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Green Practices of Star Hotels in Greater Hyderabad Municipal Corporation: A Study on Consumer Perspectives

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A B S T R A C T

The aim of this paper is to investigate the relationship between consumer perception and their attitude on green practices of star hotels in Greater Hyderabad Municipal Corporation (GHMC) and willingness to pay for it. This paper analyses data collected from 147 star hotel consumers across GHMC to gain insight into consumer perceptions and attitudes towards green practices and their willingness to pay. First, a factor analysis and an ordered logit regression analysis are applied to obtain the value of willingness to pay and determine the factors influencing it. The findings illustrate that there is an unfilled market niche for 'Green' in star hotels, as consumer cares about star hotels that protecting the environment and would be willing to pay more to offset any additional costs associated with green practices.

1. Introduction

Consumer's demand on green practices in hotels helps in gaining competitive advantage for hotels. The positive image of the hotel helps them in many ways. One of the benefits is to attract the consumer (Graci & Dodds, 2008). There are many people in the society with strong belief towards the environment-friendly policies and activities. They not only show interest in policies and practices related to environmental protection, but they also purchase the products and participate in the activities which have very less or negligible negative impact on the environment (Maineri et al., 1997).

According to Foster, Sampson and Dunn (2000) and Lynes and Dredge (2006), consumers have pressurised the hospitality management to be more environmentally friendly. A Scandinavian airline revealed that there are three aspects which encourage adopting more environmental practices. They include interest of the passenger, better image and competitive advantage over other airlines. Service organisations such as ski resorts restaurants which implemented green practices are also encouraged by consumers. They are the pushing factors for environmental friendly practices (Foster et al., 2000). For a successful hotel industry, consideration of perceptions, attitudes, and voluntariness in paying higher charges for green practices from the consumer is important. Hence, it can be clear for hotels on what steps can be taken towards 'greening' their hotels.

The studies conducted till now reveal some contradictory views regarding the influence of demographic profile of consumers on purchase of green products. According to Straughan and Roberts (1999), the younger generations have good knowledge about the environment-friendly practices and they are more concerned about the environment. Haanpää

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(2007) gives a contradictory conclusion to the above statement that the commitment of the young generations is very less towards the green initiatives. Studies by Lyons and Breakwell (1994), Arbuthnot and Lingg (1975) found that the wealthy people of the society with better income and upper social classes are showing concern for environmental depletion. In view of Haanpää (2007) there is no significant statistical difference between people with significantly more income levels and environmental concern. So it is essential on the part of the hotel management to know the willingness of the consumer for paying premium charges for the hotel rooms which are adopting green practices.

This study sought to address these gaps by generating qualitative and quantitative data on the experiences of consumer on green practices of star hotels in GHMC. The following second section provides a review of literature on perception and attitude of consumer, their willingness to pay and socio economic conditions related to green practices. Section three outlines the methodology while section four describes the results. Finally section five discusses the policy implication, suggestion and conclusion.

2. Green Practices of Hotel: A Review on Consumer

2.1: Perception of Consumer on Green Practices

The Corporate Social Responsibility (CSR) efforts of many hotels are highlighted on sustainable development. They are usually familiar and environment friendly. Levy and Duverger (2010) try to look from a holistic viewpoint of consumer perceptions on CSR. It was found that the green practices have been influenced by key marketing effects such as satisfaction, retention, and positivity and price rewards. It was suggested that the hotels must adopt and advertise in order to promote the practice of CSR in a step by step process for toughening bonds with their consumers.

In a study aimed to discover consumer attitudes, purchasing behaviours, and willingness to pay for environmentally friendly practices, Manaktola and Jauhari (2007) concluded that products and services must be similar in order for a guest to patronize the green hotel over non-green hotel. This shows that guests would not choose a hotel simply because it is implementing green practices. In addition, the hotels must offer similar service levels and cost effective products related green practices. Of the guests who were willing to pay more, the majority felt they could pay up four to six percent more for the green initiatives (Manaktola & Jauhari, 2007). This shows the willingness to pay more by some guests, for the use of services provided by the organizations that take the initiative to implement green practices as long as the organization takes responsibility to pay for some of these changes as well.

Further, Dutta et al. (2008) say that consumers in the U.S support green practices and voluntarily pay up to ten percent higher charges. The situation in India is quite different. The consumers in India are more concern about health. It is also found that consumers in the U.S. voluntarily pay higher charges while consumers in India do not. Many hotel chains are setting

standards and taking initiatives to turn into more environmentally friendly, but some hotels are not willing to implement these practices without seeing increasing demand by consumer on green practices (Kasim, 2004). A study by Chan (1999) concluded that information and knowledge in relation to environmentally friendly practices are significant predictors of actual environmentally friendly behaviours of consumers.

