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Visitors' perception of overtourism impacts in a small destination

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ABSTRACT

Overtourism, normally associated with large cities, is also evident in small, regional destinations. The town of Karlstejn (Czech Republic) receives up to 250,000 tourists per year who influence the environment and the locals' quality of life. The negative effects of overtourism on locals are already well mapped. However, despite the influence and vital role of visitors for destinations, limited research has addressed their perspectives. This paper thus aims to examine visitors' perceptions of overtourism. 174 questionnaires, completed during August 2019, were evaluated using Principal Component Analysis (PCA), linear regression and non-parametric analysis of variance (ANOVA). The results contradict the generally accepted definition of overtourism that implies a deterioration in locals' quality of life and a negative impact on visitors' experiences.

Introduction

Overtourism is said to be tourism that not only decreases the quality of life of the residents of a tourist destination, but also diminishes the tourist experience (Koens et al., 2018). Previous research (Goodwin, 2017; Koens et al., 2018) emphasized the specific character of each destination, described the issues that overtourism brings, and examined them in relation to the perceptions and needs of residents. The perception of overtourism impacts from a visitor's perspective has not been paid much attention in the extant academic literature (Joo et al., 2019). To fill this gap, the aim of this paper is (i) to identify the existence of overtourism based on the perception of the issues and groups of issues defined by Peeters et al. (2018), and (ii) to assess the statistical significance of the sociodemographic characteristics on the issues and groups of issues (in this paper referred to as "group variables"). The existence of overtourism is examined from the perspective of visitors to Karlstejn which is a very small municipality in the Czech Republic distinguished by its internationally renowned castle, one of the most visited in the country. The destination was chosen from a list of the most visited heritage sites, with respect to specifics of the destination and its media image (e.g. Smatana, 2019).

Literature review

The development of tourism includes complex interactions that can lead to both positive and negative impacts on a destination (MacNeill & Wozniak, 2018). These impacts have been well explored by scholars, and classified as environmental, economic, or sociocultural (Almeida-García et al., 2016; Martín Martín et al., 2018).

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According to Butler (1980), the impacts on local communities are more obvious with increasing tourist demand. Koens et al. (2018) noted that the specific situation of overtourism brings amongst others, not only more intense but also more concentrated impacts. McCool and Lime (2001) and Milano (2017) pointed out that overtourism consists of particular impacts and perceptions, interactions among residents, tourists and other actors, perception of tourist behaviour and changes in the social, economic and physical environments, regardless of the character, maturity and management of the destination (Rafai, 2017).

UNWTO (2018, p. 5) defined overtourism as "*the maximum number of people that may visit a tourist destination at the same time without causing destruction to the physical, economic or sociocultural environment and an unacceptable decrease in the quality of visitors' satisfaction*". According to Veiga et al. (2017) overtourism occurs when too many visitors arrive at the same place at a certain time and is strictly connected to mass tourism saturation. Milano et al. (2018) connected overtourism to overcrowding. According to World Travel and Tourism Council [WTTC] (2017), overcrowding not only brings problems to residential areas, overloads infrastructure, damages nature and threatens culture and heritage, but also diminishes tourist experience due to crowding, queues and annoyance. According to Pearce (2018), it is not only residents and enterprises but ultimately tourists themselves that can be affected if residents' dissatisfaction reaches its limit and develops into direct aggression.

Perception of the impacts of tourism

Recent research has been almost exclusively devoted to the effects of tourism or overtourism from the residents' point of view (e.g. Gonzalez et al., 2018; Kuščer & Mihalič, 2019; Martín Martín et al., 2018; Namberger et al., 2019; Pinke-Sziva et al., 2019).

Despite the importance of the influence and the vital role tourists play in a destination, little scholarly attention has been directed towards understanding their point of view (Moyle et al., 2013). According to Joo et al. (2019), this research gap has led to a dichotomous view, as it is assumed that people arriving at a destination only have little opinion regarding its management. These authors have claimed that visitors are the source of the problem; on the other hand, they may be regarded as part of a solution.

Rozelee et al. (2015) pointed out that, notwithstanding the conclusions of some previous studies, tourists' perceptions can be as beneficial as the views of residents. Using the example of the Hungarian destination Balaton, Puczko and Ratz (2000) examined both tourists' and residents' perception of the physical impacts of tourism. Tourists, despite the full physical capacity of the beach, did not perceive its congestion as a problem and neither that their environmental nor psychological capacity was exceeded. In terms of traffic and shopping the problems were as expected. Interestingly, the results showed that Hungarian tourists held attitudes similar to those of the locals, suggesting lower tolerance, higher levels of frustration, Hungarians' need for larger personal space or a feeling of a greater right by Hungarians to enjoy the attractions of their country. According to Jalilvand et al. (2012), if tourists mainly perceive negative effects, they are assumed not to return to the destination. Morakabati (2011) found that people are more aware and concerned about the risk issue when travelling. Therefore, their behaviour can be directly affected by making them aware of negative impacts of tourism.

