

## THE MEDIATION EFFECT OF TOURISM INFORMATION SEARCH ON THE RELATIONSHIP BETWEEN SMARTPHONE USAGE PERIOD AND BEHAVIORAL CHANGES IN HIKING ACTIVITY OF JEJU ISLAND USING TRA MODEL

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**ABSTRACT.** *Hiking tourism has grown in popularity in recent years due to the benefits it provides to tourists' physical and mental health. The purpose of this study is to identify the effect of tourism information search under the influence of smartphone usage on behavioral changes in hiking activity. The researchers used survey information from wellness tourists who visited Jeju more than once and found a total of 467 people who had experienced hiking tourism. Further, the Theory of Reasoned Action (TRA) is used as context, and data is analyzed using WarpPLS 7.0. In addition, gender, age, and income, which are demographic information on tourists' behavioral changes, showed a moderating effect on each path in the separate research models. The results indicated that the p-value is significant but the correlation coefficient is negative between tourism information search and behavioral changes in hiking activity. This finding provides that the original plan proceeds without any behavior change even though more smartphone information was searched. Hence, tourism behavior can be uniformly changed according to smartphone information search, but it may be different for each tourism activity.*

**Keywords:** Hiking tourism, Tourism information search, Smartphone usage period, Behavioral change, Jeju Island

1. **Introduction.** The importance of the tourism industry to a country's economy cannot be understated. Tourism leads to development of a country's infrastructure and employment opportunities [1]. One of the primary reasons people participate in tourism activities is to improve their quality of life. Hiking tourism, in particular, has grown in popularity in recent years due to the benefits it provides to tourists' physical and mental health.

Jeju Island is a popular tourist destination in South Korea. Jeju's local economy, like that of many other island resorts, is heavily reliant on tourism. Jeju's specific brand of tourism incorporates its volcanic landscapes and diverse nature. Most visitors to Jeju come for the outdoor activities it offers [2]. When tourists plan their travel to Jeju, the intention is high for hiking or other outdoor activities. Planning for travel frequently involves the use of smartphones.

Smartphones have undeniably become a part of the travel planning process. They facilitate easy access to travel information [3], which allows for a more flexible travel experience [4]. This type of flexibility, in turn, facilitates on-site decision-making [5]. Thus, tourists are able to change plans impulsively based on new information they receive [6]. In the Jeju

tourism context, understanding smartphone use's impact on tourist intention fulfillment is important.

Tourism is a fundamental part of Jeju's economy, and hiking is inseparable from Jeju's tourism branding. It is difficult to find previous studies that examine on-site decision making within the Jeju context. Therefore, it is necessary to examine Jeju tourists' smartphone use and information search in relation to fulfilling their hiking plans. This study will examine relevant literature on the topic, analyze Jeju tourist survey data, and interpret the results.

## 2. Literature Review.

**2.1. Hiking tourism.** Hiking tourism is defined as "an outdoor vacation or holiday activity that consists of shorter or longer walks in natural and cultural landscapes, often in rural areas" [7]. It is a type of physical exercise that is used for recreation, training, and fitness. People usually participate in this hobby during their holidays. It is frequently the primary reason for a trip. Because of this, hiking can be classified as a separate type of tourism [8]. Hiking trails are not just for getting to your destination. Tourists can gain mobility experiences related to self-perception and personal improvement by participating in hiking activities [9]. In hiking tourism, tourists participate actively in joint activity for the achievement tendency of the common goal. Tourism and recreation are important ways for people to interact with and benefit from natural environments.

It has grown in popularity in several countries and regions in recent years. For example, the number of hikers in the United States increased from 29.86 million in 2006 to 47.86 million in 2018 [10]. Between 2010 and 2019, over 11 million people visited Hong Kong's country parks [11]. In South Korea, hiking has been popular since 2007, when Jeju Olle, the first hiking trail on Jeju Island, opened [12].

