USING PSYCHOGRAPHIC SEGMENTATION PROFILES OF JAPANESE DOMESTIC TOURISTS TO CONCEPTUALIZE AN ONSEN RECOMMENDER SYSTEM

Isabell Handler[1*], and Rosanna Leung[2]
[1]Doshisha Business School, Doshisha University; Japan,
email: ihandler@mail.doshisha.ac.jp
[2]Graduate Institute of Hospitality Management, National Kaohsiung University of Hospitality and Tourism, Taiwan,
email: rosannaleung@gmail.com

ABSTRACT

During the COVID-19 pandemic Japanese hot springs (onsen) have suffered significantly due the lack of visitors and more than 40 have filed for bankruptcy in 2020 alone. To help onsen, which represent an integral part of Japanese culture and heritage, to survive, sustain and flourish in the future, developing a digital recommender system for addressing visitor's information demands and concern might be one way to approach this challenge. For the conceptualization of such a system it is imperative to understand the psychographics of leisure travelers during times of anxiety. This study draws on the results of a market research project conducted in early 2021 which surveyed more than 1000 Tokyo residents on their attitude, motivation, and degree of worry to visit onsen during the pandemic. The decision to survey Japanese nationals over foreign tourists was made since 96% of all wellness tourists are domestic travelers.

The data collected was explored through K-Means cluster analysis, a popular marketing tool, with focus on respondent's 1) perceived threat intensity, 2) perceived infectability, 3) response efficacy, 4) self-efficacy, and 5) crowded perception and attitude. The analysis resulted in three distinct clusters, which were profiled using the above factors, demographic information and visit intention. The proposed concept of a recommender system tries to match the information requirements of members in each cluster with easily collectable information on onsen establishments and the authors believe that such a system can help lowering anxiety levels and encouraging visitation.

Keywords: recommender system, onsen, domestic travel, Japan, COVID-19, psychographics

1. INTRODUCTION

The coronavirus (COVID-19) pandemic has left the tourism industry in an unprecedented crisis and resulted in a drop of 74% in tourist arrivals worldwide in 2020 (compared with 2019). Japan's tourism industry has been no exception to this crisis and has experienced a significant decrease in the number of leisure trips internationally and domestically. Although both international and domestic tourism are relevant to Japan's tourism industry,

it is particularly important to look at the latter, as 82% of the total number of travelers were noted to be domestic tourists in 2019 (JTB Tourism Research & Consulting Co., 2020). Thus, decreased activity in Japan's domestic tourism implies a major concern to Japan's hot spring, or *onsen*, which are an important part of Japanese cultural heritage.

Although various national travel campaigns have been initiated by the Japanese government to encourage domestic tourism and, as a consequence, visits to *onsen*, there is mounting research evidence that the travel intention is still hampered by various factors, such as travel risk perception (Aziz & Long, 2022), institutional and interpersonal trust (Li et al., 2022) or media credibility (Dang, 2022). The authors own research in this subject (Handler & Kawaminami, 2022) identified three distinct groups of study participants, ranging from concerned to carefree. The study further indicated that few people in all segments would increase their travel intention to *onsen* if an attractive travel package price or financial support by a national travel campaign are offered.

One possible solution to encourage visits to *onsen* can be development of a digital recommender system for addressing information demands and concerns of potential visitors. This paper therefore draws on the findings of Handler and Kawaminami (2022) and conceptualizes such a system using easily collectable information on *onsen* establishments with the aim of lowering travel anxiety and increase travel intention.

2. LITERATURE REVIEW

2.1 Influence of risk perception on travel intention

Pre-COVID19 pandemic studies on risk perception in the context of tourism addressed how tourists perceive a destination and how it is associated with negative consequences (Larsen et al., 2009). In general, studies concluded that the higher the perceived risk, the lower the travel intention and that perceived health risk has a significant influence on tourists' decisions and travel avoidance (Cahyanto et al., 2016; Huang et al., 2020; Larsen et al., 2009) although the risk perception can vary for the same destination depending on the source market of the tourists (Desivilya et al., 2015). Moreover, according to Matiza (2020), psychological and social risks are also pertinent to decision-making and travel behavior, and different behaviors are also reported during times of distress (Robichaud et al., 2003).

