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**Barriers to pro-environmental behaviors among hotel stakeholders**

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## Barriers to pro-environmental behaviors among hotel stakeholders

### ABSTRACT:

**Purpose:** The main aim of this study is to identify barriers to pro-environmental behaviors among hotel guests, employees, and suppliers.

**Methodology:** Three research stages were used: systematic literature review, case study, and diagnostic survey. The respondent groups were hotel: guests, employees and hotel suppliers.

**Findings:** The main barriers to pro-environmental behaviors among hotel guests were transience of stay, not enough information about pro-environmental behaviors and lack of conviction about the impact of one's behaviors on the state of the natural environment. The barriers among the hotel employees included heavy workload, low pay and transient employment. A key barrier indicated by the hotel suppliers was pressure to attain short-term goals, followed by remuneration disregarding environmental aspects and lack of interest in environmental issues.

**Research limitations/implications:** Spatial scope and research methodology.

**Practical implications:** Certification by stakeholders, extended environmental audits, environmental management system reviews, infrastructure management, supervision of external processes, application of process approach, and competency management.

**Originality:** Identification of barriers to pro-environmental behavior by hotel employees and suppliers.

**Keywords:** Pro-environmental behaviors, sustainable consumption, barriers, hotels, stakeholders.

**Article classification:** Research paper.

## 1. Introduction

Pro-environmental behaviors are those behaviors that consciously seek to “minimize the negative impact of one’s actions on the natural and built world, e.g. by minimizing resource and energy consumption, using non-toxic substances, reducing waste production” (Kollmuss & Agyeman, 2002, p. 240).

For several years pro-environmental behaviors have also been the subject of studies conducted in hotels. In the previous research on hotels, which concerned pro-environmental behavior, topics such as basic conditions for shaping the behaviors of hotel guests, pro-environmental behaviors related to the use of hotel resources, pro-environmental behaviors of employees were discussed. In order to detect a publication gap and demonstrate the need for further research, we conducted a literature review according to the procedure in management and quality sciences.

As a result of the literature review, it turned out that while there have been studies regarding the barriers and enablers of pro-environmental behaviors among hotel guests, to the authors knowledge there have been no previous research on barriers to such behaviors among hotel employees and, especially, hotel suppliers. The main objective of the present study is to identify barriers to pro-environmental behaviors among hotel guests, employees, including hotel managers, and suppliers.

## 2. Current state of knowledge: a literature review

### 2.1. Barriers of pro-environmental behavior in hotels

For the first time the subject of barriers to pro-environmental behaviors was discussed in 2002 by Kollmuss and Agyeman (2002).

It is very difficult to identify studies that directly address the barriers of such behavior. This is due to the fact that these barriers have many causes inherent in each of the technical, psychosocial, economic or organizational systems. The current socio-economic situation (Jaykumar, 2021) and infrastructural conditions are also important. However, there is a relatively large number of studies that only indirectly address this issue. There have been studies highlighting the psychological construct of human entitlement as a key prerequisite for exhibiting pro-environmental behaviors (Arnocky et al., 2020). Previous studies revealed the significance of multiple factors of a psychosocial nature, i.e. professed values (Chen, 2020); personal norms, collective norms, and awareness of consequences (Esfandiar et al., 2020); intrinsic motivation (Hicklenton et al., 2019); individual convictions and religion and religiosity (Hwang, 2018); health consciousness (Shimoda et al., 2020); guilt (Muralidharan & Sheehan, 2018); knowledge (Casaló et al., 2019); public mindedness and moral quotient (Janmaimool &

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3 Khajohnmanee, 2020) or personality traits, e.g. openness, honesty, humility (Soutter et al.,  
4 2020).

5  
6 One of the main barriers to pro-environmental behavior may be that the lack of care for  
7 the environment is often due to people disregarding what may happen in the future (Umphress  
8 & Bingham, 2011, p. 622).

### 9 10 11 *2.2. Barriers of pro-ecological behavior among hotel guests*

12  
13 Previous research indicates several barriers regarding pro-environmental behavior  
14 among hotel guests. They show that the implementation of environmental programs in hotels is  
15 difficult due to the fact that customers see such programs as a simple pursuit of cost reduction  
16 by hotels (Baker et al., 2014). Guests may express the opinion that the use of environmental  
17 programs is associated with inconvenience and a decrease in what customers perceive as  
18 a luxury (Baker et al., 2014). They might suspect that services or products in hotels using green  
19 practices are of lower quality (Hsin-Hui, 2014). Moreover, some guests are more responsible  
20 for the environment at home than hotels (Baker et al., 2014) and some of them believe that  
21 hotels use green initiatives as a promotional tool or to improve company performance (Moise  
22 et al., 2021). The behavior of guests in everyday life is not always the same during trips (Holmes  
23 et al., 2021). Guests must therefore be convinced that the hotel's environmental performance is  
24 genuine, and not just in terms of its profits (Han et al., 2019).

25  
26 Research by Dolnicar et al. (2017) shows that pro-environmental behavior is not always  
27 supported by, for example, appeals referring to pro-ecological values. The perceived  
28 satisfaction as well as moral standards contribute to building the intentions of guests to engage  
29 in pro-environmental behavior during their stay (Han et al., 2019). Another condition is the  
30 selection of appropriate messages that the hotels themselves provide to guests. Study by  
31 Goldstein et al., (2007) state that standards have a significant impact on the pro-environmental  
32 behavior of customers, consisting in taking care of resources, and in particular the so-called  
33 provincial norms (Reese et al., 2014) and communication strategies referring to hedonistic  
34 beliefs (Dolnicar et al., 2017).

### 35 36 37 *2.3. Barriers of pro-ecological behavior among managers and employees*

38  
39 According to Hsiang-Fei, Sheng-Hshung i Ya-Yun (2014) the most important were:  
40 a sense of temporary employment, due to the seasonality of work, high employee turnover in  
41 the hospitality industry.

42  
43 In the case of organizations - management factors may be important, which include:  
44 educating and informing about the benefits for the hotel resulting from the pro-environmental  
45 policy (Peng & Lee, 2019), creating an appropriate organizational climate and spirituality in  
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3 the workplace (Rezapouraghdam et al., 2018), implementing green human resource  
4 management processes (Kim et al., 2019), implementation of an appropriate environmental  
5 management strategy (Yoon et al., 2016) and compliance with the rules related to  
6 environmental management systems (Lu & Roto, 2016). It is important to motivate employees,  
7 but their internal motivation plays an important role. Employees should be aware that their self-  
8 improvement is important and brings measurable benefits (Lu & Roto, 2016). As Yucedag et  
9 al. (2018) stated that financial incentives should also be considered. Leadership is one of the  
10 most recognized determinants of the development of pro-environmental behaviors and previous  
11 research stated the different types of leadership as follow Machiavellianistic (Castille et al.,  
12 2018), charismatic (Zhang et al., 2020), self-sacrificial (Yang et al., 2020), and moral (Wang &  
13 Li, 2019).

22 Managerial factors may be ineffective because pro-environmental behavior depends on  
23 many psychosocial factors and challenged values. For instance: knowledge and awareness of  
24 employees (Tariq et al., 2020), work ethics of employees and their approach to the importance  
25 of environmental aspects (Peng & Lee, 2019), exclusion from the group (Zhang, 2020), work  
26 environment dominated by egoistic norms (Graham et al., 2020), satisfaction inducing a state  
27 of dormancy and ill-conceived job security (Dou et al., 2019) have been considered as  
28 a psychological factors.

34 The behavior of management staff may depend on whether the hotel applies the  
35 principles of sustainable development (Fotiadis et al., 2013) and whether it has implemented  
36 environmental management systems (Bugdol et al., 2020).

39 Research indicated that pressure to meet short-term and financial goals, legal  
40 regulations, a compensation system disregarding environmental aspects, defective leadership,  
41 and managers' often limited knowledge of environmental management are the most important  
42 barriers to pro-environmental behaviors in this group of hotel stakeholders (Bonilla Priego et  
43 al., 2011). Variables belonging to the external context are mainly important for pro-  
44 environmental behavior, while personal environmental values did not explain the pro-  
45 environmental behavior (Dief & Font, 2010).

51 Pro-environmental behavior may be fostered by corporate governance and legal  
52 requirements (Bonilla Priego et al., 2011), focus on improving environmental performance,  
53 stable economic situation, good development prospects, personal involvement of top  
54 management, striving to reduce costs and proving the image of hotels (Heras-Saizarbitoria et  
55 al., 2020).

#### 2.4. Barriers of pro-ecological behavior among hotels suppliers

Little is known about the barriers to pro-ecological behavior in supplier-hotel cooperation. The barriers themselves were not examined, but only the need to cooperate with suppliers to minimize the negative impact on the environment was indicated (Vasiljevic-Shikaleska et al., 2018; Yu, 2020; Bugdol & Puciato, 2022). It is assumed that in the practices of reducing the negative impact on the environment, one should remember about providing materials that will be environmentally friendly (Yu, 2020). The pursuit of energy efficiency will also fail without cooperation with suppliers (Trang et al., 2019). Putting pressure on suppliers to introduce the same environmental improvement programs for themselves is important to reduce the negative impact of humans and entire organizations on the environment (Vasiljevic-Shikaleska et al., 2018).

