

A study on changes in domestic tourism trends using social big data analysis - Comparison before and after COVID19 -

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Abstract

In this study, social network analysis was performed to compare and analyze changes in domestic tourism trends before and after the outbreak of COVID-19 in a situation where the damage to the tourism industry due to COVID-19 is increasing. Using Textom, a big data analysis service, data were collected using the keywords “travel destination” and “travel trend” based on the collection period of 2019 and 2020, when the epidemic spread to the world and became chaotic. After extracting a total of 80 key words through text mining, centrality was analyzed using NetDraw of Ucinet6, and clustered into 4 groups through CONCOR analysis. Through this, we compared and analyzed changes in domestic tourism trends before and after the outbreak of COVID-19, and it is judged to provide basic data for tourism marketing strategies and tourism product development in the post-COVID-19.

Keywords: Big Data, Domestic Tourism, Tourism Trends, Serial Network Analysis, COVID-19.

1. INTRODUCTION

After the outbreak began in December 2019, as of April 20, 2020, all countries around the world imposed travel restrictions as a measure to prevent the spread of infectious diseases caused by COVID-19. It is the first time in history that international tourism has been restricted in such an extreme way. Most of the tourism industry around the world has been suspended since March 2020 due to enforcement due to social distancing, gathering bans, movement restrictions between countries, and 14-day self-quarantine[1]. In Korea, as the first case of infection occurred on January 20, 2020, the number of outbound tourists and national overseas tourists

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each fell sharply[2]. The global infectious disease spread shows a repeating pattern every five to six years, and the possibility of a large-scale epidemic in the future cannot be ruled out. The travel pattern of the domestic tourism industry, which has contracted due to the ongoing COVID-19, is changing from the past travel method to the DIY travel method. Due to the continuous step-by-step sanctions, both groups and individuals become accustomed to basic quarantine rules, and in order to relieve psychological fatigue in daily life, domestic travel that focuses on safety and hygiene has become another travel trend[3]. In the past, tourism in the form of indoor tours, such as tours, experiences, and festivals, where large-scale crowds are concentrated, was a general tourism trend[4]. With these changes, new tourism trends such as healing, health, nature, safety, hygiene, and daily travel are emerging as keywords. Therefore, appropriate tourism revitalization measures and proper analysis of tourism trends are important in preparing new strategies for the new normal era. can be said to be of great value[5]. In addition, as the non-face-to-face culture continues for a long time, the structure of the existing tourism system is gradually changing due to the development of AR/VR tourism products using ICT technology, accommodation that allows unmanned check-in, tourism transportation, and expansion of global OTA market dominance. As such, with the acceleration of technological development following the 4th industrial revolution, the sharing economy such as mobile and platform business, AI tourism, accommodation sharing and mobility sharing in the tourism sector is expected to enter a new growth phase[6]. Accordingly, this study compared and analyzed domestic travel trends in 2019, before the outbreak of COVID-19, and 2020, a year of global chaos, using Textom, a big data analysis service that can reflect the latest trends on social media. In this regard, we intend to strengthen the tourism industry's ability to respond to crises caused by infectious diseases that may occur in the future and prepare basic data to revitalize the tourism industry by predicting changes in tourism trends.

2. PREVIOUS RESEACH

Infectious diseases caused by viruses or bacteria, such as SARS, H1N1, MERS, and COVID-19, which act as the biggest obstacle and bad news for the tourism industry, have a huge economic impact on tourists' overseas travel and the domestic tourism industry. The spread of COVID-19, which has hit the world in 2020, has affected the psychology of tourists along with policies that restrict movement and travel between countries in order to prevent an epidemic between countries, and it is becoming a new tourism trend. Prior to the outbreak of COVID-19, factors affecting domestic tourism include economic growth, the emergence of millennials and generation z, an increase in new seniors due to an aging population, social awareness that pursues work-life balance, and a 52-hour workweek system, etc. trend was analyzed. After the outbreak of COVID-19, the factor of infection prevention for hygiene and safety came into play. Now, it is important to analyze consumer-oriented tourism trends using social big data to accurately identify tourism trends for current customers and enhance effective tourism policies for the rapid recovery of the domestic tourism industry[7]. Kyunghye Ha was suggested that analyzed the changed marine tourism trends using each marine tourism-related news data in 2019 and 2020, before and after the outbreak of COVID-19, and as a result, focuses on accommodation facilities where you can enjoy natural scenery and relax and recreation[8]. Pilkyun Ahn and Seongjun Eom analyzed the changing tourism trends in the post-COVID-19 using Wibong Village as an example, and suggested the creation of a rural experience village space and experience course so that rural areas can play a central role as tourism or travel destinations. Minsoo Kim analyzed leisure sports tourism trends by type of accommodation, travel region, length of stay, and leisure sports activities using social big data[9]. Youngnam Kim and Seonghwa Hong conducted an IPA study on the awareness of quarantine at the tourist contact point for tourists who visited Jeju during the period of COVID-19, and predicted changes in the tourism industry to