Although the United Nations Tourism Organization has been actively discussing how to re-think tourism, and develop sustainable, resilient, and innovative solutions for the restart of the tourism industry (United Nations World Tourism Organization, n.d.), the fact remains that after the prolonged exposure to the COVID-19 pandemic people have been reported as being very anxious about travelling (Aziz & Long, 2022; Sun et al., 2022). Alhemimah (2023) however indicates that tourists are actively seeking information, such as travel health instructions, and have not resigned themselves to refrain from or cancel traveling indefinitely. In this context, a recommender system can be of advantage. If such a system can be implemented by a trusted authority, such as the Japan *Onsen* Association or Japan National Tourism Organization, it can deepen destination trust and foster travel intention (Li et al., 2022; Sun et al., 2022).

3. THE MARKET SURVEY AS BASIS FOR RECOMMENDER SYSTEM

3.1 Survey Design and Sampling

The primary data for the *onsen* study was collected through an online survey by a market research company headquartered in Tokyo. The questionnaire contained three sections: motivation for traveling to *onsen*, perceptions and attitudes toward visiting *onsen* during the COVID-19 pandemic, and intentions to visit *onsen;* all items were measured using a 7-point Likert scale. The 16-item scale, which specifically measures individuals' motivations to visit wellness destinations, was adopted from Chen et al. (2008). To measure visitors' attitudes and perceptions, response efficacy, threat severity, and self-efficacy were used, following Zheng et al. (2021), who used protection motivation, health psychology, and resilience theories to explore what triggers "travel fear" among Chinese people. Thus, 11 items from their study were included in the questionnaire. Second, the constructs *crowding perceptions* (two items), *feelings toward crowdedness* (one item), and *perceived infectability* (five items), were adopted from the Kock et al. (2020) study. More specifically, these scholars used evolutionary psychology to understand the effect of COVID-19 on the tourism psyche; they found that after ethnocentrism and xenophobia, crowding perception plays a vital role in perceived infectability and thus influences travel behavior. Third, one item from Wang et al. (2019), which measured the level of worry, was included, and slightly adjusted to include *onsen*. Lastly, the measurement scale for intention to visit were adopted from Hsu et al. (2006). Questionnaires were obtained through stratified random sampling. As there are no data available on the demographics of *onsen* visitors in Japan, the Japanese population census was used as a reference. Therefore, the market research company was asked to distribute a minimum of 1000 questionnaires to Tokyo residents to ensure that the respondents were born and raised in places all over Japan.

3.2 Cluster Profiles

Details of the analysis procedure can be found in Handler & Kawaminami (2022). Figure 1 shows each cluster and their association with the five factors.
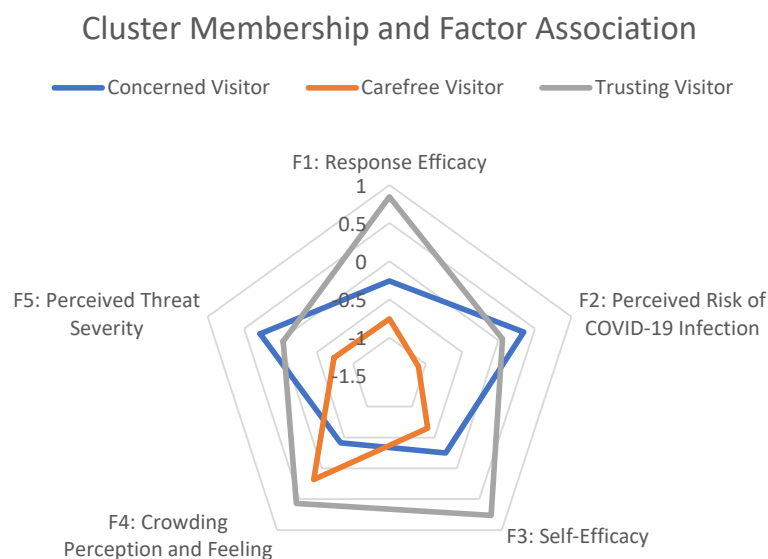

Figure 1: Cluster membership and factor association

Cluster 1 is named "*Concerned Visitor.*" The respondents in this group showed a positive association with factors two and five, which contained items related to perceived risk of COVID-19 infection and their belief that it would pose a health threat to *onsen* visitors. In contrast to the other two clusters, they voiced a worry about facing crowds.

Cluster 2 is titled "*Carefree Visitor*". The respondents in this cluster were unconcerned about the risk of COVID-19 infection and did not seem to see the virus as a threat when visiting *onsen*. They also saw difficulties in having the skills and equipment to prevent the infection by themselves and doubted that *onsen* establishments can do so either.

Finally, Cluster 3 comprised "*Trusting Visitors*" and is quite different from Clusters 1 and 2 because of respondents trusting that the *onsen* facilities were able to enforce sufficient and effective (factor one) measures against on-site infection.

