Operational Research in Engineering Sciences: Theory and Applications
Vol. 6, Issue 1, 2023, pp. 236-251
ISSN: 2620-1607
eISSN: 2620-1747
DOI: https://doi.org/10.31181/oresta/0601123

EFFECTS OF GREEN OPERATIONAL PRACTICES AND E-CRM ON PATIENT SATISFACTION AMONG INDONESIAN HOSPITALS: EXPLORING THE MODERATING ROLE OF GREEN SOCIAL INFLUENCE

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Received: 17 January 2023
Accepted: 26 March 2023
First Online: 15 April 2023

Research Paper

Abstract: *This study aims to investigate the implementation of environmentally friendly operational practices in the healthcare industry. Green operational practices or sustainable practices are acquiring widespread attention in manufacturing and other production-related industries. However, its application in the healthcare sector is still in its infancy, making this study an important addition to the existing body of knowledge, as very few studies have previously investigated the role of green operational practices in a healthcare context. The study analyzed the role of green building, eco-design, green supply chain, and green innovation in determining patient satisfaction by analyzing data collected from hospital administration and patients in Indonesia. All four dimensions of green operational practices positively correlate with patient satisfaction. In addition, the study discovered a correlation between E-CRM practices and patient satisfaction. In addition, the moderating role of green social influence was examined and found to be a positive moderator in the relationships between all four dimensions okokof green operational practices and patient satisfaction, as well as the relationship between E-CRM and patient satisfaction. The study's findings provide valuable insights into the management of the healthcare sector.*

Keywords*: Green operational practices, sustainability, healthcare sector, E-CRM.*

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1. Introduction

In the past, unlike other industries where customer satisfaction was always the top priority, the healthcare industry neglected the importance of patients as customers and endeavors to determine their level of satisfaction (Donahue et al., 2008). However, due to the high level of competition in the healthcare industry, attracting and retaining more consumers has become imperative. This can only be accomplished by ensuring customers/patients receive the highest hospital service satisfaction. Patient satisfaction and customer loyalty determine the efficacy of healthcare service delivery (Chakraborty, Sashikala, & Roy, 2022). One method to increase customer satisfaction is to assess the environment's changing needs and adopt new technologies to meet those needs. Today's consumers are well aware of the ever-changing nature of their environments and are more inclined to patronize businesses that adapt their systems and processes accordingly. Recent environmental protection and sustainability concerns, known as "green practices," have garnered considerable attention. Given the threat that organizations pose to climate and the environment, it has been observed that an increasing number of organizations are adopting sustainable/green operational practices to streamline their processes and eliminate any hazardous/wasteful step in the process of production or service delivery (Thomas et al., 2023).

Additionally, the healthcare industry is progressively adopting these sustainable practices to provide services in an environmentally responsible manner (Migdadi & Omari, 2019). If an organization's values align with the customer's values, it is more likely that the customer will derive optimum satisfaction from the services they receive from that organization. The same can be said for the healthcare industry, where patients seek high-quality healthcare services from hospitals that operate responsibly without posing a grave environmental hazard. This study seeks to investigate the impact of green operational practices on patient satisfaction within the context of the Indonesian healthcare sector. Four components of green operational practices, including green buildings, eco-design, green supply chain, and green innovation in hospitals, are investigated based on the recommendations of Nunes and Bennett (2008). The purpose of CRM practices is to satisfy the customers' requirements and maintain long-term relationships (Al-Bashayreh et al., 2022), so the study also intends to investigate the role of E-CRM in achieving patient satisfaction. In addition, the study intends to examine the moderating effect of green social influence on the association between various green operational practices and patient satisfaction. Numerous studies have been conducted on green operational practices and E-CRM in the manufacturing sector. However, its repercussions on the healthcare industry have received insufficient attention (McDermott & Stock, 2007; Migdadi & Omari, 2019; Thomas et al., 2023). Therefore, this study contributes substantially to the relevant body of literature.