come in the new normal 2.0 Tourist Hyejin Lee and Youngok Kang derived preferred tourist destinations for foreign tourists who visited Busan using texts displayed on Flickr, a social network service, and analyzed tourism images for each tourist destination[10]. Soohee Lee, Deukhee Park, and Maengseon Kim used Textom as a big data analysis program to understand tourists' perceptions of Jeju Island tourism. As a result of collecting and analyzing data by dividing it into pre- and post-Hanhan-ryeong time points, it was confirmed that there was a difference in perception before and after[11]. Jangheon Han and Heon Seo derived a plan to revitalize Yeosu tourism by using social big data to analyze tourists' perceptions of Yeosu tourism[12]. Therefore, this study uses social media big data to analyze the changes in domestic tourism trends by classifying the psychology and behavior of tourists about domestic travel or travel destinations before and after the outbreak of COVID-19, and provides effective marketing strategies and tourism in the post-coronavirus era. We intend to provide basic data for product development.

3. RESEARCH METHOD

3.1 Research project

In this study, big data analysis using text mining was performed to understand the trend of domestic tourism that has changed since before the COVID-19.

In order to examine the changed domestic tourism trends in 2019 and 2020 after the outbreak of COVID-19 the following research tasks were established to identify key keywords and issues, and to compare and analyze the meaning of the network of these keywords.

Research project 1: This is a comparative analysis of key keywords for domestic tourism trends analyzed through text mining before and after COVID-19.

Research project 2: The purpose of this study is to compare and analyze the semantic network between keywords related to domestic tourism trends before and after COVID-19.

Research project 3: The purpose of this study is to compare and analyze changes in domestic tourism trends derived from the semantic network of key keywords before and after COVID-19.

3.2 Data collection

In order to compare and analyze changes in domestic tourism trends before and after the outbreak of COVID-19, the data collection period was set for 1 year in 2019(Jan1 to Dec31) and 1year in 2020(January1 to Dec31). Data were collected from all blogs, cafes, news, web documents, academic information provided by social media such as Naver, Daum, and Google, as well as Facebook, Baidu, YouTube, and Twitter. The key words are 'Travel Destination' and 'Travel Trend', and Textom 5.0, a big data solution service, was used to collect unstructured text data. Textom is a solution program that can collect and refine data in a web environment using text mining technology, and even process matrix data generation[13].

3.3 Analysis Method

In the analysis method of this study, first, atypical keywords were extracted using Textom, and text mining was performed to extract key words that appeared simultaneously with keywords related to domestic tourism trends by understanding the importance through the frequency of keywords. Also, by executing KrKwic, 80 key keywords were extracted by deleting words such as 'Year', 'Above', 'Won', 'Month', 'Thing', and 'In'. Second, UCINET analysis is a program that can utilize various network analysis techniques by applying the data

analyzed in Textom (Textom 5.0). Degree centrality, closeness centrality, and betweenness centrality were analyzed as the top 80 key keywords using the UCINET 6 program, and the frequency and degree of relationship were visualized with node size and line thickness using NetDraw of UCINET 6. Third, CONCOR analysis is a representative research method for measuring structural equivalence using correlation between keywords. Structural equivalence refers to a case in which there is no direct relationship with other keywords in a network but has a similar pattern (Textom 5.0). In other words, a cluster of keywords with similarities was derived through CONCOR analysis, and the correlation between them was visualized.

