

Coexistence with COVID-19: The Auxiliary Role of Occupational Health Measures in Hotel Activity Recovery

By

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Abstract

Most of the colossal sectors were affected by the dreadful outbreak of COVID-19, as the hospitality sector is considered one of whom. Concomitantly, World Health Organization (WHO) proved that this pandemic could be managed by the efficient implementation of occupational health measures. Therefore, this paper manifests the rigorous precautions to maintain the optimum health of hotel employees. The research sample reached 483 employees from five-star hotels in Sharm El-Sheikh. The findings demonstrated that there is a statistically significant positive relationship between the occupational health measures' application and hotel activity recovery. This paper adds to the hospitality literature on how hotels can manage crises, creating a new contribution that enhances the auxiliary role of occupational health measures.

Keywords: Occupational health, hotel activity, COVID-19, employee health, precautionary measures.

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تعايشاً مع COVID-19: الدور المساعد لإجراءات الصحة المهنية في استعادة النشاط الفندقي

الملخص

تأثرت معظم القطاعات الصناعية والخدمية بانتشار وباء كوفيد 19، ويُعد قطاع الضيافة أحد هذه القطاعات. وبالرغم من خطورة هذا الوباء وسرعة انتشاره، إلا أن منظمة الصحة العالمية أشارت أنه يمكن إدارة هذا الوباء من خلال التنفيذ الفعال لتدابير الصحة المهنية. لذا يركز هذا البحث على الاحتياطات الصحية اللازمة للحفاظ على الصحة المثلى لموظفي الفندق. بلغ حجم العينة 483 موظفًا من فنادق الخمس نجوم في شرم الشيخ. كشفت النتائج عن وجود أثر إيجابي ذو دلالة إحصائية بين تطبيق مقاييس الصحة المهنية واستعادة النشاط الفندقي. لقد ساهمت نتائج البحث في إضافة نظرية وتطبيقية في إدارة الفنادق للأزمات مع خلق مساهمة جديدة تعزز الدور المساعد لتدابير الصحة المهنية.

الكلمات الدالة: الصحة المهنية، النشاط الفندقي، كوفيد19، صحة الموظفين، الإجراءات الاحترازية.

Introduction

At the beginning of 2020, a novel coronavirus appeared that caused a gregarious funk among the globe's inhabitants because of its lethal nature (Karim *et al.*, 2020). Thus, substantiated infections and deaths are still going on (Gössling *et al.*, 2020; Samir, 2021). Thence, most countries imposed a partial embargo as an interim precaution to confront this horrifying crisis (Combs, 2020). This embargo on many prestigious industries has resulted in

grave risks (Lin *et al.*, 2021). Most hospitals were operating efficiently until late 2019, but their current carrying capacity did not allow for a myriad of these viruses' injuries. Notably, the hotel industry is considered one of the peppiest industries (Karatepe *et al.*, 2021), which contributes to engendering jobs and maximizing the national economy and unemployment rates as a massive number of employees work (ILO, 2020).

Nevertheless, it has been justifiably one of the most affected industries due to this pandemic (OECD, 2020). Recent studies emphasizing the economic and psychological impacts of this pandemic show that current hotel operations have a devastating effect (see Combs, 2020; Karim *et al.*, 2020; Leso *et al.*, 2021; Yin and Ni, 2021). The imposed shackles of international travel paralyzed hotel activity (Köseoglu *et al.*, 2020). Thus, most hotels had lay off the less qualified employees (Breisinger *et al.*, 2020). Moreover, Ulak (2020) argues that this havoc caused by the drooping in the hotel sales volume may affect the brand image with customers. In line with WHO guidelines that propose all precautionary measures as a primary determinant of the hotel operations' restoration (German-Arab Chamber of Industry and Commerce, 2020), the current paper addresses this research gap by examining the effect of implementing occupational health measures on the restoration of hotel activity in Egypt during this pandemic crisis (Samir, 2021).

Most researchers have controversies that employees in the hotel sector may experience a state of psychological and health imbalance due to the pandemic outbreak (Belingheri *et al.*, 2020; Karatepe *et al.*, 2021; Yin and Ni, 2021). In addition, most hotel establishments do not comply

with any international standards for operating employees at this time (ILO, 2020). Thus, it may lead to the transmission of infection to customers due to direct contact with employees (WHO, 2020a). Most relevant literature on the negative repercussions of this pandemic on huge establishments and industries' activities and the importance of human health in the workplace is geographically concentrated in some developed countries (e.g., Combs, 2020; Karim *et al.*, 2020; Köseoglu *et al.*, 2020; Selem *et al.*, 2019; Ulak, 2020). Otherwise, recent studies in less developed regions are very scarce (e.g., Zhang *et al.*, 2020).