2.2: Consumer Attitude and Behaviour on Green Practices

To arrive at a synthesis of what is known and of what needs to be known, Olander and Thøgersen (1995) took three main important variables including opportunity, motivation and ability in order to determine the consumer behaviour on handling of waste. Moral and economic aspects are the main concern for change. More psychic and activity of communication are taken for the analysis of behaviour which may be used to bring change.

Kasim (2004) has explained many tourists hesitate to shift even after they came to know that the hotels they are staying are not environmentally friendly. There are only about 28 percent consumers who do not hesitate to shift their hotel in such circumstances. Hence, it is appropriate to draw conclusions from the above study that most of the consumers continue to opt the hotels based on charges, service superiority and physical appearance of the hotel when compared to socio-environmental factors.

2.3: Willingness to Pay (WTP)

Though the purchasing behaviour was influenced by the consumer consideration about CSR of a company including environment friendly practices (Creyer and Ross, 1997; Forte and Lamont, 1998; Mason, 2000), multiple researchers have found that the balance between consumer awareness about CSR and their interest in paying higher charges is not the same all the time (Boulstridge and Carrigan, 2000; Manaktola and Jauhari, 2007). In fact, the balance is multiplex and dependent on the quality of a product, motivation of a company, and characteristics of the consumers (Folkes and Kamins, 1999; Sen and Bhattacharya, 2001).

The social identity theory says that there is a progressive balance between consumer concern on environment and motivation to pay for green activities (Tajfel & Turner, 1986). According to Bhattacharya and Sen (2004), some individuals with certain qualities including durability, uniqueness and competent of increasing their self-esteem can easily connect themselves with the organisation. The connection between consumer and the environment is commonly generated by a company usually through its green policy. Hence, it increases the interest to pay higher charges for green practices (Brown and Dacin, 1997).

The means-end theory (Gutman, 1982) says that a consumer only considers whether or not it gives the maximum desired value to make a decision to buy a product. The self-esteem of consumer can be considered as a driving force to buy a product

or service whose attributes can transmit the spirit of that product or service (Huber et al., 2001). That esteem quality, if presented in green practice, can become a unique quality of that product or service. Manaktola and Jauhari (2007) reiterate that the concern for environment friendly practice is rooted in self-esteem of a consumer. Sen and Bhattacharya (2001) also say buying green products can be considered as self-satisfaction and self-esteem of consumer. Choi et al. (2009) says contrary to the above observation that respondents of Greece maintain more concern about Enterprise Resource Planning (ERP) when compared to the respondents of U.S. It can be concluded that the variations in the socio-cultural background of consumer will influence preferences to pay higher charges for green practices. Implementation of green practices can be charged at the higher rates on the consumers. However, good communicative measures and marketing techniques can be used to convince consumers to pay higher charges.

There are observations which suggest that there are alternative ways in which it can be achieved the positive association between concern of the consumers and willingness to pay higher charges. Creyer and Ross (1997) say that it is the ethics of the organisation which motivate the consumer to pay at the higher prices. According to a study by Roper Starch Worldwide and Cone/Coughlin Communications (1993), eighty five percent of two thousand consumers in the U.S. revealed that if a company is careful enough to care about their consumers, then consumers will not hesitate to pay more. Half of the consumers who are surveyed replied that they are interested to pay higher charges for green products or services.

2.4: Socio-Demographics Variable

There are studies on social and demographic variables viz., marital status, number of children, gender, age, social status and education and the theoretical understanding of the cognizance area related to environment. They may include (i) awareness about green practices, (ii) awareness about environment quality, and (iii) thoughtful behaviour towards environment. Such discrepancies are apparent illustration of the need to examine the contacts between the variables of social and demography and variables of awareness about environmental paradigm.

2.4.1: Gender

Studies have exposed the connection between familiarity about environmental issues and gender which establishes a strong relationship. Many authors are concluding that the knowledge about the environmental issues is more among males than in females. However, a diverse picture comes into sight when female members are identified with higher concern about the environmental protection activities (Davidson & Freudenburg, 1996) and also identified in association with such behaviour (conservation of energy, political activity and recycling). Schahn and Holzer (1990) have pointed out that the differences in patterns of socialization of boys and girls have resulted in diversely developing behavioural pattern towards environment.

2.4.2: Marital status

Few studies have made observations about the impact of marital status related to environment. It is found that there is almost no such impact. At this point, it can be noted that generally there was no emphasis on this direction (Neuman, 1986). However, two among the three major studies which tried to expose the connection between marital status and knowledge about environment have failed to show any clues (Honnold, 1981; Neuman, 1986). One of them is in UK. It has been found that there is more concern about environment among married people. When it comes to behaviour, two out of the three studies found that green behaviour is more among married people than those who are singles. In clarifying the perceived relations, Macey and Brown (1983) support that spouses may be a key social referent in coaxing environmental awareness. Moreover, the cultural or lifestyle influences of marriage may have an effect on greenness of an individual. Thus, factors such as home ownership, social background and other family members are likely to play a significant role in environmental protections and conservations (Neuman, 1986).