4. RESEARCH RESULTS

4.1 Keyword Frequency and TF-IDF Analysis

As a result of text mining on changes in domestic tourism trends since before COVID-19, 42,958 keywords in 2019 and 42,926 keywords in 2020 were analyzed. Based on this, the top 80 keywords were extracted by year. As a result of keyword frequency analysis in 2019, the most frequent keyword was 'Travel', followed by 'Recommendation', 'Travel Destination', 'Overseas Travel', and 'Hotel'. As a result of keyword frequency analysis in 2020, the most common keyword was 'Travel' as in 2019, followed by 'Trend', 'Domestic Travel', 'Recommended', 'Travel Destination', 'COVID-19', etc. As a result of the analysis, the keywords related to tourist destinations in 2019 before COVID-19 were 'Japan', 'Jeju Island', 'Bangkok', 'China', 'Southeast Asia', 'Thailand', 'Taiwan', 'Busan', 'Philippines', 'Cebu' and 'Europe' accounted for about 20% of the 80 keywords. Next, 'Family', 'Friend', 'Alone', 'Package', 'Family Trip', and 'Honeymoon Trip' appeared in the form of travel companion. For travel purposes, 'Autumn Leaves Play', 'Colorful', 'Hot Springs', 'Sea', 'Activities', 'Recreation', 'Attractions', 'Visit', 'Experience', 'Restaurants', 'Places to Visit', etc. this was derived. For accommodation types, 'Hotel', 'Resort', 'Ryokan', and 'Accommodation' were derived, and for tourism Information, 'Recommendation', 'Reservation', 'Search', 'Data', 'Plan', 'Photo', It was derived from 'Information', 'Budget', 'Cost-Effectiveness', 'Travel Agency', 'Air Ticket', etc. The results of the 2020 analysis after the COVID-19 virus were 'Jeju Island', 'Surrounding Seoul', 'Gyeongju', 'Busan', 'Gyeongbuk', 'Gangwon-do', 'Japan', 'Yeosu', 'Jecheon-si', as keywords related to tourist destinations. Geoje Island, 'China', 'Andong', and 'Danyang' accounted for about 15% of the 80 keywords. In 2019, most of the keywords related to tourist destinations were related to overseas than in Korea, but in 2020, all keywords except China and Japan were derived as domestic tourist destinations. This is believed to have resolved the desire for overseas travel with domestic travel due to social sanctions such as continuous cross-border movement restrictions and self-isolation due to COVID-19. The following were derived from three keywords 'Family', 'Couple', and 'Alone' in the form of travel companion. However, in 2020, due to COVID-19, it is judged that travel needs have been satisfied either alone or as a family unit due to safety, hygiene, and anxiety about infection. The following were found as 'Healing', 'Nature', 'Valley', 'Restaurant', 'Experience', 'Consumption', and 'Sea' for the purpose of travel. As for accommodation types, 'Hotel', 'Chabak', 'Camping', 'Glamping' and 'Airbnb' were found. Compared to 2019, it can be seen that car camping or camping are preferred as travel forms that want to minimize stress and contact with others and heal in nature due to long-term daily life restrictions due to COVID-19. The following keywords related to tourism information were 'Recommendation', 'Photo', 'Plan', 'Search', 'Airplane', 'Preparation', and 'Reservation'. Compared to 2019, the newly derived keywords were 'Jeju Air', 'Yeogie-ottae', 'Online', 'Share', 'Platform', and 'Skyscanner'. This is considered to have replaced the desire to board a plane with the arrival and departure of Jeju Island due to restrictions on movement at the border and to use Jeju Air, a low-cost airline, a lot. It is judged that 'Yeogie-ottae' and 'Skyscanner' were mainly used as platforms for searching and making reservations for domestic travel. Lastly, the keywords newly appeared in 2020 are

'Trend', 'COVID-19', 'Untact', 'Change', 'Safety', 'Non-face-to-face', 'Hygiene', 'Post', 'Go out', 'LAN Travel', etc., and this is judged to be a keyword that reflects the pandemic era caused by COVID-19. TF-IDF analysis is a value obtained by multiplying TF and IDF, and refers to an index indicating how important a word is in a specific ranking (Textom 5.0). As a result of the analysis, the ranking of TF-IDF is very similar to the keyword frequency ranking, indicating that the core keywords in the frequency analysis result are important in terms of weight. The results are shown in <Table 1> and <Table 2> below.

Table 1. TF-IDF analysis of keywords related to tourism trends in 2019

TF						TF-IDF					
R	Keyword	TF	R	Keyword	TF	R	Keyword	TF-IDF	R	Keyword	TF-IDF
1	Trip	19948	41	Travel Agency	613	1	Trip	12330	41	Cebu	2321
2	Suggestion	5708	42	Picture	596	2	Suggestion	9334	42	Friend	2237
3	Travel Destination	4604	43	Information	593	3	Travel Destination	7719	43	Europe	2221
4	Overseas Travel	3063	44	Cebu	592	4	Hotel	7442	44	Plan	2199
5	Hotel	2773	45	Friend	591	5	Autumn	7017	45	Travel Agency	2165
6	Autumn	2302	46	Europe	574	6	Overseas Travel	6805	46	Theme	2142
7	Seoul	2119	47	Experience	556	7	Seoul	6471	47	Information	2141
8	Domestic Travel	1957	48	Alone	551	8	Autumn Leaves	5433	48	Picture Alone	2114
9	Free Travel	1855	49	Vacation	551	9	Free Travel	5305	49	Alone	2092
10	Reservation	1805	50	Tourist	534	10	Domestic travel	5165	50	Vacation	2068
11	Winter	1557	51	Theme	526	11	Winter	4901	51	Colorfully	2039
12	Japan	1549	52	Preparation	524	12	Reservation	4541	52	Spa	2033
13	Autumn Leaves play	1405	53	Da Nang	518	13	Japan	4513	53	Da Nang	2010
14	Tourism	1330	54	Daily life	510	14	Holidays	3896	54	Experience	2000
15	Package	1280	55	Colorfully	498	15	Package	3663	55	Tourist	1968
16	Change	1126	56	Tourist Destination	494	16	Tourism	3655	56	Daily Life	1956
17	Family	1088	57	Ryokan	465	17	Family	3328	57	Australia	1910
18	Holidays	1030	58	Australia	458	18	Change	3317	58	Preparation	1895
19	Summer	1001	59	Spa	444	19	Summer	3169	59	Tourist Destination	1843
20	Schedule	999	60	Restaurant	443	20	Keyword	3123	60	Restaurant	1727
21	Jeju Island	992	61	USA	438	21	Korea	3101	61	Activity	1709
22	Keyword	934	62	Activity	427	22	Schedule	2986	62	USA	1706
23	Trend	905	63	Airline Ticket	423	23	Bangkok	2960	63	Hong Kong	1696
24	Area	899	64	Sea	405	24	Search	2827	64	Airline Ticket	1673
25	Bangkok	810	65	Recreation	403	25	Area	2824	65	Sea	1633
26	China	803	66	Hong Kong	401	26	China	2802	66	Gangwon-do Honeymoon Destination	1630
27	Search	800	67	Gangwon-do	385	27	Taiwan	2793	67		1609

