

Work in Hotels Under Conditions Related to the Covid-19 Disease: Views of Slovenian Employees

Abstract

Hotel employees are at increased risk of infection with SARS-Cov-2. Therefore, governments have taken many systematic measures to protect employees and employers (hoteliers). Since previous studies have almost entirely overlooked hotel employees' perspectives on the pandemic, this study determines how heterogeneously Slovenian hotel employees perceived the disease and their own work during and after the health crisis. The Two-Step and K-Means clustering methods were used to identify clusters of respondents. The One-way ANOVA with post hoc Tukey's HSD test was employed to verify the significant differences among groups/items. The sample included 301 completed questionnaires. A three-cluster solution with statistically significant differences was identified. Cluster 3, the largest, is particularly interesting, as its members are the most pessimistic of all. In contrast, Cluster 1, which is much smaller, included the most optimistic members (plain optimists). Cluster 2 is also interesting, as its members tend to be more extroverted – expressing the highest psychological burden and pessimistic views about the future provision of hotel services. Managers should provide clear instructions, education/training, tighten control, and do everything possible to prevent oversensitivity and excessively defensive responses that could hinder operational work.

Keywords: COVID-19 pandemic, hotel industry, employees, occupational health, Slovenia

1. Introduction

The first wave of the COVID-19 pandemic, which then soon turned into a global crisis, has significantly affected the tourism industry (Čorak et al., 2020; Farzanegan et al., 2020; Gössling et al., 2020; Yang et al., 2020; Harchandani & Shome, 2021). Closed national borders, prohibited movement of people, closing down of tourism-related businesses, and the forced grounding of all passenger aircraft made international travel impossible (World Tourism Organization [UNWTO], 2020a; International Labour Organization, 2020a; Ebrahim et al., 2020; Economic Times, 2020; Gössling et al., 2020; Memish et al., 2020; Sönmez et al., 2020; Harchandani and Shome, 2021). The World Health Organization (World Health Organization [WHO], 2020a), in its first recommendations with regard to international traffic, only indirectly addressed accommodation providers; it was more concrete no earlier than at the end of August 2020 (WHO, 2020c). Interestingly, International Labour Organization (2020c) presented their 'Prevention and control checklist' at the same time. The document was "designed as a practical and participatory tool to help implement and continuously improve practical action to prevent and mitigate the spread of COVID-19 in accommodation and food service activities". However, frequently visited countries in the Adriatic prepared the guidelines at the beginning of the tourist season.

Many hotels were forced to temporarily close their doors; some were used as quarantine centres or housed homeless people (International Labour Organization, 2020a). Furthermore, employees were also one of the key affected stakeholders. Employment for unskilled workers in the worst-affected countries could decrease at double-digit rates even in the most moderate scenario; salaries will be fundamentally affected due to how

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businesses respond to health crises (United Nations Conference on Trade and Development, 2020; Harchandani and Shome, 2021). However, these employee-based assessments may be of questionable utility for the current pandemic due to the lack of relevant previous research as well as available data from various geographic and economic areas (Ma et al. 2020; Aguiar-Quintana et al., 2021). Consequently, recent research highlights the aspects of COVID-19 disease among employees, including those in the hotel industry (e.g., Aguiar-Quintana et al., 2021; Salem et al., 2021; Stergiou & Farmaki, 2021). These studies show that hotel employees are significantly affected by the pandemic, which requires further consideration, particularly with regard to the experience of the lockdown and the impact on service delivery in the post-lockdown period. Due to differences in national approaches to the crisis, we can assume that employees' perceptions of the measures cannot be easily generalized.

