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An Analysis of Employee Environmental Awareness in The Hospitality Industry

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Abstract

This study aims to analyze the level of employee environmental awareness in the hospitality industry based on five dimensions: Energy Conservation, Transportation and Mobility, Waste Avoidance, Consumerism, and Recycling. A quantitative descriptive approach was employed involving employees of hotel in Nusa Dua, Badung Regency, Bali. Data were collected through a Likert-scale questionnaire and analyzed using validity, reliability, and descriptive statistical analyses. The results showed that all questionnaire items were valid and reliable, with a Cronbach's Alpha value of 0.759. Overall, employee environmental awareness was categorized as very high, with a mean score of 4.26 ± 0.36. The study concludes that employees possess a strong level of environmental awareness, supporting sustainable green tourism practices in the hospitality industry.

Keywords: Employee, environmental awareness, hospitality industry.

INTRODUCTION

One of the most popular tourist destinations in Indonesia, Bali is mostly dependent on the travel and hospitality sectors. According to data from Bali Province's Central Statistics Agency (BPS), 6.95 million foreign visitors arrived in 2025, exceeding pre-pandemic levels and proving Bali's popularity as a travel destination (Bali, 2026). The hospitality sector, which is characterized by high occupancy rates at star-rated hotels throughout Bali's different tourist destinations, has grown as a result of the increase in

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tourists. On the other side, this situation gives a significant boost to the local economy, the creation of jobs, and improved social welfare. However, the expansion of the hospitality sector also brings with it a number of environmental issues, including rising energy consumption, the need for clean water, the generation of solid and liquid waste, the use of operational chemicals, and carbon emissions from regular hotel operations (Provinsi Bali, 2024). The significance of implementing sustainability principles in the hospitality sector is further highlighted by a number of environmental problems that Bali is facing, such as growing waste volumes, pollution along the shore, and strain on natural resources.

In line with the growing concepts of sustainable tourism and green tourism, the hospitality industry is required not only to focus on economic profit but also to take environmental and social aspects into account in all its operational activities. Various hotels have implemented sustainability program through energy efficiency, waste management, the reduction of single use plastics, water conservation, and the adoption of environmental certification standards. However, the success of these program is not solely determined by company policy or the availability of environmentally friendly technology, but is also heavily influenced by the quality of the human resources carrying out the hotel's day-to-day operations. In this context, employees are the key actors responsible for translating sustainability policies into practical working practices.

One key factor underpinning the successful implementation of sustainable practices is environmental awareness. Environmental awareness refers to an individual's level of knowledge, understanding, concern and attention to environmental issues, as well as the consequences of human activities on environmental sustainability. Employees with a high level of environmental awareness tend to better understand the importance of energy conservation, the efficient use of resources, waste reduction, and the adoption of work practices that support environmental conservation. Conversely, a low level of environmental awareness can act as a barrier to the implementation of various sustainability program designed by the organization (Albastaki et al., 2021).

In the hospitality industry, environmental awareness is becoming increasingly relevant as the majority of a hotel's operational activities directly impact natural resources and the surrounding environment (Khatter, 2023). Employees' environmental awareness can influence how they use energy, manage waste, maintain a clean working environment, and support the various green hotel program implemented by the company (Abou Amer et al., 2023). Therefore, understanding the level of employees' environmental

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awareness is crucial as a basis for developing human resource strategies focused on sustainability.

Although research on sustainability in the hospitality industry has developed rapidly, most previous studies have focused primarily on the influence of Green Human Resource Management (GHRM), green training, green leadership, green organization culture, and various other organization factors on environmentally friendly behaviour and corporate environmental performance. Environmental awareness is generally positioned as an independent, mediating, or moderating variable in research models that test relationships between variables. Meanwhile, research that specifically captures and analyses the state of environmental awareness as a single variable among hospitality industry employees remains relatively limited, particularly in the context of tourist destinations with high levels of tourism activity such as Bali. This limitation results in a scarcity of empirical information regarding the level of environmental awareness held by hotel employees as the primary implementers of various sustainability program. Given these circumstances, the novelty of this study lies in its attempt to provide an empirical picture of the level of environmental awareness among employees in the hospitality industry through a descriptive approach focused on mapping the actual state of employees' environmental awareness. Unlike previous studies, which generally treat environmental awareness as a variable that influences or is influenced by other variables, this study places environmental awareness at the centre of its analysis.

