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Adoption of Sustainability Innovations and Environmental Opinion Leadership: A Way to Foster Environmental Sustainability through Diffusion of Innovation Theory

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Abstract: Environmental sustainability is a major challenge for the governments of various countries. The industrial sector and the growth of startups have created a challenge for sustainable development, with little concept of innovativeness for environment sustainability. The current research aims to foster environmental sustainability by adopting sustainability innovation and environmental opinion leadership in the hospital industry. The adoption of sustainability innovation along with environmental opinion leadership in the hospital industry is rarely studied in the literature. Particularly, this concept is completely ignored in the context of Pakistan. Quantitative research approach is employed in this study. A survey instrument in form of a questionnaire was used to collect data from respondents. Respondents of the study were the employees working in public hospitals of Pakistan. Simple random sampling was employed for data collection. The data analysis was carried out by using partial least square-structural equation modeling (PLS-SEM). The findings of this study concluded that the role of trialability, innovativeness, compatibility, simplicity, and relative advantage must be considered when adopting sustainable innovation in hospitals. The practical and theoretical implications of this study are significant for the improvement of environmental sustainability in Pakistan.

Keywords: sustainability innovation; environmental opinion leadership; environmental sustainability; trialability; innovativeness

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1. Introduction

Although various organizations' influences on the environment have been investigated by several previous studies [1,2], the influence of hospitals on the environment has rarely been addressed by previous studies. Along with other business organizations, hospitals have been influential with regard to environmental sustainability [3,4]. Although various materials, as well as gases used in hospitals for treatment, have a major effect on environmental health, this has rarely been documented by earlier studies. This issue can be addressed through the diffusion of innovation theory. The diffusion of innovation theory, developed by E.M. Rogers in 1962, is one of the oldest social science theories. This theory seeks to explain how, why, and at what rate new ideas and technology spread. The diffusion of innovation theory is a hypothesis outlining how new technological and other advancements spread throughout societies and cultures. The indicators of diffusion

of innovation theory can manage the growing effect of hospitals on environmental sustainability. Several previous studies have been carried out on the diffusion of innovation theory [5–8]. However, it has been very rare in hospitals. A very limited part of the literature considered diffusion of innovation theory in hospitals. Therefore, a significant gap exists to address the diffusion of innovation about environmental sustainability. Despite the extensive work on environmental sustainability and hospitals [9,10], the debate on environmental sustainability in relation to hospitals is rarely addressed by the literature in Pakistan [11].

In Pakistan, hospitals influence the environment due to various operations [12]. Due to the increase in hospital operations, environmental sustainability is decreasing. The national health infrastructure comprises 1279 hospitals, 5527 Basic Health Units (BHUs), 747 Maternity & Child Health Centers, and 1400 TB centers. These hospitals cover most of the population, but the increase in services causes damage to the environment. A healthy environment is a need for society. However, hospitals have an adverse effect on environmental health. Therefore, innovations are required in hospital operations to promote environmental sustainability. Adopting sustainability innovations in hospitals can promote environmental sustainability by decreasing the damage to the environment from hospital operations. However, adopting sustainability innovations in hospitals is a challenge for Pakistani hospitals. On the other hand, in the case of Pakistan, only corporate sector firms work to achieve sustainability in business performance because new startups and traditional business styles do not factor in sustainable planning. Foreign business chains in Pakistan are working in a sustainable way by adopting green HRM and technological advancement. The lack of attention to sustainability by the local firms is also a challenge to the sustainable development policy of the Pakistani government. Along with the business industry, hospitals have less emphasis on environmental sustainability, particularly in Pakistan. It is important to address environmental sustainability among hospitals, which has been ignored by the previous studies.

The adoption of sustainability innovations in hospitals can be promoted with the help of diffusion of innovation theory indicators [13] such as relative advantage, compatibility, simplicity, trialability, and innovativeness, which can promote the adoption of sustainability innovations that have the potential to enhance environmental sustainability [14]. Therefore, this study is an attempt to address environmental sustainability through the diffusion of innovation theory. This theory is not well established among hospitals in relation to environmental practices. This study on environmental sustainability in relation to sustainable innovation diffusion can lead to the promotion of overall environmental sustainability in Pakistan. Public hospitals in Pakistan are rarely involved in environmental sustainability practices. Although hospitals have a significant impact on environmental sustainability, a lack of government focus leads to a decrease in environmental quality. Therefore, this study can help to highlight the important role of hospitals in environmental sustainability. Few of the previous studies identified the connection between environmental sustainability and innovation diffusion, but these studies were not conducted on hospitals.

