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## Article

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## Comparison of Perceptions of Wellness Tourism in Korea Before and After COVID-19: Results of Social Big Data Analysis

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### ABSTRACT

**Purpose:** This study explored strategies aimed at revitalizing wellness tourism in the post-coronavirus 2019 (COVID-19) era, and investigated consumer perceptions of wellness tourism before and after the outbreak of COVID-19.

**Design/methodology/approach:** Keywords pertaining to wellness tourism were extracted from social media platforms, such as Naver, Daum, and the social network service (SNS) Facebook, as well as from the search engine Google. Text mining, frequency analysis, centrality analysis, and CONCOR analysis were conducted on the extracted keywords. The study period was divided into pre- and post-COVID-19 outbreak periods (4,984 and 4,360 keywords, respectively). In total, 100 and 50 searches were analyzed in the pre- and post-outbreak periods, respectively.

**Findings:** Prior to the outbreak, awareness of wellness tourism and programs appear to have been high, while after the outbreak specific wellness tourism destinations, including Jeju and Gangwon, were recognized. In addition, the desire for healing of both body and mind appeared to be greater after the outbreak.

**Research limitations/implications:** In the post-COVID era, local governments and policymakers will need to develop programs to boost local wellness tourism. Advertising and promotion on online social media platforms and SNS, emphasizing the positive effects of wellness tourism such as healing and meditation, could further increase the number of visitors to these destinations. Comparative research on wellness tourism in different countries will also be important, as perceptions of COVID-19 may vary among various countries such as Korea, Japan, and China.

**Originality/value:** In the past, wellness tourism studies focused on research topics such as tourism development and tourism motivation, but this study resulted in the expansion of the research by applying the social media big data analysis method, which has recently attracted attention in the hospitality industry.

*Keywords:* Wellness tourism, COVID-19, Social media big data, Social network analysis, Semantic network analysis

## I. Introduction

Global Consumers are increasingly turning to wellness to enhance their quality of life and pursue optimal physical

and mental well-being (Myers and Sweeney, 2008). The wellness concept refers to the process by which an individual actively changes their lifestyle to attain optimal health (Ansbaugh, 1995). A wellness-oriented lifestyle can alleviate the physical fatigue associated with daily life and maintain optimal health through the continuous pursuit of well-being (Adams et al., 1998). Wellness-oriented tourism has recently increased in

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popularity. Wellness tourism involves various activities aimed at managing the body and mind (Kim and Lee, 2018). The global wellness tourism industry is currently worth approximately \$4,390 billion, accounting for about 14% of the tourism industry overall, and this figure is likely to increase in the near future (Ellis, 2013). Wellness tourism subsumes medical, healing, and rural tourism, along with visits to temples. Wellness tourism has been defined as tourism and wellness activities that improve health and quality of life (Voigt et al., 2010; Wray et al., 2010).

Wellness tourism creates value by combining dining, hospitality, retail, and sightseeing activities. As such, it may be conceived of as "convergence tourism" (Muller and Kaufmann, 2001). In Korea, resources at the national level are being actively directed toward the development of the wellness industry in four key areas: beauty/spa treatments, oriental medicine, nature/forest experiences, and healing/meditation. A total of 25 wellness tourism destinations are being promoted, with the aim of revitalizing local tourism (Kim, 2020) and the sluggish local economy. Local attractions could be developed into sustainable tourist destinations by emphasizing the role of wellness tourism in health and healing.

Current studies of wellness tourism research can be divided into two major categories. First, several studies have investigated wellness tourism motives and types, as well as related behaviors (Hashim et al., 2017; Joppe, 2010; Kelly, 2010; Moscardo, 2011; Smith and Puczkó, 2010). Other studies have analyzed the development of wellness tourism destinations and marketing trends, including case studies (Medina-Muñoz & Medina-Muñoz, 2013; Page et al., 2017; Pan et al., 2019; Romão et al., 2017; Shin and Na, 2020; Telej and Gamble, 2019). Despite the current renaissance in wellness tourism, research on the topic remains limited. Future studies should approach wellness tourism from more diverse perspectives and recommend appropriate avenues for its development. In particular, consumer perceptions of wellness tourism should be examined through analysis of social media big data, which has recently gained traction in tourism research. Most studies have focused on isolated cases of wellness tourism development and

the revitalization of specific regions; there is a need for more comprehensive research.

