



## COVID-19 Pandemic: A Motive for Pro-Environmental Behaviors (Peb) in the Egyptian Tourism and Hospitality Industry

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**Abstract:** Academics have been curious about what motivates pro-environmental behaviour. However, a few research studies have been conducted to analyse and comprehend the pro-environmental behaviour of those in charge of service and production (employees). The COVID-19 outbreak highlighted this topic, emphasising the significance of employees' pro-environmental behaviours (PEBs) in promoting and maintaining business sustainability. Therefore, this study contributes to the body of knowledge by investigating employees' PEBs during the COVID-19 pandemic. In-person and online surveys were used to reach the staff of hotels and travel agencies in Egypt's most popular tourist areas. The quantitative data were analysed with SPSS 25. The results revealed that employees of the tourism and hospitality industry are exceptionally engaged in PEBs in times of the COVID-19 pandemic. Also, the findings indicate that the structure of tourism and hospitality employees' PEB comprises six factors: operation activities, habits, organisation rules, health, energy-saving, and environment-related activities. However, their behaviour must be guided and improved in three key areas (personal health, organisational rules, and operation activities). According to this study,



employees may follow certain practices without understanding their justification or significance. In practice, the study presents recommendations that might increase the industry's resistance to challenges in improving the pro-environmental behaviour of industry employees.

**Keywords:** Pro-Environmental Behavior, Employees' Behaviour, COVID-19 Pandemic, Green hotels, Travel agency

## 1. Introduction

COVID-19 has drawn global attention to the connection between environmental and health concerns (Elshaer 2021). Climate parameters such as temperature, humidity, rainfall, and COVID-19 outbreak have been linked to fatalities in several studies (Muhammad et al. 2020, Pirouz et al. 2020, Şahin 2020, Zhu 2022). For example, (Prata et al. 2020) argued that temperature affects the outbreak of COVID-19 (whether positive, negative, or insignificant). Also, (Muhammad 2020) claimed that air pollution is another crucial factor influencing COVID-19 transmission and fatality rates. In this regard, Northern Italy was particularly heavily hit by COVID-19, with a much higher incidence and related casualties than the rest of the country due to more polluted air (Lolli et al. 2020).

The increased expansion of tourist and leisure facilities (hotels, resorts, and other tourism destination infrastructural facilities) has put further strain on natural resources and landscapes (e.g., fertile soil, wetland, forests, and wildlife) (Alberton et al. 2022). In addition, tourism can pollute the environment in the same ways that any other industry could: air pollutants, noise, solid waste and littering, drainage, chemicals, and even visual pollution (Elshaer & Marzouk 2019). The COVID-19 crisis highlighted these negative impacts, emphasising the negative impact of travel, tourism, and hospitality on the ecosystem as a whole. The expansion of the tourism and hotel businesses has put the environment at risk if it is not controlled correctly (Elshaer 2021, Abdulaali et al. 2019).

As a result, tourism and hospitality businesses are under pressure to be environmentally responsible by paying close attention to the environment and adopting environmentally friendly behaviours that are not hazardous to the environment (de L. Calisto et al. 2021). The need to become more environmentally conscious is greater at hotels and leisure facilities, as they are directly accountable for environmental concerns such as electricity, waste creation, and water (Leyva & Parra 2021). Hence, their employees' pro-environmental behaviours (PEBs) are critical as a positive environmental model for tourism and industry (Zhang & Huang 2019). PEB is a type of workplace behaviour involving all workers' measures to conserve the environment, whether official obligations or volunteer initiatives, such as conserving water and energy, reusing paper and printing on both sides (Chaudhary 2020). These efforts are expected to benefit an organisation's environmental performance (Elshaer 2022, Abdou et al. 2022). (Mi et al. 2020) mentioned that pro-environmental behaviour might be summarised into two groups: public-sphere PEB (actions affecting social organisations and

government) and private-sphere PEB (initiatives in the workplace and household). Enhancing employees' PEBs, according to (Kim et al. 2016), increases corporate social responsibility in terms of mitigation of environmental deterioration and natural resource preservation.

While tourism and hospitality companies are rapidly declaring adopting green practices, the vast majority cannot implement them effectively (Amran et al. 2017). Additionally, the study on pro-environmental practices in the tourism and hospitality industry is still in its early stages (Ertuna et al. 2019) as a consequence of prior research that found service organisations to be less damaging to the environment than their industrial counterparts (Dangelico & Pontrandolfo 2015). For example, in recent studies, academics have paid little attention to employees' PEBs in the hotel business (Kim et al. 2016). Simultaneously, (Loureiro et al. 2022) argued that the connections between environmental practices and infectious illness effects had received little attention from academics and had not been included in studies. As a result, further research is necessary to completely comprehend the structure of pro-environmental activities, especially environmental behaviour, which must be considered a predictor of the ultimate effectiveness of an organisation (Loureiro et al. 2022). Thus, the current study takes a new perspective on the issue, with three key objectives:

1. investigate and assess the drivers of employee motivation to behave environmentally,
2. explore the structure of employees' PEBs in the tourism and hospitality industry, and
3. identify the alteration in the structure of employees' PEBs due to the outbreak of the COVID-19 pandemic.

