Mizan-Aman town, southwest Ethiopia.

**Methods:** A cross-sectional study was conducted among travelers who were found at the bus station of Mizan-Aman town from January 1-15, 2021. A consecutive sampling method was employed to collect data from travelers. Knowledge and attitude data were collected by interviewer-administered questioner, whereas the face-mask wearing practice was assessed by observation.

**Result:** A total of 406 travelers were interviewed with a 96.2% response rate. All the travelers had heard about COVID-19. 216(53.2%) had good knowledge, 208(51.2%) had a positive attitude while only 45(11.1%) had worn face-mask. Poor knowledge was significantly associated with illiterates ( $AOR=7.5$ ,  $CI$ : 3.0-19.1), primary school ( $AOR=6.6$ ,  $CI$ : 3.0-14.8), and urban residents ( $AOR=0.21$ ,  $CI$ : 0.12-0.37). The negative attitude was significantly associated with a good attitude ( $AOR=0.32$ ,  $CI$ : 0.21-0.48), and not wearing a face-mask was significantly associated with marital status ( $AOR=3.5$ ,  $CI$ : 1.43- 8.81).

**Conclusion:** All travelers had awareness about COVID-19. More than half had good knowledge and a positive attitude while very few had a good practice. Level of education and residence were found determinants of the level of knowledge while the level of knowledge itself was a significant predictor of the level of attitude. Face-mask wearing practice was associated with marital status.

**Keywords:** Attitude, Bus station, COVID-19, Knowledge, Mizan-Aman town, Practice, Traveler, Southwest Ethiopia

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## Background

Coronavirus disease 2019 (COVID-19) is a viral respiratory disease caused by a new strain of coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first human case of COVID-19 was reported in China in December 2019. Since then, COVID-19 has been disseminated throughout the world, and still, morbidity and mortality have been raising [1-4]. On January 30<sup>th</sup>, 2020, the World Health Organization (WHO) declared the novel coronavirus (COVID-19) as a global epidemic (pandemic) [5].

After a year of the diseases, as of 04 February 2021, there have been 103,989,900 confirmed cases of COVID-19 including 2,260,259 deaths in 222 countries, areas, or territories in the world is USA, India, and Brazil the leading three countries with the highest cumulative cases [6]. As of 29 January 2021, a total of 3,555,356 cumulative COVID-19 cases with 90,529 deaths and 3,037,832 recoveries have been reported in African Union member (55) states being South Africa, Ethiopia and Nigeria are the first three with the highest cumulative COVID-19 cases in the continent [7].

The first COVID-19 positive case in Ethiopia was found in the capital city Addis Ababa on March 13, 2020. Since then, subsequently, the cases and deaths are rising [8]. As of 05 February 2021, in Ethiopia 140,157 cases were tested positive and 2,126 deaths. Addis Abeba, DireDawa, and Jigjiga were the three cities with the highest confirmed cases of COVID-19 6, [9]. Studies done in Ethiopia revealed that higher proportions of the communities had awareness and enough knowledge about COVID-19 [10-14]. Also, most showed a promising attitude towards COVID-19 prevention [11,14-16]. However, the morbidities and mortalities are expanding in the country because the community didn't adhere to the prevention and control measures of COVID-19 [10,12,17].

Varies evidence showed that mass gatherings, such as sport and traveling in public transport make people highly vulnerable to the novel coronavirus [18-20]. For instance, a single-day football match held in Bergamo province of Italy left 7,000 people tested positive for the coronavirus and more than 1,000 people have died, which makes the province the most heavily hit during the COVID-19 outbreak [19]. Also, an outbreak of COVID-19 was reported from Yokohama Port of Japan among passengers and crew members who were traveling using a ship that left over a hundred tested positive for novel coronavirus [20].

Thus, to strengthen COVID-19 prevention and control strategies set by the ministry of health of Ethiopia attention should be given to gathering such as bus stations where peoples use communal transport in an overcrowded manner. However, to the author's knowledge, no similar study was conducted among the travelers in Ethiopia, particularly in the study area. Assessing the traveler's KAP is important in identifying gaps and takes preventive measures towards combating the disease. Thus, this study was aimed to assess the KAP towards COVID-19 among travelers who shared public transport in the bus station of Mizan-Aman town of southwest Ethiopia.