The global tourism industry is undergoing a significant change due to the adverse effects of COVID-19. Recently, studies have been actively conducted to determine the impact of COVID-19 on the tourism industry. These tourism industry studies related to COVID-19 included a survey of the Taiwanese government's revival strategies and revitalization projects on the impact of COVID-19 on the Taiwanese tourism and hospitality industries (Lin, 2021) and a study that identified the impact of COVID-19 on the hospitality and food industry in Europe (Soriano, 2021). In addition, some studies specifically examined the travel intentions of French tourists in the situation of the pandemic of COVID-19 and the development and operation of paid quarantine services for private hotels in Vietnam in the event of the outbreak (Hoang et al., 2021; Lebrun et al., 2021). Finally, the impact of significant characteristics for reducing risk behavior in the situation of COVID-19 on the willingness to pay for travel insurance (Choe et al., 2022).

In early 2020, the outbreak of coronavirus 2019 (COVID-19) had a significant negative impact on the global tourism industry, including wellness tourism. The outbreak of COVID-19 can predict a change in the overall perception of wellness tourism (Park, 2021; Kim & Lee, 2021). This change in perception of wellness tourism can also affect future trends and behavioral changes. Therefore, changes in perceptions of wellness tourism before and after the pandemic highlighted the importance of understanding shifting trends in this industry. The reason why research comparing this perception of wellness tourism is important is that it can suggest what direction the wellness tourism industry, which has been shrunk by COVID-19, should go and develop in the post COVID-19 era. In addition, these findings can be used as a basis for establishing marketing strategies for wellness tourism.

To analyze general perceptions of wellness tourism before and after COVID-19, this study extracted wellness tourism keywords from big data collected from social media platforms such as Naver, Daum, and Facebook. The perceptions were confirmed through detailed social and semantic network analyses. Finally, we performed

convergence of iterated correlation (CONCOR) analysis to derive keyword clusters. Our results have implications for wellness tourism research and practical applications.

## II. Theoretical Background

### A. Concept of and Studies on Wellness Tourism

To understand the concept of wellness, it is important to first understand the concept of health, which emerged in earnest during the 1950s when the World Health Organization (WHO) defined it as the maintenance of physical, mental, and social well-being, rather than simply a disease-free state (WHO, 1958). Wellness involves interactions among six life areas: spirituality, work, self-direction, leisure, love, and friendship (Myers & Sweeney 2008). Individuals may consistently attempt to improve their health and well-being based on a sense of responsibility and belief that their life has meaning (Voigt et al., 2010). Wellness can be conceptualized as the pursuit of optimal health through lifestyle (Ruggeri et al., 2020). Similarly, a healthy lifestyle can achieve wellness (Nesterchuk et al., 2020). Recently, research on the wellness concept has focused on lifestyle choices from the perspectives of life satisfaction, disease-free conditions, and happiness (Grover and Singh, 2020). Areas requiring intensive management to attain high levels of wellness include stress, physical (body), and environmental management (Doran et al., 2020). The wellness concept emphasizes personal responsibility for one's own health and the steady pursuit of a holistic and balanced lifestyle. This conceptualization of wellness encompasses physical, emotional, cognitive, social, professional, and spiritual domains (Myers and Sweeney, 2008).

To optimize health, wellness principles should be applied in daily life. Through the pursuit of wellness, it is possible to alleviate the physical fatigue that can ensue from physical activities, as well as enhance self-realization and quality of life through improvements in vitality and self-development. Wellness is closely related to regular exercise and leisure activities, which has facilitated its recent expansion into the tourism

sector (Alam et al., 2020).

Wellness tourism is defined as all activities associated with traveling and staying to improve health (Mueller & Kaufmann, 2001). Wellness tourism is also defined as a collection of activities related to staying in facilities that can improve physical, mental and social health in order to maintain or promote health and well-being (Voigt et al., 2010). Specific wellness tourism can be conceptualized as tourism to enjoy spas, recreation, beauty, health care, etc.

Wellness tourism is emerging as a high value-added industry in the United States and Europe, combining well-being, fitness, and tourism to promote health (Vogit et al., 2010). Wellness encompasses physical, mental, and social domains, and wellness programs promote health and well-being (Dillette et al., 2020). Wellness tourism has been divided into health, medical, healing, and spiritual tourism subtypes (Smith and Puczko, 2008). Medical tourism, which has recently been under the spotlight, pertains to the treatment of foreign visitors to improve quality of life and prevent the onset of illness (Ellis, 2013).

Tourists visit wellness destinations for physical, social, environmental, emotional, spiritual, and mental purposes (Ellis, 2013). Regarding the physical aspect (health and beauty), treatments and activities include massages, baths, medical examinations, dietary interventions, and visits to health-focused hotels and resorts, clinics, and organic restaurants. The social aspect relates to fitness activities at locations such as Pilates and fitness centers, as well as gyms. The environmental aspect may involve outdoor adventure activities such as hiking, hillwalking, and mountaineering. The emotional aspect relates to personal growth, and may involve recreational activities such as music and art, along with visits to lifestyle and wellness resorts. The spiritual aspect involves prayer and self-reflection, and may include visits to temples and churches. Regarding the mental aspect, the goal is to train the body and mind through activities such as meditation and yoga.