This paper focuses on the Slovenian hotel industry, which formally falls under subsector 'I55 Accommodation' with a total of 9,864 employees in 2020 (SiStat, n.d.). The sector is heavily dependent on tourists from Germany, Italy, Austria, the Netherlands, and Croatia (Špik, 2019). Both Germany and especially Italy have been among the countries most affected by the SARS-CoV-2 virus (WHO, 2020b), which will not have merely short-term consequences for Slovenian tourism, including the hotel industry. Consequently, we should take under consideration that from March 12, 2020, a series of formal measures (decrees, ordinances; more on measures can be found in Legal information system, n.d.) came into force, which significantly affected hotel companies and tourism in general; first consequences of the COVID-19 pandemic are described in Zupančič (2020). All hotels were for the first time closed in spring 2020, and employees were sent home to self-quarantine. Surveys on the perception of COVID-19 in the general population in Slovenia (e.g., Kavčič et al., 2020; Mediana, 2020; Valicon, 2020) show negative reactions of respondents, but we do not know about the experience/perception of employees in the Slovenian hotel industry within their working life. Moreover, employees' views about their own work when the formal measures will be repealed would also be relevant for the managers at various levels, HR professionals, and occupational health practitioners. They are and will remain responsible for ensuring a safe working environment in the (post) crisis period. Conceptually, these issues are traditionally discussed in the field of occupational health and safety, as infections are defined as a risk factor (Dienstbühl et al., 2008; Hafner et al., 2015); the workplace is one of the key areas that affect mental wellbeing and health as well (Bye et al., 2016). A scientific discussion on this topic in a national (Slovenian) context was not found.

This pilot investigation was conducted at an early stage of research related to the effects of COVID-19 in tourism (specifically the hotel industry). The aim was to identify (1) how heterogeneously Slovenian hotel employees were experiencing/perceiving the pandemic disease and (2) how they see its future impact on their work. Accordingly, the main research question was how many groups they can be clustered into based on different perceptions of the pandemic disease and its impact on their work. The empirical clustering was based on data collected using a web survey tool as the only operational option at the time of the COVID-19 lockdown.

The paper reviews the research literature on COVID-19 and tourism/hospitality, followed by the description of this study's methodology. The results/findings are presented and then discussed in line with key constructs/concepts and relationships outlined.

2. Pandemic and hotel employees

The negative consequences of the COVID-19 pandemic are not related only to tourists/visitors but also to many employees, most of whom are unable to work from home. This is especially characteristic of operational employees in the hospitality industry, which are usually poorly paid (International Labour Organization, 2020a; Organisation for Economic Co-operation and Development [OECD], 2020a); generally speaking, this vulnerable segment of hospitality industry workers is, among other disadvantages, exposed to health and

safety risks (Jones & Teeters, 1996; Lee & Krause, 2002; Sanon, 2014; Sönmez et al., 2017). Consequently, the OECD reports (OECD, 2020a; OECD, 2020b) that governments have taken many systemic measures to protect/support employers as well as employees, such as with paid sick leave, activities for unforeseen care needs, income replacement, legal adjustments, and similar. Interestingly, as an economic organization, the OECD pointed out the socio-economic consequences and the adverse impact on health, including the mental health of those affected by social isolation and quarantining measures (OECD, 2020a). Their concerns and guidelines are in line with the findings of Hawryluck et al. (2004), Rubin and Wessely (2020), Brooks et al. (2020), which highlight the psychological impact of isolation, such as post-traumatic stress symptoms, confusion, depression, and anger (some of the identified stressors are of economic origins).

Hospitality/hotel employees, despite their potential exposure to the infection, were simply overlooked (Chen, 2011; Chien & Law, 2003; Hu et al., 2020); this also applies to vulnerable immigrant workers in the hospitality industry (Sönmez et al., 2020). Hispanic immigrant workers, for example, who are often employed as poorly paid operational employees in the hospitality industry in the USA, work in environments that induce disproportionate health and safety risks (Sönmez et al., 2017; Sönmez et al., 2020). This perspective and related risks were also overlooked in travel medicine research priorities (Talbot et al., 2010). However, the results of Yip et al. (2009), Cherry (2004), and Wilder-Smith (2006) prove that hotels can be included in the chain of infection. Chien and Law (2003) only mentioned that hoteliers must protect employees against infection. However, guidance from employers about COVID-19 was/is often inadequate (Stergiou & Farmaki, 2021). Consequently, International Labor Organization (ILO) points to the obligation to protect hospitality workers' health and labor rights (ILO, 2020a; ILO, 2020b). Failure to do so endangers the health/safety of (frontline) employees, business performance, and the general public (guests) (Hu et al., 2020). In addition to dangerous infections, the psychological aspect of the epidemics/pandemic cannot be overlooked either. 'Traditional hotel-work stressors' as well as specific pandemic-related 'unstable and more demanding hotel-work-environment stressors', and 'unethical hotel-labor-practices-borne stressors' affected hotel employees (Fung Wong et al., 2021). In Spain, Aguiar-Quintana et al. (2021) found that hotel employees' task performance was not affected by their job insecurity, anxiety, and depression. However, hotel employees in Turkey who were at risk of contracting COVID-19 had more mental health problems and were more likely to be absent from work (Ozturk et al., 2021). Nevertheless, Salem et al. (2021) saw positive and significant effects of government support on the health and hygiene of hotel workers in Egypt.