2.4.3: Age

Multiple studies have examined age and environmental consciousness to know whether there is any dependency between these two variables. However, two studies were able to trace out important connections. Arcury et al. (1987) revealed that there is a higher level of knowledge among the younger population than older. The result is that it is nothing but a negative relationship. The justifying factor for this result is that the clarifications to the problems of the environment are most of the time considered to be posing a threat to the ongoing order of the society. It is reasonable to look forward to young and upcoming generation to hold alterations related to environment and acknowledge pro-environmental ideologies more willingly than their elders'' (Van Liere and Dunlap, 1980, Pg. 183). Therefore, a negative association is envisaged between age and the attitudinal element of environmental field.

2.4.4: Number of children

Very few studies have considered number of children and consciousness about environment to find if there is any association between them. Nevertheless, only Grunert (1991) discovered the relation between these variables. According to him, the more the number of children is, the more the concern about the environment. He concluded that "individuals with larger families are likely to have children in school where issues of ecology are discussed. If these discussions are brought back into the home, the parent might sense some pressure to meet the expectations of their children about socially conscious behaviour'' (Brooker 1976: Pg. 111).

2.4.5: Education

An enormous numbers of studies have examined the effect of education on the awareness of environmental protection. With the exclusions of Samdahl and Robertson (1989) (negative effects for both attitudes and self-reported behaviour)

and Arbuthnot and Lingg (1975) (negative effect for self-reported behaviour), studies defined a prominent result which has been consistent i.e. improved education gives way to higher aspects of environment elements. Hence, it is agreed that higher education brings more awareness than any other factor towards environmental protection and so, the highly educated people show more concern about environment.

3. Methodology

The research was designed as an exploratory study of consumer perceptions and their attitude on green practices of star hotels in Greater Hyderabad Municipal Corporation (GHMC) which include both Hyderabad and Secunderabad of Telangana state of India. Consumers who experienced in staying in star hotels in GHMC were requested to participate in the survey. A pilot test was employed to 75 participants before main study had started. Based on comments received from the pilot study, revision of several survey questions clarified the issues. After revision, the final data was collected. Around 450 consumers were approached from different areas of the GHMC. This was important to obtain a heterogeneous sample from different locations of the GHMC in which generalizations to a broader population can be drawn. Data were collected by survey method over a two-month period. Each consumer was given a copy of the survey. Three considerations must be taken into account in ensuring that the instrument captures the desired data from the respondents, they are: the general design of the questionnaire, the validation by pre-testing and methodologies by which the questionnaires were administered (Hair et al., 2007).

The instruments for this study were adapted from various studies and were pre tested before the actual survey was carried out. Using a 5-Point Likert-type scale, the respondent indicated their intensity of agreement anchored by 1, "strongly disagree" through to 5, "strongly agree" and 1, "unimportant" through to 5, "very important" respectively with items phrased. There were 450 surveys administered with 147 useable responses of a 32 percent of response rate. The following section discusses about the results.

4. Results and Discussion:

4.1 Demographic Data Analysis:

The demographic profile of sample consumers of star hotels is presented in table 4.1. Out of our total sample respondents, 71.4 percent are male and 28.6 percent are females. The difference is quite large. However, in order to ensure robustness in multivariate or other data analysis techniques, even with unequal sampling, and a few dependent variables, a sample size of 20 in the smallest cell would prove to be sufficient (Mardia, 1971). Most of the participants are between 21 and 30 years (36.7 percent) and between 31 and 40 years (36.1 percent) old. Nearly 20 percent of the participants are between 41 and 50 years and 4 percent are more than 50 years old. The sample also signifies that majority of the respondents (61.2 percent) are married while 37.4 percent are single. A small percentage of respondents (1.4 percent) are divorced. On education front,

nearly 45 percent of respondents have different professional qualification while 30.6 percent have completed post graduate. 13 percent respondents have graduated while others including both college education and high school or less are 11.6 percent. Most of the respondents are employed (56.5 percent). Nearly thirty percent of the respondents are self-employed followed by studying and training (17 percent), retiree (0.7 percent). The respondents come under different income group. Their monthly income varies from less than INR 25,000 to INR 1, 00,000 per month. On nationality, majority of respondents (84.4 percent) are Indians while 15.6 percent of respondents are from other countries.

The respondents are also asked about their decision and purpose to stay in a star hotel and its frequency. According to them, decision to stay in a hotel is made by themselves (36.7 percent) followed by family (24.5 percent) and business associate (23.8 percent) and friends (23.8 percent). The main purpose to visit a star hotel is holiday or leisure (38.8 percent) followed by business (30.6 percent), education (14.3 percent) and visiting friends and relatives (9.5 percent). When reporting how many times they have stayed in a star hotel in the past one year, the majority (40.8 percent) state that they have stayed one to two times, 34 percent for 3-5 times but 21.1 percent has stayed more than 6 times.