Recent wellness tourism studies can be divided into two main categories. The first category includes studies on the development and infrastructure of wellness tourism destinations worldwide, and operation and marketing recommendations (Pan et al., 2019; Romã

et al., 2017; Shin and Na, 2020; Telej and Gamble, 2019). The second category includes studies performing quantitative and qualitative analyses of the motivations and behaviors of wellness tourists (Hashim et al., 2019; Hudson et al., 2017; Joppe, 2010).

Recent studies have also analyzed unstructured big data from major social media sites to determine current and future trends in the perceptions of wellness tourists. The present study aimed to extract keywords relating to wellness tourism from major social media platforms, and subject them to social and semantic network analyses. The goal was to extend the existing wellness tourism literature and discuss ways to revitalize the industry in the future in depth.

## B. Trends in Tourism Big Data

The Fourth Industrial Revolution has had a major impact not only on industry, but also on academia worldwide. Interest in artificial intelligence, the Internet of Things (IoT), nanotechnology, 3D printing, robotics, and big data analytics is continuously increasing. In big data analysis, data are explored, refined classified, and visualized to allow for meaningful inferences (Krishnan, 2013). The earliest conceptualization of big data encompassed data volume, data velocity, and data variety (the 3Vs). This was recently expanded to the 5Vs through the addition of data veracity and value (Schwab, 2017). Big data extends beyond the level of data generated in everyday life, involving databases hundreds of terabytes in size (Gantz and Reinsel, 2011). Recently, the analysis of consumer opinions, as expressed through social network services (SNSs), has attracted attention. This method involves the direct collection of opinions with the goal of improving tourism services in real time. These data have applications to marketing (Lee and Jeon, 2015). The analysis and utilization of social big data by corporations is increasing, as well as by public institutions and governments for establishing public policy (Song, 2012).

Tourism research is also analyzing social big data to understand the information searches, expenditure, and specific behaviors of tourists. Such data and are

collected in various forms, including using voice of customer (VoC) methods (Oh et al., 2015). Social network and semantic network analyses are largely applied to unstructured big data in the tourism sector. A social network refers to a network of relationships among people; analysis thereof is based on social network theory (Cacioppo et al., 2009). Casanueva et al. (2016) applied social network analysis to examine the relationships among tourist behaviors, service-oriented organizations, tourism resources, and public institutions. They examined studies involving social network analysis published in tourism and hospitality journals along with citation networks among authors. They found that tourism-related studies that applied social network analysis were limited, highlighting the need for more of those types of studies. Berezina et al. (2016) analyzed tourist satisfaction and dissatisfaction through the application of text mining techniques to the online reviews of 2,510 hotel guests. They devised several categories pertinent to both positive and negative reviews, including rooms, restaurants, and sports clubs. Customers who left positive reviews mentioned intangible aspects, such as employee service, more frequently than the physical environment of the hotel. By contrast, dissatisfied customers focused on the physical environment, such as hotel furnishings.

The global COVID-19 pandemic began in January 2020, and this ongoing situation is having a significant impact on the tourism industry. Consequently, tourism research is gradually increasing, to compare the tourism situation before and after the COVID-19 outbreak. Park (2021) compared the perceptions of tourists in Andong, Korea, before and after the outbreak of COVID-19, and found that keyword use frequencies before and after the outbreak differed. Social network data before and after the outbreak also showed weak correlations. Kim and Lee (2021) extracted unstructured big data from social media platforms, and found that searches for "families", "waterfalls", and "auto-camping sites" declined in frequency after the onset of the COVID-19 pandemic. Searches for "Chabak", "camping", and "brands" increased, however. CONCOR analysis revealed four keyword clusters: "campsite selection speed", "camping product attributes", "camping information search", and "media

impact". In this study, unstructured big data, i.e., keywords relating to wellness tourism, were extracted from social media and SNS databases and analyzed by period (before and after the COVID-19 outbreak).

### III. Materials and Methods

#### A. Research Questions

This study compared consumer perceptions of wellness tourism before and after the COVID-19 outbreak. In-depth social and semantic network analyses of wellness tourism-related keywords used, for around 18 months before and after the COVID-19 outbreak by visitors to major social media sites (Naver, Daum, and Facebook, along with blogs and Google Cafe), were performed. The research questions are defined as follows.

**Research question 1:** What keywords relating to wellness tourism differed in terms of frequency before and after the outbreak of COVID-19?