#### 2.5. Results of the literature review

When it comes to hotel guests, previous research shows that implementing pro-ecological programs in hotels is difficult due to the fact that customers perceive such programs as a way to reduce costs (Baker et al., 2014; Moise et al., 2021) and be careful that such programs may reduce the quality of services (Baker et al., 2014; Hsin-Hui, 2014). There are also differences in demonstrating pro-environmental behaviors at home and in hotels (Baker et al., 2014). Research directly relating to the barriers to pro-environmental behavior of employees indicate: a sense of temporary employment, high employee turnover in the hotel and catering industry (Hsiang-Fei, Sheng-Hshung and Ya-Yun, 2014). The described psychosocial and managerial principles do not relate directly to barriers, but to factors influencing behavior of employees. As for suppliers, the barriers themselves have not been studied so far, and only the need to cooperate with suppliers to minimize the negative impact on the environment has been pointed out (Vasiljevic-Shikaleska et al., 2018; Yu, 2020).

### 3. Methodology

The main aim of the study was to identify barriers to pro-environmental behaviors among hotel guests, employees, and suppliers. The following research problems were formulated:

1. What barriers to environmental behaviors are self-reported by hotel guests?
2. What barriers to environmental behaviors are self-reported by hotel employees?
3. What barriers to environmental behaviors are self-reported by hotel suppliers?
4. Are there significant differences in the opinions formulated by respondents in different socio-demographic categories?

The study included a total of six hotels located in the Polish cities of Warsaw, Krakow,

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3 Wroclaw and Opole. A total of 1,317 hotel guests, 193 employees and managers, and 85  
4 suppliers returned a fully and correctly completed questionnaire. The first stage of the present  
5 study was a literature review allowing the identification of research gaps. The applied procedure  
6 is consistent with general research methodology and research methodology in management  
7 sciences (Easterby-Smith et al., 2015) (Figure 1). The main method used in the research was  
8 a diagnostic survey – a survey technique. A face-to-face survey was used (PAPI). The study  
9 sampling was both random-temporal (hotel guests) and purposive (hotel employees and  
10 suppliers). Survey questionnaires targeted at each hotel stakeholder group were drafted on the  
11 basis of the previously formulated research problem. The authors started the research by  
12 conducting pilot studies, which allowed the validation of the research tools used – survey  
13 questionnaires. The degree of differentiation of the proportion of occurrence of individual  
14 barriers to pro-environmental behavior among hotel stakeholders was assessed based on the Q-  
15 Cochran tests and Dunn tests with Bonferroni correction for the number of simple comparisons.  
16 The adjusted odds index was also determined as a measure of the size of the difference between  
17 the compared proportions. The relationship between barriers to pro-environmental behavior and  
18 selected sociodemographic and organizational variables was assessed using the Pearson chi-  
19 square test of independence and the test for independent proportions with Bonferroni correction.  
20 The analysis also determined the Cramer's effect size index as a measure of the strength of the  
21 observed relationship. Statistical inference was performed at the significance level of  $\alpha=0.05$ .

## 22 **Findings**

### 23 *4.1. Identification of barriers*

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When asked about the main barriers that prevented hotel guests from manifesting pro-environmental behaviors while staying in hotels, the majority of respondents indicated transience of stay as the most important barrier (12.8%). Slightly less frequently the hotel guests selected such barriers as insufficient information (12.0%), lack of conviction that their behaviors may have an impact on the state of the environment (11.9%), or inadequate organizational solutions (11.5%). The aforementioned four barriers can be considered a key group, as they were chosen by more than one in ten respondents, regardless of the order of their selection. The second group of barriers included setting a bad example by other people (9.9%), infrastructural deficiencies (7.3%), staying in a hotel for leisure or work (7.2%), being in a group (6.6%), negative experiences from other hotels (6.6%), and high price per stay (6.5%). The third group of barriers consisted of the lack of interest in environmental issues (3.9%) and bad habits from home or the workplace (3.8%). However, it should be noted that these results were obtained by calculating fractions from all the responses collected from among all the



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3 choices made (3529). Thus, they are presented in a synthetic form. Taking into account the  
4 frequency of selection of individual barriers, their distribution is, of course, identical, but at the  
5 same time it can be said that the main barrier to pro-environmental behaviors, i.e. transience of  
6 stay, was chosen more often than by one in three respondents (34.2%). Not enough information  
7 about opportunities in this regard was selected by 32.3% of respondents, lack of conviction that  
8 respondents' behaviors had an impact on the state of the natural environment by 32.0%,  
9 inadequate organizational solutions by 30.8%. Respondents chose maximum three specific  
10 barriers. While at least one choice was made by all respondents, the second choice was made  
11 by 90.7%, and the third choice by 77.3%. It can be assumed that indicating three choices was  
12 sufficient to identify the key barriers to pro-environmental behaviors among the hotel guests.  
13 Based on the results of the Q-Cochran test, it can be stated that there are statistically significant  
14 ( $\chi^2 = 558.97$ ,  $p < .001$ ) but small differences ( $R = 0.04$ ) in the proportions of their occurrence  
15 in the studied group of hotel guests between the twelve barriers to pro-environmental behavior.

16  
17 The second group of respondents comprised hotel employees and managers (193), who  
18 were asked about the main barriers to exhibiting pro-environmental behaviors in their  
19 workplace. One in four hotel employees (25.2%) identified heavy workload as the main barrier.  
20 It is also significant that heavy workload was selected as a barrier by almost two out of three  
21 (64.2%) hotel employees. One in three (36.3%) indicated low pay and transient employment  
22 (33.7%) as well as remuneration disregarding environmental aspects (11.0%). All these barriers  
23 ranked significantly in all responses (more than 10%), forming the key group of barriers  
24 indicated by hotel employees. The other barriers were pressure to attain short-term goals (9.8%)  
25 and high hotel ranking standards (6.5%). The fewest responses, being the third group of barriers,  
26 were lack of interest in environmental issues (3.0%), infrastructural deficiencies (3.0%), bad  
27 examples set by other people (3.0%), bad habits from home (2.8%), or lack of conviction that  
28 one's behaviors had an impact on the state of the environment (2.4%). Like the hotel guests all  
29 hotel employees chose to indicate at least one barrier, 85.5% - two barriers, and 69.4% - three  
30 barriers. Based on the results of the Q-Cochran test, it can be stated that there are statistically  
31 significant ( $\chi^2 = 484.91$ ,  $p < .001$ ), although small ( $R = 0.19$ ) differences between the fourteen  
32 barriers to pro-environmental behavior in the proportions of their occurrence in the studied  
33 group of hotel employees and managers.

34  
35 The third group of respondents were hotel suppliers (85), who were asked about the  
36 main barriers to exhibiting pro-environmental behaviors during their cooperation with the hotel.  
37 The suppliers' perspective differed from the two other groups of respondents. The key barrier  
38 identified by 43.5% of them was pressure to attain short-term (mainly financial) goals. This  
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3 barrier was the most frequently selected of all choices made (18.4%). Also, a frequently chosen  
4 barrier (12.9%) was a remuneration system disregarding environmental aspects (30.6%) as well  
5 as lack of interest in environmental issues (10.9%), and heavy workload (10.0%). The second  
6 group of barriers identified by hotel suppliers consisted of three equally chosen indications  
7 (9.5%): lack of conviction about the environmental impact of behaviors, low pay, and  
8 insufficient knowledge of environmental management. Setting a bad example by other people  
9 was a barrier for 7.0% of hotel suppliers, and infrastructure deficiencies for 5.5%. Other barriers  
10 were identified by less than 5% of these respondents. At least one barrier was indicated by  
11 100% of the surveyed hotel suppliers, at least two by 81.2%, and three by 55.3%. Based on the  
12 results of the Cochran Q test, it can be stated that there are statistically significant ( $\chi^2 = 72.29$ ,  
13  $p < .001$ ), although small ( $R = 0.06$ ) differences between the twelve barriers to pro-  
14 environmental behavior in the proportions of their occurrence in the studied group of hotel  
15 suppliers.

#### 26 4.2. Diversification of barriers

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28 The hotel guests' surveys identified barriers to pro-environmental behavior were  
29 differentiated by gender, age, level of education, place of residence, quality of life and  
30 ecological awareness. Men statistically significantly more often than women indicated the  
31 following barriers to pro-environmental behavior: transience of stay, lack of conviction that my  
32 behaviors have an impact on the state of the environment, setting a bad example by other people  
33 and negative experience from other hotels. On the other hand, women, compared to men,  
34 statistically significantly more often indicated: inadequate organizational solutions, high price  
35 per stay and bad habits from home or workplace. The assessment of the size of the observed  
36 differences allows us to state that they were small. The surveyed guests from the youngest age  
37 group (18-25 years) statistically significantly more often than guests aged 26-35, 36-45 and 46-  
38 55 years indicated: inadequate organizational solutions and high price of stay in the hotels. The  
39 youngest surveyed guests statistically significantly less often than older surveyed guests  
40 indicated such barriers to pro-environmental behavior as: lack of conviction that individual  
41 behaviors have an impact on the state of the environment, setting a bad example by other people  
42 and negative experience from other hotels. The assessment of the size of the observed  
43 differences allows us to state that they were small.