Table-4.1: Demographics of Respondents (N = 147)

S. No.	Particulars	Variables	Frequency	Percent
1	Gender	Male	105	71.4
		Female	42	28.6
2	Age	<20	4	2.7
		21-30	54	36.7
		31-40	53	36.1
		41-50	30	20.4
		51-60	5	3.4
		>60	1	.7
3	Marital status	Single	55	37.4
		Married	90	61.2
		Divorced	2	1.4
4	Education	High School or Less	5	3.4
		College Education	12	8.2
		Graduate	19	12.9
		Post Graduate	45	30.6
		Professional Qualification	66	44.9
5	Current Occupation	Studying or Training	25	17.0
		Employed	83	56.5

		Self-Employed	38	25.9
		Retired	1	0.7
6	Monthly income(INR)	<25000	23	15.7
		25001-50000	36	24.5
		50001-75000	37	25.2
		75001-100000	28	19.0
		>100000	21	14.3
7	Nationality	Indian	124	84.4
		Others	23	15.6
8	Who made the decision	Business Associate	35	23.8
		Friend	22	15.0
		Family	36	24.5
		Self	54	36.7
10	Main purpose of visit	Holiday or Leisure	57	38.8
		Business	45	30.6
		Visiting Friends or Relatives	14	9.5
		Education	21	14.3
		Other Purpose	10	6.8
11	No of times staying in a hotel in a year	0	6	4.1
		1-2	60	40.8
		3-5	50	34.0
		>6	31	21.1

Source: Field survey (2015)

4.2: Factor Analysis

Factor analysis is done to detect the important areas where factors account for eigen values with the inclusion of more than one become incorporated in the model. Participants' assessment of goods and materials is subject to principal component analysis along with varimax rotations. This will facilitate to decrease amid the items latent multicollinearity and also increase trustworthiness on the type of data. In order to find out the internal consistency of every dimension, the coefficient alpha is calculated for every aspect.

4.2.1: Factor Analysis Results on Consumers' Perception

The factor analysis and reliability test for consumer perception on green practices is presented in table 4.2. In consumer perception, eight factors are loaded. The 24 items of consumer perception are decreased to eight orthogonal factor

dimensions which explain 69.97 percent of general variance. From this, we understand the fact that variance of the fundamental value is taken reasonably by these eight factors. The first factor explains 20.749 of whole variance with 4.980 as its Eigen value. The second factor explains 11.823 of whole variance with 2.837 as its Eigen value. The third factor explains 9.559 of the whole variance with 2.294 as its Eigen value. Similarly for fourth factor, variance is 7.163, Eigen value is 1.719; for fifth factor, variance is 5.839 and Eigen value is 1.401, for sixth factor variance is 5.728 and Eigen value is 1.375, for seventh factor, variance is 4.705 and Eigen value is 1.129 and for eight factor, the variance is 4.412 and Eigen value is 1.059. When loading less than 0.50 were excluded, the analyses of eight-factor with a simple structure (factor loading => 0.50) are explained in the following.

Five items of consumer perception loaded on to factor 1 which is labelled as "factor 1 of social responsible, performing environmental practices, willing to reside at a green hotel while on journey, planning to reside at a green hotel while on journey and taking part in existing habits suggested by a hotel in which I am residing".

Similarly four items of consumer perception on green practices of hotel industry loaded onto factor 2 is labelled as "factor 2 of my family as well as relatives, friends and my colleagues think I must reside at a hotel that maintains green practices while I am on a journey and my school/company/others that pays the expenses of my travel motivates me to reside at a hotel that maintains green practices".

The three items that loaded on to factor 3 is labelled as "factor 3 of cutting cost, hotels' responsibility to support the preservation of costs and hotels are basically helping to the adverse effects on the environment".

In the same way, the three items that loaded onto factor 4 is labelled as "factor 4 of frequently using the green or blue box (bag) for purpose of recycling, purchase of materials which can be recyclable and frequent purchase of disposable products e.g. plastic forks, spoons and knives or styrofoam cups".

By the same token, three items loaded for factor 5 is labelled as "factor 5 of expensive green hotel, time and endeavour in search for a green hotel and convenient location for green hotel".

The two items for factor 6 of consumer perception on green practices related to getting a certificate and government regulations. This factor is labelled as "factor of getting a certificate and government regulation".

One item for factor 7 identified that I will attempt to reside at a green hotel while on journey. This is labelled, "factor 7 of making an effort to reside at a green hotel while on journey".

Items for factor 8 represented consumer perception of green practices on eating fresh and healthy foods. This factor is labelled as "factor of eating fresh and healthy foods".