Therefore, the current study adds to the tourist literature by first introducing the structure of PEBs during the COVID-19 pandemic. Thus, we expand recent research that investigates employees' perceptions of the PEB. Second, past studies have looked at the pro-environmental behaviour driven by leadership behaviour, workplace spirituality, or institutional support (Fatoki 2019). In this study, however, the researchers investigate the alteration in the structure of employees' PEBs due to the COVID-19 pandemic outbreak. Overall, the current study offers a fresh perspective on how employees may be influenced to act environmentally, which is consistent with (Loureiro et al. 2022) recommendation that the study of the emergence of infectious diseases is included in understanding environmental human behaviour.

## 2. Review of Literature

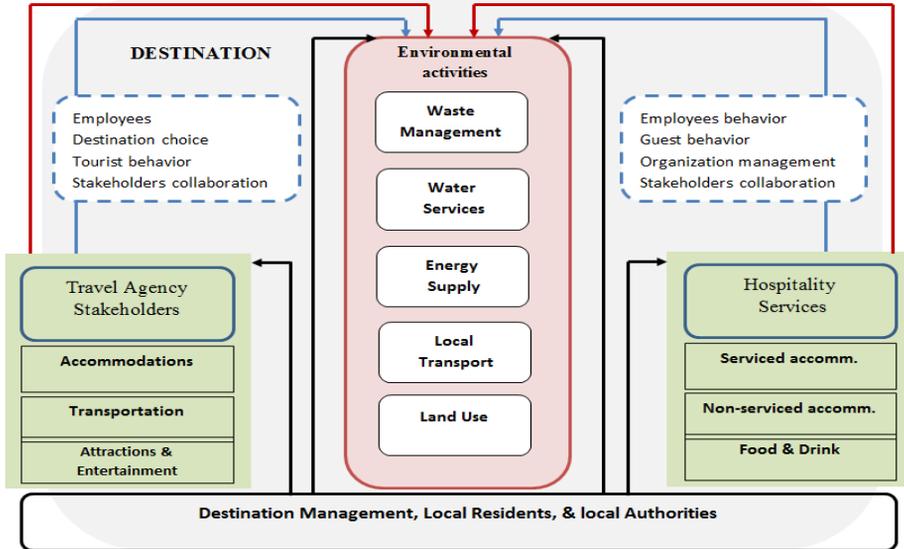
### 2.1. Environment Conservation Practices in the Tourism & Hospitality Industry before and during the COVID-19 Pandemic

The tourism and hospitality industry's development has resulted in several environmental issues, including worldwide environmental deterioration (Abdou et al. 2020). For example, the use of fossil fuels in tourism and its associated activities contributes significantly to carbon dioxide emissions (Gössling 2021). Around 8% of CO<sub>2</sub> emissions were linked to tourism (Lenzen et al. 2019). Moreover, the hotel sector consumes a lot of water and energy and creates tons of waste that harm the environment (Yusof & Jamaludin 2013). According to (Zuriyati et al. 2014), the hotel sector has been proven to have a harmful environmental effect with the usage of consumables, power, and water which is responsible for 75% of the detrimental effect. An average hotel guest is estimated to produce at least 1 kg of waste daily (IHEI, London 2002). Figure 1 depicts the environmental effects of travel agencies' stakeholders (e.g., lodging institutions, transportation, leisure, and entertainment) and hospitality services (e.g., lodging, food, and drink) with their massive waste, water, energy, and land use. The figure also depicts the primary environmental pathways and decisions linked with the two entities (travel agency stakeholders and hospitality services), such as increasing employees' environmental behaviours, tourist behaviour, effective organisation management, and stakeholder collaborations.

Before the COVID-19 epidemic, health-related threats such as SARS, Ebola, Polio, and Zika substantially impacted the tourism and hospitality industry (Mason et al. 2015). (Pine & McKercher 2004) Investigating the effects of the SARS pandemic 2003 on Hong Kong's tourism businesses, particularly airline companies and hotels, found that, while the sector recovered fast after the epidemic, contingency planning was essential for managing the disaster. In this regard, environmental rules, education programs, and recommended practices are being implemented by hospitality and tourism businesses (Bohdanowicz 2006). Green human resource strategies must be regarded as a predictor of success as greening affects the complete supply chain; production, waste disposal, ethics, goals, tactics, and employee attitudes (Benevene & Buonomo 2020).

During the COVID-19 outbreak, (Styles et al. 2013) asserted that the COVID-19 crisis provided a chance to take a break from the pursuit of conspicuous consumption, which distinguishes many of the developed world, as well as the growing exhaustion of the earth's precious resources and the consumption habits essentially, rely on. Further, (Zebardast & Radaei 2022) underlined the significance of ensuring that the disaster inspires and assists in legislation intended to promote the hospitality industry's transition to more sustainable consumption habits. Environmentally, contemporary lockdowns and travel bans have contributed to a reduction in emissions of CO<sub>2</sub> throughout the globe; the reduction

in flights due to the epidemic has led to a 17 per cent reduction in carbon emissions in China and Europe (Jones & Comfort 2020, Rume & Islam 2020). COVID-19 has reduced travel demand in several restricted and ecological regions in Asia and Africa, particularly beach locations, contributing to wildlife recovery, improved water purity, and reduced pollution in destinations like the Maldives and the Spanish coast (Rume & Islam 2020).