Consequently, this study aims to investigate the role of diffusion of innovations theory indicators in environmental sustainability. This study is being considered in Pakistani hospitals because it is extremely uncommon for any study to consider the diffusion of innovations theory in Pakistani hospitals. Additionally, this study considered environmental opinion leadership [14] which has a major role in the management of harmful operations by adopting innovative methods for individuals and organizations. Opinion leaders are individuals who exert a significant amount of influence within their network and who can affect the opinions of connected individuals. The moderating role of environmental opinion leadership is considered between the diffusion of innovation theory and environmental sustainability. This study has significant importance for practitioners in order to control the negative effect of Pakistani hospitals on environmental sustainability. This study provided several insights for hospitals to promote environmental sustainability by decreasing the adverse effect of hospital operations on the environment. This study is based on the

quantitative data that are collected on a five-point Likert scale. The cross-sectional data are collected from the managers and storekeepers of public sector hospitals in Pakistan. This study has a significant theoretical contribution as it enhances the diffusion of innovation theory in the literature. Furthermore, this article seeks to determine the ways in which the adoption of sustainability can contribute to environmental sustainability. Environmental opinion leadership is most critical when promoting environmental sustainability through the diffusion of innovation theory. However, it was not highlighted by previous studies. Therefore, the current study proved that it should be added to the diffusion of innovation theory. Consequently, this study extended the diffusion of innovation theory by adding environmental opinion leadership.

2. Literature Review

The diffusion of innovation theory basically represents the mindset and stages of innovation adoption for any product, service or policy [15]. In order to achieve sustainable development, innovation adoption is necessary in any sector. There are studies in the literature that delineate the significant role of this theory in innovation adoption for the sustainable development of organizations [16]. Indeed, this theory is widely accepted by scholars in research [13]. Although, the different aspects of innovation adoption are considered in earlier studies, no study examined the role of relative advantage, compatibility, simplicity, trialability, and innovativeness for adoption of sustainability innovation to determine its impact on environmental sustainability. Therefore, this study is grounded on this theory to determine the impact of these factors introduced for the adoption of sustainability innovation on environmental sustainability with the moderating role of environmental opinion leadership in the health sector of Pakistan.

A relative advantage is when the company produces products and services that are more advanced than its previously offered products and services [17]. In a mature market, most companies are producing products and services with a relative advantage to provide updated services to satisfy the customer for the long term [18]. Products and services with comparative advantages replace previously existing market products [19]. Compatibility is the capability that helps any individual to perform their responsibilities effectively [20], with high adaptive skills. Compatibility helps with innovation adoption and people benefit from innovations [21]. The combability of employees helps with sustainable growth and working in a better way. It is the simplicity of working when the employees of any organization are devoted to working, and they do not have any problems with new adoption and sustainability [22]. Employees with simple working minds are more active in developing strategies effectively [23]. The adoption of sustainable innovation refers to using new technology in alternative ways for developing sustainability in the business sector in order to contribute to environment sustainability [24]. Organizations with sustainable adoption are working to achieve sustainability in work to protect the environment. Relative advantage is considered an important factor for improving products and services by the industry [25]. The industrial sector in every country is working to satisfy the needs of consumers nationally and internationally. Relative advantage is critical for improving business practices and achieving sustainability [26]. Sustainable development is necessary for businesses to grow, and many businesses are dependent on relative advantages [27]. Relative advantage is a useful technique to defeat competitors in the market by focusing on innovation [28].

H1. *Relative advantage has an impact on the adoption of sustainability innovation.*

Globalization has increased competition among organizations, and this competition is determining the profitability of the business [29]. The business organizations developing a competitive advantage in the target market are working to improve the performance of products and services for their customers [30]. The development of new technology enable the business organization to improve productivity with the help of capable employees who have the compatibility to adopt innovation for the improvement of products and

services [31]. The multinational organizations of Europe are working to improve the productivity of technology for the satisfaction of consumers [32]. However, more focus is on the development of skills and capabilities of the employees for innovation adoption and improving their work quality for the business sector [33]. In any country, sustainability is regarded as an effective tool for achieving a sustainable environment [34]. In this regard, it is necessary to adopt a sustainable development goal for the functionality of the organization to perform in a better way with effective strategies. The compatibility of the employees helps them to avoid innovation resistance [35]. A competent workforce in any organization has sustainable innovation goals to develop the ideology in a successful way [36]. Innovation adoption is dependent on the competence of employees and their positive approach to innovation adoption [37].