The results of Moyle et al., 2013) showed that visitors were aware of both negative and positive impacts. Tourism increases these impacts on the selected destinations, but visitors evaluate them as mostly positive. Joo and Woosnam (2019) explored the impact of tourists' emotional solidarity on their perception of tourism in the destination. They observed that tourists may be aware of what tourism brings to the destination and this shapes their attitudes accordingly, and partially confirmed the previous results of Su and Swanson (2017) concerning the ecological issues of tourism.

Some older studies were devoted to the links between sociodemographic characteristics and tourists' perception (e.g. Kattiyapornpong & Miller, 2009; Mckercher & Chan, 2005). However, connections to the impacts of tourism have been explored only to a very limited extent. Tasci and

Boylu (2010) found that visitors' perception of health, safety, hygiene and security along with the number of days spent in the destination, the existence of product or service failure, and education and nationality variables were significant in explaining their satisfaction with their trip.

The selected destination – Karlstejn

The municipality Karlstejn is located in the Beroun district, in the protected karst landscape of Bohemian Karst, approximately 30 km south-west of Prague, the capital of the Czech Republic. In the conditions of the Czech Republic, Karlstejn qualifies as a township. Its administration dates from 1952 and it has 812 permanent inhabitants (Ministry of the Interior of the Czech Republic, 2019)

The dominant monument of the municipality is the gothic castle of the same name. It was built in the 14th century by Charles IV, King of Bohemia and Holy Roman Emperor, as a repository for the imperial crown jewels. The castle was registered as a national cultural monument in 1962 and is provided with the highest form of monument protection. It can be accessed by the public (since 1902) on the road intersecting the municipality. An average of 229,000 people visited the castle annually between 2008 and 2018 (National Heritage Institute, 2008-2018). It is the fourth most visited monument under the administration of the National Heritage Institute and the most visited in a municipality with fewer than 1,000 inhabitants. The castle is open to visitors for 270 days a year (in 2019), being closed or with limited access in the off-season. Two out of the three available tours each day limit the numbers of visitors through a compulsory reservation system (Karlstejn, 2019). Unlike the castle, the municipality itself has no legal means to restrict visitors' entry (Smatana, 2019).

Table 1 shows selected tourism indicators based on the methodology by Peeters et al. (2018) and Musil et al. (2008), calculated for Karlstejn based on data from 2015–2018. The Tourist Intensity Rate in 2018–29,756 (the indicator is calculated from the castle visiting rate and overnight stays in collective accommodation establishments [CAE] are considered) – is the highest of all similar destinations to Karlstejn managed by the National Heritage Institute.

A Tourist Penetration Rate between 79.06 and 94.96 is very high, indicating the considerable loading that tourists place on the township's residents. The values of Defert's Tourist Function Rate, indicating tourism from a different perspective, range from 31.15 to 32.85, which, according to Musil et al. (2008), shows that the destination has a significant but not prevalent tourist function. Only less than 10% of castle visitors actually stay in the destination (for a mean of 1.6 nights) and the occupancy of beds in 2018 was 37.73% on average, which suggests the significance of one-day visits to Karlstejn Castle for the visit rate of the entire municipality.

Despite the dissatisfaction of the local residents and the issue of emerging conflicts and irritation as expressed by, for example, the castle warden, Lukas Kunst, who said: *"It is true that conflicts with people are increasing. I feel that people are more irritated, and it is reflected in tourism especially."* (Kunst in Czech Television, 2019, translated by the authors), no regulation is planned for the near future by the political leadership of the municipality. Only minor changes to the markings on the access road to the castle are expected. According to the mayor, the

Table 1. Karlstejn tourism statistics.

Year	Number of visitors to the castle	Number of people staying at CAE	Number of overnight stays at CAE	Number of beds	Tourist Penetration Rate[1]	Tourist Intensity Rate[2]	Defert Tourist Function Rate[3]
2015	214,325	16,516	25,279	254	79.06	28,860	32.85
2016	257,666	19,958	30,926	254	94.96	34,662	32.77
2017	228,159	17,399	27,462	251	82.61	30,155	31.77
2018	223,871	21,093	34,155	248	81.54	29,765	31.15

Authors' calculations; data from the Czech Statistical Office (2019a, 2019b).

municipality favours maintaining the current visit rate or increasing it (Smatana, 2019). This is mainly based on the economic benefits tourism brings to the municipality budget which is up to 4.27% of total revenues (Monitor, 2019). Other issues at stake are the overcrowding of the access road to the castle, the disruption of aesthetics due to stall sales, and the waves of tourists (Smatana, 2019).