**Fig. 1.** Main pathways of influence by travel agencies' stakeholders and hospitality services on the environment; Authors based on (Styles et al. 2013)

In addition, (O'Connor & Assaker 2022) presented a summary of the COVID-19 crises' early events, highlighted its possible influence on events, hotels, food service sectors, and cruises, and stated that the hospitality and tourism industry's issue was to find out how to speed up the transformation to be more sustainable. The COVID-19 disaster has provided some opportunities for business sustainability programs while simultaneously posing some challenges (O'Connor & Assaker 2022). Several of the hospitality and tourism industry's leading players have supported the United Nations' Sustainable Development Goals (SDGs), which aim to promote a worldwide transition to sustainability (Jones & Comfort 2019). According to (Alsetoohy et al., 2022), hotels have embraced organisational sustainability strategies and practices such as water and energy conservation, lamp replacement, recycling, and maintaining an organically vegetable garden. Green initiatives, practices and environmental development techniques in hotels include hygiene and sanitation, water system technologies, waste reuse and recycling, hazardous substance-free, energy-saving, and food

production dining (Abdou et al. 2020, Hamid et al. 2020). As a result of COVID-19, there have been some developments in the relations between sustainability and hospitality and tourism businesses.

Hotels strive to be more ecologically friendly in terms of usability and low use of power, fuel, and resources while still delivering high-quality services such as green hotels (Deraman et al. 2017). According to (Pizam 2009), the Intercontinental Hotel Group (IHG) became in 2008 the first green hotel to open. It was the world's first 100 per cent environmentally friendly hotel. The use of solar energy on the roofs, a rainwater collection system to provide water to the bathrooms, energy generated by the wind turbines, reused glass walls, fixtures, and equipment entirely constructed of recycled materials were among their green features. Hilton, for example, sets performance targets, rules, and environmental initiatives to safeguard the environment and report systems to track achievement.

Consequently, between 2009 and 2014, Hilton worldwide lowered its overall water use by 14.1 per cent and its energy consumption by 14.5 per cent. In addition, Marriott International has pushed for environmental preservation programs. Also, (Bruns-Smith et al. 2015) conducted a study on the environmental practices of 100 resorts in the US and found that the most prevalent green initiatives were the use of water-saving fixtures and linen-reuse operations.

Likewise, travel agencies play an essential role in connecting potential tourists with destinations since they have a vast influence over client preferences and, consequently, much power over destination management. Although, in some instances, travel agencies may wield greater power over local governments than the federal government (Styles et al. 2013), they may also impact destination marketing in emerging regions with high natural resource and ecological demands. As a result, they have a strong financial interest in conserving and helping the environment of their most popular tourist destinations (Styles et al. 2013).

Waste prevention, power protection and restoration, planning of water resources, harmful chemicals, transportation, land use development, and scheduling, encompassing employees, consumers, and societies in environmental problems, structure for sustainable development, and collaborations for sustainable practices are among the ten key action sectors for the private industry in Agenda 21 (Bruns-Smith et al. 2015). As a result, to make a good contribution to the environment, the tourism and hospitality businesses are using green human resource management strategies to create a win-win scenario for hotels and customers (Yusoff et al. 2020). According to (Font et al. 2016), organisations have used various initiatives to determine such issues.

## **2.2. Employees' Pro-environmental Behaviours in the Tourism and Hospitality Industry**

The tourism and hospitality industry has been under stress to become more environmentally friendly as a result of rising consumer knowledge, tightening

environmental regulations, the increased managerial problem with ethical practices, the desire to improve guest loyalty, and an enhancement in maintenance problems related to building layout and aesthetic appeal (Nisar et al. 2021). So, hospitality and tourism organisations are becoming increasingly aware that the environment and its protection are critical to the development and performance of the hospitality and tourism industry (Yenidogan et al. 2021). The main goal of greening, which can also be extended to the organisational sense, can be outlined in four key ideas: protection of the natural environment, conservation of biodiversity, reduction of environmental footprint, and creation of natural areas (Hussain 2018). According to (Young et al. 2015), organisations are increasingly encouraging employee participation to address environmental challenges such as reduced water and energy use, reduced gas emissions, increased waste management, and increased public transportation usage. Employees' environmental behaviour is seen as one method to gain and keep a competitive advantage in a dynamic economy, and the effective adoption of green practices is dependent on workers' information, understanding, and commitment to environmental initiatives (Omarova & Jo 2022).

(Graves et al. 2013, p. 81) defined employees' PEBs as a broad range of eco-friendly activities that include gaining more knowledge about the environment, developing and implementing ideas to reduce the company's ecological footprint, creating green products and processes, reusing and recycling, and examining environmentally harmful practices. Pro-environmental employees are willing to preserve nature by their everyday efforts to significantly affect the environment's quality (Barclay & Barker 2020). Employees' desire to affect the environment through environmental practices performed at the workplace is referred to as workplace pro-environmental. For instance, a firm's technical team is motivated to design environmentally friendly technologies (Bissing-Olson et al. 2013). It involves all positive practices by individuals directed to conserve natural resources and minimise the negative effect on the environment (Chaudhary 2020).

Individuals are aware that there is a link between their daily work and the organisations running costs. According to (Omarova & Jo 2022), most staff know that any task involving utilities will cost the organisation. Therefore, organisations confirmed that environmentally friendly strategies would be essential to them in order to enhance their operational performance (Bissing-Olson et al. 2013). However, improving employees' PEBs remains a struggle. According to (Chou 2014), PEBs are typically seen as an extra-role behaviour that is not required of employees and does not yield many benefits, which may limit employees' enthusiasm for pro-environmental tasks.