## Methods and Materials

### Study Area and Period

The study was conducted from January 1 to 15, 2021, at bus stations of Mizan-Aman town, southwest Ethiopia. Mizan-Aman is the zonal administrative town of Bench-Sheko Zone, located 561 *km* to the southwest of Addis Ababa, which is the capital city of Ethiopia.

### Study Design

Cross-sectional study design was used.

## Source Population

All adult travelers who were found at the bus station and sitting in the buses and ready to travel to their destinations.

## Study Population

selected travelers who were found sitting in the buses and ready to travel to their respective destinations.

## Inclusion Criteria

All adults above and equal to 18 years, able to communicate verbally.

## Sample Size

The sample size was used to calculate using a single population proportion formula,

$$(n = \frac{(Z_{\alpha/2})^2 p(1-p)}{d^2}) \quad [21]$$

We inferred the proportion ( $P$ ) 50% (0.5) since no literature showed the KAP of travelers towards COVID-19 considering a 95% confidence level and 5% margin of error ( $d$ ).

Then, 10% of the non-response rate was added. Finally, the minimum sample size required for this study was 422.

## Sampling procedure

Study units were selected consecutively until the total sample size was met.

## Data Collection tool, Procedure, and Personnel

Knowledge and attitude data were collected by using pretested interviewer-administered structured and semi-structured questioner. Face-

mask wearing practice data were collected by observation. The knowledge and attitude questions were adopted from a related study conducted COVID-19 in the country [27,29-31].

The questionnaire was initially prepared in the English version and then translated to the local Amharic language, again translated back to English to check its consistency. Approximately 10-15 minutes were used to complete the instrument.

The questionnaire had four parts. The first section was socio-demographic characteristics such as age, sex, residence, marital status, educational status, occupation, and income. The second part was questions related to awareness of COVID-19 (item 1 & 2, the first item is "Yes" or "No" question and the next item depends on the first answer and had multiple responses). The third part had 12 items that were used to assess knowledge of COVID-19.

The response of the knowledge questions was either "one or multiple", "True" or "False" or "Not Sure" bases. During analysis, 1 point was given for correct answer and 0 points were given for incorrect answer [24,33]. The total knowledge score ranges from 0 to 12.

The overall knowledge category (Good vs. Poor) was based on the mean of all knowledge scores of the respondents. Thus, those individuals who had scored above and equal to the mean were categorized as "Good knowledge", whereas individuals who had scored below the mean were categorized as "Poor knowledge".

The fourth section was used to assess participant's attitudes towards coronavirus prevention using 11 items. The possible response was either "Agree" or "Not sure" or "Disagree". "Agree" was a positive response for items 1, 2, 4, 8, 9, and 11 of the attitude questions, whereas "Disagree" was a positive response for items 3, 5, 6, 7, and 10 of the attitude questions. For analysis purposes, 1 point was given for each positive

response, and 0 points were given for the rest [33]. Thus, the total positive attitude response ranges from 0 to 11.

Based on the mean of the total positive response of all attitude questions, those above and equal to the mean were categorized as “positive attitude” while those below the mean were categorized as “negative attitude” towards COVID-19 prevention.

Finally, COVID-19 prevention practice was assessed by observing whether the travelers wear face-mask while they were in the buses.

The interviews were conducted by six health extension workers (data collectors) and one supervisor (nurse) by wearing a face-mask, donning a glove, and keeping a 2-meter distance from the traveler. The interviews were conducted before the study participants were started their journey. Before the actual data collection, training was given for data collectors and supervisors for half-day, and a pre-test was done among 5% of the sample (21 travelers) who had used a taxi in the town (Mizan-Aman), and then necessary modification was done.

### Data processing and analysis

After the data collection, filled questionnaires were checked for completeness. The data were coded, entered, and cleaned using Epidata software (Version 3.1) and exported to SPSS version 23 for analysis.