2. Literature Review

2.1 Green Operational Practices in Healthcare

All enterprises and organizations operate within an economy embedded within a society embedded within an ecological system. Therefore, these systems are interdependent in that they can hinder or benefit each other, and there is a need to strike a balance between them to promote growth and well-being (Nunes & Bennett, 2008). In the past two decades, there has been a heightened emphasis on the issue of

sustainability due primarily to the obvious negative effects of accelerated industrialization, such as climate change, resource depletion, etc. Businesses are implementing "green" practices to reduce potential environmental, societal, and economic damage. Sustainability and the popular buzzword "green" are used interchangeably. Green operational strategies and practices are "practices that contribute to the enhancement of environmental performance in the firm's operations" (Thomas et al., 2023). These practices are essentially meant by which an organization can improve its sustainability impact. Green operational practices provide an organization with guidelines and a framework for prioritizing sustainability in its service delivery, supply chain management, innovations, and overall operations (Nunes & Bennett, 2008).

Much of the previous literature on sustainability in general and green operational practices has focused on the manufacturing sector, whereas its role in the healthcare sector is grossly understudied (McDermott & Stock, 2007; Migdadi & Omari, 2019; Thomas et al., 2023). According to organizations such as the World Health Organization (WHO), "the health sector's initial efforts should include simple changes to hospital architecture, environmentally friendly waste management, the use of safer chemicals, water, and energy conservation measures, and the purchase of environmentally friendly goods" (Thomas et al., 2023). Like other industries, healthcare uses natural resources and generates waste that is sometimes more hazardous than other industries. Therefore, green or sustainable operational practices in healthcare would involve efficient utilization of resources, proposal disposal of waste, recycling of materials whenever possible, minimizing emissions, and utilizing sustainable sources of energy to minimize the negative environmental and social impact without compromising the quality of patient care service (Chakraborty et al., 2022; Migdadi & Omari, 2019). The primary goal of green operational practices is to maximize environmental and social benefits at the lowest possible cost. In this study, the green operation practices proposed by Nunes and Bennett (2008) were utilized to determine the level of green practices implemented in the healthcare industry. In their study, Nunes and Bennett (2008) emphasized the significance of green operational practices, including green buildings, eco-design, green supply chain, reverse logistics, and innovation. In the automotive industry, they investigated these dimensions. This study seeks to investigate the same factors, except for reverse logistics in the healthcare industry. This contributes to the literature as there has been little research on green operation practices in the healthcare sector.

2.2 Green Building

Green building construction is one of the green operational strategies identified by Huang (2011); Nunes and Bennett (2008). Green buildings are constructed through the efficient use of resources, are ecological in their design, and are intended to create a healthy and sustainable interior environment. Due to waste disposal, energy consumption, water usage, and other harmful emissions, hospital construction presents environmental and human health risks (Campion et al., 2016). The construction of hospital buildings must therefore integrate green or sustainable practices (Thomas et al., 2023). Accessibility to the building for the general public and hospital personnel and adequate parking spaces for everyone are among the various aspects of constructing a green building. It also involves incorporating energy

conservation mechanisms and utilizing alternative/more sustainable energy sources, such as solar-powered electricity generation (Setyowati, Harani, & Falah, 2013). In addition, the building's structure and design should allow for the installation of glass curtain walls that maximize the use of natural light. Aside from that, the hospital building should be equipped with moving sensor systems for artificial lighting that conserve energy when no one is present. In addition to natural or artificial lighting, the hospital should be designed with multiple windows that provide staff, patients, and visitors with views of the outdoors. There is a need to ensure that the indoor environment of the hospital is peaceful, i.e., noise cancellation systems should be installed so that patients can rest undisturbed. In addition, a proper waste management system should be in place to responsibly dispose of waste and effluent while consuming minimal energy resources (Campion et al., 2016). The relationship between green operational practices and patient satisfaction has been demonstrated by prior research (Chakraborty et al., 2022). Patient satisfaction is "the extent to which a patient's feelings and cognitive evaluation of a service are favorable" (Chakraborty et al., 2022). The efficacy of service delivery can be measured by the satisfaction of the service's consumers. Introducing sustainability into hospital operations through measures such as the construction of green structures can positively affect patient satisfaction with the service. The following hypothesis is therefore proposed:

H1: *Green operational practices like green buildings are positively associated with patient satisfaction.*

2.3 Eco-design

"Eco-design refers to integrating environmental considerations into product design and development" (Assumpção et al., 2022). According to Gao et al. (2021), eco-design is one of the most essential aspects of green operations practices. It entails a comprehensive analysis of the product's lifecycle to produce an eco-friendly, sustainable product using sustainable processes (Soh & Wong, 2021). Recycling, reuse, and remanufacturing of products and materials whenever possible, eradication of environmentally hazardous materials from all stages of production and product lifecycle, the existence of systems to reduce gas emissions, efficient and sustainable process of waste disposal, and minimization of the cost of waste disposal are its fundamental components (Chakraborty et al., 2022; Migdadi & Omari, 2019; Nunes & Bennett, 2008; Stekelorum et al., 2021). In addition, eco-design necessitates that stakeholders' expectations be considered when designing new products or service delivery methods. This maximizes stakeholder satisfaction and customer loyalty (Assumpção et al., 2022). The concept of eco-design has been examined in the manufacturing and automotive industries, but its application in the healthcare industry has not yet been investigated. This study proposes, based on the preceding discussion, that eco-design in hospitals, including all of its components such as recycling, reusing, hazardous and non-hazardous waste management, and controlled gas emissions, are major contributors to green operations practices in the healthcare sector and can positively impact patient satisfaction. The following hypothesis is therefore proposed:

H2: *Green operational practices such as eco-design are positively associated with patient satisfaction.*

2.4 Green Supply Chain

A green supply chain considers environmental concerns and sustainability in the relationship with suppliers (Nunes & Bennett, 2008). Organizations incorporating the green supply chain make purchasing decisions and maintain long-term relationships with suppliers based on environmental considerations and sustainability. It eliminates waste throughout the supply chain (Muduli & Barve, 2012). The advantages of a green supply chain include sustainability throughout the entire supply chain, cost-effectiveness, and a reduction in detrimental environmental and social impacts (Thomas et al., 2023). The concept of a sustainable supply chain applies to the healthcare industry. The hospitals that intend to adopt green operational practices must evaluate their suppliers' commitment to sustainability. This involves analyzing and auditing environmental concerns/ sustainability policies, certifications, and their overall environmental impact. In addition, hospitals should have a screening mechanism to ensure that only inputs and materials from suppliers that satisfy the hospital's environmental protection and sustainability standards are purchased (Assumpção et al., 2022). Few studies have examined green operational practices in green supply chains (Kumar, Chattopadhyaya, & Sharma, 2013; Perotti et al., 2012). However, green supply chain research in the healthcare sector is limited (Thomas et al., 2023). This study hypothesizes that a green supply chain in hospitals can significantly impact their overall sustainability, thereby contributing to customer satisfaction. The following hypothesis is therefore proposed:

H3: *Green operational practices such as green supply chain has a positive association with patient satisfaction.*

2.5 Green Innovation

Adopting sustainable practices in any organization necessitates the innovation-driven transformation of processes. Anser, Yousaf, and Zaman (2020) and Khan et al. (2021) note that the global shift towards sustainable practices in response to the hazardous impacts of environmentally degrading processes resulting in issues such as climate change has made it imperative for organizations to shift from their traditional methods of operations and move towards green operational practices. Green innovation is essentially the restructuring, remodeling, and rethinking of environmentally good business processes and products (Shahzad et al., 2022). Ma et al. (2018) define green innovation as "the production, application, or exploitation of a product, service, process, organizational structure, management, or business method that is novel to the firm and reduces environmental risk." Green innovation may be technological or non-technological (Hilkenmeier, Fechtelpeter, & Decius, 2021). The technological aspect of green innovation entails innovations in products/services and processes that enhance energy conservation, prevent pollution, and conserve natural resources (Khan et al., 2021; Xie, Hoang, & Zhu, 2022). At the same time, non-technological innovation includes management style innovation and structural innovation, such as strategies related to sustainability, quality management, and green marketing (Klein, Spieth, & Heidenreich, 2021). Chen, Lai, and Wen (2006) provide an additional definition of green innovation. Green innovation is defined as "hardware or software innovation related to green products or processes, including innovation in technologies involved in energy conservation, pollution prevention, waste recycling, green product designs, or corporate environmental management," according to the

authors. The concept of green innovation has been extensively studied in the manufacturing sector, whereas research on green innovation in the healthcare sector is scant. Consequently, the present study investigates the role of green innovation in hospitals in determining patient satisfaction. Consequently, the following hypothesis is advanced:

H4: *Green operational practices such as green innovation are positively associated with patient satisfaction.*

2.6 E-CRM

Today's markets are extremely dynamic and competitive, so businesses/brands continuously try to acquire new customers and retain existing ones. The management of consumer relationships is one such endeavor. CRM, or customer relationship management, is "a marketing management activity that focuses on implementing techniques with the sales team to achieve customer loyalty and produce positive results for businesses." These techniques encompass the conventional marketing axes (marketing, sales, and services)" (Sulaiman, 2023). CRM is used to establish long-term relationships with customers through traditional and digital channels to maintain customer loyalty and brand trust (Dewnarain, Ramkissoon, & Mavondo, 2021; Ngo & Vu, 2021; Sofi et al., 2020). CRM is designed to collect and store customer records to stay in contact with them and provide personalized services to increase customer satisfaction. When CRM is performed through digital/electronic means, it is referred to as E-CRM, eliminating the communication issues associated with conventional methods. E-CRM enables a more personalized/customized interaction (Al-Bashayreh et al., 2022). CRM's sole purpose is to add value to the brand's customer relationship to increase customer satisfaction (Galvão et al., 2018).

In the context of healthcare services, customer relationship management (CRM) can be defined as "an approach to learning about patients in order to communicate appropriately and to build good relationships in order to deliver timely information, with the patient's results tracked in order to make necessary adjustments" (Baashar et al., 2020). Hospitals can cater to patients' unique requirements through CRM, gain their loyalty, provide superior services, and establish lasting relationships. While numerous studies on E-CRM have been conducted in the manufacturing, finance, and services sectors in the past, this is the first to focus on the public sector. Insufficient research has been conducted on its implications for the healthcare industry. Therefore, this investigation aims to contribute to the relevant literature.

H5: *E-CRM has a positive association with patient satisfaction.*

2.8 Green Social Influence

Venkatesh, Thong, and Xu (2012) state that social influence is "the extent to which an individual perceives that influential others believe he or she should use the new system." The opinions, perceptions, and suggestions of a person's social circle influence his or her decision to attempt and adopt something new, including innovative technologies. An individual will likely have a favorable attitude toward a product/service or action if members of his/her social circle perceive it to be useful, productive, and beneficial and have already adopted/are using it (Anser et al., 2020; Ashfaq et al., 2021). Empirically tested theories such as TRA and TAM have repeatedly demonstrated that social influence, also known as social norms or subjective norms,

positively and significantly influences the adoption of behavior and the intention to perform a behavior, including the adoption of innovative technologies (Wang, Goh, & Lim, 2020; Zhao & Bacao, 2020). Similarly, an individual's social circle's positive views and perceptions regarding environmental protection and sustainable practices can positively influence his or her adoption of sustainability/green practices and concern for the environment (Ahn, Kang, & Hustvedt, 2016). In addition, green social influence can influence an individual's decision to purchase sustainable products (Choi & Johnson, 2019).

Given the above literature review, it is reasonable to assume that green social influence can substantially increase the adoption of green operational practices. In this study, green social influence is considered a moderator because it can increase the adoptability of all components of green operational practices, such as green building, eco-design, green supply chain, and innovation, ultimately leading to increased patient satisfaction in the healthcare sector. In addition, no prior research has examined the moderating effect of green social influence in the context of green operational practices in the healthcare industry. Therefore, the study contributes substantially to the relevant body of literature. Consequently, the following hypothesis is proposed.