The Jeju Olle Foundation capitalized on and helped develop Jeju tourism's branding of outdoor activities with Jeju Olle trails. Jeju Olle trails are a popular series of hiking trails aimed at tourists [13]. When tourists visit Jeju, their intention for outdoor activity is high [2]. This relates to the Theory of Reasoned Action (TRA). TRA suggests that best predictor of behavior is intention [14]. With the saturation of smartphones in daily life, smartphone use has become part of the tourism process [15].

**2.2. Smartphones and tourism.** Smartphones have become an essential part of the tourism planning process for travelers. Smartphones are ubiquitous platforms for people's communication activities in which people can use social media to express their opinions and share information about specific attractions or destinations. Visitors' suggestions of tourist items, experiences, feelings, sentiments, and moods are shared through these Internet comments or reviews [16]. This type of smartphone facilitated interaction helps shape the entire tourism experience for people [15]. In the planning process, it allows for tourists to choose a destination and accommodation based on previous tourists' experiences. The prevalence of smartphones in societies has even opened up an industry of smart tourism with apps specifically designed to make tourism more convenient.

Smart tourism apps suggest travel products and tourist information so that visitors can plan their own itinerary [17]. Tourists can create a personalized travel itinerary before and during their trip by using tourism information and recommended travel products provided by the smart tourism information system. The smart tourism information system offers tourists a smart tour guide service that provides weather information as well as tourism information for tourist destinations based on a personalized travel itinerary [18].

**2.3. Smartphone usage period.** The researchers could not find a specific study that used period of use by years as an explanatory variable for behavioral change. However, there exists vast literature on the relationship between age and smartphone use. The

generational divide is clear. The younger generation can be referred to as “digital natives” [19]. This generation was born into the age of smartphone technology while the older generation had to adapt as new technology became available. As such, differences between age groups and smartphone use have been studied. General smartphone behavior differences between age groups have been documented. For example, older adults tend to use smartphones more for non-social reasons such as reading the news [20]. Younger people’s single-session smartphone use is longer than older people [21]. Problematic smartphone use and dependence are higher among younger users as well [22]. The positive relationship between problematic smartphone use and depression and anxiety has also been established [23]. Research also links problematic smartphone use and compulsive behavior [24]. Whether born into or adapting to the digital age, the saturation of smartphone use in daily life across age groups has led to an environment where people have been using them for over decade. Due to period of smartphone use in years lacking in previous literature, it is necessary to examine it further.

**2.4. Smartphones and tourist information search.** On Jeju Island, tourists can use fast Internet facilities and that may affect their decision-making during their travel time. Smartphones provide near-instant access to any information a tourist may need before and during travel [25]. In this context, smartphones have been shown mediate tourist decision making on-site. On-site, or unplanned, tourism decisions are becoming more prominent as a result of smartphone facilitated access to information [5]. Access to information via mobile technology has shown to influence tourist behavior in general [15]. A recent study [26] showed that TIS resulted in less planful tourism. For Jeju’s brand of the tourism, the main focus is on outdoor activities. TIS might have a mediating effect on those who plan to hike.

**3. Data Analysis.** The purpose of this study is to find out the effect of tourism information search under the influence of smartphone usage on behavioral changes in hiking activity on Jeju Island, South Korea, through a public awareness survey according to a modified research model based on the Theory of Reasoned Action.

In this study, the hypothesis was established, and the research model was designed to investigate the effect of the Smartphone Usage Period (SUP) and Tourism Information Search (TIS) on Behavioral Changes in Hiking Activity (BCHA) based on the Theory of Reasoned Action. Additionally, the researchers examined whether gender, age, and income – which are demographic information on tourists’ behavioral changes – showed a moderating effect on each path in the separate research models in this study.

The statistical analysis for each stage and the program used for the empirical analysis of this study are as follows. First, IBM SPSS Version 24.0 was used for frequency analysis to identify demographic characteristics and for basic reliability and factor analysis of the sample. Second, Warp PLS Version 7.0 was used as the analysis method for the structural equation model to which the partial least equation was applied to identifying the influential relationship between each latent variable and to analyzing the path effect set for hypothesis testing.