First descriptive statistics such as frequency and percentage were conducted. Next binary logistic regression analysis was conducted for each independent variable and then all independent variables with probability value (P-value) of less than 0.25 were used to enter into multivariate analysis. Finally, factors associated with the KAP of travelers towards COVID-19 were identified

by multivariable logistic regression analysis.

The strength of association was determined by Adjusted Odd Ratio (*AOR*) with 95% confidence interval (*CI*) and statistically significant variables were identified based on *P*-value < 0.05. Hosmer-Lemeshow goodness of fit test was used to assess the model fitness.

### Ethical consideration

The Helsinki Declaration was considered in the study. Before data collection, a formal letter was obtained from Mizan-Tepi University, college of medicine and health science, and then submitted to the administrative body of the bus station for permission. Informed oral consent was obtained from each respondent after providing sufficient information on the purpose of the study. Respondent's right to withdraw from the study was also assured. Confidentiality of the respondents was kept by avoiding writing their name and identification number on the questionnaires. The data collectors have strictly adhered to COVID-19 prevention measures.

### Results

#### Socio-demographic Characteristics of the Respondent

A total of 406 travelers were interviewed with a 96.2% response rate. The mean age of the respondents was (31.0 ± 11.0) years and ranging from 18 to 70 years. The majority of the travelers were male (70.7%), married (67.2%), and rural residents (57.9%).

Of the total respondents, 40.6% attended primary school and nearly half of them (49.3%) were farmers. Regarding the economic status, the mean monthly income of the participants was 4290.53 ± 2578.1 Ethiopian birr ranging from 1,000 to 17,000 birr but 63(15.5%) reported no monthly income at all (Table 1).

**Table 1** Sociodemographic characteristics of travelers at bus stations of Mizan-Aman town, 2021 (n=406)

Variables	Responses	Frequency	Percentage (%)
Age categories (in years)	18-30	265	65.3
	31-45	99	24.4
	46-60	28	6.9
	>60	14	3.4
Gender	Male	287	70.7
	Female	119	29.3
Marital status	Single	133	32.8
	Married	273	67.2
Area of residence	Urban	171	42.1
	Rural	235	57.9
Educational status	Illiterate	64	15.8
	Primary school (1-8 grade)	165	40.6
	Secondary School grade (9-12)	109	26.8
	College or University	68	16.7
Occupation	Farmer	200	49.3
	Government employee	74	18.2
	Student	63	15.5
	Daily laborer	19	4.7
	Housewife	35	8.6
	Merchant	15	3.7
Average monthly income	<5,000 Birr	230	56.7
	≥5,000 Birr	113	27.8
	No income	63	15.5

**Awareness of travelers about COVID-19**

All the travelers had heard about COVID-19 where most of them mentioned more than one source of information. Mobile (53.9%), health worker (51.7%), radio (44.1%), television (31.0%), individuals (23.9%) and internet (13.1%) were mentioned as a source.

**Knowledge of travelers about COVID-19**

The mean knowledge score was 8.45(±2.47). More than half (53.2%) of the respondents had good knowledge (score ≥8.45) while the remaining 190(46.8%) had poor knowledge. Almost

half of the respondents, 204(50.2%) mentioned a virus as a cause of COVID-19. Similarly, half of the study participants (50.7%) reported respiratory droplets as a mode of transmission of the novel COVID-19.

The majority (88.9%) reported at least one of the main symptoms of COVID-19 and 396 (97.5%) mentioned at least one of the prevention methods of the disease (Table 2).

Wearing face mask, hand hygiene, keeping a 2-meter distance, avoiding mass gatherings, avoiding shaking hands, avoiding touching face frequently, covering mouth and nose while sneezing and coughing.