Methodology

The paper aims to fill the mentioned research gap and to identify the existence of assumed overtourism in Karlstejn based on the perception of the issues and the group variables (referring to groups of issues) defined by Peeters et al. (2018) from the perspective of the visitors to Karlstejn and to explore the effects of sociodemographic characteristics on the perception.

To this end, a questionnaire was created, consisting of questions on sociodemographic characteristics, information related to the organization and the purpose of travel, and the perception of tourism impacts on the destination. These were those identified in relevant literature (e.g. Goodwin, 2017; Seraphin et al., 2018; UNWTO, 2018) and selected to match the conditions of Karlstejn. The impacts were defined using a Likert scale with values 1–5: values 1 and 2 are negative, 3 and 4 are positive, and 5 means "I do not know". The mean value 2.5 from the scale values 1–4 represents neither a negative, nor a positive tourists' attitude to the impacts.

The research took place during one week in August 2019 – i.e. during the peak season as stated by the National Heritage Institute (2019). The questionnaire was written in two languages – Czech and English – and was refined based on the results of a pilot survey. The researchers were trained to work with the questionnaire and were able to explain any ambiguity in the questions. For this reason, the return on the questionnaires completed is 100%: all questionnaires were complete and could be used for subsequent processing. The stratified (based on gender) convenience sampling method was employed to select respondents. Respondents were required to be 18 years or over. The response rate was negatively affected by language barriers, disinclination to be involved and concern about personal data protection. Thus, in total, 174 completed questionnaires were obtained.

Descriptive statistical methods were used to analyse sociodemographic characteristics and the perceptions of individual impacts. Subsequently, using Principal Component Analysis and correlation analysis, the individual impacts were organized into five groups (in this paper referred to as group variables) proposed by Peeters et al. (2018). The last one mentioned in the document: *tourist perspectives on tourists* was omitted since the perception perspective of overtourism in the paper factually was merged into the group variable i*ssues related to tourist number*. On the other hand, the group variable *secondary tourist offer* was added to extend the view of tourists. The individual group variables (Table 2) are a sum of values of relevant questionnaire responses representing the impacts of tourism.

The group variables, together with standalone variables (*recommendation of visit, repetition of visit* and *influence of visit*) were analysed in the paper; in particular, how the personal characteristics of visitors affected their perception of the above-mentioned group variables. Given the same range (1–5) and similar variability, the influence of individual ordinary variables on group variables measured by the Spearman rank correlation is approximately the same. Therefore, there is no reason to believe that some individual variables should be given greater importance in group variables than others. Factor loadings are presented in Table 2.

Each question could be answered by "I do not know". Such response was decoded as a missing value in our dataset. It is reasonable to assume that these missing values form a pattern and that, up to a limit, a missing value in one variable could be explained by a value of a different variable; therefore, it can be concluded that the data are not missing completely, are random but still missing at random. In such settings, the omission of incomplete rows could lead to bias, so data imputation

Table 2. Group variables (factor loadings are presented in parenthesis).

Issues related to the physical or built environment	capacity of the car park (0.188) + noise (0.206) + damage to the castle (0.757) + damage to nature in the vicinity (0.780) + damage to the municipality (0.815) + impact on the visual appearance (0.380) + waste and litter (0.319) + damage to the castle surroundings (0.262)
Socioeconomic issues	offer of ordinary products (0.606) + quality of products and services (0.533) + visual contributions of tourism in the municipality (0.565) + price level (0.359) + diversity of local products (0.720)
Sociocultural issues	safety of the place (0.600) + commercialization (0.562) + behaviour of locals (0.358) + behaviour of service employees (0.447)
Issues related to tourist numbers	queuing (0.658) + number of people (0.515) + number of people in restaurants (0.591) + number of visitors at the castle (0.654) + damage to the atmosphere (0.631) + inappropriate behaviour of tourists (0.694) + annoyance with other people (0.704) + number of visitors expected (0.239) + overcrowding of destination (0.530)
Secondary tourist offer	facilities for tourists (0.795) + diversity of souvenirs (0.687) + offer of meals (0.705) + facilities for families (0.728)

Authors' processing based on Peeters et al. (2018).

methods are more suitable. Chained equations with the predictive mean matching method implemented in the MICE package (Buuren & Groothuis-Oudshoorn, 2010) for R programming language were applied to tackle this issue.

For the main analysis, analysis of variance (ANOVA) was used for the categorical variables, where difference among the group variables is of interest, while linear regression was applied in the case of continuous variables in order to identify the effect of a unit change of an independent variable. The R programming language was used to perform statistical tests.

The ANOVA normality assumption of residuals was not met; therefore, a non-parametric version of ANOVA – i.e. the Kruskal-Wallis rank sum test (Kruskal & Wallis, 1952) – was employed. Dunn's (1961) test was applied for post-hoc ANOVA analysis. Where a group variable had more than two levels, the version implemented in R package FSA (Ogle et al., 2018) was used. Since both tests only test the significance of a difference, the mean comparison is a necessary final step to establish which level is connected to higher satisfaction values of the continuous variable.