Subsequently, this lack of previous research justifies the utmost necessity of the possibility of reviving hotel activity in Egypt (Samir, 2021) through the implementation of occupational health measures that improve the health and psychological conditions of employees because they are the basis of productivity in any hotel establishment. Egypt has chosen to be a research population, being one of the most developed African countries in the emerging economies. In this manner, the research question becomes whether these measures affect recovering hotel activity in light of the contemporary pandemic or not. Overall, this research focuses on theoretical literature related to occupational health measures and their impact on hotel activity recovery. Precisely, the objectives of this paper are twofold: (1) to identify and categorize the occupational health measures in the hotel industry and (2) display insights into the consequences of their application, then find out how to help the Egyptian hotels achieve activity restoration.

Literature Review

Overview of COVID-19 Pandemic

Coronavirus is a grievous virus that adversely affects the human respiratory system (Combs, 2020). COVID-19 can be passed from person to person through coughing, droplets of saliva, or by touching rigid surfaces (WHO, 2020a). The term "corona" is derived from an Italian and Spanish word that means "crown," as the virus's structure resembles a crown studded with spikes on its surface (Ulak, 2020). A novel coronavirus in China's Wuhan spread to over 210 countries in late 2019 and caused millions of fatal infections, causing widespread resentment (Belingheri *et al.*, 2020).

Leso *et al.* (2021) indicated that symptoms of COVID-19 are broadly consistent with flu-virus as pyrexia, dry coughing, a headache, sore throat, and fluffy nasal discharger. Infection with this pandemic mainly affects the lungs, causing pneumonia and difficulty breathing, and then transferred to other body organs, depending on human immunity and the length of potential exposure (WHO, 2020b). Therefore, this pandemic crippled vast industries and commercial businesses worldwide, particularly hospitality organizations (Gössling *et al.*, 2020).

Negative repercussions of COVID-19 on the hotel industry

Over the last two years, Egypt has achieved economic growth of above 5%, has become an ascending star in emerging economies, and has perpetuated efforts to transmute the market climate as expected by 2020, according to the estimates of the International Monetary Fund (American Chamber of Commerce in Egypt, 2020). Besides, the Social Accounting Matrix (SAM) of IFPRI mentioned that Egypt's national GDP may fall between 0.7% and 0.8%, which means that household incomes will

likely decline. Furthermore, the low remittances will further reduce the demand for consumer products (Breisinger *et al.*, 2020). This dreaded pandemic not only affected these sectors but elongated their impact on the Egyptian Stock Exchange index, which decremented by 39% in February 2020, and the national income losses from the hospitality sector have also been estimated at USD 1 billion (OECD, 2020).

Egypt is one of the first countries to adopt proactive measures to cope with COVID-19. As such, the Egyptian Ministry of Tourism and Antiquities (EMTA) launched a consciousness campaign titled "Stay at home, be safe," in solidarity with World Health Organization guidelines on the novel virus hazards to physical health (Lin *et al.*, 2021). Otherwise, the gravity of this pandemic reached the Egyptian hotel industry and led to a substantial share of the economic losses in this massive industry (Gössling *et al.*, 2020). According to the World Tourist and Travel Council, it may take 10–35 months for this tremendous industry to vanquish COVID-19 (American Chamber of Commerce in Egypt, 2020). Several negative repercussions on hotel activity in Egypt are as follows:

Sales Volume

Sales volume is considered a crucial factor in determining the financial position of several tourism corporations worldwide (Gong *et al.*, 2020). With the COVID-19 pandemic outbreak, each of the purchasing costs of needed foodstuffs, preventive supplies, and renewal expenses were raised (Gössling *et al.*, 2020). Samir (2021) reported that the global collapse in demand for the hospitality industry reached more than 20%, leading to the revenues of this industry waning in the most American, Chinese, German, and British hotels at 11.6%, 89%, 36%,

and 47% sequentially. In this regard, the international tourism economy market shrank by 45-70%, depending on the celerity of the industry's recovery and the length of the crisis, as it resulted in a sharp slowing of sales growth in both front offices and food and beverage departments (ILO, 2020). Breisinger *et al.* (2020) observed that the Egyptian hotel industry was affected by the abrupt decline in the number of tourism trips, as the expenses have increased more than the revenues by EG 26.3billion in monthly losses from this vital sector.