4. THE *ONSEN* RECOMMENDER SYSTEM CONCEPT

To match *onsen* lovers with *onsen* which offer the appropriate health and safety arrangement, this paper proposes an *Onsen* Recommender System (ORS) which is conceptualized in Figure 2. The ORS consists of two databases: *onsen* profiles and user profiles. *Onsen* profiles are obtained by mean of web crawlers which fetched *onsen* data from various online resources including official websites, tourism bureaux websites, social media and travel agency websites. This ORS analyses each *onsen*'s pandemic health arrangements and calculates the health score. The *onsen* profile will be sorted sequentially by the health score. User profiles could come from two sources. First is the direct connection with the user's social media profile. Based on the context of the post and their responses related to pandemic, the ORS can identify and classify the user to one of the clusters: *Concerned Visitor, Carefree Visitor or Trusting Visitors*. If the user did not want to connect their social media with the recommender system, they can simply answer the questionnaire and the system will label the user profile to one of the clusters according to the answers. Then the ORS examines the user's profile and identifies their health concern level. Once the profile classification is ready, the cluster result will be used to compare with the *onsen* profile's health score. Those with the most appropriate health scores will be extracted and will recommend to the user the best fit *onsen*.
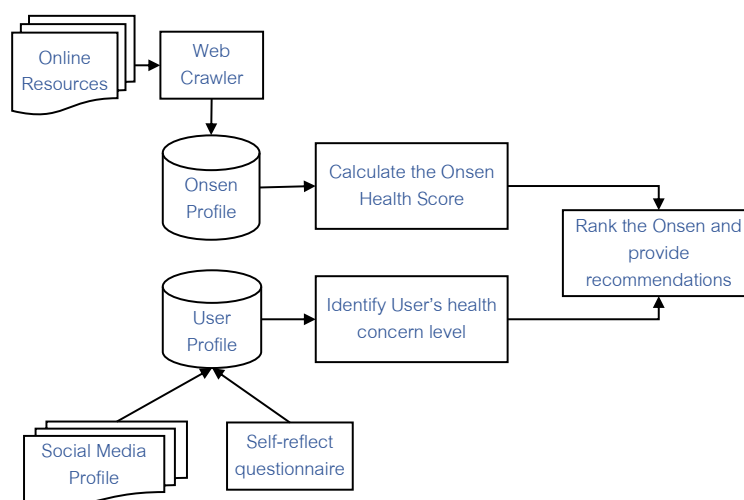
Figure 2: Proposed Onsen Recommender System structure

Table 1 illustrates the factors that affect the *onsen* health scores. The majority of the factors were related to crowding factors because crowdedness plays the most important role in user's health concern level. For concerned visitors, they would prefer less crowded *onsen*, therefore those *onsen*s, smaller in size, which are located in remote areas and with a parking area for private cars would make them feel safe. Secondly, the number of guest rooms and *onsen* pools, and the distance between pools indicates the opportunity the user contact with other *onsen* users. The reduced opportunity of contact would be better for this group of visitors. For carefree visitors, as they believe they will not be infected, therefore, the *onsen* safety and hygiene level were not their concern. For trusting visitors, they believe they have enough knowledge and skills to protect themselves from infection, therefore, their health concern level lies between concerned visitor and carefree visitor.

Table 1: *Onsen* Profile Attributes on Health Concern Related factors.

Onsen Profile	Concerned Visitor	Trusting Visitor	Carefree Visitor
Crowding factors			
Physical location	Remote	Accessible by public transport	Easy to access
Accessible by public transport	Not preferable	In between	No concern
Private Pool available	Preferable	In between	No concern
Number of Pools	The more pools the better	In between	Single pool is fine
Number of rooms	Independent house, or fewer rooms	In between	No concern
Distance between Pools	Wider better	In between	No concern
Responsive Efficacy			
Disinfection frequency	Documented	In between	No concern
Staff protection	Documented	In between	No concern
Customer mask policy	Signage available	In between	No concern
Breakfast/Dining options	Course meal at table	Any option	Buffet is fine

5. CONCLUSION

The proposed ORS could assist *onsen* lover to find a matching *onsen* so that they can enjoy *onsen* without worry of infection.