Table-4.2: Result of Factor Analysis and Reliability Test on Consumers' Perception of Green Practices

Items	Component							
	1	2	3	4	5	6	7	8
1i. Fresh and healthy food should be eaten								.860
1ii. To become socially more accountable	.632						-.370	
1iii. Perform environmental practices	.756							
2i. My relatives as well as family feel that while on journey, I must reside at a hotel that maintains green practices		.855						
2ii. My friends believe that while on journey, I must reside at a hotel that maintains green practices		.896						
2iii. My colleagues (or co-workers) think while on journey, I must reside at a hotel that maintains green practices		.878						
3i. Residing at a hotel that maintains green practices is very costly					.671	.308		
3ii. While on journey, searching for a hotel that maintains green practices requires time and endeavor					.736	.320		
3iii. Locating a hotel that maintains green practices must be easy					.715			
3iv. My school/company/others which makes payment for expenses of my travel and motivate me to reside at a hotel that maintains green practices		.520		.309				
4i. While on journey, I want to reside at a hotel that maintains green practices	.817							
4ii. While on journey, I plan to reside at a hotel that maintains green practices	.761						.422	
4iii. While on journey, I will attempt to reside at a hotel that maintains green practices							.879	
5i. I time and again utilize the green or blue box (bag) for the purpose of recycling				.715				
5ii. When I purchase something covered, I frequently examine if it is covered with material that can be recyclable.				.736			.306	
5iii. I often purchase disposable products(e.g. plastic spoons, knives, and forks or styrofoam cups)				.764				
6i. To cut costs of energy and water bill and reuse of towels			.635					
6ii. A company's "green" attitude						.337		
6iii. Marketing			.409		.452	-.416		
6iv. To get a certificate	.364					.688		
6v. Government regulations						.778		
7i. I participate in existing habits suggested by a hotel in which I am residing e.g. not changing towels and bed sheets on a daily basis, switching off light while outside the room etc.	.666			.359				
7ii. Supporting the conservation of the environment is essential for hotels.			.848					
7iii. I feel hotels are basically helping to the adverse effect on environment.			.794					
Eigen value	4.980	2.837	2.294	1.719	1.401	1.375	1.129	1.059

Percentage of variance (Total=69.979)	20.749	11.823	9.559	7.163	5.839	5.728	4.705	4.412
Reliability (Cronbach's alpha)	.824	.908	.681	.699	.645	.754		
KMO: .708; Bartlett's test of sphericity; Approx. chi-square: 1477.671; Df: 276; Sig.: .000								

Table-4.3: Result of Factor Analysis and Reliability Test on Consumers' Attitude of Green Practices

Items	Component	
	1	2
i. Training employees for better environmental performance	.563	.474
ii. Informing shareholders, guests, the public, and vendors through visible communications on green practices		.636
iii. Motivating business with service providers which are eco-friendly (i.e. integrated pest management, renewable energy, alternative fuel vehicle)	.772	
iv. Use of sensors or timers for saving electricity during irregular use	.868	
v. Establishing active recycling programme for goods in every part of the hotel	.862	
vi. Establishing a structure for quick discarding of packaged items and creates to decrease wastage		.836
vii. Utilising environmentally accountable cleaners all through the property		.406
viii. Providing least energy-consuming light bulbs in every hotel room	.776	
ix. Offering an alternative for linen reuse to innumerable guests who stay overnight	.731	
x. Having a dynamic structure to identify and fix leakage of water in toilets, shower heads, and faucets.	.814	
xi. Supplying products which are eco-friendly (i.e. organic, low toxicity, and regionally produced)	.614	.353
xii. Participating in environmental affiliation or certification such as ISO 14001	.658	.507
Eigen value	6.105	1.142
Percentage of variance (Total=60.392)	50.877	9.515
Reliability (Cronbach's alpha)	.562	.510
KMO: .898; Bartlett's test of sphericity; Approx. chi-square: 954.424; df: 66; Sig.: .000		

4.2.2: Factor Analysis Results on Consumers' Attitude

The table 4.3 in the above summarises factor analysis and reliability test for consumer attitude on green practices. For consumer attitude, two factors are loaded. The 12 items are loaded to two orthogonal factors dimension, which explain 60.392 of the whole variance. It shows the variance of the original values is taken up properly by these two factors. The first factor explains 50.877 of whole variance with 6.105 as its eigen value. The second factor explains 9.515 of whole variance with 1.142 as its eigen value. The following are the two factors of consumer attitude on green practices.

Nine items for factor 1 represented consumer attitude on green practices is labelled as "factor 1 of consumer attitude on training employees, encouraging business with environmental practices, using of sensors, establishing active recyclable programme, having energy-saving light bulbs, offering a linen reuse programme, detecting and repairing water leakage, providing environmentally friendly products and participating in environmental partnership".