28	Tourist	779	68	Accommodation	385	28	Trend	2728	68	Budget	1601
29	Southeast Asia	743	69	Course	375	29	Southeast Asia	2598	69	Temple	1599
30	Nature	726	70	Family trip	375	30	Thailand	2540	70	Suburb	1580
31	Thailand	719	71	Suburb	369	31	Jeju Island	2540	71	Recreation	1567
32	Taiwan	717	72	Temple	363	32	Busan	2533	72	Accommodation	1564
33	City	703	73	Sights	363	33	Tourist	2503	73	Family trip	1563
34	Data	703	74	Honeymoon Destination	354	34	Nature	2467	74	Course	1509
35	Korea	695	75	Visit	353	35	Data	2439	75	Sights	1471
36	Busan	689	76	Budget	335	36	Vietnam	2414	76	Cost-Effectiveness	1462
37	Vietnam	674	77	Cost-Effectiveness	325	37	Ryokan	2410	77	Thanksgiving	1453
38	Plan	627	78	Thanksgiving	320	38	Resort	2410	78	Visit	1412
39	Philippines	624	79	Market	314	39	City	2376	79	Places to visit	1332
40	Resort	619	80	Places to visit	313	40	Philippines	2339	80	Market	1306

Table 2. TF-IDF analysis of keywords related to tourism trends in 2020

TF						TF-IDF					
R	Keyword	TF	R	Keyword	TF	R	Keyword	TF-IDF	R	Keyword	TF-IDF
1	Trip	19926	41	Couple	517	1	Trip	13146	41	Day	2079
2	Trend	7873	42	Gyeongbuk	513	2	Trend	10997	42	Busan	2009
3	Domestic Travel	3849	43	Summer Vacation	508	3	Domestic Travel	7817	43	Summer Vacation	2009
4	Suggestion	3757	44	Preparation	506	4	Suggestion	7798	44	House	1981
5	Travel Destination	3691	45	Tourist	498	5	Travel Destination	7233	45	Airplane	1977
6	COVID-19	3508	46	Korea Tourism Organization	496	6	COVID-19	7177	46	Keyword	1920
7	Family	1997	47	Japan	494	7	Overseas Travel	5538	47	Japan	1919
8	Overseas Travel	1995	48	Jeju Air	493	8	Jeju Island	5037	48	Sights	1899
9	Jeju Island	1642	49	Yeo su	491	9	Untact	4697	49	Tourist	1857
10	Untact	1288	50	keyword	489	10	Autumn	3826	50	Preparation	1848
11	Change	1270	51	Room and Board	489	11	Holidays	3754	51	Yeogie-otte	1841
12	Autumn	1170	52	Vacation	470	12	Healing	3694	52	Vacation	1838
13	Safety	1160	53	Sights	464	13	Safety	3619	53	LAN Travel	1816
14	Healing	1144	54	Jecheon	462	14	Change	3582	54	Korea Tourism Organization	1814
15	Picture	1126	55	Go out	428	15	Winter	3523	55	Yeo su	1813
16	Non-face-to-face	1099	56	Attention	427	16	Picture	3473	56	Room and Board	1804
17	Own Car	901	57	News	425	17	Non-face-to-face Car	3380	57	China	1767
18	Seoul Suburbs	897	58	Data	419	18	Camping	3288	58	Andong	1737