Against this background, this study aims to analyse the level of environmental awareness among employees in the hospitality industry. Specifically, this study aims to analyse the level of environmental awareness among employees in the hospitality industry. The analysis is conducted across five dimensions: Energy Conservation, Transportation and Mobility, Waste Avoidance, Consumerism, and Recycling. The research findings are expected to provide an overview of employees' levels of environmental awareness as a basis for developing sustainability programmes and environmentally oriented human resource management. The findings are expected to make a theoretical contribution to the development of environmental awareness studies in the hospitality sector, as well as providing a practical contribution to hotel management in designing more effective sustainability programmes oriented towards sustainable green tourism.

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RESEARCH METHOD

This study employs a quantitative approach with a descriptive design to analyse the level of environmental awareness among employees in the hospitality industry based on five dimensions: energy conservation, transport and mobility, waste avoidance, consumerism, and recycling. The research was conducted at a five-star hotel in the Nusa Dua area, Badung Regency, Bali. The research sample was determined using convenience sampling, namely the selection of respondents based on ease of access and the willingness of employees to participate in the study, comprising 57 respondents. This technique was chosen due to limited access to all employees and variations in respondent availability during the data collection period. Data were collected through the distribution of questionnaires using a five-point Likert scale.

Data analysis was conducted using a validity test based on Pearson's correlation coefficient for the instrument, whereby a statement item was deemed valid if its calculated r- value was greater than the table r- value (0.261) at a 5% significance level and the p-value was less than 0.05. Subsequently, reliability testing was conducted using Cronbach's Alpha coefficient, with a criterion of an alpha value greater than 0.70 indicating that the instrument is reliable. Data meeting the validity and reliability criteria were then analyzed using descriptive statistics, including the mean, frequency, percentage, and standard deviation, to describe the level of Environmental Awareness across each dimension and overall. The research results were interpreted based on average score categories, namely 1.00-1.80 (very low), 1.81-2.60 (low), 2.61-3.40 (moderate), 3.41-4.20 (high), and 4.21-5.00 (very high).

RESULT

The characteristics of the respondents provide an overview of the profile of the employees who were the subjects of the study. This information is important for understanding the background of the respondents who participated in the study and for describing the demographic profile of employees at five-star hotels in the Nusa Dua area, Badung Regency. The characteristics of the respondents in this study include gender, age and length of service, as presented in Table 1.

Table 1. Characteristics of the respondents (n = 57)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	28	48,2

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	Female	29	51,8
Age (Year)	20-25	16	28,6
	26-30	32	57,1
	31-35	7	12,5
	36-40	2	1,8
Work Period (Year)	2-3	12	21,4
	4-5	16	28,6
	6-7	14	23,2
	8-10	15	26,8

To ensure that each statement item accurately measures the construct of Environmental Awareness, the research instrument was tested prior to data analysis. Validity testing was conducted using Pearson's product-moment correlation, comparing the r- value with the r-table value of 0.261 at a 5% significance level. The results of the instrument validity test are presented in Table 2.

Table 2. Instrument validity test

Item	R-Value	Description
EA1.1	0.361	Valid
EA1.2	0.264	Valid
EA1.3	0.413	Valid
EA2.1	0.486	Valid
EA2.2	0.614	Valid
EA2.3	0.659	Valid
EA3.1	0.592	Valid
EA3.2	0.568	Valid
EA3.3	0.571	Valid
EA4.1	0.413	Valid
EA4.2	0.314	Valid
EA4.3	0.444	Valid
EA5.1	0.576	Valid
EA5.2	0.318	Valid
EA5.3	0.378	Valid

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Reliability testing was conducted to determine the instrument's consistency in measuring the research variables. The reliability test utilized Cronbach's Alpha, with a minimum acceptable value of 0.70. The results of the reliability testing for the Environmental Awareness variable are presented in Table 3.

