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Application of factor analysis to produce a multivariate indicator of customer satisfaction in a thermal spa

Tourism per se is a highly relevant sector of economic activity that has been growing steadily. In turn, health and wellness tourism asserts itself as a tourism product with a strong trend in terms of consumption (Baloglu et al., 2019) that is expected to grow continuously in the coming years (Rodrigues et al., 2020). Given this reality, it was found that health and wellness tourism experienced about twice as fast growth when compared to other tourism products - by 2019, it recorded a 6.8% growth while other segments recorded a 3.6% growth (Global Wellness Institute, 2021). As such, it has been confirmed that this tourism product becomes a strategy for destinations (Hartwell et al., 2018; Pyke et al., 2016), the tourism industry, and even the country. However, the pandemic caused by COVID-19, incited a number of reflections about the competitiveness of the tourism industry. Thus, the assessment of customer satisfaction has as its main premise to help managers analyse the global performance of spa establishments (Campón-Cerro et al., 2020). Moreover, it allows them to redefine priorities and design new strategies to positively increase customer satisfaction and achieve competitiveness (Mi et al., 2019). Also, the impact that thermal customer satisfaction has on organizational resilience is highlighted. For, high levels of satisfaction significantly influence the business recovery process. In addition to being a decisive agent in service choice, customer loyalty (Han et al., 2017), and visibility in a competitive market. In this sense, it is imperative to investigate the determinants that might influence customer satisfaction. Challenged by these inferences and by the non-existence of a multivariate index that reflects customer satisfaction in the health and wellness tourism sector, this research aims to build a thermal customer satisfaction index (ISCT) to produce a more robust measurement of satisfaction. For that, a statistical technique of exploratory factor analysis was used, based on customers' level of satisfaction at the Thermal Spa. For this purpose, it was decided to run a survey applied to the customers of the Chaves Thermal Spa. It was applied through a probability sampling process from July 13 to September 17, 2020. The final sample was 107 thermalists that were the subject of the study. Thus, to answer the objective of the study, initially, a descriptive analysis was used to characterise the respondents and measure their level of satisfaction. Subsequently, exploratory factor analysis was performed to study the inherent structures between the variables under research, identify the determinants of satisfaction, and calculate the satisfaction index, both globally and for each factor identified. To develop the ISCT, therefore, 14 variables (Lourenço, 2012; Teixeira, 2013) were selected that measured the satisfaction of spa customers (Silvério et al., 2021a, 2021b; Silvério, 2020) and these, through the application of exploratory factor analysis, were distributed into three factors. It was found that the determinant factors that allow us to evaluate the satisfaction of the respondents are: equipment, infrastructure and technical team. These factors explained 69.9% of the total variance of the data. The global ISCT presented a very expressive and satisfactory value, approximately 94%, which allows us to say that customers were very satisfied. In compendium, as there is a positive relationship between the high satisfaction index and the performance of the thermal establishments, it was intended, with this methodology, to present the most important factor and the one that should be improved in order to generate significant growth in the satisfaction index and, consequently, overcome

the adversities raised by COVID-19. In a practical perspective where in the current scenario the tourism industry is struggling for survival, this research will help managers and owners of thermal establishments to focus on the elementary steps for a quick recovery. That said, this study has contributed to the literature that currently lacks elements regarding the applicability of exploratory factor analysis to produce a satisfaction index. In addition, it presents management implications as it suggests strategies to improve the operation of the thermal establishment understudy, among others. At the same time, it should be mentioned that thermal establishments, by using this new instrument to assess satisfaction, are able to identify the attributes that generate greater customer satisfaction, allowing them to act to meet their needs and therefore build their resilience.

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Keywords: Tourism; Health and Wellness Tourism; Thermalism; Customers; Thermal Customer Satisfaction Index

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