#### 57 *Table 1*

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59 The values of the Pearson chi-square tests of independence and the test for independent  
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3 proportions (post-hoc test) with Bonferroni correction indicate that the level of hotel guests  
4 education differentiated the identification of the following barriers to pro-environmental  
5 behaviors: transience of stay – respondents with secondary and higher education indicated it  
6 more often than those with primary education, inadequate organizational solutions –  
7 respondents with higher education indicated it more often than those with primary and  
8 secondary education, infrastructural deficiencies – respondents with higher education indicated  
9 it more often than those with secondary education and bad habits from home or workplace –  
10 respondents with primary education indicated it more often than those with secondary and  
11 higher education. Place of residence differentiated the results regarding barriers: lack of  
12 conviction that my behaviors have an impact on the state of the environment – residents of  
13 small and medium-sized towns indicated it more often than residents of villages and large cities,  
14 inadequate organizational solutions – residents of villages and large cities indicated it more  
15 often than residents of small and medium-sized towns, setting a bad example by other people –  
16 residents of small and medium-sized towns indicated it more often than residents of large cities,  
17 infrastructural deficiencies – residents of large cities indicated it more often than residents of  
18 villages and small and medium-sized towns, negative experience from other hotels – residents  
19 of small and medium-sized towns indicated it more often than residents of large cities and high  
20 price per stay – residents of large cities indicated it more often than residents of medium-sized  
21 towns. However, the values of Cramer's effect size indicate that the observed relationships are  
22 weak.

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38 *Table 2*

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41 Respondents' self-reported quality of life also influenced their identification of barriers  
42 to pro-environmental behaviors. Hotel guests with an average quality of life were statistically  
43 significantly more likely than guests with a high quality of life to indicate the following barriers  
44 to pro-environmental behavior: transience of stay, lack of conviction that my behaviors have an  
45 impact on the state of the environment, setting a bad example by other people and negative  
46 experience from other hotels. In comparison to those with an average quality of life, respondents  
47 with a high quality of life were more likely to indicate: inadequate organizational solutions,  
48 infrastructural deficiencies and high price per stay. Hotel guests with a low quality of life most  
49 often indicated: lack of interest in environmental issues and bad habits from home or workplace.  
50 Hotel guests who rated their level of ecological awareness highly were statistically significantly  
51 more likely than respondents with low and average ecological awareness to indicate: inadequate  
52 organizational solutions, infrastructural deficiencies and high price per stay. Respondents with  
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3 medium ecological awareness more often than those with high ecological awareness indicated  
4 transience of stay as a barrier to adopting pro-environmental behaviors. Hotel guests with low  
5 ecological awareness most often, among all respondents, indicated such barriers as: lack of  
6 conviction that my behaviors have an impact on the state of the environment, setting a bad  
7 example by other people and negative experience from other hotels. However, the values of  
8 Cramer's effect size indicate that all the observed relationships are weak.  
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### 13 14 *Table 3*

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17 The findings from employees and managers of hotels shown that, gender, age, level of  
18 education and work experience did not statistically significantly differentiate the declared  
19 barriers to pro-environmental behavior. However, it was noticed that the choice of some barriers  
20 was influenced by the place of residence of the respondents. Residents of large cities most often  
21 indicated: heavy workload, low pay and transient employment. Less often than residents of  
22 villages and small and medium-sized towns, they identified setting a bad example by other  
23 people as a barrier to their pro-environmental behavior.  
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### 30 31 *Table 4*

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33 Business size and duration of activity of the hotel suppliers statistically significantly  
34 differentiated selected barriers to pro-environmental behavior based on the size and duration of  
35 activity of the each business. Small and midsize business representatives more often than  
36 microbusiness representatives indicated pressure to achieve short-term (mainly financial) goals  
37 as an important barrier to pro-environmental behavior. On the other hand, microbusiness  
38 suppliers more often than small and midsize business suppliers considered lack of interest in  
39 environmental issues as an important barrier. Suppliers running their business for more than 10  
40 years were more likely than those running their business for up to 10 years to indicate the  
41 following barriers to their pro-environmental behavior in the surveyed hotels: pressure to  
42 achieve short-term goals and insufficient knowledge of environmental management. The  
43 assessment of the size of the observed differences allows us to state that they were medium.  
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### 53 54 *Table 5*

## 55 56 **4. Discussion and conclusion**

57 Our research has shown that there are certain factors that are common to all stakeholders  
58 which relate to time. In the case of hotel guests, the limitation is the temporary nature of their  
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3 stay and in the case of employees - the temporary nature of work, employment. the presented  
4 research indirectly confirms the results of studies already carried out (Luoh et al., 2014).  
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Temporariness sometimes prompts people to exhibit passive and sometimes even “anti-environmental” behaviors, as individuals usually take a short-term view recognizing that they will not be at a particular place in the future anyway.

Another important factor is the lack of financial incentives, which makes it difficult to shape pro-environmental behavior. Perhaps the transparency of data should be increased - showing how even a short stay in a hotel affects the environment. In the case of employees, those factors that are important for pro-environmental behavior will have a great influence. Ensuring participation in any benefits that hotels receive from reduced environmental fees is unrealistic. These solutions are sometimes pursued only by family-run hotels. However, such a recommendation requires that people become partners and not employees. Hence, the research has also shown differences between individual stakeholders, which are discussed in the research results section.

The studied hotel guests also reported such barriers as insufficient information about possible pro-environmental activities and lack of conviction that their behaviors can have a positive impact on the state of the natural environment. Thus, it seems necessary that hotel guests should be provided with educational activities and feedback on the environmental effects of their behaviors. However, it is important to remember that opinions on the impact of pro-environmental training on behavior change have so far been inconclusive, as the effectiveness of such training depends on multiple variables. The limited effectiveness of behavior modeling methodology in organizational training of employees was noted by Mayer et al. (1987). Other authors recognized the variable effectiveness of training on changing employees’ pro-environmental behaviors. An important task is not to impose costs on hotel guests when introducing various pro-environmental solutions. Various studies – including those conducted in a group of organic food consumers – have shown that the barrier to changing behavior is not only the lack of knowledge but also the affordable price (Dangi et.al., 2020).

It is important that the quality of the services provided should result in an appropriate level of satisfaction. If hotel guests are offered services at a higher level than they expect, this may influence their behavior. The research showed that perceived satisfaction resulting from hotel services as well as moral standards contribute to building the intentions of guests to engage in pro-environmental behavior during their stay (Han et al., 2019).

The hotel employees further indicated the following barriers: heavy workload, low pay, and a remuneration system disregarding environmental aspects. The last barrier was also

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3 reported by the hotel suppliers. The crisis situation faced by the hotel industry, triggered by the  
4 COVID-19 pandemic and the war in Ukraine (Le & Phi, 2021), probably contributed  
5 significantly to the survey results. Restrictions on business opportunities, lower demand for  
6 hotel services reported by tourists and representatives of the business community, and lower  
7 average prices have all contributed to increased operational risks and a worsening financial  
8 standing of hotels, with major implications for job insecurity and lower wages. Furthermore,  
9 green reward systems, so rarely used in business practice, also based on the attainment of  
10 environmental goals, became even less relevant during the crisis (Islam et al., 2022).

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17 The problem of rewarding the implementation of environmental aspects should be  
18 solved, despite the weaknesses consisting in the fact that the level of commitment of rewarded  
19 individuals is often maintained only during the period of receiving the reward, which negatively  
20 affects their intrinsic motivation (Cameron & Pierce, 2002).

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24 Pressure to meet short-term and financial goals was also noted by the studied hotel  
25 employees and managers and suppliers. Similar observations were made by Bonilla-Priego et  
26 al. (2011). However, Deming (1982) already believed that setting quantitative objectives is, in  
27 a way, synonymous with management by intimidation.

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40 Many studies highlight the considerable importance of psychological and managerial  
41 factors, but still little is known about the impact of values on the pro-environmental behaviors  
42 of different hotel stakeholder groups. Some authors indicate the importance of altruistic values  
43 in behavior modeling (Chen, 2020; Shao et al., 2021). It may be interesting to know how  
44 instrumental values or organizational values influence such behavior in different groups of  
45 stakeholders.

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54 In addition, it has been known that pro-environmental behaviors are strongly influenced  
55 by personal relationships with nature (Whitburn et al., 2020), health awareness (Shimoda et al.,  
56 2020), sense of guilt (Muralidharan & Sheehan, 2018), personal and group standards as well as  
57 the awareness of consequences (Esfandiar et al., 2020). Thus, it can be assumed that if the  
58 stakeholders are aware of the climate changes taking place, their efforts will be directed toward  
59 developing pro-environmental behaviors. Such activities will include, for example, the  
60 implementation of environmental management systems, Total Quality Environmental  
Management practices, green human resources, or green supply chains.