Three items for factor 2 identified consumer attitude on green practices is called factor 2 of consumer attitude on

informing the public, shareholders, guests, and vendors through visible communication on green practices, establishing a structure for quick discard of packaged materials and decreasing waste materials and participating in environmental affiliation or certification such as ISO 14001".

4.4 Willingness to Pay (WTP) of Consumer for Green Practices

The table 4.4 in below is the summaries about willingness to pay (WTP) by star hotel consumers for green practices. 46.9 percent of consumers were totally agreed for willingness to pay for the green practices while 28.6 percent of consumers were partially agree for WTP, 7.5 percent on neutral, 10.9 percent on partially disagree and a very few (6.1 %) consumers were for totally disagreed for WTP. On percentage of WTP, 36.7 percent of consumers were ready to pay 1-5 percent of their bills as extra for green practices, followed by 34.7 percent for 6-10 percentage of their premium and 12.9 percent for 11-15 percentage of their premium, 7.5 percent of consumers for 16-20 percent, 1.4 percent for more than 20 percent while 6.8 percent of consumers for 0 percent of WTP for green practices.

Table-4.4: Summary of WTP by Respondents

Particulars		TD (%)	PD (%)	N (%)	PA (%)	TA (%)
WTP 1: I would pay more to stay at a hotel that is making efforts to be environmentally sustainable i.e. reducing waste, water, and energy as well as less/no harm to the environment.		9(6.1)	16(10.9)	11(7.5)	42(28.6)	69(46.9)
Particulars	0%	1-5%	6-10%	11-15%	16-20%	>20%
WTP 2: I would be willing to pay an extra percentage of my hotel bills to support the hotel's efforts to be environmentally sustainable i.e. reducing waste, water, and energy as well as less/no harm to the environment.	10(6.8)	54(36.7)	51(34.7)	19(12.9)	11(7.5)	2(1.4)

Source: Field survey (2015); TD-Totally Disagree, PD-Partially Disagree; N-Neutral; PA- Partially Agree; TA- Totally Agree

4.5 Inferential Results (Ordered Logistic Regressions Analyses)

Two separate ordered logistic regressions were used respectively to investigate the relationship between consumer perception and attitude and their willingness to pay (WTP) for green practices. Applying a logistic regression model in this study was a reasonable decision since these logistic regressions are a linear probability model where the error terms are not assumed to be continuous, homoscedastic, or normally distributed without a supporting test of equality. The Stata 12 software was used to estimate the regression.

A) Dependent Variables. Two separate models were proposed for two separate dependent variables. The first dependent variable is willingness to pay (WTP) on five point likert scale from 1= totally disagree to 5= totally agree. In the first model, base item of willingness to pay (WTP) is totally agree=5. The second dependent variable for second model is percentage of willingness to pay (WTP) for green practices is on 6 option from 1= 0 percent to 6= More than 20 percent and in the second model of ordered logistic regression, 1-5 percent of willingness to pay (WTP) is base item based on the frequency of the responses.

B) Independent Variables. The factor analysis and reliability test for consumer perception and attitude on green practices were used for analysing correlations between variables which minimise their number into fewer factors explaining much original data in a more economic way. In consumer perception, eight factors and attitude, two factors are loaded respectively. The 24 items of consumer perception are decreased to eight orthogonal factors. Similarly, the 12 items of consumer attitude are decreased to two orthogonal factors.

The name of each independent variable was labelled by using factor number derived from factor analyses. In the first model of ordered logistic regression, the independent variables on the consumer perception are factor 2, factor 3, factor 4, factor 6, factor 7, factor 8 and factor 2 of consumer attitude on green practices in star hotels and gender, age, marital status, education, occupation, income and children.

In the second model of ordered logistic regression, factor 1, factor 2, factor 5, factor 6 and Factor 7 on consumers'

perception and Factor 2 of consumer attitude and demographic variables i.e. gender, age, marital status, education, occupation, income and children are independent variable.

I) Result of Ordered Logistic Regressions Analyses:

Table-4.5: Results of Ordered Logit Model with WTP as Dependent Variable

Ordered logistic regression Log likelihood= -175.82981 Number of obs = 144 LR chi2(13) = 29.66 Prob> chi2 = 0.0085 Pseudo R2 = 0.0778			
Variables	Coefficient	Standard Error	Z statistics
Factor 2	0.303*	0.171	1.77
Factor 3	0.498**	0.200	2.49
Factor 4	0.399**	0.169	2.35
Factor 6	0.193	0.172	1.12
Factor 7	-0.227	0.174	-1.30
Factor 8	-0.226	0.163	-1.39
Factor 2 on Attitude	0.265	0.168	1.58
Gender	0.511	0.480	1.06
Age	-0.014	0.654	-0.00
Marital Status	0.211	0.664	0.32
Education	0.429	0.457	0.94
Occupation	0.066	0.592	0.11
Income	0.178	0.428	0.42
Children	-0.202	0.285	-0.71

***: P<0.01; **: P<0.05; *: P<0.1; Ordered dependent variable willingness to pay: 1) totally disagree 2) partly disagree; 3) Neutral; 4) partly agree; 5: Totally agree

In the above table 4.5, the likelihood ratio chi-square of 29.66 with a p-value of 0.0085 tells us that our model as a whole is statistically significant, as compared to the null model with no predictors. The McFadden pseudo-R-squared is 0.0778.