**Table 2** Travelers' response to knowledge questions towards COVID-19 at bus stations of Mizan-Aman town, 2021 (n=406)

Knowledge questions	Correct response	Study participants with correct response n (%)
1. What is the cause of COVID-19?	Virus	204(50.2%)
2. What is the mode of transmission of COVID-19?	Respiratory droplet	206(50.7%)
3. What is/are the main symptoms of COVID-19?	Mentioned either fever, dry cough, fatigue, breathing problem, muscle pain	361(88.9%)
4. What is/are the prevention methods of COVID-19?	Mentioned at least one of preventive methods a	396 (97.5%)
5. Infected peoples can transmit the virus to others even if they are asymptomatic	True	295 (72.7%)
6. Eating raw meat can transmit the virus	True	230 (56.7%)
7. The coronavirus can stay on the surface of objects for hours	True	232 (57.1%)
8. People of all ages are affected but older people and people with medical illnesses succumb more easily to severe illness	True	299 (73.6%)
9. COVID-19 can lead to severe outcomes including death	True	303(74.6%)
10. No effective treatment is found for COVID-19 other than supportive care.	True	282 (69.5%)
11. Isolating infected people with COVID-19 and providing care is effective to reduce the spread of the virus	True	270 (66.5%)
12. Immediate isolation of people who have contact with COVID-19 is important.	True	308(75.9%)
The overall level of knowledge	Good knowledge	216(53.2%)
	Poor knowledge	190(46.8%)

### The attitude of travelers towards COVID-19 prevention

The mean positive response was 5.6. More than half of the respondents (51.2%) had a positive attitude towards COVID-19 prevention while 44.8% had a negative attitude.

Among the respondents, 318(78.3%) agreed that COVID-19 exists in their locality and 74.4% agreed that everyone including them is at risk of acquiring COVID-19 while 64% disagree that white peoples are more affected than black.

339(83.5%) agreed that traveling by mass transport and attending gatherings can increase their risk of acquiring COVID-19. Less than half, 44.8% disagree that vaccination can protect all people from COVID-19, and only near to a fourth of the study participants (27.6%) agreed that the disease will finally be successfully controlled (Table 3).

During the survey, only forty-five (11.1%) of the total respondents were observed wearing face masks while the remaining 89.9% were not.

**Table 3** Travelers' response to attitude questions towards COVID-19 at bus stations of Mizan-Aman town, 2021 (n=406)

Attitude questions	Agree	Not sure	Disagree
1. COVID-19 exists in your locality	<b>318(78.3%)</b>	76(18.7%)	12 (3.0%)
2. Everyone including you is at risk of acquiring COVID-19	<b>302(74.4%)</b>	85(20.9%)	19(4.7%)
3. COVID-19 affects white peoples than black	29(7.1%)	117(28.8%)	<b>260(64.0%)</b>
4. Traveling by mass transport and attending gatherings can increase your risk of acquiring COVID-19	<b>339(83.5%)</b>	54(13.3%)	13(3.2%)
5. COVID-19 cannot affect people's living in hot weather	25(6.2%)	100(24.6%)	<b>281(69.2%)</b>
6. COVID-19 can be treated with modern antibiotics	25(6.2%)	175(43.1%)	<b>206(50.7%)</b>
7. Traditional medicines are curative to COVID-19.	135(33.3%)	87(21.4%)	<b>184(45.3%)</b>
8. Staying at home minimizes your risk of infection	<b>333(82.0%)</b>	55(13.5%)	18(4.4%)
9. Everyone can be protected by applying the prevention methods of COVID-19	<b>377(92.9%)</b>	24(5.9%)	5(1.2%)
10. Vaccination can protect all people from COVID-19	70(17.2%)	154(37.9%)	<b>182(44.8%)</b>
11. COVID-19 will finally be controlled successfully	<b>112(27.6%)</b>	226(55.7%)	68(16.7%)
The overall level of attitude towards COVID-19	Positive attitude		208(51.2%)
	Negative attitude		198 (48.8%)

Note: Bold numerical values are a positive response

### Factors associated with knowledge, attitude, and practice of travelers towards COVID-19

First, binary logistic regression was conducted between each independent variable and the outcome variables. Accordingly, residence and educational status were found potentially variables, Level of knowledge and monthly income for attitude, and marital status and educational status for face-mask-wearing practice. Then, these potential variables were entered into multivariable logistic regression.

In multivariable analysis residence and educational status were found to be significantly associated with the level of knowledge of the respondents. According to this finding, the odds of poor knowledge among urban residents were 79% ( $AOR=0.21$ , 95%  $CI$ : 0.12-0.37) less likely

lower than their counterparts, and having poor knowledge were 7.5 times more likely among illiterates than college or university attendees ( $AOR=7.5$ , 95%  $CI$ : 3.0-19.1) and also having poor knowledge about COVID-19 were 6.6 times more likely among primary school than those with history of attending college or university ( $AOR=6.6$ , 95%  $CI$ : 3.0-14.8).