Temporary Unemployment

The novel coronavirus caused a state of temporary unemployment in various sectors, particularly the hospitality sector, in which countless employees have resigned their jobs in the United States, some of whom have been dismissed without actual reasons (OECD, 2020). In France, the government sealed more than 75,000 restaurants, leading to more than 1 billion employees quitting their jobs (ILO, 2020). Hence, Hilton reported that many of its hotels were sealed on March 17, 2020 (Karatepe *et al.*, 2021). Egyptian employers did not elude this tribulation, where employers laid off employees abroad, especially the least proficient ones, while the daily workdays for each employee in Egyptian hotels were minified (Breisinger *et al.*, 2020).

Occupancy Rate

The abolition of sports tournaments and postponement of international conferences and meetings of universal companies and accredited universities have harmed the hotel occupancy rate due to the COVID-19 pandemic (Combs, 2020; Garrido-Moreno *et al.*, 2021; Gössling *et al.*, 2020). This rate fell globally to 22% in

April and then to 18% in May 2020 (Gong et al., 2020). On the African continent, Morocco, Egypt, South Africa, and Tunisia achieved the highest tourist countries in receiving tourists in 2018–2019 with a total of 12.3, 11.3, 10.5, and 8.3 million tourists, respectively, which helped to increase the occupancy rates of their hotels (ILO, 2020). On the other hand, the Egyptian Tourism Agents Association reported that it's sure to cancel 70–80% of hotel reservations through mid-2020 due to the global travel restrictions imposed (American Chamber of Commerce in Egypt, 2020).

Brand Image

Brand image is considered one of the marketing concepts that focus on the customer's awareness of the institution's brand and the extent of its acceptance through his previous experiences or the transmitted knowledge by social media, friends, or relatives (Hien *et al.*, 2020). According to Ulak (2020), most global brands named Corona will expose severe racial prejudices, tainting their reputations in the future. Hotel brand image in Egypt may suffer because of some of its customers or employees contracting the dreaded pandemic (Breisinger *et al.*, 2020; Samir, 2021).

Occupational Health Measures

Occupational health is defined as one of the public health branches that aim to reduce the health deviations of employees during their work (Selem *et al.*, 2019). Moreover, Ekpanyaskul and Padungtod (2021) and Zhang et al. (2020) affirmed that occupational health has precise measures that help to magnify the employees' health and prepare them physically if applied effectively in proportion to their work nature. The awareness tips should provide

information regarding personal hygiene practices (Yin and Ni, 2021), the dangers of smoking to general health in various brochures and flyers, and provide training programs for the rehabilitation of the health and psychological state of injured employees (Samir, 2021). Furthermore, hand-washing for 20–40 seconds with water and soap kills hand-held microbes (Karim *et al.*, 2020). Furthermore, using alcohol-based hand sanitizers with a concentration of at least 0.06 after using the restroom, stroking the nose, ears, or hair, and eating (WHO, 2020b) as educational measures related to occupational health.

The World Health Organization also emphasized the necessity of using high concentrations of sodium hypochlorite or hydrogen peroxide to sterilize solid surfaces due to their high ability to inhibit virus activity (Karim *et al.*, 2020). It should use the following antiseptics: isopropanol, ethanol, chlorinated water, and chlorhexidine at chemical concentrations of 0.75, 0.08, 0.05, and 0.5, respectively (WHO, 2020b). Turmeric and garlic must be added to nutritional recipes due to their significant ability to support immune functions, and people should drink lots of herbal tea, besides cooking meat and poultry well (Samir, 2021). Therefore, this paper hypothesizes that:

- H1.** Occupational health measures adversely affect the possible repercussions of COVID-19 on hotel activity recovery.
- H2.** Educational health measures application positively affects sales volume.
- H3.** Educational measures application negatively affects emerging unemployment from the suspension of hotel activity.

H4. Educational measures application positively affects hotel occupancy rates.

H5. Educational measures application positively affects brand image.