19	Holidays	897	59	Theme	408	19	Jeju Island	3284	59	Skyscanner	1693
20	Car	876	60	Geoje Island	406	20	Seoul	3100	60	Accommodation	1662
21	Camping	831	61	LAN Travel	406	21	Suburbs	3097	61	News	1659
22	Hygiene	826	62	China	404	22	Hotel	2838	62	Go out	1624
23	Hotel	824	63	Accommodation	402	23	Luxury	2822	63	Attention	1617
24	Day	823	64	Restaurant	393	24	Summer	2793	64	Data	1611
25	Summer	806	65	Yeogie-otte	385	25	Own Car	2771	65	Share	1602
26	Nature	797	66	Daily life	382	26	Nature	2663	66	Theme	1596
27	Tourist	783	67	Online	379	27	Tourist	2624	67	Restaurant	1584
28	Destination	763	68	Share	378	28	Destination	2623	68	Danyang	1581
29	Traveler	730	69	Selfie	374	29	Gangwon-do	2595	69	Traveler	1570
30	Gangwon-do	684	70	Skyscanner	368	30	Family	2589	70	Geoje Island	1563
31	Luxury	683	71	Platform	367	31	Gyeongju	2472	71	Valley	1548
32	Alone	663	72	Valley	364	32	Leisure	2437	72	Couple	1538
33	Post	624	73	Reservation	357	33	Post	2427	73	Online	1520
34	Plan	614	74	Experience	351	34	Camping	2399	74	Daily life	1519
35	Camping	599	75	Andong	346	35	Jecheon	2389	75	Airbnb	1472
36	Search	567	76	Winter	344	36	Alone	2352	76	Selfie	1466
37	Leisure	561	77	Consumption	334	37	Search	2328	77	Platform	1466
38	Sea	550	78	Glamping	324	38	Hygiene	2229	78	Glamping	1453
39	Gyeongju	532	79	Airbnb	324	39	Jeju Air	2195	79	Reservation	1450
40	House	519	80	Danyang	322	40	Gyeongbuk	2097	80	Experience	1434
	Airplane						Sea			Consumption	1426
	Busan										

4.2 Semantic Network Analysis

In order to confirm the structural relationship between each keyword and the frequency of each of the 80 words extracted in relation to the change of domestic tourism trend, each centrality analysis was performed. Centrality analysis was divided into degree centrality, closeness centrality, and betweenness centrality, and the results of the analysis are shown in <Table 3> below. Degree centrality is used as the simplest and most effective indicator because keywords with a high degree of connection and many connections have more opportunities and greater power due to autonomy compared to other keywords. In other words, degree centrality emphasizes node activity[13]. As a result of analysis of connection centrality in 2019, 'Travel', 'Recommendation', 'Hotel', 'Travel Destination', 'Seoul', 'Autumn', 'Overseas Travel', 'Free Travel', 'Autumn Leaves Play', 'Reservation' appeared in the order of 'Fashion' and 'Holiday'. 2020 is 'Travel', 'Trend', 'Travel destination', 'Recommendation', 'Domestic Travel', 'COVID-19', 'Family', 'Overseas Travel', 'Jeju Island', 'Holiday', 'Own car' and 'Jeju Air' appeared in that order. This can be interpreted as the fact that Jeju Air was mainly used as a transportation that can replace the desire for day trips and overseas trips using private cars after COVID-19, although it was possible to travel according to trends or schedules before COVID-19. Closeness centrality emphasizes the distance between keywords and all other keywords and the independence of nodes by considering indirect connections within the network. As a result of the closeness centrality analysis, if we look at each keyword within the section (1.0 ~ 0.975) with strong independence and high numerical values, in 2019, there were 16 'Recommended', 'Travel Destination', 'Travel', 'Hotel', 'Region', Keywords such as 'Domestic Travel', 'Winter', 'Package', 'Preparation', 'Jeju Island', 'Information', 'Schedule', 'Japan', 'Tourist', 'Plan', and 'Family' were derived. In 2020, it can be seen that keywords with high numerical values such as 'Travel', 'Travel Destination', 'Photo', 'Domestic travel', 'COVID-19', 'Family', and 'Change' were reduced to

seven. This is a list of a series of necessary steps to prepare for travel with each independent keyword related to travel. The relatively reduced number of travel-related processes in 2020 compared to 2019 is judged to have affected travelers' tourism behavior and travel psychology due to the continuing aftermath of COVID-19. Betweenness centrality refers to the degree to which the relationship between keywords that are not directly connected is controlled or mediated, and the more intermediary between keywords, the greater the power. As a result of betweenness centrality analysis, 2019 'Recommended', 'Travel Destination', 'Travel', 'Winter', 'Jeju Island', 'Tourist', 'Traveler', 'City', 'Autumn', 'Seoul', 'Experience', 'Hotel', 'Region', etc. in 2020, 'Travel', 'Travel Destination', 'COVID-19', 'Change', 'Photo', 'Day', 'Domestic Travel', 'Jeju Island', 'Trend', 'Family', 'Hygiene', and 'Couple' were derived. In other words, in 2019, travel destinations, seasons, experiences, and hotels were considered when traveling through words with high betweenness centrality. In 2020, it is judged that the travel area, hygiene due to COVID-19, day trip, family, etc. are taken into consideration when traveling.