**3.1. Respondents.** The survey for this study was conducted for about one week, targeting samples from 16 metropolitan cities and provinces in the mainland. Only wellness tourists who visited Jeju more than once were included. Of the total 467 respondents, 270 were female, accounting for 57.82%, indicating a high participation rate of women compared to the population. Table 1 contains detailed data on the sample of this study described above.

TABLE 1. Demographic characteristics

Variable	Category	Frequency	Ratio %
Gender	Male	197	42.18
	Female	270	57.82
Age	20s	83	17.78
	30s	153	32.77
	40s	142	30.40
	50s	71	15.20
	60s & above	18	3.85
Income	less than 1 million	37	7.92
	1.0 ~ 1.99 million	27	5.79
	2.0 ~ 2.99 million	110	23.56
	3.0 ~ 3.99 million	101	21.62
	4.0 ~ 4.99 million	52	11.13
	more than 5 million	140	29.98
Smartphone usage period	Less than 1 year	5	1.07
	1 ~ 3 years	22	4.71
	4 ~ 6 years	42	8.99
	7 ~ 9 years	136	29.12
	10 & above years	262	56.11
Total			100

3.2. **Research variables.** The 3 research variables used in our study are: Smartphone Usage Period (SUP), Tourism Information Search (TIS), and Behavioral Changes in Hiking Activity (BCHA).

- SUP refers to the amount of the time in years a respondent has used a smartphone. It was divided into 5 ranks: less than 1 year; 1 ~ 3 years; 4 ~ 6 years; 7 ~ 9 years; 10 or more years.
- TIS refers whether a respondent used their smartphone to search for tourism information.
- BCHA refers to whether a respondent changed their intended hiking plan.

Therefore, hypotheses based on the research framework of this study are introduced as follows.

*H-1: The Period of Smartphone Use will influence Tourism Information Search.*

*H-2: Tourism Information Search will affect Behavioral Changes in Hiking Activity.*

*H-3-1: Income moderates the relationship between Smartphone Usage Period and Tourism Information Search.*

*H-3-2: Income moderates the relationship between Tourism Information Search and Behavioral Changes in Hiking Activity.*

*H-4-1: Age moderates the relationship between Smartphone Usage Period and Tourism Information Search.*

*H-4-2: Age moderates the relationship between Tourism Information Search and Behavioral Changes in Hiking Activity.*

*H-5-1: Gender moderates the relationship between Smartphone Usage Period and Tourism Information Search.*

*H-5-2: Gender moderates the relationship between Tourism Information Search and Changes in Hiking Activity Behavior.*

The model of this study designed based on the above hypotheses is shown in Figures 1, 2, 3, and 4 below. To verify the hypotheses of this research model, path analysis using a structural equation model was performed. According to the above research model, the

smartphone usage period acts as the independent variable, and tourism information search is set as the mediating variable. Finally, as a dependent variable, changes in hiking activity behavior are set. As mentioned in above hypotheses, gender, age, and income, which are demographic information on tourists' behavioral changes, showed a moderating effect on each path in the separate research models.