The significance of the relationship was tested between all pairs of:

$$group\ or\ standalone\ variable \sim sociodemographic\ characteristic$$

Results

The survey sample consisted of 48% men (84) and 52% women (90) with an average age of 34.72; 79% (138) came from the Czech Republic, 21% (36) were from abroad, 60% (15) of whom were from Slovakia. The most frequently achieved highest education was secondary school with the exit exam (45%), closely followed by university (42%); however, should current university students be counted in the latter category, it would outweigh the former. More than 70% (123) were employed or self-employed, 14% were unemployed (24), 11% were students (19) and the remaining 5% (8) were retired. Considering the economic and education distribution of the sample, the average amount of money, converted to one day, the respondents were planning to spend or had spent in the destination, excluding the castle entrance fee and accommodation, was relatively high – 726 CZK (approx. 29 EUR).

The results show a shorter average stay than the Czech Statistical Office (2019b) data, 1.4 nights; however, the percentage of people who stayed in the destination for more than one day was 17% higher, i.e. 27% (47) of respondents stayed for at least one night. 56% of respondents (97) said they had already visited the destination in the past.

Impacts of (over) tourism

Of the overtourism impacts examined, one of the most significant negative ones was the impact on the visual appearance of the destination (mean value 2.30), followed by *damage to the castle* (mean value 2.45), *damage to the surroundings* (mean value 2.39) and *damage to the municipality* (mean value 2.41). In a broader sense the visitors negatively perceived the disruption of the environment due to the excessive numbers of tourists, which also affected another element, disruption to the atmosphere of the place. Visitors did not perceive visibly higher amount of waste, noise or deteriorated hygiene compared to their domestic environment. Despite that, the warden of the castle mentioned in the interview for a journal (Smatana, 2019), that these were among the issues there.

The visitors perceived the higher prices in the destination negatively (mean value 2.29), influenced by the scope of tourism. The increase in prices was also confirmed by e.g. UNWTO (2018) related to changes felt by destination residents. Additionally, a lack of common products and services available for local residents was identified as a direct impact (mean value 2.40). The municipality had adapted to visitors' needs and limited services that would meet the needs of the local population at the expense of visitors. This claim can be supported, inter alia, by negative perceptions of the destination as an overly commercialized location (mean value 2.34). However, the quality of the products and services offered was at a normal level, according to respondents.

The dissatisfaction of the residents with the tourist situation, as expressed by castle warden Kunst on Czech Television (2019), might have influenced residents' behaviour towards the visitors. It is consistent with results obtained that show respondents' slightly negative experience of the behaviour of both residents and restaurant and shop employees. Behaviour was not described as directly hostile (mean value 2.72), but the responses indicated rather a reserved treatment of tourists. This may have been caused by the reported high number of people in restaurants, shops, and the castle. These facts did not affect the sense of safety of the respondents. Despite the above, respondents were mostly of the opinion that the benefits of tourism in the destination outweighed the negatives (mean value 3.17).

Generally, the defined group variables were perceived slightly positively, as shown in Table 3. Based on the obtained results, we can conclude that the extreme impacts of overtourism, despite the high castle visit rate, did not occur and visitors were satisfied with the facilities and services (mean value 3.12)

Dependence between sociodemographic characteristics and standalone/group variables

Within the statistical tests, all relations between sociodemographic characteristics (in this paper: *sex, age, origin, town size, education, employment, annual frequency* of travelling, main *purpose* of the visit, *companionship, visit to surroundings of the castle, length of stay* and *average money to spend*) and the group/standalone variables mentioned above were tested. Only variables with identified statistical significance are presented in the paper's results.

Table 3. Mean values of individual variables included in the defined group variables of overtourism impacts.

Group variables	Mean value
Issues related to the physical or built environment	2.85
Socioeconomic issues	2.66
Sociocultural issues	2.76
Issues related to tourist numbers	2.63
Secondary tourist offer	3.12

Authors' calculations.

Table 4 shows the results obtained from the non-parametric ANOVA and Dunn's test for the relation of *issues related to the physical or built environment* and *town size* (referring to the size of the visitor's place of residence). At a significance level of 0.1, the Kruskal-Wallis test confirms that visitors' perception about *issues related to the physical or built environment* depended on the size of the town/place they came from. Dunn's test shows a significant difference in the perception of the *Issues* between tourists from villages (<3,000 inhabitants) and large towns (>15,000 inhabitants). It means that people from villages perceived the tourism impact on a small destination like Karlstejn less negatively than people from large towns. Following this, people from large towns, which includes foreigners, were more aware of the negative impacts that a concentration of visitors in one place could bring. The mean difference in the perception between these two groups is 1.703 points, which means that visitors from large towns on average gave more negative answers to one or two questions included in the group variable of *issues related to the physical or built environment*.