It may also be interesting to determine to what extent there are clearly formulated  
environmental goals in hotel managers' remuneration systems, and to what extent they are  
difficult to achieve. An increasing number of companies are differentiating their pay levels  
according to the degree to which environmental goals are met. However, the way in which such

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3 remuneration is decided raises some questions as it happens that environmental goals are then  
4 underestimated (Bugdol & Wontorczyk, 2021). The literature also indicates that a positive  
5 approach to goal attainment, e.g., an "I can achieve these goals" attitude, strengthens it  
6 (Feldman et al., 2009). However, it is important to remember that the process of goal pursuit is  
7 influenced by a great many variables, e.g. the knowledge of circumstances, opportunities and  
8 threats associated with the implementation of tasks and goals. This knowledge affects the  
9 control and decision-making processes. The problem, however, is that the relationship between  
10 pro-environmental behaviors and goal achievement is not always direct. For example, if pro-  
11 environmental goals are rewarded, and hotel managers control how these goals are set, one can  
12 expect that under different circumstances goals that are easy to achieve will be chosen, rather  
13 than long-range goals.  
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22 The uniqueness of the present study from an academic perspective is that we have  
23 identified barriers to demonstrating pro-environmental behavior in a broader sense, not limited  
24 to just one stakeholder group. Thus, we have demonstrated the correctness of constructing  
25 systemic solutions and the need to use a holistic approach to identify the determinants of  
26 behavior. The second contribution relates to the concept of temporariness. It turns out that  
27 people may think that a short "holiday" from environmentally friendly behavior is not a bad.  
28 This can be treated as a reward for previous correct pro-environmental behavior. When people  
29 demonstrate citizen or pro-environmental behavior, they give themselves a reward-grant for  
30 counterproductive behavior. In management theory and psychology, such "grants" are called  
31 "moral license." Finally, research has shown that psychosocial factors may be important for  
32 goal setting processes, not only the inability to set environmental goals, but most likely the  
33 tendency to look for the easiest solutions that do not require effort. It is easier to set financial  
34 goals than environmental goals. Therefore, the respondents' declarations regarding barriers can  
35 be treated as justifying their own passivity and reliance on traditional, well-established  
36 solutions.  
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48 Hotels are quite specific organizations since hotel guests use hotel services driven by  
49 different motives, such as leisure, work, sightseeing, layovers, etc. As a result, developing pro-  
50 environmental behaviors in hotels can be difficult and may require the use of management tools  
51 tailored to particular travel motives. Despite this some solutions can be recommended that  
52 integrate the three groups of hotel stakeholders and account for potential differences in hotel  
53 guests' travel motivation. The recommendations are summarized in Table 6.  
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Considering the identified barriers it must be concluded that the implementation of

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3 systemic solutions will be insufficient. This is why striving to implement green infrastructure  
4 is an important task. Previous research has also indicated that infrastructure plays a key role in  
5 adapting and mitigating climate change and also contributes to shaping a positive image of the  
6 hotel (Wu et al., 2016). There are many conditions for successful change, for instance, when  
7 we talk about information activities, we should remember to strive to eliminate the phenomenon  
8 of asymmetric information (Dangi, 2024).  
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11 The main limitations of the study remain its spatial scope and research methodology.  
12 Only six hotel facilities were considered in the study so the findings can hardly apply to the  
13 entire hotel market. The applied methodology can also be considered a certain limitation. The  
14 diagnostic survey permitted the collection of information about the respondents' self-reported  
15 pro-environmental behaviors and the barriers to their implementation.  
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19 Future research should analysis of key barriers to pro-environmental behaviors in hotels  
20 of different categories or located in other cultural areas may also be important as a slightly  
21 different hierarchy of importance of individual barriers in Central European, South American  
22 or Asian countries can be expected.  
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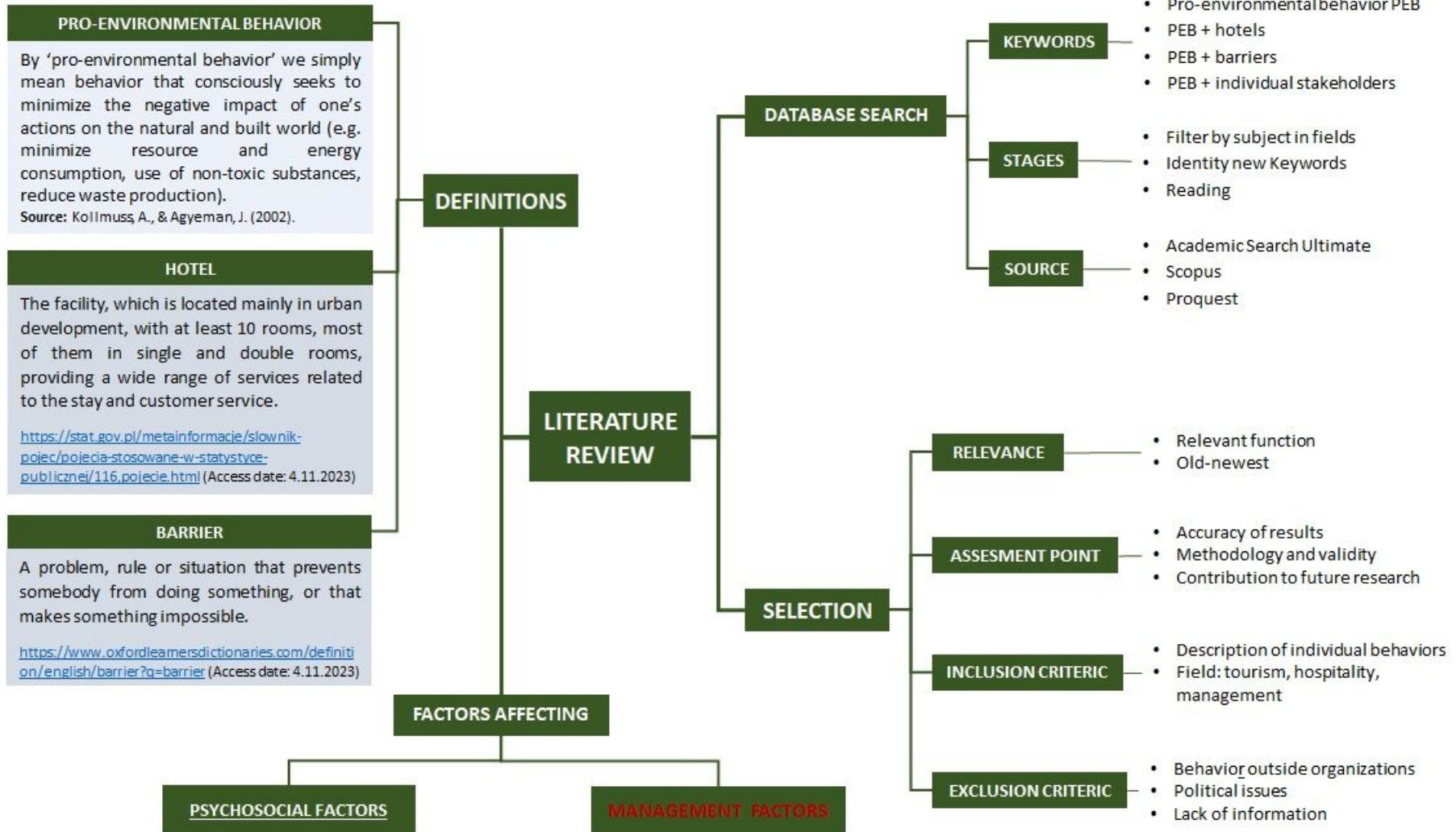