Furthermore, because past habits and performance influence behaviour, employees who have not previously demonstrated significant pro-environmental awareness confront a problem developing their PEBs in the work environment (Chan et al. 2014). To address this issue, (Saputro & Nawangsari 2021) claimed

that in some green human resource practising businesses; each job description now provides descriptions of employees' roles and duties in this field. Environmental reporting and health and welfare obligations are a few examples of these responsibilities. According to (Hussain 2018), the concept of a work role is the specification of an employee's roles, assignments, and obligations, including those that are directly relevant to environmental protection.

### **3. Methodology**

Based on a convenience sample, data were collected using a combination of in-person and online surveys between September to December 2021. According to (Bonnell 2003), employing only one survey mode is not recommended if the aim is to get representative data, but it is critical to investigate the usage of a combination of survey methods (Couper & Bosnjak 2010).

The fundamental assumptions related to convenience sampling that serve the purposes of this study with this type of sampling are (Dörnyei 2007, Etikan et al. 2016):

- members of the target population are homogeneous,
- accessibility,
- availability at a specific time, and
- desire to participate.

The online questionnaires were intended to reach employees of five-star hotels and category (A) travel agents who were not available at the time of circulation (employees that work crazy shifts) (Couper & Bosnjak 2010). Using this type, we recommended that the HR managers send the questionnaire to his/her employees via their internal distribution channels (employees' business e-mail accounts). Two researchers distributed questionnaires to accessible employees in person at the same time.

When the population size is between 100,000 and 250,000 with a 5 per cent margin of error, the sample size should be greater than 154 (adjusted minimum sample size) (Glenn 1992). Thirty-three five-star hotels in five popular tourist areas (Greater Cairo region, Hurghada, Sharm El-Sheikh, Alexandria, and Taba) were reached Using the previously mentioned sampling assumptions. At the same time, Egypt has 1229 travel agencies (Egyptian Tourism Chamber, 2017), among which category (A) was determined and reached. Therefore, approximately 500 online and in-person surveys were distributed to guarantee a perfect sample size, 420 questionnaires were received (287 and 133 questionnaires from 5-star hotels and category A-travel agencies, respectively), and only 394 responses (response rate = 79 per cent) were acceptable. Due to missing data, about 26 surveys were deemed invalid.

The questionnaire was divided into three parts: (1) questions on the participants' socio-demographics, (2) reasons to behave pro-environmentally, and (3)

29 statements to measure the employees' pro-environmental behaviour during the COVID-19 pandemic. Using a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), the pro-environmental behaviour statements and their drivers (parts 2&3) were assessed. Based on the Norm activation theory (NAT), the second part was developed to identify altruistic reasons for behaving pro-environmentally during the pandemic. In several empirical studies, NAT is a valuable explanation for understanding pro-environmental behaviour (e.g. (Ruyter & Wetzels 2000)). In comparison, the statements measuring pro-environmental behaviour of the third part were derived from (Kurusu & Hanaki 2013) selection, which was based on behaviours suggested by national governments and environmental groups. In this part, we added or removed specific behaviours, considering the nature of hotels and travel agency operations.

## 4. Results

### 4.1. Demographic Profile

Table 1 shows the demographic characteristics of the sample. Male respondents comprised 68.8 per cent of the sample, while female respondents accounted for 31.2 per cent. The majority of respondents (52.8%) were between the ages of 25 and 34, had a secondary school or university degree (90.3%), and had a monthly salary of LE 5,000 or less (53.6%).

**Table 1.** Socio-demographic characteristics of respondents (N = 394)

Characteristics of Respondents	N	%
Gender		
Male	271	68.8
Female	123	31.2
Age		
Under 25	77	19.5
25-34	208	52.8
35-44	85	21.6
45-54	17	4.3
55 or above	7	1.8

Table 1. cont.

Characteristics of Respondents	N	%
Education level		
Secondary school	162	41.1
Undergraduate	194	49.2
Master	27	6.9
Doctoral	11	2.8
Monthly income (in Egyptian Pound)		
5000 or under	211	53.6
5000-10000	163	41.4
10,001-20000	17	4.3
Over 20000	3	0.7

Table 1 sheds light on the issue of low income in the tourism and hospitality industries, as service providers' wages are still undervalued (Elshaer & Marzouk 2019) and may be subjected to payment cuts due to pandemic consequences (Elshaer 2021), despite their critical role in the success of service transactions and the development of organisational performance. Low salaries and reliance on tipping may be a double-edged sword in times of epidemic; it may make them more depressed or inspire them to act pro-environmentally to save operational costs and keep their business flowing normally. In this regard, (Longhi 2013) claimed that poorer individuals had higher levels of PEB (e.g., lower energy use and increased use of public transportation).

#### 4.2. Drivers of Environmental Behaviour

In part 2, six drivers to behave pro-environmentally were presented to the respondent, as shown in Table 2. On a five-point Likert scale, respondents were asked to state the driver that best described their reason for engaging in PEB. We drew samples from two employment groups: hotel staff and travel agency personnel. As a result, we examined the data using the type of organisation as a categorical variable, with a specific contrast comparing the two employee groups' pro-environmental behaviour drivers (PEBDs), using an independent samples t-test with the two groups of employees as the independent variable and environmental practice reasons as the dependent variables. Because of the number of questionnaires received and missing data, sample sizes differed somewhat between the two groups; Ns, mean, and standard deviations are presented in Table 2.