Table 5 shows the effect of *age* on the *issues related to tourist numbers*. The results show that with increasing age, the elements of the group variable were perceived less negatively.

Influence on visit is linked to the hypothetical influence of the decision to visit the destination, if the current situation as regards the number of tourists and current conditions were known. The test results presented in Table 6 show the influence of the tourist nationality (*origin*) and companionship on the decision to travel to the destination. Regarding *origin*, there is a significant difference between foreigners on the one hand and Czechs and Slovaks on the other; generally, Czechs and Slovaks would probably not visit Karlstejn if they had been aware of the current conditions (i.e. impacts). Regarding *companionship*, tourists not travelling alone, but with friends, would be less influenced by the conditions of the destination in their decision to travel there.

Table 4. Results of ANOVA and Dunn's post-hoc test for the relation of issues related to the physical or built environment and town size.

Issues related to the physical or built environment ~ Town size				
Kruskal-Wallis rank sum test:				
chi-squared	Df		p-value	sig.
5.337	2		0.069	*
Dunn test:				
Comparison	Z		p-value (unadj.)	p-value (adj.)	sig.
1–2	−1.532		0.125	0.188	Ns
1–3	−2.266		0.023	0.070	*
2–3	−0.913		0.361	0.361	Ns
Means calculated from the sums of individual component values of the group variable				
Town size: 1		Town size: 2		Town size: 3
(large towns; >15,000 inhabitants)		(small towns; 3,000–15,000 inhabitants)	(villages; <3,000 inhabitants)	
19.339		20.257		21.042

Significance levels at 0.1 (*), 0.05 (**) and 0.01 (***); "ns" indicates no statistical significance.
Authors' calculations.

Table 5. Results of linear regression for issues related to tourist numbers ~ age.

Issues related to tourist numbers ~ Age					
Linear regression:					
	coeff.	std. error	t-test	p-value	sig.
Intercept	18.159	1.201	15.113	0.000	***
Age	0.085	0.032	2.613	0.010	***
Residual standard error: 5.351 on 167 degrees of freedom					

Significance levels at 0.1 (*), 0.05 (**) and 0.01 (***); "ns" indicates no statistical significance.
Authors' calculations.

The results presented in Table 7 indicate that the *repetition* variable, i.e. the fact that the respondents had previously been to the destination, influenced their subsequent recommendation of it as a suitable trip destination. A direct relationship between *recommendation of visit* and the satisfaction with the *secondary tourist offer* was not proved. However, the results show that those who had been to the destination in the past perceived the *secondary tourist offer* more positively than first-time visitors. These effects are statistically significant at a level of 0.05 regarding *recommendation of visit*, and at a level of 0.1 regarding *secondary tourist offer*.

The statistics presented above, based on the tourists' perceptions, do not support the existence of overtourism in the municipality. As research into overtourism (as defined by UNWTO, 2018) from visitors' perspective is only at the beginning, there are no studies on similar destinations with which we could compare the results obtained. Even studies exploring destinations different in size and geography (e.g. Puczko & Ratz, 2000; Ramdas & Mohamed, 2014) did not examine overtourism as such from visitors' perspective – they only explored their views of the general impacts of tourism.

Table 6. Results of ANOVA and Dunn's post hoc-test for standalone variables Influence on visit ~ Origin and Influence on visit ~ Companionship.

Influence on visit ~ Origin					Influence on visit ~ Companionship				
Kruskal-Wallis rank sum test:					**Kruskal-Wallis rank sum test:**				
chi-squared	df	p-value	sig,		chi-squared	df	p-value	sig.	
6.638	2	0.036	**		6.504	3	0.089	*	
Dunn test:					**Dunn test:**				
Comparison	Z	P-value (unadj.)	P-value (adj.)	sig.	Comparison	Z	P-value (unadj.)	P-value (adj.)	sig.
1–2	0.341	0.733	0.733	ns	1–2	1.894	0.058	0.116	ns
1–3	−2.498	0.012	0.037	**	1–3	1.907	0.056	0.169	ns
2–3	−2.245	0.024	0.037	**	2–3	0.069	0.944	0.944	ns
					1–4	2.428	0.015	0.091	*
					2–4	1.269	0.204	0.306	ns
					3–4	1.145	0.252	0.302	ns
Means:					**Means:**				
Origin: 1 (Czechs)			1.644		Companionship: 1 (alone)			2.833	
Origin: 2 (Slovaks)			1.523		Companionship: 2 (with partner)			1.777	
Origin: 3 (other foreigners)			2.533		Companionship: 3 (with friends)			1.750	
					Companionship: 4 (with family)			1.452	

Significance levels at 0.1 (*), 0.05 (**) and 0.01 (***); "ns" indicates no statistical significance.
Authors' calculations

Table 7. Results of ANOVA for the relation of recommendation of visit ~ repetition and secondary tourist offer ~ repetition.