**Research question 2:** What keywords pertaining to wellness tourism appeared both before and after the outbreak of COVID-19? What are the results of the centrality analysis? What clusters were identified?

**Research question 3:** What measures could be implemented based on the analysis of differences in wellness tourism keywords before and after the COVID-19 outbreak?

#### B. Analysis Period and Data Collection

The study period was divided into the period before (July 1, 2018 to December 31, 2019) and period after (and February 1, 2020 to July 31, 2021) the onset of the COVID-19 pandemic. The analysis encompassed social media cafés, blogs, web documents, and Naver, which is Korea's largest and most well-established social media platform. Data from Facebook and Google, the world's most used search engine, were also analyzed.

These sites and search engines are actively used overseas as well as in Korea, and were thus deemed appropriate for analysis of perceptions of wellness tourism. To carry out frequency and centrality analyses, keywords associated with wellness tourism were collected first.

#### C. Analysis Procedures and Methods

Social network analysis is conducted based on density, centrality, and structural equivalence. In particular, centrality analysis can determine how closely spaced actors are (Freeman, 1978). Semantic network analysis is also applied to unstructured big data, to assess relationships and interactions in SNS and other forms of social media big data (Wasserman and Faust, 1994). To assess perceptions of wellness tourism before and after the COVID-19 outbreak, unstructured data (images and text) were collected from the above sources, similar to other studies on tourism (Ban and Kim, 2019; Park, 2021). The research process was divided into five stages. First, the keywords were collected via an online unstructured data collection service (<http://www.textom.co.kr>), before and after the outbreak of COVID-19. (50 and 100 keywords, respectively). Han & Ji (2020) conducted a study on the change in tourists' perception of Pyeongchang, Korea, after the opening of the Gyeonggang High-Speed Railway. In their study, a total of 100 keywords were selected for each 50 keywords before and after opening. Therefore, in this study, we would like to select a total of 50 keywords related to awareness of wellness tourism before and after the COVID-19 outbreak. The keywords were verified by one professor focusing on tourism research and two PhD students with experience in atypical big data research. To enhance objectivity and accuracy, the keyword collection procedure was conducted in accordance with established social and semantic network analysis methods (Drieger, 2013). The second step was to generate a one-mode matrix from the keywords. In the third stage, frequency and central analyses were conducted using the UCINET program. Proximity analysis was also performed (Kang et al., 2017). Connectivity was evaluated based on the total number of edges connected to the central node, and proximity

by evaluating locations close to the path to the central node. In the fourth step, UCINET was used to assess consumer awareness of wellness tourism, and to conduct social and semantic network analyses. The results were also visualized to aid understanding. In stage five, CONCOR analysis was conducted using UCINET, with additional visualization.

## IV. Results

To examine perceptions of wellness tourism before and after COVID-19, the KrKwic program was used for text mining, to extract keywords highly related to wellness tourism; 50 and 100 keywords were extracted before and after the outbreak of COVID-19, respectively, as stated above. The keyword frequency analysis results are shown in Table 1.

### A. Analysis of Perceptions of Wellness Tourism

During the period before the COVID-19 outbreak, the keyword that occurred with the highest frequency was "health" (n = 1,190), in line with the fact that wellness pertains to optimal health. The next most-frequent keywords were "program" (n = 982), "Korea Tourism Organization" (n = 980), "cure" (n = 896), "region" (n = 679), "Sancheong" (n = 645), "tourist destination" (n = 550), "travel" (n = 543), "facility" (n = 518), "Chungju" (n = 517), "Jecheon" (n = 492), "journalist" (n = 488), "pursuit" (n = 470), "business" (n = 468), "cluster" (n = 467), "healing" (n = 454), "promotion" (n = 441), "hotel" (n = 422), "development" (n = 391), and "happy" (n = 390). During the period after the outbreak of COVID-19, the keyword that occurred with the highest frequency was "tourist destination" (n = 1,642). Prior to the outbreak, awareness of the meaning of wellness tourism was already high, but since the outbreak, tourists have become more aware of the potential of specific wellness tourism destinations. The next most-frequent keywords were "Jeju" (n =

1,126), "cure" (n = 1,080), "health" (n = 965), "building" (n = 920), "COVID-19" (n = 737), "Gangwon-do" (n = 696), "Korea Tourism Organization" (n = 660), "cluster" (n = 645), "travel" (n = 630), "Chungcheongbuk-do" (n = 598), "business" (n = 523), "propel" (n = 508), "recommendation" (n = 494), "Ara" (486), "nature" (n = 478), "healing" (n = 478), "spa" (n = 466), "activation" (n = 455), and "support" (n = 439).