These not entirely consistent results present great research opportunities for hospitality scholars. The COVID-19 pandemic and its devastating effects on the hospitality industry (i.e., operations, employees, and customers) represent a new circumstance, unprecedented challenges, and a new emergency for the industry. Therefore, new research and new knowledge that can provide insight into the industry should be conducted and gained (Gursoy & Chi, 2020). Because individual countries responded differently to the pandemic, research in national contexts is justified.

Relevant research in the Slovenian hotel industry has not been performed yet. National research (this study included residents of Slovenia – general population) finds that in March 2020 (the first restrictions were introduced in this month and later intensified), respondents were increasingly concerned about the pandemic (Valicon, 2020; Mediana, 2020). In addition, the psychological functioning, mental health, and stress among Slovenians at the beginning of the COVID-19 pandemic can be found in Kavčič et al. (2020). However, an occupational perspective was overlooked in these surveys; this especially applies to the hotel industry, which was/is among the most heavily affected economic activities in Slovenia (Sarić, 2020). Consequently, we also do not know how employees perceive government measures (see Introduction). Why is it relevant? The hospitality industry (including the hotel industry) has its specific work conditions (Šuligoj, 2006, 2010; Pienaar & Willemse, 2008; Shani et al., 2014; Alberti & Iannuzzi, 2020), including constant exposure to health risks (Šuligoj, 2006; Hsieh et al., 2016; Sönmez et al., 2017). Thus, the Slovenian National Institute

of Public Health (2021) reports that 4% of all occupational injuries in the country in 2019 occurred in 'I - Accommodation and food services' (some relevant figures and explanations are available also in the report by Labour Inspectorate, Košorok, n.d.). Accordingly, employees were absent from work for a total of 653,483 days, or an average of 24.2 days per person (the proportion of sick-leave days per person was slightly less than 5%). In the absence of other serious studies, these indicators also show that the sector to which the hotel industry belongs is not one of the higher risk sectors. However, due to a new pandemic, the perspectives of employees should be highlighted in order to answer the research question posed in the Introduction and fill the gap in occupational health and safety within subsector' I55 – Accommodation'.

3. Methodology

3.1. Research instrument development and data collection

A quantitative survey was conducted on hotel employees' perception of service delivery and COVID-19. A web questionnaire was initially developed based on the governmental measures (Legal information system, n.d.) and potential hazards to employees resulting from some research (i.e., Kavčič et al., 2020; Mediana, 2020; Valicon, 2020) that, however, were not aimed at hotel employees. In general, they were simply overlooked in the past (Chien & Law, 2003; Chen, 2011; Hu et al., 2020), while they received relatively little attention during the COVID-19 pandemic. Accordingly, at the time of the development of the questionnaire in spring 2020, no relevant research was available on COVID-19 and similar crises. We should add that Slovenians and other nations in this part of Europe, researchers, and decision-makers do not have personal experience with a similar pandemic crisis. In this context, it was not possible to rely on pandemic-related research. However, as research also focused on the negative impact of (self)quarantine on mental health, this perspective was also included.

The developed questionnaire was (innately) tested with the help of 31 respondents and then technically and substantially improved. The questionnaire in the Slovenian language is comprised of six items, on 5-point Likert-type scales, in which '1' means 'strongly disagree' and '5' means diametrically opposite. For one item, a forced Likert scale was used, where '1' means 'not changed at all', and '4' means 'changed very much'. The final part examined the demographic characteristics of respondents.