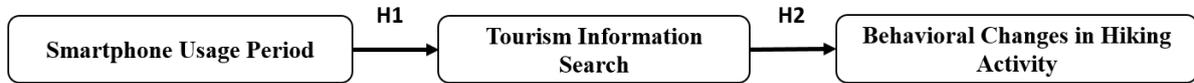


FIGURE 1. Research model

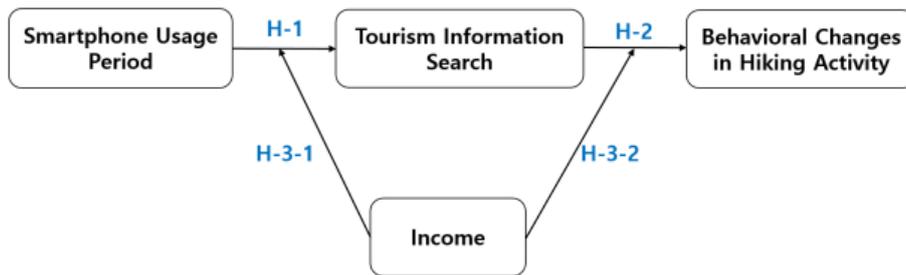


FIGURE 2. Research model for income

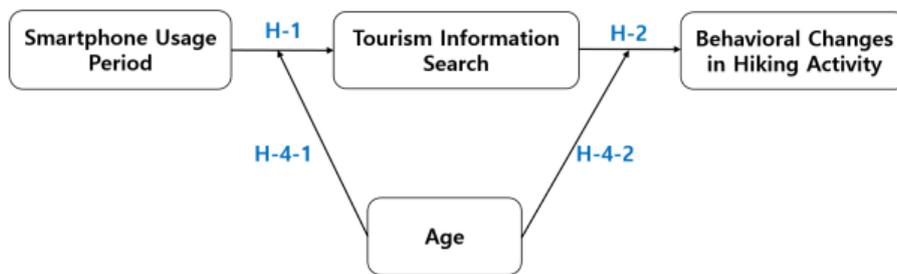


FIGURE 3. Research model for age

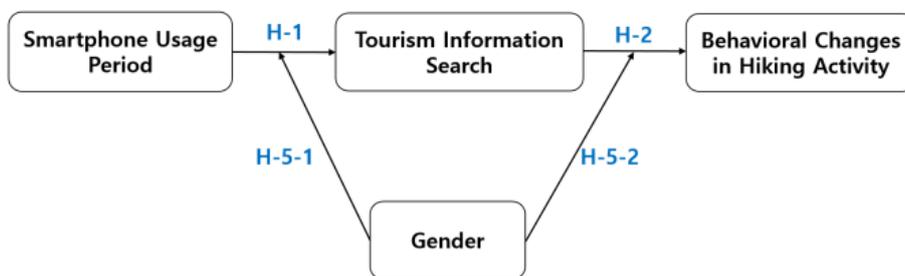


FIGURE 4. Research model for gender

The next section conducts path analysis along with the fitness of the overall research model.

The following Table 2 shows the results of hypotheses testing on the effect size, path coefficient, *p*-values well as direct/indirect effects of the entire paths in order of magnitude based on the path effects. The path with the highest coefficient is SUP to TIS.

Therefore, all the hypotheses established in this study were found to be significant.

TABLE 2. Results of hypotheses test

Paths	Coefficients	Effect size	$p$ -value	Results
SUP→TIS	0.163	0.028	0.001***	Supported
TIS→BCHA	-0.210	0.045	0.001***	Not Supported
Income*TIS	0.090	0.012	0.025**	Supported
Income*BCHA	-0.062	0.030	0.088*	Not Supported
Age*TIS	-0.105	0.015	0.011**	Not Supported
Age*BCHA	-0.062	0.004	0.09*	Not Supported
Gender*TIS	-0.074	0.011	0.054*	Not Supported
Gender*BCHA	0.077	0.006	0.048**	Supported

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

**4. Conclusion.** This study examined the relationship between smartphone period of use and tourism information search on planned hiking behavior among Jeju tourists.

Contrary to our prediction, TIS did not influence change in BCHA. There may be a few explanations for this. Jeju tourism is unique in that it focuses on outdoor activities. Jeju Olle has also had success in attracting hiking tourists. There are 26 Jeju Olle hiking trails, so his novel tourism approach may have created attachment opportunities for Jeju tourists. When tourists become attached to destinations, they are more likely to revisit [27]. The results also support the Theory of Reasoned Action [14]. Hiking tourism is a health behavior, and wellness tourism has become trendy [28]. TRA suggests that intention is the best predictor of behavior, and intentions are influenced by attitudes and societal norms [29]. If a tourist has a strong intent to hike based on attitudes toward Jeju and the trend of wellness tourism, then TIS would not change one's decision to hike according to TRA.

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