Figure 1. Literature review

**Table 1.** Barriers to pro-environmental behaviors among hotel guests by sex and age (N=1317)

Barriers		Sex				Age			
		Women (A)	Men (B)	18-25 (A)	26-35 (B)	36-45 (C)	46-55 (D)	>55 (E)	
		<i>n</i> ( <i>p̂</i> )	<i>n</i> ( <i>p̂</i> )	<i>n</i> ( <i>p̂</i> )	<i>n</i> ( <i>p̂</i> )	<i>n</i> ( <i>p̂</i> )	<i>n</i> ( <i>p̂</i> )	<i>n</i> ( <i>p̂</i> )	
Transience of stay	Yes	243 (29.1%)	207 (42.9%) A	135 (28.8%)	121 (39.5%)	125 (37.8%)	55 (32.9%)	14 (31.1%)	
	No	592 (70.9%) B	275 (57.1%)	333 (71.2%)	185 (60.5%)	206 (62.2%)	112 (67.1%)	31 (68.9%)	
		$\chi^2 (1, N=1317) = 26.04, p < .001, V = 0.14$				$\chi^2 (4, N=1317) = 12.03, p = .206, V = 0.10$			
Not enough information	Yes	268 (32.1%)	157 (32.6%)	145 (31.0%)	96 (31.4%)	119 (36.0%)	49 (29.3%)	16 (35.6%)	
	No	567 (67.9%)	325 (67.4%)	323 (69.0%)	210 (68.6%)	212 (64.0%)	118 (70.7%)	29 (64.4%)	
		$\chi^2 (1, N=1317) = 0.03, p > .05, V < 0.01$				$\chi^2 (4, N=1317) = 3.40, p > .05, V = 0.05$			
Lack of conviction that my behaviors have an impact on the state of the environment	Yes	230 (27.5%)	191 (39.6%) A	102 (21.8%)	102 (33.3%) A	124 (37.5%) A	76 (45.5%) A	17 (37.8%)	
	No	605 (72.5%) B	291 (60.4%)	366 (78.2%) B C D	204 (66.7%)	207 (62.5%)	91 (54.5%)	28 (62.2%)	
		$\chi^2 (1, N=1317) = 20.51, p < .001, V = 0.12$				$\chi^2 (4, N=1317) = 41.91, p < .001, V = 0.18$			
Inadequate organizational solutions	Yes	307 (36.8%) B	98 (20.3%)	189 (40.4%) B C D	87 (28.4%)	76 (23.0%)	41 (24.6%)	12 (26.7%)	
	No	528 (63.2%)	384 (79.7%) A	279 (59.6%)	219 (71.6%) A	255 (77.0%) A	126 (75.4%) A	33 (73.3%)	
		$\chi^2 (1, N=1317) = 38.76, p < .001, V = 0.17$				$\chi^2 (4, N=1317) = 33.97, p < .001, V = 0.16$			
Setting a bad example by other people	Yes	181 (21.7%)	167 (34.6%) A	69 (14.7%)	106 (34.6%) A	109 (32.9%) A	50 (29.9%) A	14 (31.1%) A	
	No	654 (78.3%) B	315 (65.4%)	399 (85.3%) B C D E	200 (65.4%)	222 (67.1%)	117 (70.1%)	31 (68.9%)	
		$\chi^2 (1, N=1317) = 26.45, p < .001, V = 0.14$				$\chi^2 (4, N=1317) = 52.25, p < .001, V = 0.20$			
Infrastructural deficiencies	Yes	176 (21.1%)	81 (16.8%)	86 (18.4%)	68 (22.2%)	59 (17.8%)	34 (20.4%)	10 (22.2%)	
	No	659 (78.9%)	401 (83.2%)	382 (81.6%)	238 (77.8%)	272 (82.2%)	133 (79.6%)	35 (77.8%)	
		$\chi^2 (1, N=1317) = 3.55, p = .714, V = 0.05$				$\chi^2 (4, N=1317) = 2.70, p > .05, V = 0.05$			
Leisure or work	Yes	149 (17.8%)	106 (22.0%)	109 (23.3%)	61 (19.9%)	60 (18.1%)	19 (11.4%)	6 (13.3%)	
	No	686 (82.2%)	376 (78.0%)	359 (76.7%)	245 (80.1%)	271 (81.9%)	148 (88.6%) A	39 (86.7%)	
		$\chi^2 (1, N=1317) = 3.37, p = .798, V = 0.05$				$\chi^2 (4, N=1317) = 12.88, p = .142, V = 0.10$			
Being in a group	Yes	133 (15.9%)	99 (20.5%)	69 (14.7%)	63 (20.6%)	66 (19.9%)	30 (18.0%)	4 (8.9%)	
	No	702 (84.1%) B	383 (79.5%)	399 (85.3%)	243 (79.4%)	265 (80.1%)	137 (82.0%)	41 (91.1%)	
		$\chi^2 (1, N=1317) = 4.48, p = .412, V = 0.06$				$\chi^2 (4, N=1317) = 8.13, p > .05, V = 0.08$			
Negative experience from other hotels	Yes	114 (13.7%)	118 (24.5%) A	38 (8.1%)	73 (23.9%) A	81 (24.5%) A	37 (22.2%) A	3 (6.7%)	
	No	721 (86.3%) B	364 (75.5%)	430 (91.9%) B C D	233 (76.1%)	250 (75.5%)	130 (77.8%)	42 (93.3%)	
		$\chi^2 (1, N=1317) = 24.69, p < .001, V = 0.14$				$\chi^2 (4, N=1317) = 54.10, p < .001, V = 0.20$			
High price per stay	Yes	187 (22.4%) B	44 (9.1%)	144 (30.8%) B C D	31 (10.1%)	30 (9.1%)	19 (11.4%)	7 (15.6%)	
	No	648 (77.6%)	438 (90.9%) A	324 (69.2%)	275 (89.9%) A	301 (90.9%) A	148 (88.6%) A	38 (84.4%)	
		$\chi^2 (1, N=1317) = 37.19, p < .001, V = 0.17$				$\chi^2 (4, N=1317) = 89.2, p < .001, V = 0.26$			
Lack of interest in environmental issues	Yes	95 (11.4%)	43 (8.9%)	61 (13.0%)	26 (8.5%)	27 (8.2%)	19 (11.4%)	5 (11.1%)	
	No	740 (88.6%)	439 (91.1%)	407 (87.0%)	280 (91.5%)	304 (91.8%)	148 (88.6%)	40 (88.9%)	
		$\chi^2 (1, N=1317) = 1.97, p > .05, V = 0.04$				$\chi^2 (4, N=1317) = 6.60, p > .05, V = 0.07$			
Bad habits from home or workplace	Yes	108 (12.9%) B	27 (5.6%)	64 (13.7%)	23 (7.5%)	29 (8.8%)	14 (8.4%)	5 (11.1%)	



No	727 (87.1%)	455 (94.4%) A	404 (86.3%)	283 (92.5%)	302 (91.2%)	153 (91.6%)	40 (88.9%)
$\chi^2 (1, N=1317) = 17.86, p < .001, V = 0.12$				$\chi^2 (4, N=1317) = 9.92, p = .502, V = 0.09$			

Notes:

$n$ , number of responses;  $\hat{p}$ , proportion of responses.

$\chi^2$ , chi-square test of independence;  $p$ ,  $\chi^2$  test adjusted probability value;  $V$ , effect size measure for  $\chi^2$  test of independence, where:  $V < 0.10$ , negligible effect,  $V = 0.10 < 0.30$ , small effect,  $V = 0.30 < 0.50$ , medium effect,  $V > 0.50$  large effect (Cohen, 1988).

Results are based on two-sided tests. For each significant pair, the key to the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C, D, E): .05

Source: own study.

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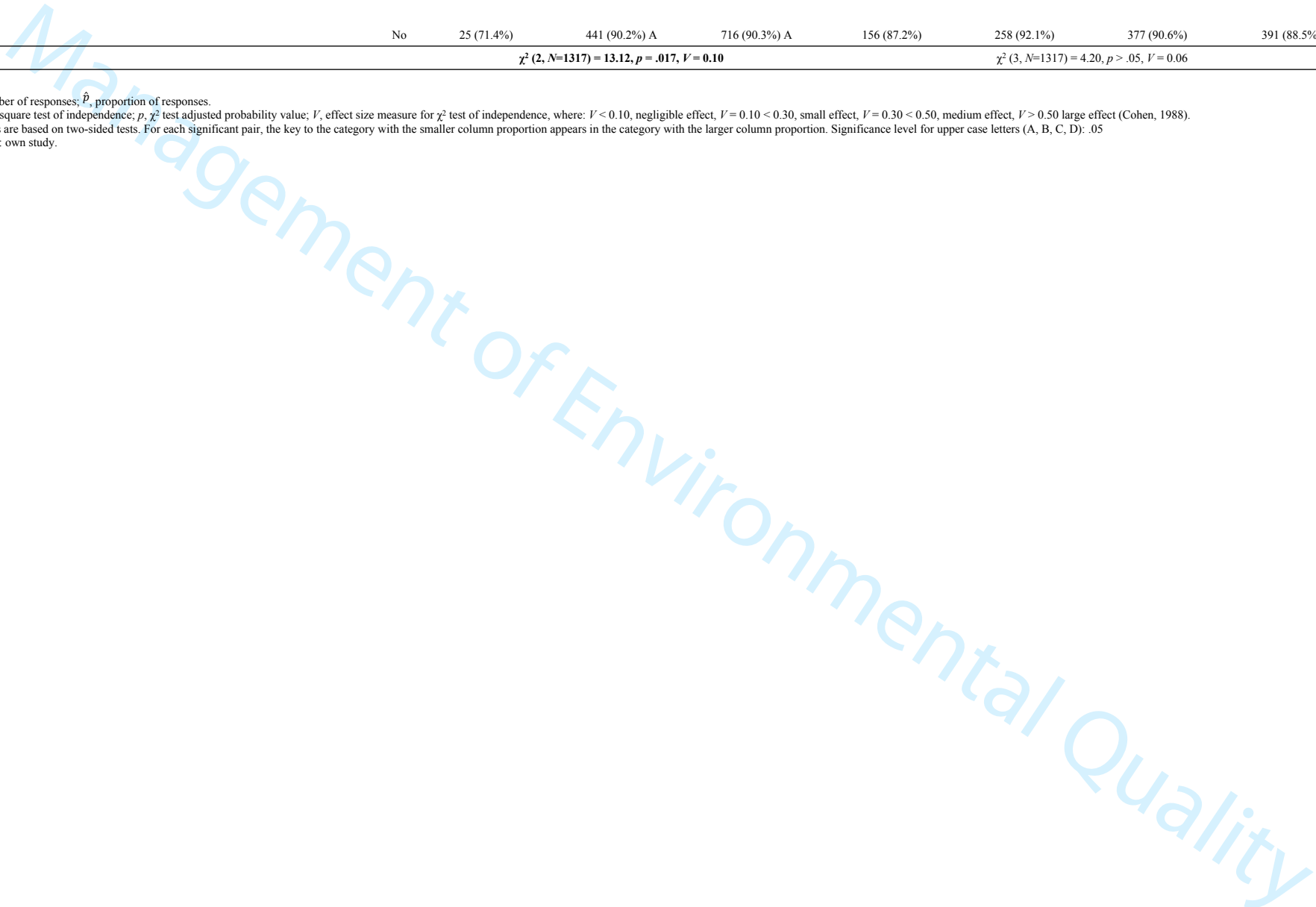
**Table 2.** Barriers to pro-environmental behaviors among hotel guests by education and place of residence (N=1317)