One particular issue was data collection at the time of the most severe lockdown restrictions and when the hotels were closed. Both the researchers and potential respondents were living in self-quarantine, which affected data gathering. The web questionnaire was sent to potential respondents in an attempt to minimize the odds of zero chance of being sampled; the legal framework for the protection of personal data in the EU was also taken into account. The list of IP (Internet Protocol) addresses was discreetly tracked just to detect any inaccuracies. Special crisis circumstances justify such an approach (Couper, 2000), which is 'useful in developing hypotheses, identifying issues, defining ranges of alternatives, or collecting other sorts of non-inferential data' (Fricker, 2012, p. 199). These authors have also cautioned against generalizing directly from research. However, Kavčič et al. (2020) and Đogaš et al. (2020) collected data online during the COVID-19 quarantine in Slovenia and Croatia. Similarly, the findings of Aguiar-Quintana et al. (2021) and Salem et al. (2021) rely on data collected online among hotel employees in Spain or Egypt. This is consistent with the claim that due to the 'difficult nature' of the industry, such convenience sampling is frequently employed in tourism and hospitality studies (Elbaz et al., 2019).

The anonymous survey was conducted for 40 consecutive days between April and May 2020 and covered the entire territory of Slovenia; participation in the survey was voluntary and without reward. The data contain self-reported evaluations (perceptions); self-reported perception has been shown to be a useful indicator of health on the individual level – see Karasek (1979) and Jindrová and Labudová (2020).

3.2. Data analysis

The collected data were analyzed using IBM SPSS Statistics 26.0*. First, a check of reliability and a calculation of confidence intervals for the means and the coefficient of skewness and kurtosis were made. The Two-Step (with Schwarz's Bayesian Criterion) and K-Means clustering methods were used to identify clusters of respondents. The One-way ANOVA with post hoc Tukey's HSD test was employed to verify significant differences among groups/items (all at the 0.05 alpha level for statistical significance).

4. Results

The sample includes 301 at least partially completed questionnaires. Regarding the sample profile, Table 1 summarizes the demographic characteristics of the respondents. Slightly over 50% of respondents work in 4-star, 27% in 3-star, and 20% work in 5-star hotels. They are mainly younger workers (up to 28 years old). Most respondents (83%) were Slovenians, and 15% belonged to nations of the former Yugoslavia; other nationalities represent less than 2% of the total. The educational structure shows that 50% of respondents gained 3- or 4-year professional secondary school certification. Among the respondents, 54% of the sample was female. Generally, respondents strongly support the closure of hotels ($\bar{x}=4.23$).

Table 1
Demographic characteristics of the sample

Demographic characteristic	Σ	Share (%)
Gender		
Male	130	46
Female	152	54
Education (finished)		
Elementary	3	1
Professional secondary	33	12
4-years professional secondary school	106	38
Vocational school	47	17
College or university	83	29
Master or PhD	10	4
Nationality		
Slovenian	235	83
Other nation of former Yugoslavia	41	15
Other	6	2
Age (years)		
18 to 28	97	34
29 to 39	78	28
40 to 50	73	26
51 to 61	24	9
62 or more	11	4
Employed in hotel with:		
1*	3	1
2*	2	1
3*	77	27
4*	142	51
5*	56	20

Note: Some demographic data were missing.

Next, the six items' reliability was checked and confirmed with an acceptable Cronbach α value of 0.705. The 95% confidence intervals for the means were also calculated; Sig. (2-tailed) amounted to 0.000 for all the lowest and the highest values. In addition, the coefficient of skewness ($-1.293 \leq \gamma_1 \leq -0.149$) and kurtosis

