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RESEARCH LETTER



Antecedents of cave visitors' revisit intentions in the context of self-determination theory: a case study on Dupnisa Cave visitors in Turkey

Kartal Dogukan Ciki ^a, M. Murat Kizanlikli ^{b,c} and Haluk Tanriverdi ^d

^aFaculty of Economics, Administrative and Social Sciences, Department of Tourism Guidance, Istanbul Gelisim University, Istanbul, Turkey; ^bFaculty of Tourism, Ankara Hacı Bayram Veli University, Ankara, Turkey; ^cFaculty of Tourism, Kyrgyz-Turkish Manas University, Bishkek, Kyrgyzstan; ^dFaculty of Economics, Department of Tourism Management, Istanbul University, Istanbul, Turkey

ABSTRACT

Based on self-determination theory as a conceptual framework, the aim of this study is to reveal the relationships amongst cave visitors' experiences, motivation, satisfaction and revisit intention. In order to test the conceptual model designed in line with the objectives of the study, a survey was conducted amongst a sample of 312 visitors to Dupnisa Cave in Turkey. The analysis showed that visitors' motivation and cave experience positively influenced their satisfaction. Moreover, satisfaction has an effect on visitors' revisit intention. This study is one of the first to attempt to reveal the nature of future behaviour of cave visitors within the context of self-determination theory.

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Self-determination theory; motivation; revisit intention; cave visitors; Dupnisa Cave

1. Introduction

Caves are natural cavities formed as a result of karstic erosion processes and are usually composed of water-soluble rocks such as limestone and gypsum (Gunay et al., 2015). Karst areas provide a special use for tourism and human recreation and are key components of tourist attractions (Cigna & Forti, 2013). Nevertheless, caves opened for tourism and their tourism potential have not received sufficient attention from tourism researchers (Antić et al., 2022).

Turkey, which is located on the Alpine-Himalayan Mountain Belt where the Eurasia, African and Arabian tectonic plates intersect in terms of geological characteristics, has a significant cave potential. Dupnisa Cave, one of the touristic caves in Turkey, was opened to tourism in 2003. In 2021, Dupnisa Cave, which is known to have hosted around 70,000 visitors (TRT-Haber, 2023), was selected as the research area of this study. The aim of the study is to contribute to the cave tourism literature by examining the experiences, satisfaction and behavioural intentions (BIs) of tourists visiting Dupnisa Cave within the framework of self-determination theory (SDT).

SDT is a theory developed by Ryan and Deci that comprehensively explains the spectrum of motivation that affects individuals' decision-making processes, performance and psychological well-being (Deci & Ryan, 1985). Moreover SDT suggests that human motivations range from intrinsic motivation to extrinsic motivation and that these types of motivation can have different consequences on individuals' decision-making processes, performance and psychological well-being (Deci & Ryan, 1985).

This theoretical framework is particularly important in tourism research. Tourists' experiences during travel are shaped by the level of fulfilment of their autonomy, competence and relatedness

needs (Scannell & Gifford, 2017). For example, a tourist's desire to explore a new destination may be a reflection of their need for autonomy, while their participation in cultural activities or learning new skills may be an indicator of their need for competence. Moreover, interactions with locals or other travellers can satisfy the need for relatedness.

Applying SDT to the tourism sector enables destinations and tourism service providers to better understand the ways in which tourists can increase their motivation and satisfaction (Ciki & Tanriverdi, 2023a). This can have a positive impact not only on tourists' current visit, but also on their commitment to the destination and their revisit intention (Ciki & Tanriverdi, 2023b).

Ogretmenoglu et al. (2023) examined the relationship between the motivations and satisfaction of visitors who came to Istanbul to watch a football match and found that there were significant relationships between travel motivations and satisfaction of football fans. The number of studies examining the motivations of cave visitors is quite limited (Allan et al., 2015; Antić et al., 2022; Kim et al., 2008; Rachmawati & Sunkar, 2013). Accordingly, the following hypothesis is proposed:

H₁: The motivation of cave visitors significantly affects satisfaction with cave experience (SAT).

Chen and Rahman (2018) stated that tourism experience is multidimensional and varies depending on individual differences. Su et al. (2020) focused on tourists' experiences at the point of completion of a destination visit and revealed that their experiences in this context affect satisfaction. Kim (2017) found that memorable tourism experiences have a positive relationship with tourist satisfaction. Based on previous research, the following hypothesis was formulated:

H₂: Cave visitors' experiences (VEX) significantly affect SAT.