Table 3. Analysis of the centrality of the top 30 keywords related to tourism trends (2019/2020)

Centrality Analysis(2019)							Centrality Analysis(2020)						
R	Keyword	Degree	Keyword	Closeness	Keyword	Betweenness	R	Keyword	Degree	Keyword	Closeness	Keyword	Betweenness
1	Trip	0.17	Suggestion	1	Suggestion	0.46	1	Trip	0.171	Trip	1	Trip	0.685
2	Suggestion	0.057	Travel Destination	1	Travel Destination	0.46	2	Trend	0.042	Travel Destination	1	Travel Destination	0.685
3	Hotel	0.041	Trip	1	Trip	0.46	3	Travel Destination	0.04	Picture	0.99	COVID-19	0.537
4	Travel Destination	0.041	Hotel	0.988	Winter	0.445	4	Suggestion	0.035	Domestic Travel	0.98	Change	0.525
5	Seoul	0.035	Area	0.988	Jeju Island	0.4	5	Domestic Travel	0.033	COVID-19	0.98	Picture	0.52
6	Autumn	0.034	Domestic Travel	0.988	Travel Destination	0.352	6	COVID-19	0.023	Family	0.98	Day	0.517
7	Overseas Travel	0.033	Winter	0.988	Tourist	0.322	7	Family	0.021	Change	0.98	Domestic Travel	0.508
8	Free Travel	0.029	Package	0.975	City	0.304	8	Overseas Travel	0.018	Trend	0.96	Jeju Island	0.477
9	Autumn Leaves Play	0.029	Preparation	0.975	Autumn	0.303	9	Jeju Island	0.017	Overseas Travel	0.96	Trend	0.474
10	Reservation	0.026	Jeju Island	0.975	Seoul	0.287	10	Holidays	0.016	Jeju Island	0.96	Family	0.473
11	Package	0.02	Information	0.975	Experience	0.271	11	Untact	0.013	Safety	0.95	Hygiene	0.447
12	Japan	0.019	Schedule	0.975	Hotel	0.258	12	Healing	0.012	Seoul Suburbs	0.95	Couple	0.439

13	Schedule	0.016	Japan	0.975	Area	0.258	13	Picture	0.012	Hygiene	0.95	Overseas Travel	0.432
14	Trend	0.015	Travel Destination	0.975	Domestic Travel	0.258	14	Own car	0.012	Day	0.95	Accommodation	0.431
15	Holidays	0.015	Plan	0.975	Schedule	0.254	15	Jeju Air	0.012	Suggestion	0.94	Safety	0.423
16	Domestic Travel	0.015	Family	0.975	Japan	0.236	16	Non-face-to-face	0.011	Untact	0.94	Seoul Suburbs	0.42
17	Winter	0.014	Overseas Travel	0.963	Accommodation	0.233	17	Seoul Suburbs	0.011	Non-face-to-face	0.94	Summer	0.418
18	Bangkok	0.013	Reservation	0.963	Package	0.216	18	Hotel	0.011	Plan	0.94	Plan	0.383
19	Tourism	0.013	Accommodation	0.963	Summer	0.206	19	Search	0.011	Couple	0.94	Online	0.361
20	Family	0.013	Sea	0.963	Reservation	0.203	20	Change	0.01	Accommodation	0.94	Winter	0.352
21	Colorfully	0.012	Tourism	0.963	Free travel	0.184	21	Autumn	0.01	Online	0.93	Nature	0.35
22	Search	0.011	Korea	0.952	Trend	0.176	22	Safety	0.01	Hotel	0.92	Preparation	0.344
23	Thailand	0.01	Thailand	0.952	Preparation	0.165	23	Luxury	0.01	Summer	0.92	Alone	0.331
24	Area	0.01	Tourist	0.952	Information	0.165	24	Post	0.01	nature	0.91	Busan	0.327
25	Southeast Asia	0.01	City	0.952	Plan	0.165	25	Day	0.009	Tourist Destination	0.91	Non-face-to-face	0.326
26	Data	0.01	Search	0.952	Family	0.165	26	Gangwon-do	0.009	Traveler	0.91	Experience	0.31
27	Philippines	0.009	Free travel	0.94	Friend	0.164	27	Alone	0.009	Preparation	0.91	Summer Vacation	0.309
28	Cebu	0.009	Trend	0.94	Traveler	0.164	28	Jecheon	0.009	Daily life	0.91	Suggestion	0.308
29	Change	0.009	Summer	0.94	Taiwan	0.162	29	Skyscanner	0.009	Autumn	0.90	Attention	0.307
30	Keyword	0.008	Visit	0.94	Travel Agency	0.157	30	Summer	0.008	Own Car	0.90	Untact	0.305

4.3 CONCOR Analysis

To analyze the correlation between keywords, we used CONCOR analysis, a methodology that groups keywords occupying a similar position among each of the top 80 keywords collected through social media and analyzes the relationship pattern between the groups. As a result of CONCOR analysis, as shown in <Table 4>, each of 2019 and 2020 were grouped into 4 clusters.