Table 3. Reliability test

Dimension	Cronbach's Alpha (α) Value
Empowerment Awareness	0.759

A descriptive analysis at the indicator level was conducted to provide a more detailed picture of employees' levels of environmental awareness for each statement item. The analysis aimed to identify the aspects of environmental awareness that received the highest and lowest ratings from respondents. The results of the descriptive analysis based on the research indicators are presented in Table 4.

Table 4. Indicator level of environmental awareness item

Item	Mean ± SD	Category
EA1.1	4.44 ± 0.53	Very High
EA1.2	4.33 ± 0.51	Very High
EA1.3	4.28 ± 0.62	Very High
EA2.1	4.21 ± 0.80	Very High
EA2.2	4.25 ± 0.83	Very High
EA2.3	4.10 ± 1.09	High
EA3.1	4.08 ± 1.04	High
EA3.2	4.28 ± 0.70	Very High
EA3.3	4.21 ± 0.70	Very High
EA4.1	4.23 ± 0.68	Very High
EA4.2	4.17 ± 0.50	High
EA4.3	4.26 ± 0.70	Very High
EA5.1	4.26 ± 0.86	Very High
EA5.2	4.33 ± 0.72	Very High
EA5.3	4.39 ± 0.90	Very High

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In addition to the analysis at the indicator level, this study also analyses the level of environmental awareness based on five key dimensions: energy conservation, transport and mobility, waste avoidance, consumerism, and recycling. This analysis aims to identify the most dominant dimensions, as well as those that still require attention in supporting the implementation of sustainable practices in the hospitality industry. The results of the descriptive analysis by dimension are presented in Table 5.

Table 5. Analyses the level of environmental awareness based on five key dimensions

Dimension	Mean±SD	Category
Energy Conservation	4.36 ± 0.39	Very High
Transportation and Mobility	4.19 ± 0.81	High
Waste Avoidance	4.20 ± 0.64	High
Consumerism	4.23 ± 0.52	Very High
Recycling	4.33 ± 0.66	Very High
Environmental Awareness	4.26 ± 0.36	Very High

DISCUSSION

Based on the table of respondent characteristics, this study involved 57 employees of five-star hotels in the Nusa Dua area, Badung Regency. The respondents were predominantly female, numbering 29 (51.8%), whilst there were 28 males (48.2%), indicating a relatively balanced gender composition. In terms of age, the majority of respondents were in the 26-30 age group, comprising 32 people (57.1%), followed by the 20-25 age group with 16 people (28.6%), the 31-35 age group with 7 people (12.5%), and the 36-40 age group with 2 people (1.8%). Based on length of service, the majority of respondents had 4-5 years' service (16 people, 28.6%), followed by 8-10 years' service (15 people, 26.8%), 6-7 years' service (14 people, 23.2%), and 2-3 years' service (12 people, 21.4%). These results indicate that the majority of respondents are employees of working age with sufficient work experience in the hospitality industry.

The dominance of respondents in the 26-30 age group indicates that the hospitality industry is still dominated by a young workforce that is in its productive phase and

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adaptable to organizational change. According to Becker's Human Capital theory, people of working age generally possess a greater capacity to learn, adapt and embrace innovation than older age groups. In the context of sustainability, these characteristics are a vital asset, as the implementation of environmentally friendly practices in hotels requires openness to behavior change and the adoption of new operational procedures. Growing focus on Environmental, Social, and Governance (ESG) practices within the hospitality industry has also heightened employees' awareness and expectations regarding sustainability issues, making the productive age group a strategic asset in supporting the organization's green transformation (El Hajal & Losekoot, 2025; Seyfi et al., 2024; Vovk & Vovk, 2024).