Barriers		Education			Place of residence			
		Primary or vocational (A)	Secondary (B)	Higher (C)	Rural area (A)	Small town (B)	Medium city (C)	Large city (D)
		<i>n</i> ( <i>p</i> %)	<i>n</i> ( <i>p</i> %)	<i>n</i> ( <i>p</i> %)	<i>n</i> ( <i>p</i> %)	<i>n</i> ( <i>p</i> %)	<i>n</i> ( <i>p</i> %)	<i>n</i> ( <i>p</i> %)
Transience of stay	Yes	3 (8.6%)	156 (31.9%) A	291 (36.7%) A	59 (33.0%)	104 (37.1%)	139 (33.4%)	148 (33.5%)
	No	32 (91.4%) B C	333 (68.1%)	502 (63.3%)	120 (67.0%)	176 (62.9%)	277 (66.6%)	294 (66.5%)
		$\chi^2 (2, N=1317) = 13.56, p = .014, V = 0.10$			$\chi^2 (3, N=1317) = 1.42, p > .05, V = 0.03$			
Not enough information	Yes	7 (20.0%)	176 (36.0%)	242 (30.5%)	49 (27.4%)	87 (31.1%)	143 (34.4%)	146 (33.0%)
	No	28 (80.0%)	313 (64.0%)	551 (69.5%)	130 (72.6%)	193 (68.9%)	273 (65.6%)	296 (67.0%)
		$\chi^2 (2, N=1317) = 6.63, p = .437, V = 0.07$			$\chi^2 (3, N=1317) = 3.11, p > .05, V = 0.05$			
Lack of conviction that my behaviors have an impact on the state of the environment	Yes	18 (51.4%)	137 (28.0%)	266 (33.5%)	40 (22.3%)	99 (35.4%) A	166 (39.9%) A D	116 (26.2%)
	No	17 (48.6%)	352 (72.0%)	527 (66.5%)	139 (77.7%)	181 (64.6%)	250 (60.1%)	326 (73.8%) C
		$\chi^2 (2, N=1317) = 10.51, p = .063, V = 0.09$			$\chi^2 (3, N=1317) = 27.80, p < .001, V = 0.15$			
Inadequate organizational solutions	Yes	4 (11.4%)	125 (25.6%)	276 (34.8%) A B	61 (34.1%) B C	63 (22.5%)	94 (22.6%)	187 (42.3%) B C
	No	31 (88.6%) C	364 (74.4%) C	517 (65.2%)	118 (65.9%)	217 (77.5%) A D	322 (77.4%) A D	255 (57.7%)
		$\chi^2 (2, N=1317) = 18.44, p = .001, V = 0.12$			$\chi^2 (3, N=1317) = 50.59, p < .001, V = 0.20$			
Setting a bad example by other people	Yes	8 (22.9%)	145 (29.7%)	195 (24.6%)	45 (25.1%)	92 (32.9%) D	138 (33.2%) D	73 (16.5%)
	No	27 (77.1%)	344 (70.3%)	598 (75.4%)	134 (74.9%)	188 (67.1%)	278 (66.8%)	369 (83.5%) B C
		$\chi^2 (2, N=1317) = 4.22, p > .05, V = 0.06$			$\chi^2 (3, N=1317) = 38.18, p < .001, V = 0.17$			
Infrastructural deficiencies	Yes	3 (8.6%)	63 (12.9%)	191 (24.1%) B	28 (15.6%)	42 (15.0%)	61 (14.7%)	126 (28.5%) A B C
	No	32 (91.4%)	426 (87.1%) C	602 (75.9%)	151 (84.4%) D	238 (85.0%) D	355 (85.3%) D	316 (71.5%)
		$\chi^2 (2, N=1317) = 26.91, p < .001, V = 0.14$			$\chi^2 (3, N=1317) = 34.33, p < .001, V = 0.16$			
Leisure or work	Yes	6 (17.1%)	113 (23.1%)	136 (17.2%)	39 (21.8%)	60 (21.4%)	78 (18.8%)	78 (17.6%)
	No	29 (82.9%)	376 (76.9%)	657 (82.8%)	140 (78.2%)	220 (78.6%)	338 (81.3%)	364 (82.4%)
		$\chi^2 (2, N=1317) = 6.99, p = .364, V = 0.07$			$\chi^2 (3, N=1317) = 2.37, p > .05, V = 0.04$			
Being in a group	Yes	2 (5.7%)	100 (20.4%)	130 (16.4%)	30 (16.8%)	51 (18.2%)	87 (20.9%)	64 (14.5%)
	No	33 (94.3%)	389 (79.6%)	663 (83.6%)	149 (83.2%)	229 (81.8%)	329 (79.1%)	378 (85.5%)
		$\chi^2 (2, N=1317) = 6.94, p = .374, V = 0.07$			$\chi^2 (3, N=1317) = 6.27, p > .05, V = 0.07$			
Negative experience from other hotels	Yes	4 (11.4%)	101 (20.7%)	127 (16.0%)	25 (14.0%)	65 (23.2%) D	95 (22.8%) D	47 (10.6%)
	No	31 (88.6%)	388 (79.3%)	666 (84.0%)	154 (86.0%)	215 (76.8%)	321 (77.2%)	395 (89.4%) B C
		$\chi^2 (2, N=1317) = 5.43, p = .793, V = 0.06$			$\chi^2 (3, N=1317) = 30.35, p < .001, V = 0.15$			
High price per stay	Yes	5 (14.3%)	92 (18.8%)	134 (16.9%)	47 (26.3%)	38 (13.6%)	54 (13.0%)	92 (20.8%) C
	No	30 (85.7%)	397 (81.2%)	659 (83.1%)	132 (73.7%)	242 (86.4%) A	362 (87.0%) A D	350 (79.2%)
		$\chi^2 (2, N=1317) = 1.03, p > .05, V = 0.03$			$\chi^2 (3, N=1317) = 21.71, p = .001, V = 0.13$			
Lack of interest in environmental issues	Yes	4 (11.4%)	48 (9.8%)	86 (10.8%)	27 (15.1%)	30 (10.7%)	36 (8.7%)	45 (10.2%)
	No	31 (88.6%)	441 (90.2%)	707 (89.2%)	152 (84.9%)	250 (89.3%)	380 (91.3%)	397 (89.8%)
		$\chi^2 (2, N=1317) = 0.38, p > .05, V = 0.02$			$\chi^2 (3, N=1317) = 5.58, p > .05, V = 0.07$			
Bad habits from home or workplace	Yes	10 (28.6%) B C	48 (9.8%)	77 (9.7%)	23 (12.8%)	22 (7.9%)	39 (9.4%)	51 (11.5%)

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No	25 (71.4%)	441 (90.2%) A	716 (90.3%) A	156 (87.2%)	258 (92.1%)	377 (90.6%)	391 (88.5%)
$\chi^2 (2, N=1317) = 13.12, p = .017, V = 0.10$				$\chi^2 (3, N=1317) = 4.20, p > .05, V = 0.06$			

Notes:  
*n*, number of responses;  $\hat{p}$ , proportion of responses.  
 $\chi^2$ , chi-square test of independence; *p*,  $\chi^2$  test adjusted probability value; *V*, effect size measure for  $\chi^2$  test of independence, where: *V* < 0.10, negligible effect, *V* = 0.10 < 0.30, small effect, *V* = 0.30 < 0.50, medium effect, *V* > 0.50 large effect (Cohen, 1988).  
 Results are based on two-sided tests. For each significant pair, the key to the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C, D): .05  
 Source: own study.



**Table 3.** Barriers to pro-environmental behaviors among hotel guests by self-reported quality of life and environmental awareness (N=1317)