A total of 57 keywords for Cluster1 in 2019 and 57 in 2020 were derived. As a result of the analysis, if you look at the characteristics of keywords in 2019, you can see that they especially preferred Southeast Asia for family or overseas travel through travel agencies, and enjoyed vacations and activities in search of famous tourist destinations. On the other hand, if we look at the characteristics of keywords in 2020, keywords such as ‘LAN Travel’, ‘Untact’, ‘Data’, and ‘Online’ were prominent due to social sanctions caused by COVID-19. It can be seen that it reflects the tourism trends in the era of the COVID-19 pandemic, such as domestic travel rather than overseas travel, car camping, camping, glamping in nature rather than indoors, traveling alone, with family, or with couples, showing the importance of safety and hygiene.

A total of 5 keywords for Cluster2 in 2019 and 3 in 2020 were derived. In 2019, keywords related to autumn leaves, which are representative of domestic travel, appeared, and in 2020, it is judged that they mainly traveled to Jeju Island alone or with family.

In 2019, a total of 12 keywords for Cluster3 were derived, and in 2020, a total of 16 keywords were derived. This is also judged to have well-characterized the change in tourism types in the era of the COVID-19 pandemic due to the long-lasting step-by-step sanctions.

Finally, a total of 6 keywords for Cluster4 in 2019 and 4 in 2020 were derived. In 2019, Bangkok and Thailand were mainly mentioned for long holidays such as “Chuseok”, and in 2020, it is judged that luxurious and luxurious travel consumption is pursued as the number of trips has decreased due to movement restrictions.

Table 4. Types of cluster factors related to tourism trends based on CONCOR analysis (2019 / 2020)

Tourism Trend Keywords (2019년)		Tourism Trend Keywords (2020년)	
Cluster1 (57)	Recommendation, Travel Sestination, Domestic Travel, Keyword, Traveler, Market, Nature, Vacation, Sea, Summer, City, Sights, Hong Kong, Danang, Ryokan, Japan, Plan, Alone, Theme, Family, Tourist Destination, Resort, Cebu, Photo, Temple, Vietnam, Information, Winter, Korea, Experience, China, Busan, Daily Life, Area, Places of Interest, Activity, USA, Preparation, Europe, Suburb, Course, Jeju Island, Travel Agency, Accommodation, Australia, Tourist, Taiwan, Cost Effectiveness, Recreation, Gangwon-do, Philippines, Hot Spring, Family Trip, Restaurant, Change, Visit, Tourism	Cluster1 (57)	LAN Travel, Own car, Untact, Day, Safety, Camping, Trend, Hygiene, Hotel, Couple, Healing, Non-face-to-face, Selfie, Jeju Air, Home, Busan, Theme, Reservation, Winter, Share, Skyscanner, Summer Vacation, Keyword, Airbnb, Tourist Destination, Suburbs of Seoul, Experience, Photo, Sea, Platform, Recommendation, Post, Attraction, Nature, Consumption, Gyeongju, Hotel Domestic Travel, Accommodation, Plan, Korea Tourism Organization, Data, Online, Jecheon City, Autumn, Leisure, Restaurant, Traveler, Daily Life, Andong, China, Search, Yeosu, Preparation, News, Japan, Leisure, Travel Destination
Cluster2 (5)	Travel, Autumn Leaves Play, Colorfully, Autumn, Seoul	Cluster2 (3)	Family, Jeju Island, Alone
Cluster3 (12)	Hotel, Overseas Travel, Free Travel, Reservation, Air Ticket, Package, Fashion, Schedule, Budget, Honeymoon Destination, Southeast Asia, Friend	Cluster3 (16)	Gyeongbuk, Valley, Geoje Island, COVID19, Danyang, Automobile, Yeogie-otae, Glamping, Gangwon-do, Tourist, Overseas Travel, Summer, Travel, Interest, Holiday, Vacation
Cluster4 (6)	Search, Data, Holiday, Thanksgiving, BangKok, Thailand	Cluster4 (4)	Luxury, Niigata, Airplane, Accommodation,