In tourism studies, satisfaction is seen as a holistic assessment of tourist attitudes towards various aspects of their visit experiences (Saayman et al., 2018). Empirical evidence has supported that satisfaction functions as one of the key determinants of revisit in various studies (Chi, 2012; Kim, 2017). Based on previous research, the following two hypotheses are proposed (Figure 1):

H₃: Cave visitors' SAT significantly affects revisit intention to destination (REVD).

H₄: Cave visitors' SAT significantly affects revisit intention to the cave (REVC).

2. Methodology

There is a lack of research on the behaviour of cave visitors. In line with the purpose of the study, a quantitative methodology design was used to explain the relationships among the variables.

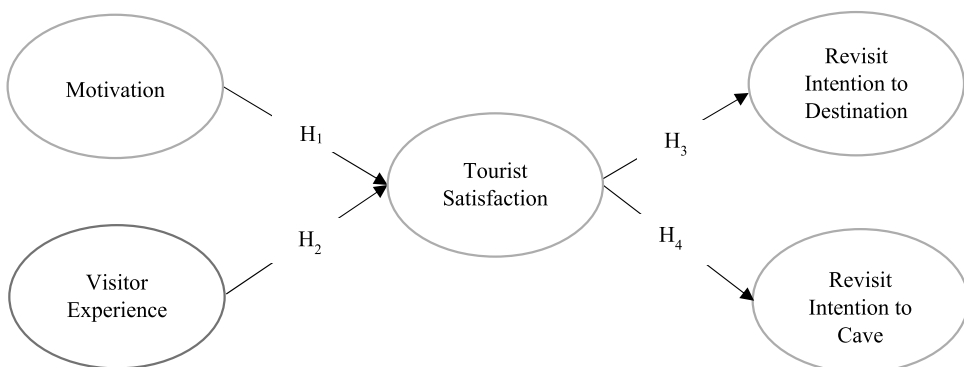


Figure 1. Research model.

2.1. Research's measures

The first part of the questionnaire used in the research includes questions about the demographic characteristics of the participants such as gender, age, monthly income and education. The following section includes the scales for the research variables. Information on these scales is as follows: Cave visitors' MOT (Shavanddasht et al., 2017), VEX (Su et al., 2020), SAT (Shavanddasht et al., 2017), REVD and REVC (Jeong et al., 2019). The scales used in the study were rated on a 5-point Likert scale (1 = 'strongly disagree' to 5 = 'strongly agree').

2.2. Research site, sample and data collection

Dupnisa Cave, which is the research site, is located near Sarpdere village in Demirkoy district of Kırklareli province of Turkey, on the foothills of Mahya Mountain of Istranca Mountains. In this study, convenience sampling method was used for sample selection. Research's data collection process was carried out between 30 May 2022 and 30 July 2022. The data collection process started both at the research site ($n=67$) and online ($n=245$), but due to financial and temporal reasons, the survey was continued only online and as a result, 312 questionnaires were obtained in total.

For the survey application, Turkish visitors to Dupnisa Cave were selected as sample of the research and foreign visitors were not included in the research. There are several reasons for this. One of these reasons is to reduce the variability in the sample and to study on a more homogeneous group. Furthermore, this tourist attraction, which is less popular among foreign visitors, is visited more by local visitors and choice of local visitors as the sample is to overcome temporal and financial barriers (Table 1).

3. Results

In the process of evaluating hypotheses and examining causal links between variables, SmartPLS 3.0 software was used for inferential statistical analysis. Table 2 contains the details of reflective structural model examined. In this study, it was taken into consideration that average variable extraction (AVE) values required for convergent validity should be above 0.50. AVE results obtained met this criterion. In addition, composite reliability (CR) measurements were taken to assess the internal

Table 1. Respondents' demographics.

Demographic Variable	Counts (N)	Percentage (%)
Gender	312	100
Male	171	54.8
Female	141	45.2
Marital Status	312	100
Single	149	48
Married	163	52
Age	312	100
18–25	111	35.5
26–35	72	23.1
36–45	69	22.1
46 and above	60	19.3
Education	312	100
Below high school	28	9
High school	104	33.3
University	123	39.4
Master or PhD	57	18.3
Annual Income	312	100
5500 TL and below	54	17.3
5501–10000	127	40.7
10001–15000	74	23.7
15001 and over	57	18.3