($-0.864 \leq \beta_2 \leq 1.241$) were calculated for the included items (the majority was in the interval from -0.8 to 0.8); the item 'I support the decision that Slovenian hotels are closed due to the COVID-19 pandemic' deviated and was therefore excluded from further analysis. After that, five items were used in a cluster analysis to identify groups with different views on the impact of the pandemic disease on employees' work (Table 2). First, the Two-Step cluster analysis was employed to obtain a starting point in establishing the number of clusters. As a result, a five-cluster solution was identified. However, the solution with 5 clusters (Appendix A) proved to be very challenging in finding practical differences between the groups and in naming them, so we repeated the above procedure, assuming a maximum of 3 clusters. The 'silhouette measure of cohesion and separation' indicates that the items are fairly well matched to their own clusters (see Appendix B). Second, this solution was thus used in non-hierarchical K-Means clustering. Significant differences among clusters/items were verified by the One-way ANOVA with post hoc Tukey's HSD. The results are analytically presented in Table 2 and described below.

Table 2
Clusters of hotel employees

Item	\bar{x}	Cluster (\bar{x})			Exact sig. (2-sided)
		1 (n = 74)	2 (n = 69)	3 (n = 140)	
To what extent have your health concerns changed due to the COVID-19 pandemic?+	2.66	2.22*	2.42*	3.01	0.000
Being at home due to the COVID-19 pandemic is very psychologically burdensome for me	3.41	2.20	3.86*	3.83*	0.000
In the future, I will be more cautious about all my contacts with guests because of COVID-19	3.85	3.28*	3.30*	4.41	0.000
In the future, I will be more cautious about all my contacts with my co-workers because of COVID-19	3.61	3.09*	2.93*	4.22	0.000
COVID-19 will adversely affect the service delivery in our company (hotel).	3.94	2.72	3.97	4.58	0.000

+ a forced Likert scale was used. \bar{x} for each item is presented. \bar{x} marked with * do not differ significantly.

Cluster 1 members are the first group with the smallest change in health concerns ($\bar{x}=2.22$). Self-quarantine is the least frustrating for them (this \bar{x} is the lowest within this cluster). All other \bar{x} are also below average, lower than in other clusters, but still between 2.72 and 3.28 (so close to the 'I agree' answer). Consequently, they can be labeled as *plain optimists*.

Cluster 2 is the smallest and not highly distinct cluster; its members differ the least from the other clusters' members in four items. Self-quarantine is quite frustrating for them – they express the highest psychological burden ($\bar{x}=3.86$, this \bar{x} is the second-highest within this cluster). In addition, they are also pessimistic about the future impacts of COVID-19 on service delivery in their hotel ($\bar{x}=3.97$). On the other hand, they are less pessimistic about their future contacts with guests and co-workers. Because they do not have the most negative opinions about the impact of the pandemic on their professional and private life, they can be labeled as *extroverted realists*.

Cluster 3 is the largest cluster. Cluster 3 members are the most pessimistic out of all – they can be called '*cautious employees*'. Their health concerns due to the pandemic changed the most ($\bar{x}=3.01$); in psychological terms, they tolerate self-quarantine quite poorly ($\bar{x}=3.83$); looking at all other four items, they are above-average ($\bar{x} \geq 4.22$). This means that members of this largest cluster will be the most careful in interpersonal relations at work, and they foresee many problems in service delivery due to the virus.

The sample of the Slovenian hotel industry partly reflects the situation in the Slovenian hotel industry. The prevalence of female employees as well as national and age structure with predominantly young employees

corresponds to the situation (see Šuligoj & Mrđa, 2016); 1- and 2-star hotels are also rare in Slovenia and do not employ many people. However, the educational structure deviates as this industry traditionally employs less educated employees (Šuligoj, 2006). Low or uneducated employees, e.g., employed in hotel housekeeping, maintenance, and the kitchen (cook helpers, dishwashers), were less familiar with accessing and responding to web questionnaires; many migrants had returned to their home countries and were unavailable. This deviation can be attributed to the method of data gathering as Morrissey et al. (2016), Couper (2007), and Wright (2005) pointed out certain disadvantages of web surveys, like "non-universal access and or use of, the internet across regions and demographic and socioeconomic profiles". However, at the time of the most severe lockdown restrictions, the selected approach was an acceptable methodological compromise, as it was the only option of data collection.