Furthermore, a medical examination must be performed on all employees once a month, with medical records cognate to each employee's health status, including: the work nature, occupational exposure level, and the amount of sick leave (Samir, 2021; Selem *et al.*, 2019). As well, first aid kits should be supplied and their contents should be suitable for human use, preparing a specialized crew of consultants to monitor the health status of employees (Ekpanyaskul and Padungtod, 2021), and providing artificial respirators (WHO, 2020a). Moreover, Belingheri *et al.* (2020) affirmed that electronic thermal devices should be able to quantify body temperature remotely. Thus, this paper hypothesizes that

H6. Medicinal measures application positively affects sales volume.

H7. Medicinal measures application negatively affects emerging unemployment from the suspension of hotel activity.

H8. Medicinal measures application positively affects hotel occupancy rates.

H9. Medicinal measures application positively affects brand image.

In addition, the social distance should be maintained among employees of at least one or two metres to avoid overcrowding in the workplace (Karim *et al.*, 2020; Leso *et al.*, 2021; Samir, 2021). Furthermore, the need for well-ventilated insulation rooms is greater for suspects (WHO, 2020b). Furthermore, after sneezing, throw used tissues into

sealed bins and ensure ventilation of various corridors as preventive measures (Belingheri *et al.*, 2020; Lin *et al.*, 2021). Zhang *et al.* (2020) stressed the necessity of wearing leather gloves to reduce the chances of the virus staying on the surface of the hands, not only for food-handlers but also for all hotel employees. Therefore, this paper hypothesizes that

H10. Preventive measures application positively affects sales volume.

H11. Preventive measures application negatively affects emerging unemployment from the suspension of hotel activity.

H12. Preventive measures application positively affects hotel occupancy rates.

H13. Preventive measures application positively affects brand image.

Figure 2 presents the putative relationships between all constructs in the conceptual model.

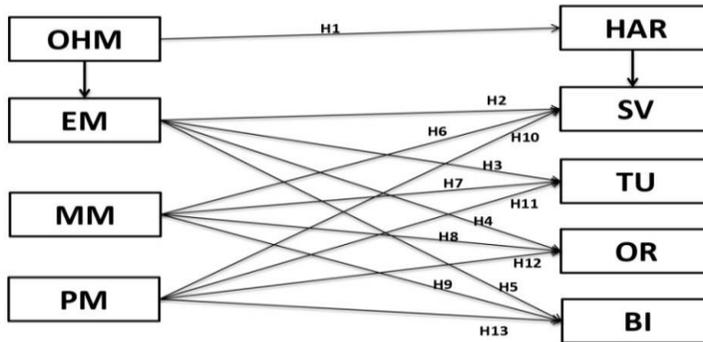


Figure 1. Conceptual model.

Research Methodology

Sample Setting

This paper surveyed a convenience sample of employees of Egyptian five-star hotels. A total of 613 responses were received over three months from May to August 2021. As recommended by Edwards et al. (2019), all collected questionnaires were evaluated to exclude copies with questionable responses and outliers, yielding 483 valid copies. According to Krejcie and Morgan (1970), the best sample size is 384 when the population size is equal to 1 million at the highest criterion. Thus, the current sample size is sufficient and appropriate to perform various statistical tests.

Table 1. Respondent characteristics (N = 483).

Characteristics	N	%	Characteristics	N	%
Gender			Experience		
Male	287	59	< 3 years	134	28
Female	196	41	3-6 years	199	41
Age			7-9 years	120	25
< 30 years	95	20	≥ 10 years	30	6
30-34 years	120	25	Social Status		
35-40 years	194	40	Single	112	23
> 40 years	74	15	Married	371	77
Qualification			Career Level		
< middle	173	36	Employee	259	54
Middle	195	40	Supervisor	173	36
Above middle	64	13	Ass. Manager	19	4
High	51	11	Manager	32	6

Data Collection

A self-survey served as the data collection instrument. Three proofreaders developed this survey from English and then converted to Arabic text. Hence, a group of academic experts reviewed the survey items to comment

on their content. As a result, some clauses had to be rewritten to fit the Egyptian dialect. This survey was distributed by an online platform named SurveyMonkey, which was accompanied by a message stating the purpose of the paper and assuring the confidentiality of the data. Besides, a paper-based survey was distributed to most hotel employees in Sharm El-Sheikh. Further, an independent sample t-test was performed to determine whether the associated sample means are significantly different between groups coming from various sources.