5. CONCLUSION

In this study, various keywords were collected using Textom to confirm the changes in domestic tourism trends after COVID-19. The collection keywords were selected as 'Tourism Destination' and 'Tourism Trend', and the collection period was set to one year each in 2019 and 2020, before COVID-19. As a result of the collected data, there were 42,958 keywords in 2019 and 42,926 keywords in 2020, and the top 80 keywords with high TF and TF-IDF values were summarized through text mining. Degree centrality, closeness centrality, and betweenness centrality were analyzed for semantic network visualization. As a result of the centrality analysis, the travel patterns and tourism trends before and after COVID-19 showed a marked difference. It was

found that the aftermath of COVID-19 had a significant impact on travelers' tourism behavior and travel psychology. In addition, considerations for travel before COVID-19 were travel destinations, seasons, experiences, and hotels. However, after that, it was found that the travel area, hygiene due to COVID-19, day trip, and family are taken into consideration. In addition, as a result of conducting CONCOR analysis to visualize the network connection and see how key keywords are clustered, each was classified into 4 groups. As a result, in 2019, they preferred domestic and overseas travel, especially Southeast Asia, and experienced recreation and activities in search of famous tourist destinations. In 2020, due to social sanctions caused by COVID-19, keywords reflecting social phenomena such as LAN travel, untact, data, and online appeared. In the future, preference for open tourist destinations centered on nature and domestic tourism centered on same-day tickets and living areas will be activated. In addition, it is expected that travel consumption behaviors such as preference for accommodations that can guarantee safety and hygiene, single or family group tours, and luxurious tours are expected to increase. We believe that in order to respond quickly to the environmental changes in the post-COVID-19 era, the tourism industry should go beyond a simple intermediary role and pursue change into a business that provides a consumer-oriented travel experience such as planning, marketing, reservation, and review. We think that in order to respond to tourism demand reflecting these trends, it is necessary to focus on developing tourism products that can meet consumers' needs by securing domestic tourism content and providing special tourism services centered on SIT.

REFERENCES

- [1] Gössling, S, Scott, D, and Hall C. M., "Pandemics, tourism and global change: a rapid assessment of COVID-19", *Journal of Sustainable Tourism*, 28(online), 1-20, 2020.
- [2] Hyunjoo Kim and 9 others, "Impact of COVID-19 on tourism industry and countermeasures", Korea Culture and Tourism Institute, 2021.
- [3] Yunhyeong Heo, "A study on changes in the domestic tourism industry after COVID-19", Ewha Women University Master's thesis, 2021.
- [4] Pilkyun Ahn, Seongjun Eom, Sukyeong Cho and Sangbum Kim, "A Study on the Creation Rural Experience Village Reflecting the Travel trends of the Post-COVID-19- A Case of Wi-bong Village in Jeollabuk-do -", *Journal of Korean Society of Rural Planning*, Vol.26(4), 89, pp.27-39, 2020.
- [5] Youngnam Kim and Seonghwa Hong, "New Normal 2.0 Tourism: Focus on IPA Results of Jeju Visitors during COVID-19 Spread", *Journal of MICE & Tourism Research*, Vol.20(2), 60, pp.143-161, 2020.
- [6] Jooyoung Park, "2020-2024 Korea Tourism Trend Prospect", Korea Tourism Policy(78), 12-19, 2019.
- [7] Sungko Kye, "A Strategic Approach to Crisis Management for Virus Infections in the Tourism Industry", *Journal of Tourism Management Research*, Vol.14(1), 1-17, 2010.
- [8] Kyunghye Ha, "Study on Marine Tourism Trend Analysis Using Big Data: Focusing on Marine Tourism Policies after COVID-19", *Marine Tourism Research*, Vol.14(1), 33, pp.9-30, 2021.
- [9] Minsu Kim, "A Trend Analysis on Leisure Sports Tourism Using Social Big Data", *The Korean Journal of Physical Education*, Vol.58(4), pp.259-270, 2019.
- [10] Hyejin Lee and Yongok Kang "Understanding Tourist's Region of Attraction and Image of City through Social Network Data Analysis", *Journal of the Korean Urban Geographical Society*, Vol.23(1), 59, pp.101-114, 2020.
- [11] Soohye Lee and Deughee Park, "A Study of Perceptions of Jeju-Island Tourism using Social Media Big Data Analysis: Before and after the Outbreak of Ban on Korean entertainer's", *Tourism and leisure research*, Vol.30(2), pp.55-75, 2018.
- [12] Janghyen Han and Hyen Seo, "A Study on the Activation Plans of Yeosu Tourism and Perception on Yeosu Tourism by Analyzing Social Big Data", *Tourism and leisure research*, Vol.31(7), pp.81-96, 2019.
DOI:<https://doi.org/10.31336/JTLR.2019.7.31.7.81>.
- [13] Kiyoun Kwak, *Social Network Analysis*. Cheonglam, pp.213, 2017.