High \bar{x} (4.23) in empirical research indicates that hotel employees strongly support the closure of hotels and are concerned about their health (including viral infections) but not panicking. They are aware of the admonishments of experts, e.g., Ebrahim et al. (2020), WHO (2020a), Lee and Krause (2002), Šuligoj (2006), Sönmez et al. (2017), Sanon (2014), and Hsieh et al. (2016) that employees may encounter infected/sick people and may be exposed to infection. Surprisingly, the psychological burden caused by lockdown restrictions is not particularly problematic (all $\bar{x} < 4$). Thus this finding is not completely comparable to past findings (e.g., Hawryluck et al., 2004; Brooks et al., 2020; Rubin & Wessely, 2020) but rather more compatible with the findings of Aguiar-Quintana et al. (2021). Hence, employees are aware that the period of uncertainty/danger will continue for some time and that this will affect the hotel services delivery (economic dimension). This is in line with the positions of some international professional organizations, such as the OECD (OECD, 2020b) or UNWTO (UNWTO, 2020b).

The results of the present paper show that employees have heterogeneous perceptions of the pandemic disease and its impact on their work. This is all relevant with regard to the research questions. Five clusters of hotel employees (respondents) were initially identified. Using the K-Means clustering method, three statistically significant clusters were defined, indicating heterogeneity. Respondents marked as 'cautious employees' evidently dominate. This finding is compatible with the results of the abovementioned National research (general population of Slovenia) (Mediana, 2020; Valicon, 2020). Hence, hotel closure seems the least problematic to all respondents ($\bar{x}=4.23$; the highest \bar{x}). However, statistically significant differences between clusters are detected here as well. The clusters also differ regarding future cautions about future service delivery in their company (hotel), as all \bar{x} are statistically significantly different. Cluster 1 is distinct because of lower values; its members are generally the least pessimistic over COVID-19 and anticipate moderate changes in personal relationships and services. In this respect, their rather risky behavior at work can be predicted. Consequently, hotel and department managers should ensure personal protective equipment as well as provide clear instructions, education/training, and tighten control to protect guests and employees; sanctions for transgressions must be known in advance. This also applies to Cluster 2 members. The members of Cluster 3, on the other hand, represent a complete contrast. Hotel and department managers should be attentive to their potential oversensitivity, excessive defensive responses, perhaps even panic, and similar, which may hinder operational work. In all cases, special attention should be paid to guest-contact employee relations. After the suspension of lockdown (and other work-related, safety, and health) measures, more responsibility will fall on employers and employees themselves. Aguiar-Quintana et al. (2021) claim that 'protocols and regulations governing the reopening of hotels after the COVID-19 disaster to increase the security of employees and tourists could inspire employees to work harder'.

This study examined the experiences and views of Slovenian hotel employees on the current pandemic crisis and its impact on their work. Slovenian tourism is highly dependent on foreign markets, especially German, Italian, and Austrian (Špik, 2019). According to the Ministry of Health of Slovenia, the first infected person diagnosed with the SARS-CoV-2 virus in Slovenia on March 4, 2020, was also related to international

tourism: a resident of Slovenia was returning home from a trip to Morocco via Italy (Portal GOV.SI., 2020). Although this goes beyond the objectives of the present research, it suggests that the pandemic also needs to be investigated from the perspective of (vulnerable) employees in tourism, including the hotel industry. Slovenia as a tourist destination (emissive, receptive, or transit) is highly suitable for research in this respect.

5. Conclusion

This study is one of the few to date investigating hotel employees' perspectives of the health crisis. Furthermore, this study is the first to focus on the employee experience and their views of future impacts of the COVID-19 pandemic in which the Slovenian hotel industry is used as the case study. Based on empirical research, three significantly different clusters of hotel employees were identified. Constant exposure to health risks (Lee & Krause, 2002; Sanon, 2014; Sönmez et al., 2017) and contemporary government measures did not lead to the homogenization of views on the impact on work in the hotel industry. Furthermore, employees are not universally frightened, panicked, carefree, or indifferent.