Recommendation of visit ~ Repetition				Secondary tourist offer ~ Repetition			
Kruskal-Wallis rank sum test:				**Kruskal-Wallis rank sum test:**			
chi-squared	df	p-value	sig.	chi-squared	df	p-value	sig.
4.580	2	0.032	**	2.999	1	0.083	*
Means:				**Means calculated from the sums of individual component values of the group variable:**			
Repetition: 1 (visiting for the first time)	2.608			Repetition: 1 (visiting for the first time)		11.766	
Repetition: 2 (visited before)	2.818			Repetition: 2 (visited before)		12.546	

Significance levels at 0.1 (*), 0.05 (**) and 0.01 (***); "ns" indicates no statistical significance.
Authors' calculations.

Conclusion and implications

Overtourism has posed serious problems for many destinations in recent years. However, its definition and quantification are not uniform. Several authors have dealt with this issue in relation to residents (e.g. Gonzalez et al., 2018; Kuščer & Mihalič, 2019); however, visitors' perspectives remain unexplored. For this reason, the aims of this study were to identify the existence of overtourism from the perspective of the visitors in the specific destination (Karlstejn, Czech Republic), and to explore the statistical significance of the sociodemographic characteristics to tourists' perception of overtourism.

This study provides preliminary results, which did not support the presence of overtourism in Karlstejn as perceived from the visitors' point of view and show contradiction to a general definition of overtourism (Responsible Tourism Partnership, 2019; UNWTO, 2018) that implies both a deterioration in the quality of life of locals and a negative impact on visitors' experience.

The results showed that respondents perceived the benefits of tourism in the destination and these outweighed the negatives, i.e. they did not perceive the negative issues of tourism associated with the impact on infrastructure, the environment, security or overcrowding of the site. Based on the results obtained, it is possible to conclude that from tourists' perspective, there is no need to regulate or manage tourism in Karlstejn. Albeit local residents, represented by the castle warden Kunst (Czech Television, 2019), would endorse soft regulation aiming to alter visitors' behaviour to respect residents and their homes (such as educating them as in Amsterdam, or imposing fines as in Venice or Dubrovnik).

The results suggested statistical links between only a few sociodemographic indicators and group/standalone variables. They showed statistically significant differences between issues related to the physical or built environment and town size (at 0.1), influence on visit and origin (at 0.05), influence on visit and companionship (at 0.1), recommendation of visit and repetition (at 0.05), secondary tourist offer and repetition (at 0.1). The linear regression showed a statistically significant (at 0.01) influence of age on issues related to tourist numbers. The results do not indicate a statistical influence/difference of other socio-economic factors (especially education or gender), which are commonly shown in tourism studies in general (e.g. Gill, 2015).

Focusing on overtourism from a destination visitors' perspective is an unexplored area, which is hindered by a lack of references in the literature and the absence of a possible comparison of the results with those of similar studies. Therefore, more research should be carried out to substantiate the findings and expand them with the perspective of local residents and other relevant local actors. Additionally, the results of this study are limited by the relatively small data set collected over a short period of a week. Future studies could expand the data set while considering the seasonality of tourism over a longer period of time. This paper was focused on statistical analysis; future research could include a qualitative view of the topic and also compare results from other involved subjects.

Notes

1. Tourist Penetration Rate $= \frac{\text{mean length of tourist stay} \times \text{number of tourists}}{\text{number of residents} \times \text{number of days in a year}} \cdot 100$
2. Tourist Intensity Rate $= \frac{\text{number of tourists}}{\text{number of residents}} \cdot 100$
3. Defert Tourist Function Rate $= \frac{\text{number of beds}}{\text{number of residents}} \cdot 100$

Disclosure statement

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References

Almeida-García, F., Peláez-Fernández, M. Á., Balbuena-Vazquez, A., & Cortes-Macias, R. (2016). Residents' perceptions of tourism development in Benalmádena (Spain). *Tourism Management*, *54* June 2016, 259–274. https://doi.org/10.1016/j.tourman.2015.11.007

Butler, R. W. (1980). The concept of a tourist area cycle of evolution: Implications for management of resources. *Canadian Geographer/Le Géographe Canadien*, *24*(1), 5–12. https://doi.org/10.1111/j.1541-0064.1980.tb00970.x

Buuren, S. V., & Groothuis-Oudshoorn, K. (2010). mice: Multivariate imputation by chained equations in R. *Journal of Statistical Software* 45(3), 1–67. doi:10.18637/jss.v045.i03.

Czech Statistical Office. (2019a). Data from: Capacity of collective accommodation establishments in selected territory.