Furthermore, the relatively even distribution of length of service with the 4-5 year and 8-10 years groups being the most common indicates that the majority of respondents have sufficient experience to understand the organization's culture and the hotel's operational practices. The theory of organizational socialization explains that the longer an individual works within an organization, the greater their likelihood of understanding the values, norms and policies implemented by the company. In the hospitality industry, adequate work experience has the potential to increase employee engagement in various sustainability program implemented by the company. This finding is consistent with Vovk and Vovk (2024) research, which confirms that sustainability oriented human resource management including training and employee involvement in environmental program can enhance employees' commitment and participation in the organization sustainability goals. Therefore, the characteristics of the respondents, who are predominantly employees of working age with sufficient work experience, can serve as a supporting factor in the development of environmental awareness and the implementation of sustainable green tourism practices in the hospitality industry.

The validity test results show that all items in the Environmental Awareness variable have a correlation coefficient (r- value) greater than the critical r- value of 0.261; consequently, all items are deemed valid and suitable for use in the study. The item correlation coefficients range from 0.264 to 0.659, indicating that each item is capable of representing the Environmental Awareness construct being measured. According to Ghazali et al. (2026), a research instrument can be declared valid if it is capable of measuring the concept it is intended to measure and has a correlation value higher than the specified critical value. Thus, all indicators within the dimensions of Energy Conservation, Transportation and Mobility, Waste Avoidance, Consumerism, and

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Recycling have met the validity requirements and can be used to describe the level of environmental awareness among employees in the hospitality industry.

Based on the test results, item EA2.3 had the highest validity score (r = 0.659), followed by EA2.2 (r = 0.614) and EA3.1 (r = 0.592). These findings indicate that these indicators have the strongest relationship with the Environmental Awareness construct, and are therefore better able to explain respondents' perceptions than the other items. Meanwhile, item EA1.2 has the lowest correlation value (r = 0.264), although it remains above the table-r value and still meets the validity criteria. Differences in correlation values between items are common in behavior research, as each indicator has a different ability to represent the construct being measured. Overall, the validity test results indicate that the research instrument is sufficiently capable of measuring Environmental Awareness among hotel employees, meaning that the data obtained can be used as a basis for further analysis regarding the level of environmental awareness within the hospitality industry.

The results of the reliability test show that the Environmental Awareness variable has a Cronbach's Alpha value of 0.759. This value is above the recommended minimum threshold of 0.70; therefore, the research instrument is deemed to have a good level of reliability. According to Izah et al. (2023), a Cronbach's Alpha value exceeding 0.70 indicates that the instrument possesses adequate internal consistency and is capable of producing stable measurements of the construct under investigation. Consequently, all items within the Environmental Awareness variable can be used to measure employees' level of environmental awareness consistently.

These results indicate that the indicators used in the dimensions of Energy Conservation, Transportation and Mobility, Waste Avoidance, Consumerism, and Recycling have a sufficiently strong correlation in representing the construct of Environmental Awareness. A Cronbach's Alpha value of 0.759 also indicates that the instrument has a good level of reliability for use in research within the hospitality industry. Consequently, the data obtained through this instrument is reliable and suitable for use in descriptive analysis to describe the level of Environmental Awareness among hotel employees.

The results of the analysis show that, in the Energy Conservation dimension, all indicators were classified as 'very high', with the highest average score recorded for indicator EA1.1 (I recognize the importance of energy conservation in supporting the hotel's green tourism program) at 4.44 ± 0.53. These findings indicate that employees have a strong understanding of the importance of energy efficiency as part of sustainable

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tourism practices. Indicators EA1.2 (I strive to reduce unnecessary electricity use whilst working) and EA1.3 (I use work equipment efficiently to reduce energy consumption) also achieved very high scores of 4.33 ± 0.51 and 4.28 ± 0.62 respectively. These results indicate that employees' environmental awareness is not merely at the level of understanding but is also reflected in their day-to-day operational behavior. Based on the Environmental Awareness theory proposed by Dunlap and Van Liere, environmental awareness encompasses aspects of knowledge, attitudes, and actions that encourage individuals to act responsibly towards the environment. In the context of the hospitality industry, energy-saving behavior is a tangible manifestation of environmental awareness that supports the reduction of a hotel's carbon footprint and operational efficiency (Dolnicar et al., 2025).