H6: *Green social influence positively moderates the relationship between green building and patient satisfaction.*
H7: *Green social influence positively moderates the relationship between eco-design and patient satisfaction.*
H8: *Green social influence positively moderates the relationship between the green supply chain and patient satisfaction.*
H9: *Green social influence positively moderates the relationship between green innovation and patient satisfaction.*
H10: *Green social influence positively moderates the relationship between E-CRM and patient satisfaction.*

3. Methodology

3.1. Research Instrument

Validated measurement questionnaires were used to collect data on the study's variables. Scale devised based on the suggestions of Setyowati et al. (2013), Campion et al. (2016), Huang (2011), and Nunes and Bennett (2008) for the variable of green building. Based on the recommendations of Migdadi and Omari (2019), Nunes and Bennett (2008), and Chakraborty et al. (2022), a scale for the eco-design variable was developed. The green supply chain and innovation were measured by adapting the instrument developed by Assumpção et al. (2022). The E-CRM variable was measured by adapting the instrument developed by Al-Bashayreh et al. (2022). The variable of green social influence was measured using an adapted version of the instrument developed by Venkatesh et al. (2012). The patient satisfaction variable was finally measured by adapting the instrument developed by Chakraborty et al. (2022). Every variable was measured using a 5-point Likert scale. Table 1 presents each variable's corresponding measurement items and statements and their source.

Table 1: Measurement Tools

Items	References
Green Operational Practices	
Green Building	
"The hospital facilities are easily accessible through public transportation or my vehicle."	Scale developed on suggestions of (Campion et al., 2016; Huang, 2011; Nunes & Bennett, 2008; Setyowati et al., 2013)
"The hospital has incorporated natural lighting system from glass curtain walls."	
"The hospital has installed moving sensor systems using which artificial lighting system turns off automatically in case of no activity."	
"The hospital has multiple windows which allow for an outdoor view of nature."	
"The hospital has a proper ventilation system."	
"The hospital has an inverter air conditioning system."	
"The hospital has installed noise cancellation systems, i.e., the environment is peaceful and quiet."	
"The hospital has installed waste and sewage systems are using products operated by natural energy and require less electrical energy."	
Eco-design	The scale was developed on suggestions of (Chakraborty et al., 2022; Migdadi & Omari, 2019; Nunes & Bennett, 2008)
"The hospital has a proper waste management system."	
"The hospital has an efficient system to dispose of hazardous waste carefully."	
"The hospital has an efficient system to dispose of non-hazardous waste carefully."	
"The hospital has a controlled system for direct and indirect greenhouse gas emission."	
"The hospital has solar panels installed to generate alternative power."	
"The hospital has measures to minimize the consumption of paper."	
"The hospital has a proper system for recycling materials (such as paper)."	
Green Supply Chain	
"The hospital has practices of auditing suppliers' environmental impacts."	(Assumpção et al., 2022)
"The hospital has practices requiring ISO 14.001 certification from suppliers".	
"The hospital has practices to evaluate suppliers concerning environmental indicators."	
"The hospital has practices to standardize environmental requirements for purchasing general inputs and raw materials."	
Green Innovation	
"The hospital has the practice of developing new products that are not harmful to the environment."	(Assumpção et al., 2022)
"The hospital has the practice of developing new products to replace those that have become obsolete."	
"The hospital has the practice of studying and implementing processes that aim to reduce costs and production times."	
"The hospital has the practice of encouraging improved communication and integration between different business activities."	
"The hospital has the practice of encouraging the improvement of sharing and transferring knowledge with other organizations."	
"The hospital has the practice of developing strong relationships with consumers."	
E-CRM	(Al-Bashayreh et al., 2022)
"The available technical personnel are good at providing technical support in computer technology usage in building customer relationships."	
"This organization uses the right software in serving customers."	
"Customer complaints (responsiveness) are quickly solved."	
Green Social Influence	(Venkatesh et al., 2012)
"People who are important to me think I should adopt green/sustainable operational practices."	
"People who influence my behavior think I should adopt green/sustainable operational practices."	
"People whose opinions I value prefer that I adopt green/sustainable operational practices."	
Patient Satisfaction	(Chakraborty et al., 2022)
"The medical care I am receiving is just about perfect."	
"The physician spent the right amount of time with me."	
"All things considered, the treatment I received is excellent"	
"I was pleased with my visit with the physician."	