Measurement Instrument

This study used validated scales and measurement items adopted from the reviewed literature. 30-items were used to assess occupational health measures adapted from Samir (2021), Selem *et al.* (2019) and WHO (2020a). These items are divided into three dimensions (educational, medicinal, and preventive measures), each of which consists of 10 items. Hotel activity recovery was measured with 20 items, developed by Breisinger *et al.* (2020). This scale was divided into four dimensions: sales volume, temporary unemployment, occupancy rate, and brand image. All measurement items were rated on a 5-point Likert scale, ranging between (5 = *strongly agree* and 1 = *strongly disagree*).

Results

Descriptive Data Analysis

SPSS version 26 was used to analyze the data for this research. The findings illustrated that the coefficient of stability is 0.89, which means the internal consistency of the measuring tool, according to Sarstedt and Mooi (2019, p. 280). Cronbach's coefficient alpha should be equal to or above 0.70. The extent of the internal consistency of the

questionnaire items was tested using the correlation coefficient between all the constructs, which also showed correlation coefficients ranging between 0.43 and 0.84, and thus it is considered statistically acceptable as it exceeded the acceptable rate of 0.30. This study is up to descriptive data analysis to summarize the collected data and describe its characteristics. Among the most important descriptive methods that can be used to measure the central tendency. The results of the analysis show that the mean values for all construct items ranged between 2.066 and 3.681, indicating the constructs' actual practices. As shown in Table 2, the values of the standard deviation of the research constructs ranged between 0.716 and 0.837, which means that the data deviates slightly from its average. As for the values of skewness, most of them were close to zero. Based on previous results, the data distribution was normal in this paper.

Table 2. Results of analysis for the measurement model.

Constructs	Mean	Std.	Skewness
Educational Measures (EM)			
The hotel management provides brochures on the danger of smoking to general health in various corridors.	2.13	.847	.206
The hotel management does training programs to rehabilitate employees recovering from the pandemic.	1.94	.752	-.577
The hotel management continuously monitors handwashing with soap and water for 20-40 seconds.	2.96	1.030	.185
The hotel management provides electronic hand disinfection devices containing ethanol, isopropanol,	2.84	.727	-1.001

chlorhexidine, or ethyl alcohol.			
The hotel management urges all employees to utilize sterile napkins when sneezing or coughing.	1.95	.901	-1.307
The hotel management compensates employees affected with the virus financially and spiritually; as an occupational disease.	3.26	.831	.309

Continued

The hotel management provides advice on how to disinfect rigid surfaces using chemical disinfectants.	3.26	.981	.864
The hotel management does periodic monitoring of personal hygiene practices of each employee daily.	2.11	.1.021	-.568
Hotel management advises the chef to add turmeric, garlic, taro, papaya, and turnip to the menus.	1.91	.718	.409
The hotel management advises all employees to drink herbal beverages and refrain from soft and alcoholic drinks.	2.13	.847	.206
Medicinal Measures (MM)			
I maintain the social distance between my colleagues and me at least one or two meters away.	2.53	.865	.486
I know there is the availability of well-ventilated rooms to suspects of being infected until the ambulance arrives.	1.92	.791	.276
I dispose of the tissue after sneezing or coughing in closed boxes intended for biological waste.	2.34	1.062	-1.081
I minimize the exchange of things like mobile phones and pens with my co-employees.	2.72	.936	.312
The hotel management stops pregnant women or babysitters during this period.	4.12	.718	-.816
I know the room linens change at sealed sterile bags.	3.12	.834	-.629
I know sterile sprinklers containing halosic	1.94	1.051	.257

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acids are available at the entrances and in front of pools.			
I know there is dinnerware for single-use.	4.13	.963	-.541
I wear rubber gloves and masks with N-95 or FFP-3 ventilation filter while I am working.	4.32	.711	.948
I know there are glass parapets between each table in the hotel's restaurants and bars.	3.56	.769	.250
Preventive Measures (PM)			
The hotel management provides electronic thermometers to measure body temperature.	3.68	.893	.222
The hotel management has a medical record about my health and psychological condition in the work environment.	1.26	.790	.890
The hotel management provides first aid boxes in public places and corridors, leading to operating areas.	3.87	.1028	-.782
The hotel management assigns specialist doctors to conduct medical examinations for each employee regularly.	2.15	.652	-1.106