REFERENCES

Alhemimah, A. (2023). How COVID-19 impacts travel-health information seeking and tourists' travel intentions: A protection motivation theory-based model. *Journal of Destination Marketing and Management*, *27*. https://doi.org/10.1016/j.jdmm.2022.100757
Aziz, N. A., & Long, F. (2022). To travel, or not to travel? The impacts of travel constraints and perceived travel risk on travel intention among Malaysian tourists amid the COVID-19. *Journal of Consumer Behaviour*, *21*(2), 352–362. https://doi.org/10.1002/CB.2008

Cahyanto, I., Wiblishauser, M., Pennington-Gray, L., & Schroeder, A. (2016). The dynamics of travel avoidance: The case of Ebola in the U.S. *Tourism Management Perspectives*, *20*, 195–203. https://doi.org/10.1016/j.tmp.2016.09.004

Chen, J. S., Prebensen, N., & Huan, T. C. (2008). Determining the motivation of wellness travelers. *Anatolia*, *19*(1), 103–115. https://doi.org/10.1080/13032917.2008.9687056

Dang, Q. (2022). Research on the Impact of Media Credibility on Risk Perception of COVID-19 and the Sustainable Travel Intention of Chinese Residents Based on an Extended TPB Model in the Post-Pandemic Context. *Sustainability (Switzerland)*, *14*(14). https://doi.org/10.3390/SU14148729

Desivilya, H., Teitler-Regev, S., & Shahrabani, S. (2015). The effects of conflict on risk perception and travelling intention of young tourists. *EuroMed Journal of Business*, *10*(1), 118–130. https://doi.org/10.1108/EMJB-08-2014-0025

Handler, I., & Kawaminami, J. (2022). Why do Japanese people visit hot springs during a pandemic? A psychographic segmentation analysis. *Journal of Outdoor Recreation and Tourism*, 100530. https://doi.org/10.1016/J.JORT.2022.100530

Hsu, C. H. C., Kang, S. K., & Lam, T. (2006). Reference group influences among Chinese travelers. *Journal of Travel Research*, *44*(4), 474–484. https://doi.org/10.1177/0047287505282951

Huang, X., Dai, S., & Xu, H. (2020). Predicting tourists' health risk preventative behaviour and travelling satisfaction in Tibet: Combining the theory of planned behaviour and health belief model. *Tourism Management Perspectives*, *33*, 100589. https://doi.org/10.1016/j.tmp.2019.100589

Japan Travel Bureau Tourism Research & Consulting Co. (2020). *Tourism Statistics Special Edition: Key points about the travel and tourism market in 2020 - Insights*. https://www.tourism.jp/en/tourism-database/insights/2020/03/tourism-statistics-special-2020/

Kock, F., Nørfelt, A., Josiassen, A., Assaf, A. G., & Tsionas, M. G. (2020). Understanding the COVID-19 tourist psyche: The Evolutionary Tourism Paradigm. *Annals of Tourism Research*, *85*. https://doi.org/10.1016/j.annals.2020.103053

Larsen, S., Brun, W., & Øgaard, T. (2009). What tourists worry about - Construction of a scale measuring tourist worries. *Tourism Management*, *30*(2), 260–265. https://doi.org/10.1016/j.tourman.2008.06.004

Li, W., Chen, G., Wu, L., Zeng, Y., Wei, J., & Liu, Y. (2022). Travel intention during the COVID-19 epidemic: The influence of institutional and interpersonal trust. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/FPSYG.2022.1015900

Matiza, T. (2020). Post-COVID-19 crisis travel behaviour: towards mitigating the effects of perceived risk. *Journal of Tourism Futures*. https://doi.org/10.1108/JTF-04-2020-0063

Robichaud, M., Dugas, M. J., & Conway, M. (2003). Gender differences in worry and associated cognitive-behavioral variables. *Journal of Anxiety Disorders*, 17(5), 501–516. https://doi.org/10.1016/S0887-6185(02)00237-2

Sun, T., Zhang, J., Zhang, B., Ong, Y., & Ito, N. (2022). How trust in a destination's risk regulation navigates outbound travel constraints on revisit intention post-COVID-19: Segmenting insights from experienced Chinese tourists to Japan. *Journal of Destination Marketing and Management*, *25*. https://doi.org/10.1016/J.JDMM.2022.100711

United Nations World Tourism Organization. (n.d.). *TOURISM TAKES STEPS TO REOPEN | UNWTO*. Retrieved January 17, 2023, from https://www.unwto.org/restarting-tourism

Wang, J., Liu-Lastres, B., Ritchie, B. W., & Mills, D. J. (2019). Travellers' self-protections against health risks: An application of the full Protection Motivation Theory. *Annals of Tourism Research*, *78*. https://doi.org/10.1016/j.annals.2019.102743

Zheng, D., Luo, Q., & Ritchie, B. W. (2021). Afraid to travel after COVID-19? Self-protection, coping and resilience against pandemic 'travel fear.' *Tourism Management*, 83. https://doi.org/10.1016/j.tourman.2020.104261