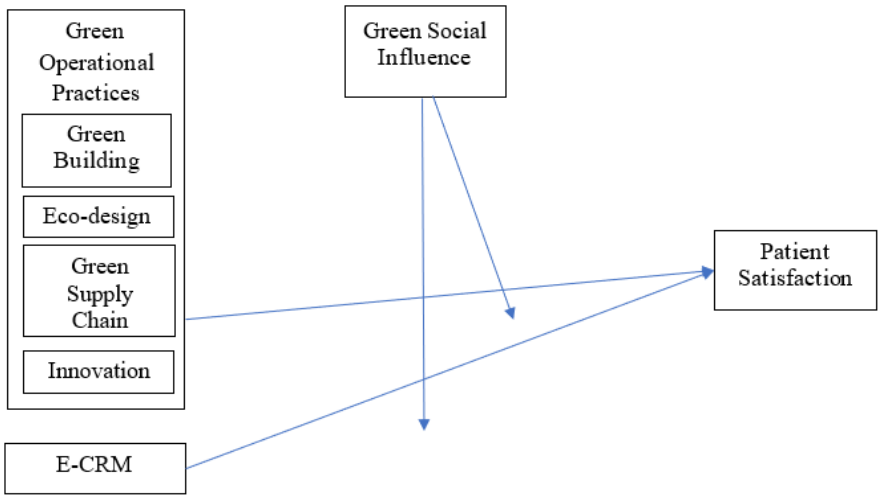

Fig.1. Conceptual model of the Study

3.2 Target Population and Sampling Technique

Data for the present investigation were gathered from hospitals throughout Indonesia. As the population list could not be derived (i.e., the population frame was unknown), convenience sampling was utilized to collect data.

3.3 Data Collection Method

The data was collected via a self-administered survey disseminated to patients who had received treatment at various Indonesian hospitals and employees working at various Indonesian hospitals. The data was collected with the participants' prior consent. To measure patient satisfaction, 500 survey questionnaires were distributed to hospital patients in Indonesia, of which 449 were completed and returned; 7 were discarded, leaving 442 completed questionnaires for analysis. In addition, 500 questionnaires were disseminated to employees of various Indonesian hospitals, and 357 completed questionnaires were returned, of which 3 were discarded and 354 were utilized for analysis.

3.4 Data Analysis Method

This study's collected data was analyzed using SPSS. Cronbach's alpha was utilized for the reliability testing. Pearson's correlation test was used to determine the correlations. In addition, the study's hypotheses were evaluated using simple linear regression analysis in SPSS. Model 1 of the Hayes Process Macro was utilized to evaluate moderation.

4. Analysis

4.1. Descriptive Statistics

Table 2 displays the study's descriptive statistics. As the table shows, all variables

are trustworthy and, therefore, internally consistent, as their values exceed the minimum acceptable threshold. Additionally, the table displays the correlations between all study variables. The correlations between variables are not high enough to cause multicollinearity problems.

Table 2: Descriptive Statistics (Means, Standard Deviation, Reliability, correlations among study variables)

Variable	Mean	Std. Dev.	Reliability	1	2	3	4	5	6	7
Green Buildings	3.02	1.24	0.78	1						
Eco-design	3.24	1.02	0.87	0.024	1					
Green supply chain	2.58	1.00	0.69	0.040	0.011	1				
Green Innovation	3.20	0.91	0.73	0.057	0.012	0.041	1			
E-CRM	2.99	0.87	0.79	0.030	0.031	0.033	0.027	1		
Green social influence	2.94	0.96	0.80	0.067	0.022	0.028	0.030	0.029	1	
Patient Satisfaction	3.44	1.06	0.71	0.051	0.029	0.037	0.034	0.021	0.034	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

4.2. Hypothesis Testing

After determining the reliability statistics of the study variables, straightforward linear regression analysis was used to test the hypotheses. The regression analysis results for all independent and dependent variables are presented in Table 3. Patient satisfaction is significantly and positively associated with all independent variables. The positive relationship between green buildings and patient satisfaction supportive relationship between eco-design and patient satisfaction supports hypothesis 2 of the study. The green supply chain positively correlates with patient satisfaction, supporting Hypothesis 3 of the study. The relationship between green innovation and patient satisfaction supports the study's hypothesis 4. E-CRM positively correlates with patient satisfaction, supporting hypothesis 5 of the study.