Continued

The hotel management provides a sufficient number of respirators in anticipation of infection.	1.25	1.102	-.902
The hotel management assigns a specialized medical team to monitor the health status of employees daily.	2.25	.963	.280
The hotel management daily reviews the contents of first aid boxes and make sure they are valid.	4.13	.219	.792
The hotel management has a recent health certificate proving that I am unexposed to this pandemic or suspected of possessing it.	4.44	.734	.627
The hotel management daily reviews the level of efficiency of ventilators and temperature gauges.	4.26	.854	.501
If I experience respiratory symptoms, do	3.68	.893	.222

seek medical help.			
Sales Volume (SV)			
Occupational health measures will return the expected revenues in light of this crisis.	2.95	.801	.409
Occupational health measures will return the number of tourist trips receives.	2.26	.881	.519
Occupational health measures will compensate hotels for the financial losses caused by the crisis.	3.16	.887	- 1.307
Occupational health measures will encourage guests of consuming food and drinks in hotels.	3.12	1.001	-.868
Temporary Unemployment (TU)			
The employees will not be excluded from working in the hotel.	2.461	.492	-.712
There is no intention to abandon work for fearing infection from the others.	3.13	.975	.852
The psychological state will improve under the implementing occupational health measures.	4.00	.834	.925
I think working in another sector will not have procedures better than the hotel sector.	3.26	1.002	.911
Occupancy Rate (OR)			
I think room occupancy rates during implementing occupational health measures will increase significantly.	1.23	.943	.431
There will be booked conferences and wedding halls under occupational health measures.	1.13	.897	.316
Most guests will not fear of contracting this pandemic in light of occupational health measures.	2.94	.952	-.587
No global travel restrictions for reservations during the upcoming period.	2.96	1.000	.195

Continued

Brand Image (BI)			
Implementing occupational health measures will distinguish hotel's brand image.	4.25	.874	.753
Hotel's brand image will affect	3.25	.963	.290

the positive word of mouth.			
Guests' attitudes will influence by hotel's brand.	3.13	.419	.972
Implementing occupational health measures will protect the brand from severe racist attacks in the coming period.	4.10	1.201	-.901

Correlation Analysis

The Pearson correlation coefficient was used to make the linear correlation matrix between all the independent and dependent constructs, to indicate the extent of a linear relationship between the constructs and to determine the direction of this relationship. Table 3 shows that there is a strong positive correlation between the independent constructs of occupational health measures (OHM) and the dependent constructs of hotel activity recovery (HAR), where the correlation coefficient values ranged between 0.623 and 0.825 at a level of significance less than 0.01. As shown in Table 3, it is clear the extent of the strong correlation between all constructs (Sarstedt and Mooi, 2019, p. 310).

Table 3. Pearson correlation results.

Constructs	EM	MM	PM	SV	TU	OR
MM	0.763					
PM	0.798	0.811				
SV	0.823	0.711	0.821			
TU	0.623	0.806	0.694	0.791		
OR	0.763	0.795	0.754	0.806	0.699	
BI	0.825	0.731	0.813	0.756	0.751	0.769

Simple Regression Analysis

Table 4 indicates the values of the simple correlation coefficient (R) between OHM and HAR was 0.791, showing a strong positive correlation between OHM and HAR. Besides, the value of R^2 was 0.626, which means

that OHM is able to explain 62.6% of the changes in HAR, including the good predictive power. As shown in Table 4, the F value has reached 119.54 at the significance level of 0.000. This indicates the good explanatory power of the simple linear regression model. The results show that there is a significant effect of OHM on HAR ($\beta = 0.572$, $t = 3.82$, $p < 0.01$). Thus, this indicates a strong positive relationship between the intended constructs, supporting H1.

Table 4. Simple regression analysis for the effect of OHM on HAR.

R	R ²		Std.	F	Sig.		
0.791	0.626		0.79	119.56	0.000 ^b		
MODEL	Unstandardized coefficients		Beta	T	Sig.	Collinearity statistics	
	B	Std. error				Tolerance	VIF
Construct	0.596	0.236		2.53	0.000		
OHM	0.584	0.153	0.572	3.82	0.001	0.374	2.67

Multiple Regression Analysis

All theoretical and mathematical requirements were taken into account for the validity of the models shown in the following tables where a strong correlation is observed between all constructs, and VIF values for all independent constructs were the < 4 threshold, as recommended by (Sarstedt and Mooi, 2019). This indicates that there is no linear collinearity relationship between the independent constructs. Table 5 indicates the value of the simple correlation coefficient (R) between the independent constructs (EM, MM, and PM) and sales volume (SV) was 0.747.