**Table 2.** Drivers of pro-environmental behaviour

Drivers of behaviour					
Awareness of the need	Awareness of consequences	Situational responsibility	Efficacy	Ability	Perception of responsibility
Hotels' Employees					
M = 4.98	M = 4.89	M = 4.78	M = 4.76	M = 4.90	M = 4.49
SD = 0.87	SD = 1.02	SD = 1.29	SD = 0.96	SD = 0.10	SD = 1.04
N = 267	N = 268	N = 265	N = 267	N = 268	N = 268
Travel agencies' Employees					
M = 4.32	M = 4.92	M = 4.58	M = 4.63	M = 4.48	M = 4.62
SD = 0.95	SD = 1.12	SD = 0.96	SD = 1.28	SD = 1.13	SD = 1.17
N = 126	N = 126	N = 126	N = 125	N = 126	N = 126
M = Mean & SD = Standard Deviation					

One of the causes for the difference in motives rates (PEBDs) between the two groups is the disparity in the kind of organisation work. For example, the findings of table 2 revealed that hotel employees ranked awareness of the need and their ability to perform a pro-environmental action ( $M = 4.98, SD = 0.87$  &  $M = 4.90, SD = 0.10; p < .05$ ) as more significant reasons for environmentally responsible behaviour than travel agency employees ( $M = 4.32, SD = 0.95$  &  $M = 4.48, SD = 1.13; p < .05$ ). In hotels, there is a high degree of involvement/interactions in many aspects between tourists from all over the world and hotel employees (Elshaer & Marzouk 2019). These aspects include guest accommodation, other services (food and beverage, room service, cleaning, activity planning, etc.), and the interactions unique to these establishments (guest-staff, guest-guest, and staff-staff) that need special attention (Bruns-Smith et al. 2015). As a result, employees at hotels and lodging establishments are acutely aware of the need to be conscious of their pro-environmental behaviour, and their expertise and job responsibilities may help them to do so. On the other hand, travel agencies are key distribution channels that offer a wide variety of tourist products online. As a result, they may be able to contribute to sustainable tourism via stakeholder management (accommodation, transportation, attractions, entertainment, and shopping). Furthermore, because they are a vital operator in the tourism industry, travel agency employees are acutely aware of the potential consequences of a pandemic affecting the travel and tourism industry stakeholders. Employees' awareness of consequences ( $M = 4.92, SD = 1.12; p < .05$ ), as shown in Table 2, is, therefore, a key motivator for them to behave pro-environmentally. In line with this conclusion, (Sung et al. 2021) claimed that travel agencies' intents to promote low-carbon trips for sustainable development demonstrate greater responsibility and expertise.

### 4.3. Exploratory and Confirmatory Factor Analysis

An exploratory factor analysis (EFA) on 29 pro-environmental behaviour items was performed to investigate the structure of tourism and hospitality employees' PEBs during the emergence of the COVID-19 pandemic. As a result of the factor extraction technique, 27 of the 29 components were retained. Even though all of the items had a loading factor of more than 0.5, two of them, 'Cleaning an air conditioner or cleaner' and 'Using stairs instead of elevators,' were deleted because they were severely cross-loaded on more than one dimension. EFA identified six factors ('environment-related activities', 'personal health', 'organisation rules', 'energy saving', 'employees' habits', and 'operation activities'), explaining 70.73% of the total variance. Cronbach's alpha was utilised to assess each factor's internal reliability. Cronbach's alpha values range from 0.685 to 0.910, indicating that all variables showed an adequate level of dependability for exploratory investigation.

Confirmatory factor analysis was then performed to examine the internal consistency, discriminant validity, and convergent validity of components to assess measurement quality (See Table 3). As indicated in Table 3, all of the indicators in this study satisfied the minimal threshold of outer loading greater than 0.7 (Leguina 2015). In addition, the composite reliability of all pro-environmental behaviour is more significant than 0.60, a dependable scale (Alsetoohy et al., 2021). Furthermore, the square roots of the average variance extracted (AVE) for discriminating validity are employed to assess the constructs' validity. According to (Henseler et al. 2016), AVE is the average of all squared factor loadings for the concept that are greater than the convergent validity minimum of 0.5. Finally, all behaviour constructs surpass the specified cut-off value of 0.5 (Henseler et al. 2016, Fornell & Larcker 1981).

**Table 3.** Composite reliability, convergent and discriminant validity

Factors	Factor Loading	CR	AVE	Cronbach's alpha
<i>The COVID-19 epidemic structured my conduct in terms of...</i>				
Factor 1 Energy Saving		0.82	0.79	0.724
Using energy-saving techniques.	0.714			
Adjusting the air conditioner's or radiator's temperature.	0.711			
Using a curtain to reduce heat.	0.712			
Factor 2 Personal Health		0.89	1.13	0.910
Improving cleaning and sanitisation techniques.	0.820			
Considering precautionary steps (wearing face masks and gloves and keeping adequate social distancing).	0.815			