Czech Statistical Office. (2019b). Data form: Guests and overnight stays in collective accommodation establishments.

Czech Television. (2019, July 27). Turistů v Česku přibývá, letos by jich mohlo být přes 22 milionů. Ne všechna místa to vítají. (There are more and more tourists in the Czech Republic, this year could be over 22 million. Not all places to welcome that).

Dunn, O. J. (1961). Multiple comparisons among means. *Journal of the American Statistical Association*, *56*(293), 52–64. https://doi.org/10.1080/01621459.1961.10482090

Gill, K. (2015). Tourists' perceptions about tourism impacts: A literature review. *Journal of Business Thought*, *5*(0), 71–85. http://ischolar.info/index.php/JBT/article/view/175604

Gonzalez, V. M., Coromina, L., & Galí, N. (2018). Overtourism: Residents' perceptions of tourism impact as an indicator of resident social carrying capacity-case study of a Spanish heritage town. *Tourism Review* 73(3), 277–296. https://doi.org/10.1108/TR-08-2017-0138

Goodwin, H. (2017). The challenge of overtourism. Responsible Tourism Partnership.

Jalilvand, M. R., Samiei, N., Dini, B., & Manzari, P. Y. (2012). Examining the structural relationships of electronic word of mouth, destination image, tourist attitude toward destination and travel intention: An integrated approach. *Journal of Destination Marketing & Management*, *1*(1–2), 134–143. https://doi.org/10.1016/j.jdmm.2012.10.001

Joo, D., Cho, H., & Woosnam, K. M. (2019). Exploring tourists' perceptions of tourism impacts. *Tourism Management Perspectives*, *31* July, 231–235. https://doi.org/10.1016/j.tmp.2019.05.008

Joo, D., & Woosnam, K. M. (2019). Measuring tourists' emotional solidarity with one another—a modification of the emotional solidarity scale. *Journal of Travel Research* 59(7), 1186–1203. https://doi.org/10.1177/0047287519878503

Karlstejn. (2019) Porta [Online]. https://www.hrad-karlstejn.cz/cs/informace-pro-navstevniky/prohlidkove-okruhy

Kattiyapornpong, U., & Miller, K. E. (2009). Socio-demographic constraints to travel behavior. *International Journal of Culture, Tourism and Hospitality Research*, *3*(1), 81–94. https://doi.org/10.1108/17506180910940360

Koens, K., Postma, A., & Papp, B. (2018). Is overtourism overused? Understanding the impact of tourism in a city context. *Sustainability*, *10*(12), 4384. https://doi.org/10.3390/su10124384

Kruskal, W. H., & Wallis, W. A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association*, *47*(260), 583–621. https://doi.org/10.1080/01621459.1952.10483441

Kuščer, K., & Mihalič, T. (2019). Residents' attitudes towards overtourism from the perspective of tourism impacts and cooperation–The case of Ljubljana. *Sustainability*, *11*(6), 1823. https://doi.org/10.3390/su11061823

MacNeill, T., & Wozniak, D. (2018). The economic, social, and environmental impacts of cruise tourism. *Tourism Management*, *66* June, 387–404. https://doi.org/10.1016/j.tourman.2017.11.002

Martín Martín, J., Guaita Martínez, J., & Salinas Fernández, J. (2018). An analysis of the factors behind the citizen's attitude of rejection towards tourism in a context of overtourism and economic dependence on this activity. *Sustainability*, *10*(8), 2851. https://doi.org/10.3390/su10082851

McCool, S. F., & Lime, D. W. (2001). Tourism carrying capacity: Tempting fantasy or useful reality? *Journal of Sustainable Tourism*, 9(5), 372–388. https://doi.org/10.1080/09669580108667409

Mckercher, B., & Chan, A. (2005). How special is special interest tourism? *Journal of Travel Research*, 44(1), 21–31. https://doi.org/10.1177/0047287505276588

Milano, C. (2017). Overtourism and Tourismphobia: Global trends and local contexts. *Barcelona: Ostelea School of Tourism & Hospitalit.*

Milano, C., Cheer, J. M., & Novelli, M. (2018). Overtourism: A growing global problem. *The Conversation*. Academia.

Ministry of the Interior of the Czech Republic. (2019). Informativní počty obyvatel v obcích (Informative population numbers in municipalities) (xls). https://www.mvcr.cz/clanek/informativni-pocty-obyvatel-v-obcich.aspx

Monitor. (2019). Data from: Monitor.statnipokladna https://monitor.statnipokladna.cz/2018/obce/detail/00233374

Morakabati, Y. (2011). Deterrents to tourism development in Iran. *International Journal of Tourism Research*, 13(2), 103–123. https://doi.org/10.1002/jtr.802

Moyle, B. D., Weiler, B., & Croy, G. (2013). Visitors' perceptions of tourism impacts: Bruny and Magnetic Islands, Australia. *Journal of Travel Research*, 52(3), 392–406. https://doi.org/10.1177/0047287512467702

Musil, M., Novotná, M. E., & Pásková, M. (2008 (Jindřichův Hradec: VŠE Praha)). Potenciál a zatížení oblasti cestovním ruchem v souvislosti s ochranou životního prostředí. (Potential and burden of tourism in connection with environmental hazards).