Prior to the COVID-19 outbreak, the most central keywords were "core" (.183), "health" (.152), "healing" (.129), "program" (.124), "experience" (.103), "region" (.099), "domestic" (.097), "marine healing" (.083), "business" (.078), "industry" (.076), "medical care" (.073), "Wando-gun" (.071), and "facility" (.066). The major keywords in the proximity analysis were as follows: "program" (n = 100), "region" (100), "journalist" (100), "business" (100), "healing" (100), "experience" (100), "industry" (100), "cure" (98.000), "domestic" (98.000), "travel" (96.078), "tourist" (96.078), "field" (96.078), "professional" (96.078), and "health" (94.231). For the period after COVID-19, the most central keywords were "Jeju" (.226), "cure" (.133), "healing" (.092), "tourist destination" (.091), "COVID-19" (.089), "health" (.079), "nature" (.070), "travel" (.066), "forest" (.063), "Jeju Tourism Organization" (.054), "building" (.052), and "medication" (.049). The major keywords in the proximity analysis were as follows: "tourism detection" (100), "cure" (100), "health" (100), "building" (100), "COVID-19" (100), "Korea Tourism Organization" (100), "travel" (100), "healing" (100), "area" (100), "experience" (100), "business" (98.000), "representative" (98.000), "beauty" (98.000), "resource" (98.000), "product" (98.000), "forest" (98.000), and "well-being" (98.000).

The high rankings of "healing", "program", "experience", and "region" in the centrality and proximity analyses prior to the COVID-19 outbreak indicate considerable interest in practical and experiential aspects of wellness tourism, while the high rankings for "tourist destination", "cure", "health", and "COVID-19" post-outbreak reflect interest in specific wellness tourism destinations and a strong desire to heal the body and mind following the devastation wrought by COVID-19. The results are summarized in Table 2 and visualized in Figures 1 and 2.

**Table 1.** Results of frequency analysis of keywords related to wellness tourism

Before the outbreak of COVID-19			After the outbreak of COVID-19		
Keyword	Frequency	Percentage	Keyword	Frequency	Percentage
Health	1190	.958	Tourist destination	1642	1.522
Program	982	.790	Jeju	1126	1.044
Korea Tourism Organization	980	.789	Cure	1080	1.001
Cure	896	.721	Health	965	.894
Region	679	.546	Building	920	.853
Sancheong	645	.519	Covid-19	737	.683
Tourist destination	550	.442	Gangwon-do	696	.645
Travel	543	.437	Korea Tourism Organization	660	.612
Facility	518	.417	Cluster	645	.598
Chungju	517	.416	Travel	630	.584
Jecheon	492	.396	Chungcheongbuk-do	598	.554
Journalist	488	.393	Business	523	.485
Pursuit	470	.378	Propel	508	.471
Business	468	.376	Recommendation	494	.458
Cluster	467	.376	Ara	486	.450
Healing	454	.365	Nature	478	.443
Promotion	441	.355	Healing	478	.443
Hotel	422	.339	Spa	466	.432
Development	391	.314	Activation	445	.412
Happiness	390	.314	Support	439	.407
Tourist	385	.310	Jeju Tourism Organization	425	.394
world	383	.308	Representative	387	.358
Experience	381	.306	Place	374	.346
Recommendation	380	.306	Field	357	.331
Well-being	372	.299	Gyeongsangnam-do	346	.320
Gyeongsangnam-do	351	.282	Beauty	341	.316
Operation	347	.279	Ministry of Culture, Sports and Tourism	333	.308
Representative	336	.270	Recruiting	330	.306
Meditation	329	.264	Mind	330	.306
Activation	326	.262	Attention	325	.301
Field	326	.262	Meditation	320	.296
Build	325	.261	Progress	318	.294
Medical care	322	.259	Journalist	318	.294
Domestic	320	.257	Society	310	.287
Oriental medicine	318	.256	Resource	297	.275
Contest	318	.256	Post	296	.274
Tourist facilities	314	.252	Body	294	.272
Wando-gun	313	.252	Life	293	.271
Target	308	.248	Pursuit	292	.270
Utilization	307	.247	Product	287	.266
Growth	303	.244	Forest	279	.258
Industry	301	.242	Jeongseon-gun	277	.256
Chungcheongbuk-do	288	.231	Purity	265	.245
Jeollanam-do	287	.231	Tourism industry	256	.237
Geochang-gun	278	.223	Area	256	.237
Professional	275	.221	Improving	252	.233
Marine healin	269	.216	Happiness	251	.232
Propel	267	.215	Incheon city	245	.227
Trend	241	.194	Well-being	216	.200
Spa	231	.186	Experience	215	.199