Barriers		Quality of life			Environmental awareness		
		Very low or low (A)	Average (B)	High or very high (C)	Very low or low (A)	Average (B)	High or very high (C)
		<i>n</i> ( $\hat{P}$ )	<i>n</i> ( $\hat{P}$ )	<i>n</i> ( $\hat{P}$ )	<i>n</i> ( $\hat{P}$ )	<i>n</i> ( $\hat{P}$ )	<i>n</i> ( $\hat{P}$ )
Transience of stay	Yes	12 (44.4%)	304 (38.9%) C	134 (26.3%)	26 (32.5%)	250 (39.0%) C	174 (29.2%)
	No	15 (55.6%)	477 (61.1%)	375 (73.7%) B	54 (67.5%)	391 (61.0%)	422 (70.8%) B
		$\chi^2 (2 N=1317) = 23.04, p < .001, V = 0.13$			$\chi^2 (2 N=1317) = 13.31, p = .015, V = 0.10$		
Not enough information	Yes	7 (25.9%)	273 (35.0%)	145 (28.5%)	30 (37.5%)	212 (33.1%)	183 (30.7%)
	No	20 (74.1%)	508 (65.0%)	364 (71.5%)	50 (62.5%)	429 (66.9%)	413 (69.3%)
		$\chi^2 (2 N=1317) = 6.41, p = .488, V = 0.07$			$\chi^2 (2 N=1317) = 1.86, p > .05, V = 0.04$		
Lack of conviction that my behaviors have an impact on the state of the environment	Yes	3 (11.1%)	297 (38.0%) A C	121 (23.8%)	44 (55.0%) B C	253 (39.5%) C	124 (20.8%)
	No	24 (88.9%) B	484 (62.0%)	388 (76.2%) B	36 (45.0%)	388 (60.5%) A	472 (79.2%) A B
		$\chi^2 (2 N=1317) = 34.31, p < .001, V = 0.16$			$\chi^2 (2 N=1317) = 70.25, p < .001, V = 0.23$		
Inadequate organizational solutions	Yes	10 (37.0%)	193 (24.7%)	202 (39.7%) B	10 (12.5%)	141 (22.0%)	254 (42.6%) A B
	No	17 (63.0%)	588 (75.3%) C	307 (60.3%)	70 (87.5%) C	500 (78.0%) C	342 (57.4%)
		$\chi^2 (2 N=1317) = 32.96, p < .001, V = 0.16$			$\chi^2 (2 N=1317) = 74.99, p < .001, V = 0.24$		
Setting a bad example by other people	Yes	4 (14.8%)	252 (32.3%) C	92 (18.1%)	33 (41.3%) B C	177 (27.6%)	138 (23.2%)
	No	23 (85.2%)	529 (67.7%)	417 (81.9%) B	47 (58.8%)	464 (72.4%) A	458 (76.8%) A
		$\chi^2 (2 N=1317) = 33.84, p < .001, V = 0.16$			$\chi^2 (2 N=1317) = 12.79, p = .020, V = 0.10$		
Infrastructural deficiencies	Yes	3 (11.1%)	122 (15.6%)	132 (25.9%) B	5 (6.3%)	74 (11.5%)	178 (29.9%) A B
	No	24 (88.9%)	659 (84.4%) C	377 (74.1%)	75 (93.8%) C	567 (88.5%) C	418 (70.1%)
		$\chi^2 (2 N=1317) = 22.10, p < .001, V = 0.13$			$\chi^2 (2 N=1317) = 75.55, p < .001, V = 0.24$		
Leisure or work	Yes	7 (25.9%)	156 (20.0%)	92 (18.1%)	15 (18.8%)	140 (21.8%)	100 (16.8%)
	No	20 (74.1%)	625 (80.0%)	417 (81.9%)	65 (81.3%)	501 (78.2%)	496 (83.2%)
		$\chi^2 (2 N=1317) = 1.47, p > .05, V = 0.03$			$\chi^2 (2 N=1317) = 5.09, p = .942, V = 0.06$		
Being in a group	Yes	3 (11.1%)	147 (18.8%)	82 (16.1%)	19 (23.8%)	113 (17.6%)	100 (16.8%)
	No	24 (88.9%)	634 (81.2%)	427 (83.9%)	61 (76.3%)	528 (82.4%)	496 (83.2%)
		$\chi^2 (2 N=1317) = 2.37, p > .05, V = 0.04$			$\chi^2 (2 N=1317) = 2.36, p > .05, V = 0.04$		
Negative experience from other hotels	Yes	3 (11.1%)	172 (22.0%) C	57 (11.2%)	22 (27.5%) C	143 (22.3%) C	67 (11.2%)
	No	24 (88.9%)	609 (78.0%)	452 (88.8%) B	58 (72.5%)	498 (77.7%)	529 (88.8%) A B
		$\chi^2 (2 N=1317) = 25.68, p < .001, V = 0.14$			$\chi^2 (2 N=1317) = 31.80, p < .001, V = 0.16$		
High price per stay	Yes	5 (18.5%)	97 (12.4%)	129 (25.3%) B	3 (3.8%)	95 (14.8%) A	133 (22.3%) A B
	No	22 (81.5%)	684 (87.6%) C	380 (74.7%)	77 (96.3%) B C	546 (85.2%) C	463 (77.7%)
		$\chi^2 (2 N=1317) = 35.61, p < .001, V = 0.16$			$\chi^2 (2 N=1317) = 23.19, p < .001, V = 0.13$		
Lack of interest in environmental issues	Yes	7 (25.9%) B	63 (8.1%)	68 (13.4%) B	10 (12.5%)	77 (12.0%)	51 (8.6%)
	No	20 (74.1%)	718 (91.9%) A C	441 (86.6%)	70 (87.5%)	564 (88.0%)	545 (91.4%)
		$\chi^2 (2 N=1317) = 16.22, p = .004, V = 0.11$			$\chi^2 (2 N=1317) = 4.20, p > .05, V = 0.06$		

Bad habits from home or workplace	Yes	8 (29.6%) B C	71 (9.1%)	56 (11.0%)	6 (7.5%)	71 (11.1%)	58 (9.7%)
	No	19 (70.4%)	710 (90.9%) A	453 (89.0%) A	74 (92.5%)	570 (88.9%)	538 (90.3%)
$\chi^2 (2 N=1317) = 12.48, p = .022, V = 0.10$				$\chi^2 (2 N=1317) = 1.31, p > .05, V = 0.03$			

Notes:  
*n*, number of responses;  $\hat{p}$ , proportion of responses.  
 $\chi^2$ , chi-square test of independence; *p*,  $\chi^2$  test adjusted probability value; *V*, effect size measure for  $\chi^2$  test of independence, where:  $V < 0.10$ , negligible effect,  $V = 0.10 < 0.30$ , small effect,  $V = 0.30 < 0.50$ , medium effect,  $V > 0.50$  large effect (Cohen, 1988).  
 Results are based on two-sided tests. For each significant pair, the key to the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05  
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**Table 4.** Barriers to pro-environmental behaviors among hotel employees and managers by education and place of residence (N=193)

Barriers		Place of residence			
		Rural area (A)	Small town (B)	Medium city (C)	Large city (D)
		<i>n</i> ( $\hat{p}$ )	<i>n</i> ( $\hat{p}$ )	<i>n</i> ( $\hat{p}$ )	<i>n</i> ( $\hat{p}$ )
Heavy workload	Yes	15 (39.5%)	3 (23.1%)	3 (23.1%)	103 (79.8%) A B C
	No	23 (60.5%) D	10 (76.9%) D	10 (76.9%) D	26 (20.2%)
$\chi^2 (3, N=193) = 43.00, p < .001, V = 0.27$					
Low pay	Yes	3 (7.9%)	2 (15.4%)	1 (7.7%)	64 (49.6%) A
	No	35 (92.1%) D	11 (84.6%)	12 (92.3%) D	65 (50.4%) C
$\chi^2 (3, N=193) = 30.22, p < .001, V = 0.23$					
Transient employment	Yes	5 (13.2%)	1 (7.7%)	2 (15.4%)	57 (44.2%) A
	No	33 (86.8%) D	12 (92.3%)	11 (84.6%)	72 (55.8%)
$\chi^2 (3, N=193) = 19.42, p < .001, V = 0.18$					
Remuneration system disregarding environmental aspects	Yes	8 (21.1%)	4 (30.8%)	4 (30.8%)	38 (29.5%)
	No	30 (78.9%)	9 (69.2%)	9 (69.2%)	91 (70.5%)
$\chi^2 (3, N=193) = 1.15, p > .05, V = 0.04$					
Pressure to attain short-term (mainly financial) goals	Yes	5 (13.2%)	2 (15.4%)	6 (46.2%)	35 (27.1%)
	No	33 (86.8%)	11 (84.6%)	7 (53.8%)	94 (72.9%)
$\chi^2 (3, N=193) = 6.92, p > .05, V = 0.11$					
High hotel rating standards	Yes	2 (5.3%)	1 (7.7%)	-	29 (22.5%)
	No	36 (94.7%)	12 (92.3%)	13 (100.0%)	100 (77.5%)
Lack of interest in environmental issues	Yes	5 (13.2%)	2 (15.4%)	2 (15.4%)	6 (4.7%)
	No	33 (86.8%)	11 (84.6%)	11 (84.6%)	123 (95.3%)
$\chi^2 (3, N=193) = 5.39, p > .05, V = 0.10$					
Infrastructural deficiencies	Yes	5 (13.2%)	1 (7.7%)	1 (7.7%)	8 (6.2%)
	No	33 (86.8%)	12 (92.3%)	12 (92.3%)	121 (93.8%)
$\chi^2 (3, N=193) = 1.98, p > .05, V = 0.06$					
Setting a bad example by other people	Yes	7 (18.4%)	3 (23.1%) D	3 (23.1%) D	2 (1.6%)
	No	31 (81.6%)	10 (76.9%)	10 (76.9%)	127 (98.4%) A B C
$\chi^2 (3, N=193) = 21.47, p < .001, V = 0.19$					
Bad habits from home or workplace	Yes	7 (18.4%)	4 (30.8%)	3 (23.1%)	-
	No	31 (81.6%)	9 (69.2%)	10 (76.9%)	129 (100.0%)
Lack of conviction that my behaviors have an impact on the state of the environment	Yes	5 (13.2%)	2 (15.4%)	1 (7.7%)	4 (3.1%)
	No	33 (86.8%)	11 (84.6%)	12 (92.3%)	125 (96.9%)
$\chi^2 (3, N=193) = 7.21, p = .910, V = 0.18$					
Insufficient knowledge of environmental management	Yes	3 (7.9%)	1 (7.7%)	-	6 (4.7%)
	No	35 (92.1%)	12 (92.3%)	13 (100.0%)	123 (95.3%)
Bad experiences from previous workplaces	Yes	2 (5.3%)	-	1 (7.7%)	7 (5.4%)
	No	36 (94.7%)	13 (100.0%)	12 (92.3%)	122 (94.6%)
Defective leadership	Yes	3 (7.9%)	1 (7.7%)	1 (7.7%)	3 (2.3%)
	No	35 (92.1%)	12 (92.3%)	12 (92.3%)	126 (97.7%)
$\chi^2 (3, N=193) = 3.24, p > .05, V = 0.07$					

Notes:

*n*, number of responses;  $\hat{p}$ , proportion of responses.