The level of knowledge was significantly associated with the level of attitude towards COVID-19 prevention. The odds of negative attitude among study participants with a good knowledge were 68% ( $AOR=0.32$ , 95%  $CI$ : 0.21-0.48) less than those with poor knowledge. Also, it was found that face-mask wearing practice has a significant association with marital. Not wearing a face-mask was 3.5 times more likely among single travelers than married ( $AOR=3.5$ , 95%  $CI$ : 1.43- 8.81) (Table 4).

**Table 4** Factors associated with Knowledge, Attitude, and Practice of travelers towards COVID-19 at bus stations of Mizan-Aman town, 2021 (n=406)

<b>Factors associated with Knowledge towards COVID-19</b>				
<b>Variables</b>	<b>Level of knowledge</b>		<b>COR (95% CI)</b>	<b>AOR (95% CI)</b>
	<b>Good</b>	<b>Poor</b>		
Residence				
Urban	136(33.5%)	35(8.6%)	0.13(0.08-0.21)***	0.21(0.12-0.37)***
Rural	80(19.7%)	155(38.2%)	1	1
Educational status				
Illiterate	18(4.4%)	46(11.3%)	14.8(6.2-35.2)***	7.5(3.0-19.1)*
Primary school	51(12.6%)	114(28.1%)	13.0(6.1-27.4)***	6.6(3.0-14.8)*
Secondary School	89(21.9%)	20(5.0%)	0.30(0.57-2.9)	0.83(0.34-2.0)
College or University	58(14.3%)	10(2.5%)	1	1
<b>Factors associated with Attitude towards COVID-19</b>				
<b>Variables</b>	<b>Level of Attitude</b>		<b>COR (95% CI)</b>	<b>AOR (95% CI)</b>
	<b>Positive</b>	<b>Negative</b>		
Level of knowledge				
Good	140(34.5%)	76(18.7%)	0.30(0.20-0.50)**	0.32(0.21-0.48)*
Poor	68(16.8%)	122(30.0%)	1	1
Monthly income				
<5,000 Birr	117(28.8%)	113(27.8%)	1.8(1.0-3.2)*	1.4(0.75-2.5)
≥5,000 Birr	50(12.3%)	63(15.5%)	2.3(1.2-4.4)**	1.9(0.96-3.6)
No monthly income	41(10.1%)	22(5.4%)	1	1
<b>Factors associated with Practice towards COVID-19</b>				
<b>Variable</b>	<b>Face-mask wearing practice</b>		<b>COR (95% CI)</b>	<b>AOR (95% CI)</b>
	<b>Yes</b>	<b>No</b>		
Marital status				
Single	6(1.5%)	127(31.3%)	3.5(1.4-8.6)**	3.5(1.43- 8.81)**
Married	39(9.6%)	234(57.6%)	1	1
Educational status				
Illiterate	16(3.9%)	48(11.8%)	0.14(0.04-0.50)	0.13(0.03-0.58)
Primary school	11(2.7%)	154(37.9%)	0.65(0.17-2.39)	0.58(0.13-2.57)
Secondary School	15(3.7%)	94(23.1%)	0.29(0.08-1.04)	0.36(0.09-1.34)
College or University	3(0.7%)	65(16.0%)	1	1

\* $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\* $p < 0.001$ , 1: Reference



## Discussion

Despite the availability of vaccination against novel coronavirus, it's spreading alarmingly throughout the world. This indicates the necessity of public adherence to preventive measures mentioned by the health authorities, which is achieved by increasing the populations'KAP towards COVID-19. Thus, this study aimed to assess travelers'KAP towards covid-19 in Mizan-Aman town of southwest Ethiopia.

All the travelers had heard about COVID-19 where most of them mentioned mobile (53.9%) and health workers (51.7%) as main sources of information. Similar results were found from the studies done in Ethiopia and India [24,25]. Thus countries could use a mode of communication such as mobile to disseminate health education for a vast section of their population. Health professionals can play a major role in aware the community including COVID-19.