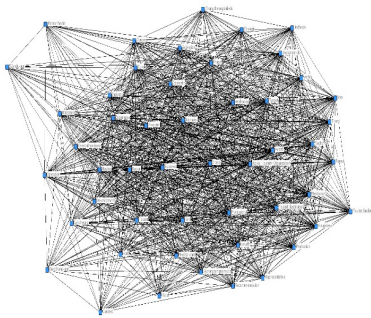
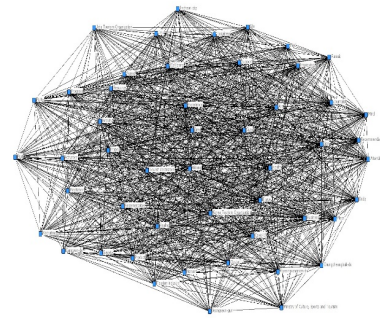


**Table 2.** Results of centrality analysis related to wellness tourism

Before the outbreak of COVID-19			After the outbreak of COVID-19		
Keyword	Degree	Closeness	Keyword	Degree	Closeness
Health	.152	94.231	Tourist destination	.091	100
Program	.124	100	Jeju	.226	92.453
Korea Tourism Organization	.060	94.231	Cure	.133	100
Cure	.183	98.000	Health	.079	100
Region	.099	100	Building	.052	100
Sancheong	.056	90.741	Covid-19	.089	100
Tourist destination	.045	94.231	Gangwon-do	.035	89.091
Travel	.048	96.078	Korea Tourism Organization	.029	100
Facility	.066	92.453	Cluster	.037	96.078
Chungju	.063	83.051	Travel	.066	100
Jecheon	.054	77.778	Chungcheongbuk-do	.027	89.091
Journalist	.064	100	Business	.045	98.000
Pursuit	.064	90.741	Propel	.019	96.078
Business	.078	100	Recommendation	.019	94.231
Cluster	.060	90.741	Ara	.029	96.078
Healing	.129	100	Nature	.070	96.078
Promotion	.037	87.5	Healing	.092	100
Hotel	.004	81.667	Spa	.046	94.231
Development	.026	94.231	Activation	.036	94.231
Happiness	.041	85.965	Support	.027	96.078
Tourist	.054	96.078	Jeju Tourism Organization	.054	83.051
World	.036	87.500	Representative	.026	98.000
Experience	.103	100	Place	.046	94.231
Recommendation	.016	87.500	Field	.047	94.231
Well-being	.039	94.231	Gyeongsangnam-do	.011	92.453
Gyeongsangnam-do	.033	90.741	Beauty	.040	98.000
Operation	.042	89.091	Ministry of Culture, Sports and Tourism	.014	83.051
Representative	.039	85.965	Recruiting	.031	83.051
Meditation	.037	92.453	Mind	.027	92.453
Activation	.041	94.231	Attention	.030	92.453
Field	.047	96.078	Meditation	.049	96.078
Build	.047	87.500	Progress	.009	89.091
Medical care	.073	92.453	Journalist	.027	96.078
Domestic	.097	98.000	Society	.023	90.741
Oriental medicine	.049	94.231	Resource	.043	98.000
Contest	.014	68.056	Post	.027	85.965
Tourist facilities	.015	79.032	Body	.023	94.231
Wando-gun	.071	64.474	Life	.025	94.231
Target	.052	90.741	Pursuit	.025	90.741
Utilization	.034	89.091	Product	.035	98.000
Growth	.030	92.453	Forest	.063	98.000

**Table 2.** Continued

Before the outbreak of COVID-19			After the outbreak of COVID-19		
Keyword	Degree	Closeness	Keyword	Degree	Closeness
Industry	.076	100	Jeongseon-gun	.018	84.483
Chungcheongbuk-do	.060	80.328	Purity	.030	87.500
Jeollanam-do	.026	84.483	Tourism industry	.020	94.231
Geochang-gun	.014	71.014	Area	.038	100
Professional	.027	96.078	Improving	.022	92.453
Marine healing	.083	65.333	Happiness	.015	92.453
Propel	.047	94.231	Incheon city	.017	84.483
Trend	.042	89.091	Well-being	.012	98.000
Spa	.031	85.965	Experience	.011	100

**Figure 1.** Visualization result before the outbreak of COVID-19**Figure 2.** Visualization result after the outbreak of COVID-19

## B. Results of CONCOR Analysis

CONCOR analysis was conducted to facilitate in-depth interpretation of the keyword clusters that formed before and after the COVID-19 outbreak. CONCOR analysis is used to identify and interpret detailed patterns of connections and correlations between keywords (Breiger et al., 1975).