In the Transportation and Mobility dimension, indicator EA2.1 (I understand that transport activities can have an impact on the environment) scored an average of 4.21 ± 0.80, and EA2.2 (I support hotel policies aimed at reducing carbon emissions from operational activities) scored 4.25 ± 0.83, which falls into the very high category. Meanwhile, indicator EA2.3 (I recognize the importance of using more environmentally friendly transport in the tourism industry) scored an average of 4.10 ± 1.09, which falls into the high category. These findings suggest that although employees understand the impact of transport on the environment and support emission reduction policies, the level of awareness regarding the implementation of environmentally friendly transport remains relatively lower compared to other indicators. This may be due to limited access to green transport modes or the suboptimal implementation of sustainable transport policies within the workplace. According to the theory of Sustainable Mobility, changes in transport behavior require a combination of individual awareness, organizational support, and the availability of infrastructure that supports sustainable mobility.

In the Waste Avoidance dimension, indicator EA3.1 (I strive to reduce the use of materials or products that have the potential to generate excessive waste) received the lowest average score of 4.08 ± 1.04, although it still falls within the high category. Meanwhile, indicators EA3.2 (I support the waste reduction program implemented by the hotel) and EA3.3 (I understand the importance of minimizing waste to maintain the environmental sustainability of tourist destinations) scored 4.28 ± 0.70 and 4.21 ± 0.70 respectively, which fall into the very high category. These results indicate that employees have a good understanding of the importance of waste reduction; however, the implementation of measures to reduce the use of materials that have the potential to generate waste still requires improvement. According to the Waste Management

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Hierarchy concept, the most effective step in waste management is to prevent or reduce waste at source (waste prevention), before reuse or recycling (Psilovikos, 2023). Therefore, raising awareness regarding the reduction of material use needs to be a focus in the hotel's sustainability program.

In the Consumerism dimension, indicator EA4.1 (I consider the environmental impact when using products and work equipment) scored an average of 4.23 ± 0.68, and EA4.3 (I understand that excessive consumption of resources can undermine environmental sustainability) scored 4.26 ± 0.70, both of which fall into the very high category. However, indicator EA4.2 (I prefer to use environmentally friendly products in my work activities) obtained an average score of 4.17 ± 0.50, which falls into the high category. These findings suggest that although employees have a good understanding of the environmental impacts of resource consumption, their preference for using environmentally friendly products remains slightly lower than their level of understanding. According to Green Consumerism theory, environmentally friendly consumption behavior is influenced by levels of knowledge, personal values, and the availability of products that support sustainable choices (Chwialkowska et al., 2024; Ng et al., 2024). Therefore, organizations need to provide more environmentally friendly product alternatives so that employees' awareness can be translated into more sustainable consumption behavior.

In the Recycling dimension, all indicators were classified as 'very high'. Indicator EA5.3 (I understand that recycling activities can help maintain the environmental sustainability of tourism) received the highest average score of 4.39 ± 0.90, followed by EA5. 2 (I participate in the recycling program implemented by the hotel) at 4.33 ± 0.72 and EA5.1 (I support the waste sorting activities carried out by the hotel) at 4.26 ± 0.86. These results indicate that employees not only understand the importance of recycling but also demonstrate high levels of support and participation in the hotel's recycling program. These findings are consistent with the Pro-Environmental behavior theory, which explains that individuals with a high level of environmental awareness tend to demonstrate tangible behavior that supports environmental conservation. In the hospitality industry, the success of recycling program are highly dependent on the active participation of employees, as they are directly involved in day-to-day operational processes. Therefore, the high scores on the Recycling dimension indicate strong potential to support the implementation of Sustainable Green Tourism practices within the hotel environment.