Table 3: Regression Analysis

Regression Statistics				
Multiple R	0.69			
R Square	0.41			
Adjusted R Square	0.78			
Standard Error	0.31			
Observations	891			
ANOVA				
	Df	**SS**	**MS**	**F**	**Significance F**
Regression	30	52.24	8.66	48.22	6.6
Residual	70	15.20	0.21		
Total	100	67.44			
	Coefficients	**Standard Error**	**t Stat**	**P-value**	
Constant	0.024	0.41	2.39	0.011	
Green Buildings (GB)	0.011	0.32	3.21	0.021	
Eco-design (ED)	0.034	0.11	3.55	0.034	
Green supply chain (GSC)	0.029	0.22	2.94	0.044	
Green innovation (GI)	0.017	0.37	2.22	0.019	
E-CRM	0.034	0.18	2.97	0.021	
Green Social Influence (GSI)	0.030	0.19	3.54	0.030	

P<0.05 (Hair et al., 2007), t> 1.96 (Hair et al., 2007)

4.3. Moderating Effect of Green Social Influence

Lastly, the moderating effect of green social influence is assessed using SPSS's Process Macro Model 1. The following table contains the results of the moderation analysis. The table demonstrates that green social influence positively moderates the relationship between green buildings and patient satisfaction, supporting the study's hypothesis number 6. The positive moderating effect of green social influence on the relationship between eco-design and patient satisfaction supports the seventh hypothesis of the study. The study's findings support the hypothesis that green social influence moderates the relationship between the green supply chain and patient satisfaction positively (H8). In addition, green social influence positively modifies the relationship between green innovation and patient satisfaction, supporting the study's hypothesis 9. Lastly, green social influence positively moderates the relationship between E-CRM and patient satisfaction, supporting the study's hypothesis 10.

Dependent Variable	R^2	Variables	B	T	F	P
Patient Satisfaction	0.24	Constant	2.25	12.34	25.64	0.02
		GB	0.121	1.99		0.02
		GSI	0.134	2.31		0.04
		GB x GSI	0.016	4.59		0.00
Patient Satisfaction	0.20	Constant	3.27	22.01	29.21	0.03
		ED	0.114	2.01		0.04
		GSI	0.101	2.11		0.01
		ED x GSI	0.011	4.24		0.00
Patient Satisfaction	0.36	Constant	3.67	16.69	18.54	0.04
		GSC	0.214	1.22		0.13
		GSI	0.024	1.97		0.03
		GSC x GSI	0.005	2.40		0.00
Patient Satisfaction	0.10	Constant	2.99	20.39	19.67	0.05
		GI	0.214	1.28		0.04
		GSI	0.114	2.22		0.03
		GI x GSI	0.024	2.84		0.00
Patient Satisfaction	0.10	Constant	2.67	18.97	25.69	0.05
		E-CRM	0.127	1.99		0.24
		GSI	0.024	2.31		0.11
		E-CRM x GSI	0.003	4.59		0.02