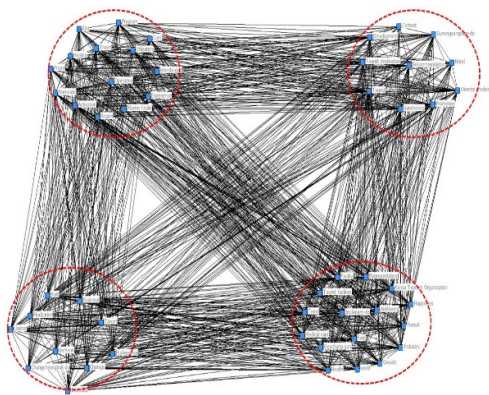
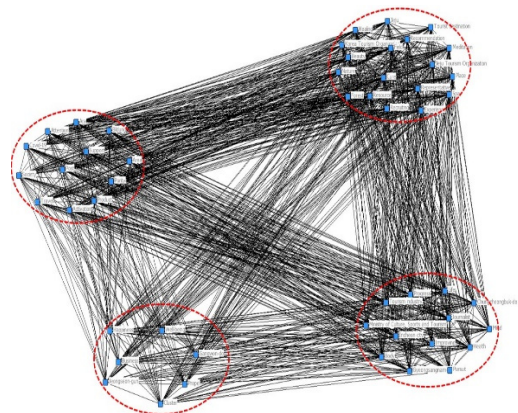
During the period before the outbreak, CONCOR analysis revealed four keyword clusters. The first included "marine healing", "spa", "healing", "program", "propel", "travel", "cure", "activation", and "operation", and was named "Marine Health Wellness Tourism". The second cluster consisted of "medical care", "facility", "representative", "tourist facilities", "Korea Tourism Organization", "trend", "well-being", and "happiness", and was named "Medical Wellness Tourism". The third cluster included "cluster", "meditation", "building",

"business", "target", "professional", "journalist", and "Chungcheon-meditation", and was named "Wellness Tourism Cluster". The fourth cluster included "oriental medicine", "tourist destination", "tourist", "development", "hotel", "recommendation", "contest", and "promotion", and was named "Oriental Wellness Tourism".

During the period after the COVID-19 outbreak, CONCOR analysis again revealed four clusters. The first included "COVID-19", "post", "purity", "society", "attention", "Ara", "travel", and "support", and was named "COVID-19 Wellness Tourism". The second consisted of "meditation", "healing", "beauty", "tourist destination", "Korea Tourism Organization", "nature", "resource", and "forest", and was named "Jeju Wellness Tour". The third cluster included "life", "pursuit", "improving", "process", "health", "mind", "journalist", "body", and "tourism industry", and was named "Wellness Tourism Festival". The fourth cluster consisted of

**Table 3.** Results of analysis of CONCOR related to wellness tourism

	Before the outbreak of COVID-19		After the outbreak of COVID-19
Marine Healing Wellness Tourism	Marine healing, Spa, Healing, Program, Propel, Travel, Cure, Activation, Operation, Region, Domestic, Wando-gun	COVID-19 Wellness Tourism	Covid-19, Post,Purity, Society, Attention, Ara, Travel, Support, Area, Activation, Product
Medical Wellness Tourism	Medical care, Facility, Representative, Tourist facilities, Korea Tourism Organization, Trend, Well-being, Happiness, Field, Pursuit, Industry, Growth, World, Health, Jeollanam-do, Geochang-gun	Jeju Wellness Tourism	Meditation, Healing, Beauty, Tourist destination, Korea Tourism Organization, Nature, Resource, Forest, Experience, Spa, Place, Cure, Field, Recommendation, Jeju, Jeju Tourism Organization
Wellness Tourism Cluster	Cluster, Meditation, Build, Business, Target, Professional, Journalist, Chungcheongbuk-do, Chungju, Jecheon	Wellness Tourism Festival	Life, Pursuit, Improving, Process, Health, Mind, Journalist, Body, Tourism industry, Ministry of Culture, Sports and Tourism, Incheon city, Chungcheongbuk-do
Oriental Wellness Tourism	Oriental medicine, Tourist destination,Tourist, Development, Hotel, Recommendation, Contest, Promotion, Gyeongsangnam-do, Sancheong	Gangwon Wellness Tourism	Happiness, Well-being, Business, Cluster, Propel, Gangwon-do, Jeongseon-gun

**Figure 3.** CONCOR analysis visualization result before the outbreak of COVID-19**Figure 4.** CONCOR analysis visualization after the outbreak of COVID-19

"happiness", "well-being", "business", "cluster", "propel", and "Gangwon-business", and was named "Gangwon Wellness Tourism". The CONCOR cluster analysis results are summarized in Table 3, and the CONCOR cluster analysis results are visualized in Figures 3 and 4.