The results of the descriptive analysis show that the overall level of environmental awareness among employees falls into the 'very high' category, with an average score of

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4.26 ± 0.36. These findings indicate that hotel employees possess a very high level of knowledge, concern and awareness regarding environmental issues related to hotel operational activities. According to the theory of Environmental Awareness, environmental awareness is a combination of an individual's knowledge, values, attitudes, and concern for the environment, which ultimately influences environmentally friendly behavior (Srisathan et al., 2024; Zeng et al., 2023). The high level of environmental awareness found in this study indicates that employees have understood the importance of maintaining environmental sustainability as part of the implementation of Sustainable Green Tourism. This situation also reflects that the various environmental program implemented by the hotel have been able to raise employees' awareness of the importance of resource conservation and environmental preservation.

Based on the dimensions measured, Energy Conservation achieved the highest average score of 4.36 ± 0.39, falling into the 'very high' category. These results indicate that employees demonstrate a very high level of awareness regarding the efficient use of energy whilst carrying out their work activities. This high level of awareness regarding energy conservation may be influenced by various hotel policies that encourage the efficient use of electricity, air conditioning, and other operational equipment. According to Resource Conservation theory, energy efficiency is a strategic step in reducing environmental impact and enhancing organization sustainability. These findings suggest that employees have understood that energy conservation not only provides economic benefits for the company but also contributes to reducing carbon emissions and protecting the environment.

The Recycling Dimension achieved an average score of 4.33 ± 0.66 and fell into the 'very high' category. These results indicate that employees demonstrate a high level of support and participation in the waste sorting and recycling activities carried out by the hotel. This high level of awareness regarding recycling suggests that employees understand the importance of waste management as part of sustainable practices. According to the concept of the Circular Economy, recycling plays a vital role in extending the life cycle of materials, reducing the exploitation of natural resources, and minimizing the amount of waste ending up in landfill.

Furthermore, the Consumerism dimension achieved an average score of 4.23 ± 0.52, which falls into the very high category. These results indicate that employees demonstrate a high level of awareness when considering the environmental impact of product use and resource consumption in the course of their work. Awareness of responsible consumption patterns is a key aspect in supporting the sustainability of hotel

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operations. According to Green Consumerism theory, individuals with high environmental awareness tend to consider the ecological impact of every consumption decision they make. In the context of the hospitality industry, responsible consumption behavior can be realized through the use of environmentally friendly products, reducing the use of single-use items, and utilizing resources more efficiently.

Although still in the high category, the Waste Avoidance dimension received an average score of 4.20 ± 0.64, which is relatively lower than the other dimensions. This finding indicates that waste reduction efforts remain an area requiring further attention. According to the Waste Management Hierarchy, the most effective strategy in waste management is to prevent waste generation at the outset, before reuse or recycling takes place. Therefore, a high score in this dimension serves as a positive indicator that a culture of sustainable waste management has developed within the hotel's working environment. The findings of this study suggest that, although employees understand the importance of waste reduction, there is still room for improvement in the adoption of behaviors that directly reduce the use of materials and products likely to generate waste. Therefore, hotels need to continue strengthening their educational programmes and waste reduction campaigns to raise awareness and encourage employee participation.

The dimension with the lowest mean score was 'Transportation and Mobility' at 4.19 ± 0.81, although it still fell within the 'high' category. In addition to having the lowest mean score, this dimension also exhibited the highest standard deviation compared to the other dimensions, indicating greater variation in perceptions amongst respondents. This finding suggests that awareness regarding the use of environmentally friendly transport and the reduction of carbon emissions is not yet fully widespread among all employees. According to the theory of Sustainable Mobility, the successful implementation of sustainable transport is influenced not only by individual awareness but also by organizational support, company policies, and the availability of supporting infrastructure (Achmad et al., 2023; Elshaer et al., 2024). Therefore, hotel management may consider developing sustainable transport program, such as carpooling, providing more efficient staff transport, or launching carbon emission reduction campaigns to raise staff awareness regarding sustainable mobility.

CONCLUSION

This study concludes that employees at a five-star hotel in Nusa Dua, Bali, demonstrate a very high level of environmental awareness, with an overall average score of 4.26 ± 0.36. Of the five dimensions, Energy Conservation recorded the highest score,

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followed by Recycling and Consumerism, whilst Transport and Mobility recorded the lowest score, although it still fell within the high category.

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