In the current study, half of the respondents knew that virus is a cause of COVID-19. This finding was much lower than the study finding from Indonesia where most (97.42%) knew the causative agent of COVID-19 [26]. The reason for this variation might be due to a difference in the socioeconomic status of the study participants.

In this study, the majority (88.9%) knew at least one of the main symptoms of COVID-19 like fever, dry cough, fatigue, breathing problem, muscle pain. This is in line with a previous study finding [27]. But lower than the finding from Saudi Arabia where 98.02% of study participants knew the main clinical manifestations. The possible reason for this discrepancy might be the difference in the socioeconomic and methodological difference where larger sample size and online interview were used in the previous study [28].

This study showed 50.7% of respondents knew that respiratory droplet is a mode of transmis-

sion of the novel COVID-19. This is lower than the finding reported by Mechessa *et al* where 77.4% of the study participants mentioned a respiratory droplet as a mode of transmission of the COVID-19 virus [27]. The possible reason for this discrepancy might be due to the difference in the study setting where the former study was conducted among urban residents, whereas most (57.9%) of these respondents were from a rural area.

The magnitude of good knowledge among the current respondents was 53.2%. This is higher than the study finding from Addis Abeba, Ethiopia (37.2%) [29]. The possible reason for the variation might be methodological variation. The previous study was conducted among larger sample sizes using a self-administered questionnaire, and the previous knowledge score was categorized based on Bloom's cutoff point.

According to multivariate analysis, the odds of poor knowledge about COVID-19 among urban residents was by 79% less than the rural residents, 7.5 times more likely among illiterates, and 6.6 times more likely among primary school than those with a history of attending college or university. This finding is comparable with the study finding reported by Akalu *et al* from northern Ethiopia where poor knowledge was more likely among rural residents and those peoples who cannot read and write [30]. Also, the study finding from southern Ethiopia stated that lack of formal education was associated with poor knowledge about COVID-19 [27]. The possible justification might be most COVID-19 related information was being disseminated mainly through WebPages, written forms like leaflets that cannot be accessible either to the rural residents or the illiterates.

In this study, more than half (51.2%) had a positive attitude towards COVID-19 prevention. This is similar to the previous studies [24,29]. The level of knowledge was found significantly associated with the respondent's attitude towards COVID-19 prevention.

The odds of negative attitude among those study participants with good knowledge were nearly 70% less than those with poor knowledge. Similarly, as indicated in the study finding of Haftom *et al*, good knowledge was associated with a promising attitude towards the prevention of COVID-19 prevention [31]. Another study finding was also stated that knowledge is a prerequisite for promoting favorable attitudes and taking prevention measures [10].

The WHO and health ministry of Ethiopia launched strict preventive measures such as physical distancing and mask-wearing when peoples leave their homes [9] but this is not the case on the ground. For instance, in our study setting, only a few of them had face-mask wearing practice. This is in line with studies done in Ethiopia [14,30,31], Saudi Arabia [28], and Iran [32].

Also, it was found that COVID-19 prevention practice has a significant association with the marital status of the study participants. This is comparable with the study finding from northern Ethiopia [30]. The possible reason might be married peoples feel protecting oneself from an infection will prevent them from being a source of infection for their spouse and other family members.

## Conclusion

More than half of the travelers had good knowledge and a positive attitude while very few of them had a face-mask wearing practice. Level of education and residence were found determinants of knowledge while the level of knowledge itself was a significant predictor of attitude. Face-mask wearing practice was associated with marital status. Health education given about COVID-19 should address people with lower educational status, single youths, and rural residents. Health authorities should promote preventive measures such as the benefit of wearing face masks at crowded places such as bus stations.

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**Consent for Publication** - Not applicable

## Availability of Data and Materials

The datasets underlying the study are available from the corresponding author up on request.

## Competing Interests

We confirm that there are no competing interests on this research work.

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No funding was earned from any source.

## Author's Contributions

Both authors conceived the study, conducted the statistical analysis, and prepared the manuscript. Finally, the authors approved the final manuscript for publication.

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