**Table 3.** cont.

Factors	Factor Loading	CR	AVE	Cronbach's alpha
Own stuff is being used.	0.903			
Purchasing organic products.	0.758			
Providing and consuming a wide range of healthful foods.	0.832			
Factor 3 Operation Activities		0.92	0.89	0.750
Encourage operational flexibility.	0.769			
Expanding the use of technology apps throughout the service cycle (reservation, payment, refund).	0.813			
Making use of both sides of the paper.	0.820			
Using eco-appliances.	0.742			
Buying recycled items.	0.902			
Using refillable items.	0.844			
Factor 4 Environment-related Activities		0.77	0.85	0.749
Reducing the usage of single-use items.	0.766			
Following waste rules.	0.859			
Making use of recycle packets.	0.795			
Using a receptacle rather than plastic bags.	0.862			
Factor 5 Organization Rules		0.80	0.62	0.685
Maintaining physical distance in any shared environment.	0.787			
Avoiding purchasing over-packaged items.	0.755			
Avoiding unnecessary purchases.	0.839			
Attempting to repair items rather than purchasing replacement.	0.732			
Factor 6 Employees' Habits		0.69	0.55	0.805
Educate yourself about the environment.	0.760			
Unplugging any appliances that are not in use.	0.841			
Lowering the shower's temperature.	0.756			
Reducing water consumption in daily routines.	0.746			
Putting stones in a bottle into the toilet water tank to save water.	0.715			

#### 4.4. Importance and Performance Analysis (I&PA)

A detailed examination of Table 4 reveals that the mean score differences in 26 of the 27 competencies are statistically significant;  $p < .01$  level, and their  $t$  values are more significant than  $\pm 2.00$  levels (Leguina 2015). Moreover, the Mean score for employees' perception of the importance and performance of the PEB is above the midpoint of 3.00, indicating respondents highly rated the items of the pro-environmental behaviour under these challenging circumstances of a pandemic outbreak.

**Table 4.** Importance and performance of employees' PEBs during the COVID-19 pandemic

Behaviour Code	Importance		Performance		P - I	T	P
	M	SD	M	SD			
Energy Saving (ES)							
ES1	4.36	.952	4.28	1.04	- 0.08	- 3.41	0.000
ES2	4.47	1.03	4.42	1.01	- 0.05	- 5.32	0.000
ES3	3.88	.990	3.98	1.10	0.10	2.86	0.009
Personal Health (PH)							
PH1	4.22	1.09	4.55	1.06	0.33	3.97	0.002
PH2	4.27	.920	4.61	.998	0.34	6.12	0.000
PH3	4.41	1.02	4.37	.995	- 0.04	- 2.54	0.003
PH4	4.18	1.93	4.07	.965	- 0.11	- 3.77	0.001
PH5	4.12	1.25	4.00	.923	- 0.12	- 3.06	0.000
Operation Activities (OA)							
OA1	4.19	1.10	4.64	.988	0.45	4.25	0.000
OA2	4.33	.933	4.70	1.12	0.37	7.43	0.000
OA3	4.25	.966	4.41	.874	0.16	4.86	0.000
OA4	4.36	1.00	4.29	.765	- 0.07	- 7.62	0.000
OA5	4.35	1.20	4.56	.963	0.21	5.92	0.000
OA6	4.25	.782	4.22	1.06	- 0.03	- 3.02	0.000
Environment-related Activities (ERA)							
ERA1	4.52	.862	4.47	1.58	- 0.05	- 3.25	0.000
ERA2	4.45	.841	4.48	.962	0.03	4.78	0.000
ERA3	4.42	.685	4.40	.782	- 0.02	- 6.31	0.000
ERA4	4.41	1.03	4.42	.969	0.01	4.45	0.002
Organisation Rules (OR)							
OR1	4.51	1.23	4.77	1.15	0.26	4.66	0.000
OR2	4.19	.668	4.25	.852	0.06	9.26	0.000
OR3	4.45	.779	4.67	.951	0.22	4.68	0.000
OR4	4.36	1.31	4.62		0.26	5.18	0.001

Table 4. cont.

Behaviour Code	Importance		Performance		P – I	T	P
	M	SD	M	SD			
Employees' Habits (EH)							
EH1	4.57	.890	4.69	.947	0.12	2.30	0.000
EH2	4.55	.794	4.57	.773	0.02	5.41	0.000
EH3	4.34	.894	4.38	.850	0.04	4.62	0.000
EH4	4.39	1.20	4.44	.922	0.05	2.75	0.000
EH5	4.52	.867	4.41	.951	- 0.11	- 8.39	0.032

Based on the data presented in Table 4, the highest negative gaps are related to personal health behaviour, employees' habits, and energy-saving behaviour. Regarding their health behaviour, they were less likely to offer and consume various healthy food (-.129) and buy organic items (-.117). According to their habits, putting stones in a bottle into the toilet water tank (-.115) was less prevalent to save water that would otherwise go down the drain. In terms of energy-saving behaviour, using energy-saving mode (-.088) and adjusting the air conditioner's or radiator's temperature (-.059) were less performed. The previous negative gaps illustrate that the pro-environmental performance with specific traits is less important than its importance since the employees did not effectively meet some indicators. The greater negative gap may impede organisational performance during a pandemic, which needs all stakeholders to act more prudently. As a result, management must pay particular attention to this topic to guide and enhance employees' pro-environmental conduct.

On the other hand, operation activities and organisational rules have the greatest determining positive gap score. Encouraging operational flexibility (.045), expanding the use of technology apps in the service cycle (.037), and purchasing recycled items (.021) are the most significant pro-environmental behaviours related to operating activities. While keeping physical distance in any shared space (.019), avoiding unnecessary purchases (.022), and attempting to repair things before buying replacements (.026) were all highly performed organisational rules.