$\chi^2$ , chi-square test of independence; *p*,  $\chi^2$  test adjusted probability value; *V*, effect size measure for  $\chi^2$  test of independence, where:  $V < 0.10$ , negligible effect,  $V = 0.10 < 0.30$ , small effect,  $V = 0.30 < 0.50$ , medium effect,  $V > 0.50$  large effect (Cohen, 1988).

Results are based on two-sided tests. For each significant pair, the key to the category with the smaller column proportion appears in the category with the larger column proportion.

Significance level for upper case letters (A, B, C, D): .05

Source: own study.

**Table 5.** Barriers to pro-environmental behaviors among hotel suppliers by business size and duration of their activity on the market ( $N=85$ )

Barriers		Business size		Duration of activity	
		Microbusiness (A)	Small and midsize business (B)	≤10 yrs (A)	>10 yrs (B)
		$n$ ( $\hat{p}$ )	$n$ ( $\hat{p}$ )	$n$ ( $\hat{p}$ )	$n$ ( $\hat{p}$ )
Pressure to attain short-term (mainly financial) goals	Yes	4 (13.8%)	33 (58.9%) A	15 (28.3%)	22 (68.8%) A
	No	25 (86.2%) B	23 (41.1%)	38 (71.7%) B	10 (31.3%)
		$\chi^2(1, N=85) = 15.53, p < .001, V = 0.43$		$\chi^2(1, N=85) = 13.28, p < .001, V = 0.40$	
Remuneration system disregarding environmental aspects	Yes	6 (20.7%)	20 (35.7%)	17 (32.1%)	9 (28.1%)
	No	23 (79.3%)	36 (64.3%)	36 (67.9%)	23 (71.9%)
		$\chi^2(1, N=85) = 2.03, p > .05, V = 0.15$		$\chi^2(1, N=85) = 0.15, p > .05, V = 0.04$	
Lack of interest in environmental issues	Yes	13 (44.8%) B	9 (16.1%)	18 (34.0%)	4 (12.5%)
	No	16 (55.2%)	47 (83.9%) A	35 (66.0%)	28 (87.5%)
		$\chi^2(1, N=85) = 8.24, p = .048, V = 0.31$		$\chi^2(1, N=85) = 4.79, p = .348, V = 0.24$	
Heavy workload	Yes	6 (20.7%)	14 (25.0%)	13 (24.5%)	7 (21.9%)
	No	23 (79.3%)	42 (75.0%)	40 (75.5%)	25 (78.1%)
		$\chi^2(1, N=85) = 0.20, p > .05, V = 0.05$		$\chi^2(1, N=85) = 0.08, p > .05, V = 0.03$	
Lack of conviction that my behaviors have an impact on the state of the environment	Yes	9 (31.0%)	10 (17.9%)	11 (20.8%)	8 (25.0%)
	No	20 (69.0%)	46 (82.1%)	42 (79.2%)	24 (75.0%)
		$\chi^2(1, N=85) = 1.91, p > .05, V = 0.15$		$\chi^2(1, N=85) = 0.21, p > .05, V = 0.05$	
Low pay	Yes	5 (17.2%)	14 (25.0%)	12 (22.6%)	7 (21.9%)
	No	24 (82.8%)	42 (75.0%)	41 (77.4%)	25 (78.1%)
		$\chi^2(1, N=85) = 0.66, p > .05, V = 0.09$		$\chi^2(1, N=85) = 0.01, p > .05, V = 0.01$	
Insufficient knowledge of environmental management	Yes	4 (13.8%)	15 (26.8%)	6 (11.3%)	13 (40.6%) A
	No	25 (86.2%)	41 (73.2%)	47 (88.7%) B	19 (59.4%)
		$\chi^2(1, N=193) = 1.86, p > .05, V = 0.15$		$\chi^2(1, N=193) = 9.87, p = .024, V = 0.34$	
Setting a bad example by other people	Yes	5 (17.2%)	9 (16.1%)	12 (22.6%)	2 (6.3%)
	No	24 (82.8%)	47 (83.9%)	41 (77.4%)	30 (93.8%)
		$\chi^2(1, N=85) = 0.02, p > .05, V = 0.01$		$\chi^2(1, N=85) = 3.90, p = .576, V = 0.21$	
Infrastructural deficiencies	Yes	4 (13.8%)	7 (12.5%)	4 (7.5%)	7 (21.9%)
	No	25 (86.2%)	49 (87.5%)	49 (92.5%)	25 (78.1%)
		$\chi^2(1, N=85) = 0.03, p > .05, V = 0.02$		$\chi^2(1, N=85) = 3.64, p = .684, V = 0.21$	
Transient employment	Yes	1 (3.4%)	5 (8.9%)	3 (5.7%)	3 (9.4%)
	No	28 (96.6%)	51 (91.1%)	50 (94.3%)	29 (90.6%)
		$\chi^2(1, N=85) = 0.87, p > .05, V = 0.10$		$\chi^2(1, N=85) = 0.42, p > .05, V = 0.07$	
Bad habits from home	Yes	3 (10.3%)	2 (3.6%)	3 (5.7%)	2 (6.3%)
	No	26 (89.7%)	54 (96.4%)	50 (94.3%)	30 (93.8%)
		$\chi^2(1, N=85) = 1.58, p > .05, V = 0.14$		$\chi^2(1, N=85) = 0.01, p > .05, V = 0.01$	
Defective leadership	Yes	1 (3.4%)	2 (3.6%)	1 (1.9%)	2 (6.3%)
	No	28 (96.6%)	54 (96.4%)	52 (98.1%)	30 (93.8%)
		$\chi^2(1, N=85) < 0.01, p > .05, V < 0.01$		$\chi^2(1, N=85) = 1.12, p > .05, V = 0.11$	

Notes:

 $n$ , number of responses;  $\hat{p}$ , proportion of responses. $\chi^2$ , chi-square test of independence;  $p$ ,  $\chi^2$  test adjusted probability value;  $V$ , effect size measure for  $\chi^2$  test of independence, where:  $V < 0.10$ , negligible effect,  $V = 0.10 < 0.30$ , small effect,  $V = 0.30 < 0.50$ , medium effect,  $V > 0.50$  large effect.

Results are based on two-sided tests. For each significant pair, the key to the category with the smaller column proportion appears in the category with the larger column proportion.

Significance level for upper case letters (A, B): .05

Source: own study.

**Table 6.** Recommended system solutions to reduce barriers to pro-environmental behaviors in hotels.

Barriers	Sample activities	Remarks
<b>A. Guest:</b>		
Temporary nature of their stay	Impossible to avoid	If pro-environmental awareness and values are at an appropriate level, the temporary stay should not be a barrier
Not enough information, lack of conviction that their behaviors have an impact on the state of the natural environment	Training and promotional campaigns showing not only the impact of a single hotel but the entire industry	It is important to remember about the limitations related to the effectiveness of behavior modeling training
Inadequate organizational solutions	Compliance of hotels with system requirements (e.g. ISO 14001) could already be confirmed by hotel's guest. This practice will improve work organization and processes. Extended audits may include voluntary participation of hotel guests and suppliers. Similar to reviews in cities the entire review process from preparation of input data to output data can be conducted with the voluntary participation of hotel guests	The condition is stakeholders' voluntary participation. Audit results must be reviewed promptly, and recommendations implemented as in lean management key performance indicators
<b>B. Hotel employees and managers</b>		
Heavy workloads	To some extent, it can be alleviated through employee participation in shaping and modifying procedures	Difficult to implement
Transient employment	Introducing the principle of partnership and clearly defining salary promotion paths. It is possible to consider introducing two groups of employees - permanent and temporary contract workers	This transience barrier is difficult to overcome
Remuneration system disregarding environmental aspects	A good solution may be providing shares in the financial surplus that the hotel obtains through the implementation of green projects.	Financial motivation can be effective in a short period of time
<b>C. Suppliers</b>		
Pressure to meet short-term goals	It is worth considering the possibility of negotiating their environmental goals with suppliers	However, these goals cannot be too ambitious in the short term
Lack of interest in environmental issues	Educating suppliers but also conducting environmental certification (which can be done through second-party audits). Annual supplier evaluation (and certification) must include environmental aspects	Eliminating barriers related to transience and goals may involve joint projects (e.g., setting up companies with supplier and customer capital) The condition is entering into long-term contracts after a cycle of positive evaluations
A remuneration system disregarding environmental aspects	Objective environmental goals must be included in the evaluation	
	If possible, additional points should be added to supplier evaluations - higher scores for environmental aspects	

**Validation:** The reader can find justification for the proposed solutions in the following literature (Chan et al., 2006; Pailé et al., 2013; Law et al., 2017; Tan Pham et al., 2019; Hicklenton et al., 2019; Bugdol & Puciato, 2022).