The main limitation of this research was its 'pilot character' and also the specific circumstances of implementation related to the lockdown measures. Many studies were conducted simultaneously during the crisis/pandemic, which means that there was no relevant research on COVID-19 and similar crises at the stage of research design and development of the measurement tool. This made the research process more challenging, negatively affecting data collection. Conducting multiple web surveys (replication) with the same/similar respondent structure to obtain a reliable picture of the web survey (Wright, 2005) was not possible because some government measures were withdrawn in May 2020; thus, public health circumstances changed significantly. Consequently, this survey identified some COVID-19 related issues in the Slovenian hotel industry, which is methodologically consistent with Couper's (2000, 2007) and Fricker's (2012) explanations of the scope and non-generalizability of such surveys. Hence, generalizability is not an absolute requirement in tourism research (Dolnicar et al. 2009) and depends on the research objectives/aims (Couper, 2000, 2007); the convenience sampling technique is frequently employed in tourism and hospitality studies (Elbaz et al., 2019).

In the future, especially in the post-COVID-19 pandemic period, more research with larger sample sizes and random sampling is needed to gain a better insight into pandemic-related experiences/consequences. In addition, the exact number and structure of the employees will then be easier to determine as hoteliers will not be so concerned with rapidly changing government measures and the problems of economic survival.

This positivist study contributes to a better understanding of the impact of the COVID-19 pandemic on the hotel industry in several ways. First, employees are at increased risk of infection and mental health problems. This is also psychologically stressful for them, and according to their views and experiences, they can be clustered into three groups. Secondly, this research is important from the content and methodological point of view (e.g., a new questionnaire was developed, data gathering during the peak of the crisis). In addition to some other new work related to the hospitality industry, it also presents a new perspective on the pandemic. As with other research, national characteristics should not be neglected. In the literature related to the hospitality/hotel industry, not so much attention has been paid to occupational health and safety. This paper addresses all these research gaps.

In terms of practical implications, we should note that this research raises awareness, alerts or simply reminds managers at various levels, HR professionals, and occupational health practitioners of possible negative employee responses to infection risk and associated psychological issues. They can all help them in different ways: they can organize psychological counseling, offer (online) workshops or training opportunities to better cope with stress, improve their skills, etc. Restarting operation after the crisis (or behind each wave) will thus be much easier.

Widespread (international) research should be performed in the future to improve the knowledge, attitudes, and experience of hotel employees with the risk of infections that can occur in hotels. However, national socio-cultural, legal, and economic characteristics, as well as related measures taken by governments and professional associations/organizations in this regard, should not be ignored. Challenges of post-crisis circumstances, including the labor market interferences, should be identified and analyzed. Moreover, in addition to hotels, many other providers within the hospitality industry, which offer services to tourists and locals, should be investigated. It is particularly important to include respondents from tourism-dependent countries (in Europe and elsewhere) and those from countries most affected by the COVID-19 pandemic. In addition, to address this globally relevant issue, hotel industry-related lectures and courses should be included in tourism and medical education curriculums, and hotel employees' health awareness should be raised among hotel owners, managers, authorities, and the general public (tourists).

Appendix A

Item	\bar{x}	Cluster (\bar{x})				
		1 (n = 77)	2 (n = 26)	3 (n = 53)	4 (n = 36)	5 (n = 91)
To what extent have your health concerns changed due to the COVID-19 pandemic?*	2.66	2.79 a	1.65	2.45 a, b	2.56 a, b	3.00 a
Being at home due to the COVID-19 pandemic is very psychologically burdensome for me	3.41	2.26 a	1.85 a	3.87 b	3.64 b	4.47
In the future, I will be more cautious about all my contacts with guests because of COVID-19	3.85	4.21	2.19	3.51	3.03	4.54
In the future, I will be more cautious about all my contacts with my co-workers because of COVID-19	3.61	4.03 a	2.23 b	3.19	2.61 b	4.30 a
COVID-19 will adversely affect the service delivery in our company (hotel).	3.94	3.62 a	2.27	3.57 a	4.50 b	4.69 b

* a forced Likert scale was used. \bar{x} for each item is presented. \bar{x} with the same letter do not differ significantly.

Appendix B

Model summary

Algorithm	TwoStep
Inputs	5
Clusters	3

Cluster quality



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