Figure 2 shows the matrix of pro-environmental behaviour during the COVID-19 pandemic by Egypt's tourism and hospitality industry employees. Many PEBs were plotted close to the status 'Keep up the good work'. These pro-environmental behaviours were of high importance to the employees and were also of high performance. The outbreak of COVID-19 resulted in beneficial practices and pushed them to maintain their current good practices in these areas. Three pro-environmental practices were in the low priority status: one energy-saving behaviour (ES3) and two practices related to personal health behaviour (PH4 & PH5). These practices were not important to the employees, and they also did not implement them well. These behaviours (PH4 and PH5) (purchasing and

consuming healthy/organic food) may be out of reach for employees due to poor salaries or an abundance of other food nearby. Within the status “possible overkill,” two practices existed: one operation activity (OA1) and one organisational rule (OR2). According to the findings, employees support operational flexibility and avoid purchasing over-packaged things extremely effectively (high performance), but they regard them as less important.

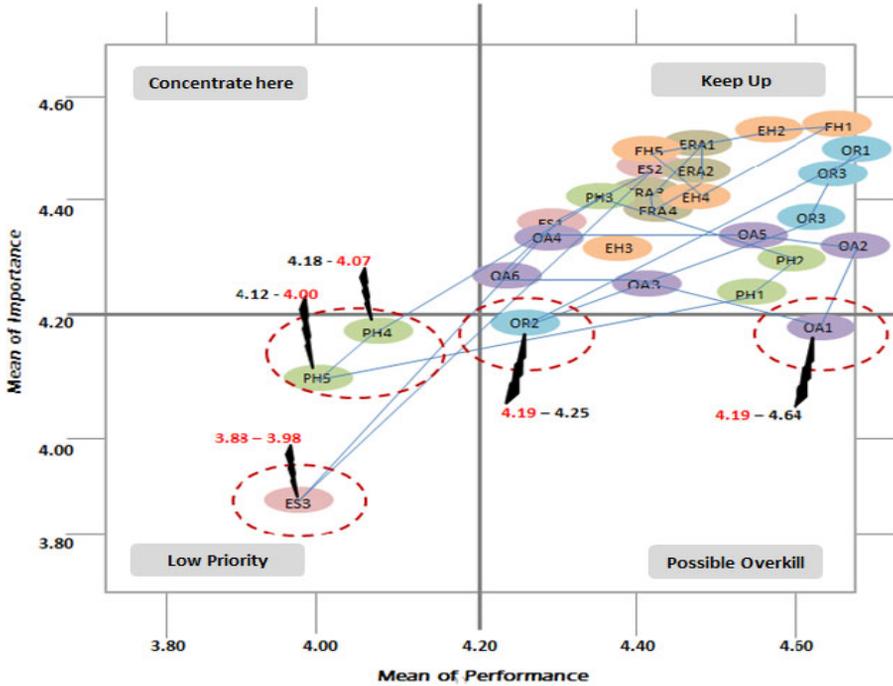


Fig. 2. Results of IP matrix analysis

5. Discussion

Employees are the most important participants in the workplace, and examining their PEBs in the industry has been a neglected field of research in times of crisis (Fatoki 2019). Therefore, this study investigates the structure of employees’ PEBs during the COVID-19 pandemic in Egyptian hotels and travel agencies. Although employees’ PEB is critical to the effectiveness of organisational environmental programs and organisational performance, it is primarily voluntary at work (Wesselink et al. 2017). Our study found low pay in the tourist and hospitality sector at the service and vocational levels, as indicated in Table 1, which is similar to (Elshaer et al. 2018), who argued that low pay might induce deviation in the work process and lead to a conflict of interest in the workplace. In other

words, such divergence might take the shape of ignoring the execution of environmental programs or showing no interest in voluntary environmental activities. (De Silva & Pownall 2014) asserted, in essence, that income does not influence PEBs in general. Others, on the other hand, asserted an evident positive relationship between income and PEB (e.g., Hines et al. 1987). Many academicians argued that a rise in energy consumption is proportional to increased wealth (Ala-Mantila et al. 2014). On the other hand, (Zorić & Hrovatin 2012) argued that readiness to become green (e.g., pay for green power) grows with wealth. In general, institutional support and workplace spirituality are critical in times of pandemics to encourage employee PEB. According to (Saeed et al. 2019), hotel and tourism businesses must educate employees to comprehend the importance of environmental preservation by making them more responsive to environmental management and/or preventative initiatives.

The findings indicate that the structure of tourism and hospitality employees' pro-environmental behaviour comprises six factors: operation activities, habits, organisation rules, health, energy-saving, and environment-related activities. However, the onset of the COVID-19 pandemic has benefited EPEB and the perceived organisational pressure to participate in the environmentally friendly performance. These findings support (Kim et al. 2019) assertion that hospitality employees' pro-environmental behaviour (e.g., saving energy, preserving material, conserving water, recycling, and giving green initiatives) is favourably, significantly, and immediately modified.

Based on our research findings, two dimensions of EPEB received an overall positive score: organisation rules and employees' habits. During the COVID-19 epidemic, employees in the tourism and hospitality industry were more concerned with adhering to the organisation's environmental policies and maintaining good environmental habits. In this context, (Elshaer 2022) argue that unforeseen risk might increase sensitivity and attention in individuals, perhaps leading to good environmental behaviours (Zebardast & Radaei 2022). Therefore, the emergence of the COVID-19 pandemic provides a chance to evaluate the shift in awareness and attitudes, and hence human behaviour toward nature. In the case of our study, this unpleasant event resulted in a greater dedication to the organisation's rules and an improvement in employee environmental habits. For example, the organisation's policy of avoiding purchasing over-packaged items or making unnecessary purchases was triggered. In addition, employees began to educate themselves about the environment, and their energy usage became more efficient. These research results are consistent with the findings of (Lucarelli et al. 2020), who claim that COVID-19 influenced individuals' knowledge and information regarding environmental concerns as a source of pandemic crises, leading to an increase in individuals' intention to pursue environmentally-friendly behaviour patterns. Nonetheless, while the COVID-19 pandemic has positively impacted employees' personal health behaviour and environmental activities, some practices, such as

purchasing, providing, and consuming a variety of healthful foods, reducing the use of single-use items, and using recycling packets, must be improved.