According to calculated Pseudo R-Square statistics in the above table it can be said that the estimated ordered logit model has a good level of goodness of estimates and independent variables used in the model describe a proportion of change in willingness to pay.

In the above table we see the coefficients, their standard errors, and z- statistics. factor 2, factor 3, and factor 4 on consumer perception are statistically significant whereas factor 6, factor 7, factor 8 on consumer perception and factor 2 on consumer attitude along with gender, age, marital status, education, occupation, income and children are not. So far factor 2, we would say that for a one unit increase in factor 2

we expect a 0.30 increase in the log odds of being in a higher level of willingness to pay (WTP), given all of the other variables in the model are held constant. Similarly a one unit increase in factor 3 and factor 4, we would expect 0.50 and 0.40 increase in the log odds of being in a higher level of WTP respectively, given that all of the other variables in the model are held constant. Factor 6, 7, 8 and factor 2 on consumer attitude along with gender, age, marital status, education, occupation and children did not have significant relationship in their WTP. This indicates that these factors are not influencing on consumer willingness to pay for green practices in hotel industry.

Table-4.6: Results of Marginal effects for WTP Dependent Variable

Variables	Totally Disagree	Partly Disagree	Neutral	Partly Agree	Totally Agree
Factor 2	-0.012	-0.024	-0.014	-0.023	0.075
Factor 3	-0.020	-0.039	-0.024	-0.038	0.123
Factor 4	-0.016	-0.031	-0.019	-0.031	0.099
Factor 6	-0.008	-0.015	-0.009	-0.015	0.048
Factor 7	0.009	0.018	0.011	0.017	-0.056
Factor 8	0.009	0.017	0.011	0.017	-0.056
Factor 2 on Attitude	-0.011	-0.021	-0.013	-0.020	0.066
Gender	-0.024	-0.043	-0.025	-0.032	0.124
Age	0.000	0.000	0.000	0.000	-0.000
Marital Status	-0.008	-0.016	-0.010	-0.017	0.052
Education	-0.016	-0.031	-0.020	-0.038	0.106
Occupation	-0.002	-0.005	-0.003	-0.005	0.016
Income	-0.007	-0.013	-0.008	-0.014	0.044
Children	0.008	-0.016	0.009	0.015	-0.050

To measure the impact of a change in a particular explanatory variable on willingness to pay (WTP), particularly for non- linear models, marginal effects of independent variables should be calculated. Generally, for a specific variable the marginal effects across the five categories must sum to zero. It is also easy to explain marginal effects for non-binary variables. One unit change in the explanatory variable result in an increase or decrease in the predicted probability is the degree of marginal effects keeping all other parameters fixed; on the other hand, the marginal effect signify change in the predicted probability based on whether the respondents falls into the category or not. Finally, the marginal effect gives an idea about the change in the predicted probability for different classes of WTP regarding an average consumer, concerned the particular variable. Table 4.6 highlights the marginal effects for all explanatory variables in the five WTP classes. The marginal effects of factor 2, factor 3 and factor 4 were negative for the first four classes of WTP i.e. 'Totally disagree', 'Partly Disagree', 'Neutral' and 'Partly Agree' where as they are positive for the last classes i.e. 'Totally Agree'. Thus factor 2, 3, and 4 in all likelihood are totally agreed for WTP on green practices in the star hotels.

II) Result of ordered logistic Regressions Analyses:

Table-4.7: Results of Ordered Logit Model with Percentage of WTP as Dependent Variable

Ordered logistic regression			
Log likelihood= -193.25499			
Number of obs = 144			
LR chi2(13) = 29.20			
Prob> chi2 = 0.0061			
Pseudo R2 = 0.0702			
Variables	Coefficient	Standard Error	Z statistics
Factor 1	-0.167	0.151	-1.10
Factor 2	0.401**	0.170	2.35
Factor 5	0.313**	0.152	2.05
Factor 6	0.222	0.162	1.37
Factor 7	0.227	0.162	1.40
Factor 2 on Attitude	0.285*	0.166	1.71
Gender	0.221	0.454	0.49
Age	0.907	0.632	1.43
Marital Status	1.640**	0.816	2.01