Besides, the value of adjusted R² was 0.539, indicating that these independent constructs were able to

explain 53.9% of the changes in SV, indicating the good predictive power. Table 5 indicates that the F value has reached 99.167 at the significance level of 0.000. This indicates so good explanatory power of the multiple regression model. The results shows that there are significant effects of EM ($\beta = 0.531$, $t = 6.947$, $p < 0.05$), MM ($\beta = 0.526$, $t = 5.912$, $p < 0.05$), and PM ($\beta = 0.473$, $t = 5.230$, $p < 0.05$) on SV. Thus, this indicates positive relationships between the intended constructs. Hence, H2, H6, and H10 were supported.

Table 5. Multiple regression analysis for the effect of (EM, MM, and PM) on SV.

R	R ²	Adjusted R ²		Std.	F	Sig.	
0.747	0.558	0.539		0.743	99.167	0.000 ^b	
MODEL	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
Constructs	0.535	0.101		5.298	0.000		
EM	0.521	0.075	0.531	6.947	0.008	0.418	2.133
MM	0.531	0.090	0.526	5.912	0.000	0.405	3.586
PM	0.465	0.089	0.473	5.230	0.014	0.397	3.170

Table 6 indicates the values of the simple correlation coefficient (R) between (EM, MM, and PM) and temporary unemployment (TU) was 0.717, showing a strong positive correlation. Besides, the value of R² was 0.514, meaning that these independent constructs were able to explain 50% of the changes in TU. This indicates the good predictive power of independent constructs on TU. As shown in Table 6, the F value has reached 89.199 at the significance level of .000, indicating very good explanatory power of the multiple regression model. The results shows that there are significant effects of EM ($\beta = -0.492$, $t = 4.410$, $p < 0.05$), MM ($\beta = -0.502$, $t = 5.981$, $p < 0.05$), and

PM ($\beta = -0.498$, $t = 5.965$, $p < 0.05$) on TU. Hence, this indicates negative relationship, thus H3, H7, and H11 were supported.

Table 6. Multiple regression analysis for the effect of (EM, MM, and PM) on TU.

R	R ²	Adjusted R ²		Std.	F	Sig.	
0.717	0.514	0.502		0.840	89.199	0.000 ^p	
MODEL	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
Construct	0.499	0.126		3.961	0.000		
EM	0.485	0.110	0.492	4.410	0.031	-0.482	3.479
MM	0.491	0.082	0.502	5.981	0.049	-0.396	2.693
PM	0.501	0.084	0.498	5.965	0.001	-0.459	4.001

Table 7 indicates the values of the simple correlation coefficient (R) between the independent constructs (EM, MM, and PM) and occupancy rate (OR) was 0.694, showing a strong positive correlation. Besides, the value of R² was 0.482, meaning that these independent constructs were able to explain 47.9% of the changes in OR. Table 7 also indicates that F value has reached 101.258 at the significance level of 0.000, indicating very good explanatory power of the multiple regression model. As shown in Table 7, there are significant effects of EM ($\beta = 0.549$, $t = 6.601$, $p < 0.05$), MM ($\beta = 0.494$, $t = 5.522$, $p < 0.05$), and PM ($\beta = 0.511$, $t = 7.066$, $p < 0.05$) on OR. This indicates a positive relationship, thus H4, H8, and H12 were supported.

Table 7. Multiple regression analysis for the effect of (EM, MM, and PM) on OR.

R	R ²	Adjusted R ²	Std.	F	Sig.
0.694	0.482	0.479	0.682	101.258	0.000 ^b

MODEL	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
Construct	0.572	0.126		4.540	0.000		
EM	0.561	0.085	0.549	6.601	0.044	0.613	2.919
MM	0.508	0.092	0.494	5.522	0.039	0.542	2.975
PM	0.537	0.076	0.511	7.066	0.006	0.492	3.051

Table 8 indicates the values of the simple correlation coefficient (R) between the independent constructs (EM, MM, and PM) and brand image (BI) was 0.751, showing a strong positive correlation. Besides, the value of R^2 was 0.564, meaning that these independent constructs were able to explain 54.1% of the changes in BI, indicating the good predictive power. Table 8 also indicates that F value has reached 111.673 at the significance level of 0.000, indicating the so good explanatory power of the multiple regression model. As shown in Table 8, there are significant effects of EM ($\beta = 0.564$, $t = 5.534$, $p < 0.05$), MM ($\beta = 0.521$, $t = 6.377$, $p < 0.05$), and PM ($\beta = 0.509$, $t = 5.293$, $p < 0.05$) on BI. Hence, H5, H9, and H13 were supported.