## V. Discussion and Conclusion

As the desire for mental and physical restoration is increasing in response to the lifestyle changes that

have occurred during the 21<sup>st</sup> century, the concept of wellness is rapidly gaining traction. Globally, the market for wellness tourism is also expanding, including medical and healing tourism. This study aimed to assess general perceptions of wellness tourism before and after the COVID-19 outbreak, and to identify ways to promote it. To this end, keywords closely related to wellness tourism were extracted from Korea's major social media platforms (Naver and Daum), and from the search engine Google, and subjected to atypical big data analysis, i.e., social and semantic network analyses. Keywords were collected during an approximately 3.5-year period, from July 1, 2018 to December 31,

2021, and compared before and after the outbreak of the COVID-19 pandemic. KrKwic, KrTitle, UCINET, and Netdraw were used for the analysis; text mining, frequency analysis, centrality analysis, and CONCOR analysis were performed. The main analysis results were visualized to aid interpretation and understanding and are summarized as follows.

First, frequency analysis showed that "health", "program", "Korea Tourism Organization", "cure", "region", "tourist destination", "travel", and "facility" were frequent keywords before the COVID-19 outbreak, while "Jeju", "cure", "health", "building", "COVID-19", "Gangwon-do", "Korea Tourism Organization", and "cluster" were frequent after the outbreak. Prior to the outbreak, awareness of wellness tourism and programs appear to have been high, while after the outbreak specific wellness tourism destinations, including Jeju and Gangwon, were recognized. In addition, the desire for healing of both body and mind appeared to be greater after the outbreak. Second, "healing", "program", "experience", "region", and "business" were major keywords in the proximity and centrality analyses pre-outbreak; "cure", "healing", "tourist destination", "COVID-19", "nature", and "forest" were the major keywords in those analyses post-outbreak. Third, the CONCOR analysis revealed four keyword clusters both before and after the COVID-19 outbreak. The pre-outbreak clusters included "Marine Healing Wellness Tourism", "Medical Wellness Tourism", "Wellness Tourism", and "Oriental Wellness Tourism", and the post-outbreak clusters included "COVID-19 Wellness Tourism", "Jeju Wellness Tourism", "Wellness Tourism Festival", and "Gangwon Wellness Tourism".

Previous wellness tourism studies analyzed the development and marketing of wellness tourism destinations, including through case studies, as well as tourists' motivations for visiting wellness tourism destinations. We performed an atypical social media big data analysis, which has recently gained traction in hospitality industry and tourism research, and showed that perceptions of wellness tourism before and after the outbreak of COVID-19 differed. This corroborates the results of Park (2021) and Kim and Lee (2021), who analyzed perceptions of tourist destinations and

leisure activities after the outbreak of COVID-19. We found that keywords for natural wellness tourism destinations, such as forests, were more frequent after than before the outbreak of COVID-19.

In terms of practical implications, after the COVID-19 outbreak, tourism consumers appeared to have a stronger desire to use specific tourist destinations than before the COVID-19 outbreak. In the post-COVID era, local governments and policymakers will need to develop programs to boost local wellness tourism. In particular, attention should be paid to improving IT infrastructure, such as the integrated tourism platform (which has recently been expanding), and to enhancing the satisfaction of tourists visiting wellness destinations.

Domestic tourism on Jeju Island has increased, as the COVID-19 pandemic has hindered overseas tourism. The perception of Gangwon-do as a clean tourist destination is also increasing. Advertising and promotion on online social media platforms and SNS, emphasizing the positive effects of wellness tourism such as healing and meditation, could further increase the number of visitors to these destinations.

Awareness of the first Korean Wellness Tourism Festival, organized in 2021 by the Ministry of Culture, Sports, and Tourism to address the slump in tourism caused by COVID-19, was high according to our keyword analysis. At the festival, 51 tourist attractions in Korea were recommended to potential tourists, and promotional discounts were provided. The attractions were divided into four categories: beauty/spa, oriental medicine, nature/forest, and healing/meditation, and the festival was deemed highly effective. To further promote wellness tourism, future national festivals will be important. More fine-grained wellness tourism themes are also needed to encourage tourism by individuals of all ages.

## VI. Limitations and Future Studies

This study analyzed perceptions of wellness tourism before and after the COVID-19 outbreak. To this end,

atypical big data were extracted from major online social media platforms and analyzed. In future research, it will be necessary to utilize qualitative research methods, such as interviews with wellness tourism experts and focus group interviews. Comparative research on wellness tourism in different countries will also be important, as perceptions of COVID-19 may vary among various countries such as Korea, Japan, and China. In addition, quantitative (i.e., big data) analysis of tourism on Jeju Island and in Gangwon Province, which has increased since the COVID-19 outbreak, could aid understanding of tourists' perceptions and inform future operations.

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