5. Discussion

This study aimed to determine the effect of Green operational practices and E-CRM on Patient satisfaction. Recent climate change and environmental degradation have compelled all industries to modify their operational strategies to incorporate more environmentally favorable policies and practices. Manufacturing industries have been the primary concern for the past decade, while the healthcare industry has been neglected. The healthcare industry has also been evolving and adopting environmentally friendly practices in recent years. This study investigated the relationship between four components of Green operational practices and Patient satisfaction. Green building, Eco-design, Green supply chain, and Green innovation are positively associated with Patient satisfaction, consistent with previous research (Assumpção et al., 2022; Chakraborty et al., 2022). This means that sustainably designed hospital buildings include proper ventilation systems, natural lighting, windows allowing for nature views, energy conservation practices, use of sensors to control the use of artificial lights, a good location of the building providing easy access, availability of parking facilities, eco-design practices such as recycling of material,

proper waste disposal system, controlling gas emissions, using alternative forms of energy, and green roofs are implemented. Therefore, hospitals must prioritize implementing these practices to ensure patients are entirely satisfied with their hospital experience. In this manner, not only do patients depart satisfied with the service, but their likelihood of retaining and recommending the business to others via positive word of mouth also increases. The moderating effect of Green social influence further demonstrates this. This indicates that the greater the patient's social circle and peers place on sustainable practices, the more likely it is that the patient will also be highly concerned with these issues, and thus receiving services in a hospital that has implemented Green operational practices will increase their overall satisfaction.

In addition, the study's findings indicate a positive correlation between E-CRM and Patient satisfaction. This finding is also consistent with previous research, which demonstrates that establishing long-term relationships with customers through E-CRM practices increases customer trust, loyalty, and satisfaction (Dewnarain et al., 2021; Galvão et al., 2018; Ngo & Vu, 2021; Sofi et al., 2020). Through E-CRM practices, hospitals can cater to each patient's specific requirements, gain their loyalty, provide superior services, and cultivate long-term relationships. It includes maintaining patient records and reminding patients of upcoming follow-up appointments. Additionally, it can be used to inform patients about new services and remedies offered by hospitals. Patients receiving customized and personalized messages via E-CRM platforms can feel more connected and cared for, thereby increasing their hospital satisfaction. The study also discovered that Green social influence moderated the relationship between E-CRM and Patient satisfaction. E-CRM is also an environmentally friendly practice because it is conducted digitally, reducing the need for paper and other resources for direct interactions. Therefore, members of a social circle who are very concerned with ecological and sustainable practices are more likely to appreciate hospitals' efforts in this area, which positively affects their overall satisfaction level.

5.1. Theoretical Implications

Few studies have previously investigated Green operational practices in the healthcare industry, so this study substantially contributes to knowledge. In addition, the four dimensions of Green operational practices proposed by Nunes and Bennett (2008), namely green building, eco-design, green supply chain, and green innovation, have not been previously investigated in the context of the healthcare industry. Furthermore, the study contributes to the body of knowledge by investigating the function of E-CRM in Patient satisfaction, as E-CRM is an understudied concept in the healthcare industry. In addition, the study contributes to the body of knowledge by examining the moderating role of Green social influence.

5.2. Practical Implications

The hospital administration can gain numerous beneficial insights from this study's findings. This study emphasizes the significance of implementing Green operational practices in the healthcare industry to improve Patient experience and Patient satisfaction. The healthcare industry's administration and practitioners must take steps to implement green elements into hospital buildings. Efforts must be made to conserve energy and utilize natural resources effectively without depleting them.

Natural lighting must be utilized whenever possible, and motion sensors must be implemented on artificial lighting to conserve energy. The hospital should have an effective ventilation system to maintain a fresh and clean interior environment. The hospital should have a waste management system that utilizes alternative energy sources. Care must be taken when selecting suppliers, and only those who adhere to environmentally favorable practices should be sought out. The system should integrate technological and digital innovations that can promote sustainability in operations. E-CRM is employed in hospitals to maintain long-term relationships with patients and to communicate with them in a personalized manner via electronic means. All of these efforts can result in increased patient satisfaction, retention, and positive hospital word-of-mouth.

5.3. Limitations and Future Research Directions

The following limitations of the study provide opportunities for future research. First, while the present study is quantitative, future research could delve more thoroughly into the operational practices of hospitals by conducting qualitative analyses using interview data from hospital management and patients. In addition, future research may include a case study comparison of hospitals that have implemented Green operational practices and those that have not yet done so. Future studies can examine other factors that fall under the heading of Green operational practices to determine their association with the overall hospital experience of patients.

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