Table 8. Multiple regression analysis for the effect of (EM, MM, and PM) on BI.

R	R^2	Adjusted R^2	Std.	F	Sig.		
0.751	0.564	0.541	0.838	111.67	0.000 ^b		
MODEL	Unstandardized coefficients		Standardized coefficients	T	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
Construct	0.583	0.159		3.666	0.000		
EM	0.570	0.103	0.564	5.534	0.033	0.498	3.918
MM	0.542	0.085	0.521	6.377	0.047	0.362	3.896
PM	0.524	0.099	0.509	5.293	0.003	0.496	2.851

Conclusions and Implications

Based on the findings, the following conclusions and interpretations are presented to indicate that groups of hotel employees are adopting workplace health policies both successfully and positively (Ekpanyaskul and Padungtod, 2021). It correlates to the dominant view in the literature that attention to the health of employees will help boost productivity and increase sales (Breisinger *et al.*, 2020). In addition, we conclude that the availability of personal protective equipment such as masks, social distancing and eating healthy food as meals for employees may help maintain their health from infection with the COVID-19 pandemic (Karatepe *et al.*, 2021). This means that the implementation of occupational health measures can be targeted to change the beliefs of customers and increase their intent to book rooms again and their confidence in hotel brand (Belingheri *et al.*, 2020; Combs, 2020).

In this regard, training and health awareness programs for employees and how to sterilize work areas in the hotel and all corridors (Yin and Ni, 2021), as well as sanitizing swimming pools and using electronic temperature measuring devices in Egyptian hotels can adopt to restore hotels to their luster after being closed for nearly four consecutive months. Moreover, the findings of the studies have shown the substantial positive effect on the recovery of hotel operation by the introduction of any aspect of occupational health measures (Garrido-Moreno *et al.*, 2021), as the combination of occupational health measures will have a greater and enhanced impact on change for hotel recovery activities (Karim *et al.*, 2020).

Likewise, hotels can set up reward plans based on the effective implementation of occupational health

measures aimed at motivating employees of different hotel departments by pretending to have an attitude of understanding the seriousness of this dreaded pandemic in order to preserve human health and the reputation of the hotel simultaneously. In addition, the hotel industry, along with the Egyptian Ministry of Tourism (EMT), can apply strict penalties to hotels that fail in implementing and developing health policies to restore activity in order for tourism to return and to give the so-called health safety certificate for hotels that strictly implement these precautionary measures.

Regarding the indifference and selfishness of employees and programs to change their behaviors should aim at the health education with Hospitality 5.0 tools such as augmented reality, IoT-based drones, and virtual reality technologies in training operations. Because of the COVID-19 outbreak, it entertained the spotlight on competitions between employees for the best work team that strictly implements these measures to create competition among employees as one of the incentive solutions to restore hotel activity (Köseoglu *et al.*, 2020). Finally, the application of medical procedures by paying attention to the availability of valid health certificates and making nose swabs on employees to ensure that they are free from infection with the virus is a sure solution to gradually restoring hotel activity in Egypt.

Not only that, the application of preventive measures in Egyptian hotels is the most important measure, according to what the respondents explained in this study. The presence of baskets for biological waste and the use of masks equipped with a filter to purify the air (Lin *et al.*, 2021). Moreover, the presence of spray devices for

sterilizers and disinfectants available in all corridors and operating areas allows us to reduce levels of virus infection and enhance the hotel’s ability to obtain approval from government agencies and bodies to recover activity, which opens the door to reducing temporary unemployment rates among employees (Belingheri *et al.*, 2020; Ulak, 2020). Finally, the hotel sector is one of the busiest service sectors in Egypt, employing many employees, whether temporary or permanent (Samir, 2021).

Limitations and Future Research

This research had some limitations, given its contributions. First, this paper was applied to Egypt, so the results for other countries are difficult to generalize. Second, future studies should extend the analysis to many constructs related to COVID-19, despite the difficulty in gathering information, and despite the references that assess the negative impacts of COVID-19 on the hotel industry, such as using digital technologies in training employees to implement precautionary measures. Future relevant research can be extending to other hospitality outlets (e.g. casinos, restaurants, and hospitals).

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