Furthermore, this analysis demonstrates that more efforts are required to increase energy-saving efficiency. In this sense, (Alsetoohy & Marzouk 2021) claimed that management plays a critical role in understanding the problematic situation, estimating the possible implications, and making appropriate contingency plans to deal with the crisis. Although the pandemic scenario has had a good impact on staff behaviours, some activities may have an impact on the guest experience (for example, utilising energy-saving strategies or altering the temperature of the air conditioner or radiator in the guest room) must be improved. In addition, we discovered negative gaps in employees' willingness to embrace energy-saving strategies. It means that methods which may impact guest entertainment may not significantly inspire pro-environmental behaviour among employees in this specific scenario. This conclusion is consistent with prior research, which also discovered a lack of evidence for the effectiveness of pro-environmental conduct in this area (Budovska et al. 2020).

Eventually, the study concludes that employees in the tourism and hospitality industry have a unique chance to make environmentally friendly adjustments to operating operations that need to be improved. Hotel staff, for example, can minimise food waste (Juvan et al. 2018), and lowering resource usage (Elshaer 2022) provides several options for a change towards environmentally responsible behaviour. Additionally, as a green marketing technique, travel firms may build and provide low-carbon vacation packages and promote and provide information to their customers on how to reduce carbon emissions and behave environmentally (Sung et al. 2021). Such practices may also assist hotels and travel agencies in improving their corporate social responsibility, which indicates a company as a pro-environmental choice at the time of booking. According to (Miao & Wei 2016), there is a growing demand for eco-friendly practices from customers, authorities, and the government, putting pressure on hotels and tourism organisations to demonstrate responsible environmental behaviour. Environmental certifications (e.g., Eco-labeling certificates, ISO 14001) have been developed in this line (Buckley 2011), pushing firms to participate (Rex & Baumann 2007).

## **6. Conclusion and Implications**

The COVID-19 case represents one of the pivotal turning moments in a human's knowledge of his limited abilities. In this respect, this pandemic underscored the critical need to preserve and respect nature. Under these challenging circumstances, pro-environmental behaviour is vital for organisations; it impacts the overall organisational performance, to name a few examples, production, performance, waste management, values, culture, strategy, and employee behaviours. Therefore, this study explored the structure of employees' PEBs in the tourism and hospitality industry. According to the findings of this study, the COVID-19

pandemic has altered employees' perceptions of engaging in pro-environmental practices. According to our findings, employees' PEBs structure is comprised of energy-saving, personal health, operation activities, environment-related activities, organisation rules, and employees' habits in the tourism and hospitality business. Also, the findings indicate that low-nutrition food, food waste, and packaging are the most prominent environmental challenges among tourism and hospitality employees, followed by energy conservation, water usage, and waste management.

This study adds to the literature by providing practical implications for three research areas. Firstly, as previously stated, the study's results demonstrate that employees in the tourism and hospitality businesses are mainly devoted to pro-environmental behaviour in the face of a pandemic breakout because they believe their industry is susceptible to risks. However, the findings demonstrated that they might follow some norms and regulations without completely comprehending their rationale. So, organisation management must coach and mentor employees, which concentrates on developing employees' internal values linked with the environment and promoting their competence and determination to deal with environmental challenges. Secondly, the findings indicate that personal health practices are less prioritised than operational activities or organisational rules. Importantly, amid these pandemic times, each manager and human resource manager is recommended to pay attention to their employees to the importance of personal health practices. Employees, notably, place less emphasis on personal health behaviour associated with acquiring and consuming healthy/organic food, owing to their dietary customs and low salary. A healthy, organic diet would limit the amount of highly handled and packaged foods consumed. Healthy diets contribute to nutrition and food security, especially during pandemics, are low-impact on the environment and promote good health and operational performance. Therefore, management should empower employees to act as social influencers by providing them with the necessary information and tools.

Thirdly, the study's results confirm that employees are crucial stakeholders in organisational environmental activities; thus, they must get institutional support and work motivation from their supervisors to engage in pro-environmental behaviour. Consequently, their understanding of the relevance of and methods for engaging in pro-environmental activity must be enhanced. In addition, they must get spirituality and financial incentives to get involved in creating and implementing pro-environmental initiatives and practices.

## 7. Limitations of the Study & Future Research

Despite its contributions, this study has shortcomings that should be regarded as future research directions. Firstly, this study was only undertaken in two Egyptian regions. More cities should be explored as research locations to properly comprehend the employees' PEBs in the Egyptian tourism and hospitality industry. Secondly, the study did not differentiate between employees of different job levels (supervisory, service, and operational levels). So, comparing the employees' PEBs at various job levels is worthwhile. In future research, we propose long-term and more thorough investigations that consider employees' behavioural and psychological responses to environmental behaviour during difficult times. In addition, it also recommends a new stream of research bridging psychology and policy-making to explain how the employees' beliefs and experiences may be created and exploited as a subtle but powerful way to motivate and achieve pro-environmental behaviour.

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