Education	0.433	0.402	1.08
Occupation	0.865	0.544	1.59
Income	-.386	.387	-1.00
Children	2.091**	0.869	2.41

1) 0 percent; 2)1-5 percent; 3) 6-10 percent; 4) 11-15 percent; 5: 16-20 percent; 6) More than 20 percent; ***: P<0.01; **: P<0.05; *: P<0.1

Similarly, in above table 4.7, factor 2, factor 5 on consumer perception and factor 2 on consumer attitude along with marital status and children are statistically significant. So for factor 2 and factor 5 we would say that for a one unit increase in factor 2 and factor 5 on consumer perception we expect a 0.40 and 0.31 increases in the log odds of being in a higher level of WTP

respectively, given all of the other variables in the model are held constant. Similarly a one unit increase in factor 2 on attitude, we would expect a 0.28 increase in the log odds of being in a higher level of WTP, given that all of the other variables in the model are held constant. The above results also reveal a significantly positive relationship between being married and percentage of WTP, explaining married consumers are more likely to pay higher prices for green practices in star hotels. The same interpretation can also be cited for consumer having children. Factor 1, 6, 7 along with gender, age, education, occupation and income did not have significant relationship in their different percent of willingness to pay. This indicates that these factors are not influencing on consumers' willingness to pay for green practices in star hotels.

Table-4.8: Results of Marginal effects for Percentage of WTP as Dependent Variable

Variables	0 %	(1-5)%	(6-10)%	(11-15)%	(16-20)%	>20%
Factor 1	0.007	0.032	-0.013	-0.015	-0.009	-0.001
Factor 2	-0.018	-0.078	0.033	0.036	0.023	0.003
Factor 5	-0.014	-0.061	0.026	0.028	0.018	0.003
Factor 6	-0.010	-0.043	0.018	0.020	0.012	0.002
Factor 7	-0.010	-0.044	0.018	0.020	0.013	0.002
Factor 2 on Attitude	-0.013	-0.055	0.023	0.026	0.016	0.002
Gender	-0.010	-0.043	0.019	0.019	0.012	0.002
Age	-0.040	-0.172	0.060	0.085	0.057	0.010
Marital Status	-0.070	-0.294	0.075	0.151	0.116	0.021
Education	-0.018	-0.083	0.028	0.041	0.027	0.004
Occupation	-0.052	-0.159	0.096	0.069	0.040	0.006
Income	0.019	0.074	-0.036	-0.034	-0.020	-0.003
Children	-0.128	-0.348	0.172	0.168	0.0114	0.020

The marginal effects of factor 2 and factor 5 along with marital status and children were positive for the 6-10 percent, 11-15 percent, 16-20 percent; >20 percent of WTP while they are negative for 0 percent, 1-5 percent for the two other classes. This indicates consumer with higher scale for the above indices fall into higher categories of WTP. While consumers with lower scales of factor 2 and 5 on consumer perception and factor 2 on consumers attitude would pay a lower price or would not pay a premium for green practices in star hotels.

The marginal effect for marital status dummy variable indicated that married consumers were more likely to be willing to pay higher price more than 10 percent and were less likely to be willing to pay no or small premium i.e. less than 10 percent. The same explanation can be cited for consumers having children also. Couples having children were more likely to pay higher than 10 percent WTP for green practices in star hotels.

5. Conclusion and Policy Implication

The high level of green consciousness noted in the context of GHMC of Telangana is very interesting. Hospitality firms want to consider implementing green practices in their businesses and communicating what they have done so as to gain greater consumer patronage and eventual greater consumer

loyalty. A closer examination reveals that consumers in India are concerned more about energy and water conservation than recycling. In case of willingness to pay, most of the consumers are willing to pay of 1-5 percent of their menu for green practices.

Statistical results through principal component analyses and ordered logistic regression analyses strongly indicated that star hotel consumers in India have a high degree of green practice (GP) consciousness. In terms of willingness to pay on different percentage terms, a larger number of consumers were ready to pay 1-5 percent followed by 6-10 percent of their bill. The factor 2 and factor 5 on consumer perceptions and factor 2 on consumer attitude for green practices in star hotels with marital status and number of children have a significant influence in their different percent of willingness to pay (WTP) for green practices. Interestingly, we also found that willingness to pay of Indian consumer on green practices was highly correlated with their perceptions (loading to two, three, four factor) for star hotels irrespective of gender, age, education, income.

Future research in this area may include different types of green practices and consumer behaviours to support them. Future research may also include other service industries such as banking, healthcare, education, insurance, or industries that

manufacture such things as fertilizers, automobiles, appliances, electrical devices, and computers. For the current study, the data were collected only on star hotels consumers in GHMC. Thus, expanding this research to small and budget hotels with different part of India may reveal significant differences in consumers' attitudes, behaviours, involvement in green practices and their willingness to pay for such practices.

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