Namberger, P., Jackisch, S., Schmude, J., & Karl, M. (2019). Overcrowding, overtourism and local level disturbance: How much can Munich handle? *Tourism Planning & Development*, 16(4), 452–472. https://doi.org/10.1080/21568316.2019.1595706

National Heritage Institute. (2008-2018). Výroční zprávy za roky 2008-2018 (Annual Reports for the years 2008-2018) (pdf). https://www.npu.cz/vyrocni-zpravy

National Heritage Institute. (2019). Na památkách končí úspěšná sezona, kteréřinesla mnoho novinek (The successful season, which brought many novelties, ends at the monuments).

Ogle, D. H., Wheeler, P., & Dinno, A. (2018). FSA: Fisheries stock analysis. R package version 0.8.20. https://github.com/droglenc/FSA

Pearce, P. L. (2018). Limiting overtourism: The desirable new behaviours of the smart tourist. In *Proceedings of the tourism intelligence forum (t-Forum) global exchange conference* Palma de Mallorca.

Peeters, P. M., Gössling, S., Klijs, J., Milano, C., Novelli, M., Dijkmans, C. H. S., , and Mitas, O. (2018). Research for TRAN Committee-Overtourism: Impact and possible policy responses. *European Parliament, Directorate General for Internal Policies, Policy Department B: Structural and Cohesion Policies, Transport and Tourism* (European Union).

Pinke-Sziva, I., Smith, M., Olt, G., & Berezvai, Z. (2019). Overtourism and the night-time economy: A case study of Budapest. *International Journal of Tourism Cities*, 5(1), 1–16. https://doi.org/10.1108/IJTC-04-2018-0028

Puczko, L., & Ratz, T. (2000). Tourist and resident perceptions of the physical impacts of tourism at Lake Balaton, Hungary: Issues for sustainable tourism management. *Journal of Sustainable Tourism*, 8(6), 458–478. https://doi.org/10.1080/09669580008667380

Rafai, T. In: 2017 UNWTO & WTM Ministers' Summit - Overtourism: Growth is not the enemy, it is how we manage it. World Travel Market London [online]. 2017. https://www.youtube.com/watch?v=7VVPwRA-D6U&t=3960s

Ramdas, M., & Mohamed, B. (2014). Impacts of tourism on environmental attributes, environmental literacy and willingness to pay: A conceptual and theoretical review. *Procedia-Social and Behavioral Sciences*, 144 August , 378–391. https://doi.org/10.1016/j.sbspro.2014.07.307

Responsible Tourism Partnership. (2019). Overtourism. https://responsibletourismpartnership.org/overtourism/

Rozelee, S., Rahman, S., & Omar, S. I. (2015). Tourists' perceptions on environmental impact attributes of mabul Island and their relationship with education factor. *Environ Sci Tourism Environ Soc Manag Sci*, 15, 146–152 . doi:10.5829/idosi.aejaes.2015.15.s.219.

Seraphin, H., Sheeran, P., & Pilato, M. (2018). Over-tourism and the fall of Venice as a destination. *Journal of Destination Marketing & Management*, 9 September, 374–376. https://doi.org/10.1016/j.jdmm.2018.01.011

Smatana, L. (2019, March 30). Jak si poradit s náporem turistů? Na Karlštejně už vymýšlejí opatření. (How to deal with the onslaught of tourists? At Karlštejn they are already developing measures). *Region. Český Rozhlas.*

Su, L., & Swanson, S. R. (2017). The effect of destination social responsibility on tourist environmentally responsible behavior: Compared analysis of first-time and repeat tourists. *Tourism Management*, 60 June, 308–321. https://doi.org/10.1016/j.tourman.2016.12.011

Tasci, A. D., & Boylu, Y. (2010). Cultural comparison of tourists' safety perception in relation to trip satisfaction. *International Journal of Tourism Research*, 12(2), 179–192. https://doi.org/10.1002/jtr.745

UNWTO. (2018). 'Overtourism'? Understanding and managing urban tourism growth beyond perceptions.

Veiga, C., Santos, M. C., Águas, P., & Santos, J. A. C. (2017). Are millennials transforming global tourism? Challenges for destinations and companies. *Worldwide Hospitality and Tourism Themes*, 9(6), 603–616. https://doi.org/10.1108/WHATT-09-2017-0047

World Travel and Tourism Council [WTTC]. (2017). Coping with Success; Managing overcrowding in tourism destinations.