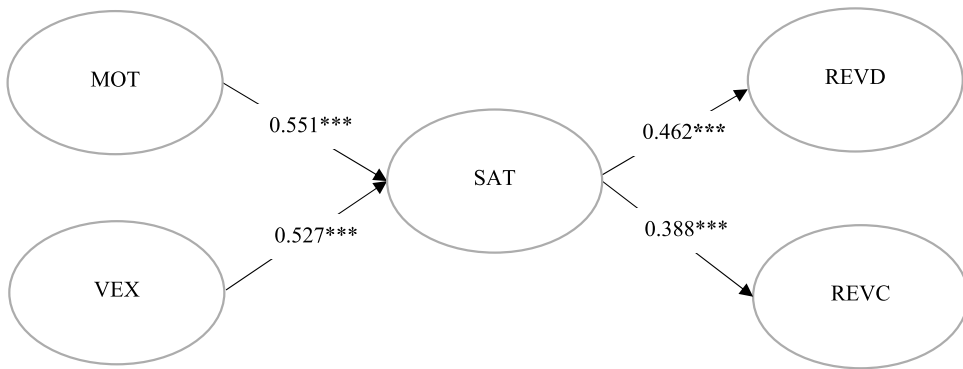
Table 2. Discriminant validity.

Variables	1	2	3	4	5
MOT (1)	0.792				
VEX (2)	0.705	0.788			
SAT (3)	0.664	0.721	0.807		
REVD (4)	0.745	0.697	0.769	0.851	
REVC (5)	0.734	0.706	0.717	0.685	0.834

Table 3. Hypothesis testing.

Hypothesis	Path	f ²	Direct effect	t-values	P-values	Results
H1	MOT > SAT	0.153	0.551	5.152	0.000	Supported
H2	VEX > SAT	0.106	0.496	5.257	0.007	Supported
H3	SAT > REVD	0.161	0.462	6.014	0.000	Supported
H4	SAT > REVC	0.149	0.388	4.117	0.004	Supported

$p < 0.01$.

**Figure 2.** Path results.

consistency of the constructs of the study and it was found that values of this study were above the recommended value of 0.70. Furthermore, Cronbach's Alpha coefficients for the scales used in the study exceeded the threshold value of 0.70, indicating that these scales are highly reliable.

Table 2 presents data on the discriminant validity of this study. For five different variables examined in the study, the square root of AVE was calculated to be higher than the correlation values of these variables with other latent variables in the path model.

In this study, partial least squares (PLS) approach was preferred to analyse relationships among variables. All 4 hypotheses examined in the study were supported. Table 3 presents the results of the hypotheses testing process, including the effects of the variables on each other. On the other hand, Figure 2, which is a visualisation of findings of the research, reveals results of the research model and provides a detailed map of the relationships between variables.

H₁ and H₂, which suggest that 'MOT' and 'VEX' positively affect 'SAT', are supported ($\beta_{(MOT \rightarrow SAT)} = 0.551$, $p < 0.001$; $\beta_{(VEX \rightarrow SAT)} = 0.496$, $p < 0.01$). H₃ and H₄, which suggest that 'SAT' positively affects 'REVD' and 'REVC', were both not supported ($\beta_{(SAT \rightarrow REVD)} = 0.462$, $p > 0.001$; $\beta_{(SAT \rightarrow REVC)} = 0.388$, $p > 0.01$).

4. Conclusion

This study examines the relationships among MOT, VEX, SAT, REVD and REVC in the context of SDT, based on data collected from 312 visitors to Dupnisa Cave in Kirklareli, Turkey. This paper provides

several theoretical and practical contributions. When previous tourism research is examined, the number of studies examining tourists' motivation to visit caves within the scope of self-determination theory is quite limited (Allan et al., 2015; Shavanddasht et al., 2017). Therefore, this study is a valuable contribution to the literature on the relationship between visitors' motivation, cave visit experience and satisfaction. In addition, satisfaction also has an impact on visitors' intention to visit again. Therefore, this study is one of the first studies that try to reveal the nature of future behaviour of cave visitors in the context of self-determination theory.

Future research could include extending the study to tourist caves or natural attractions in different regions to compare findings. This enables a comparative analysis, offering insights for similar potential attractions. Researchers could extend the topic to include various nationality groups. The inclusion of qualitative methods in future studies could provide deeper insights into visitors' experiences and motivations. Moreover, the relationship between cave tourism and the development of local people can be analysed and socio-economic impacts on the region can be revealed.

The findings of this study can provide guidance to tourism businesses and decision makers. Dupnisa Cave is a little-known attraction and needs special events and promotions (souvenirs, information brochures, etc.) and various initiatives that will contribute to the promotion of this attraction. Furthermore, an infrastructure for virtual reality tours can be created by identifying the interesting parts of the cave, even if not all of the parts of the cave that are forbidden to enter. The location of Dupnisa cave is suitable for nature-based tourism activities and it is important to expand its opportunities in this context.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Kartal Dogukan Ciki  <http://orcid.org/0000-0002-8307-8561>

M. Murat Kizanlikli  <http://orcid.org/0000-0002-6953-767X>

Haluk Tanriverdi  <http://orcid.org/0000-0002-2716-0405>

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