H2. *Compatibility has an impact on the adoption of sustainability innovation.*

The production of a product with good quality and service improvement can increase consumers' satisfaction level [22]. The satisfaction of the consumer is critical to consider as it is fundamental for the development of different strategies for business organizations, as consumers are demanding advanced and long-lasting products in the target market [38]. To develop a competitive advantage in any market, the business organization should focus on relative advantages and produce products and services with effective management to improve the standard of living of the customers [39,40]. The customers of this era are mature and working for a better environment and sustainability [41,42]. Consumers are concerned about purchasing products with environmental sustainability because they are always interested in recycling the products [43]. More focus on sustainability would provide more opportunities for business organizations to grow in the target market with effective strategies [44]. The service sector should improve the service quality with competent employees and develop the product with a relative advantage to in order to satisfy the customers and capture a large market share [45]. Employees who prefer a simple working environment are more likely to pursue sustainable development goals [46]. This trait is useful for any organization to change the working environment because the resistance from the employees is zero [47]. Furthermore, employees with this trait are more flexible and accept new technology and working styles [48].

H3. *Simplicity has an impact on the adoption of sustainability innovation.*

Trialability occurs when an innovation is tested prior to proper implementation in the workplace [49]. Organizations having a facility of trialability are working in a more advanced way, and the decision-making capacity of these organizations is based on the initial trial of products and services [50]. Trialability provides a significant opportunity for businesses to grow effectively by properly launching products and services with initial tests [49]. Innovativeness refers to any individual's imagination and thinking capability for a successful future [51]. People with more innovative approaches are always concerned about getting new products and services into marketing [52]. At the same time, innovation is critical for sustainable development because it contributes to a better working environment. The sense of innovativeness is not common, but it matters greatly in changing the traditional dynamics of living and working [53]. It is critical to consider that trialability is important for innovation and the effectiveness of business performance. The innovation of new products and services is critical to improving satisfaction [54]. In modern times, customers are always concerned about purchasing a product that is performing well to provide better service quality [42]. Trialability is a way for businesses to achieve success based on the characteristics of any project [55]. The project in the trialability stage can be modified before its presentation to the market [56]. Employees with innovation resistance are less attractive to trialability because they avoid newness in their work [46]. However, trialability is widely accepted in American business organizations for the successful development of products and services [50].

H4. *Trialability has an impact on the adoption of sustainability innovation.*

In modern marketing, innovation is considered the fundamental key to capturing a large market share in the target market for a better competitive advantage for the business [54]. The sustainable development goals encourage the business sector to adopt innovation for the sustainable development of the country and the economy [57]. Sustainability is critical in modern times because, with the help of sustainability, improvement in the business sector provides better opportunities for the customer to purchase the products and services with sustainability [58]. Organizations that are providing services to improve customer satisfaction with innovation adoption and sustainability have seen their market share increasing over time [59]. In Denmark and America, business organizations are working for sustainable development and effectiveness in improving business quality with innovation adoption to satisfy the needs of consumers [60]. Employees of any business organization are working to improve the products and services in the target market for attractive customers with sustainability. In Canada, the fundamental goal of any business organization is to work in the target market with sustainable development and innovation adoption [61]. Organizations in third world countries have badly failed to adopt innovation in the business sector for the production of products and services. These organizations are a big challenge for sustainable development in these countries, and the attitude of the consumers of these countries is not innovative, and they are not interested in purchasing products with sustainability [62]. The performance of the services and business sectors should be in accordance with the goals of sustainability and consumers' expectations [63]. More innovation of products and services provides better service quality and products to the consumers in the target market. Adoption of innovation is the best approach for any organization, and employees who use this approach are more productive than traditional employees [8]. Indeed, the performance of business is not right if there is no sustainability in innovation [33]. In the Chinese industrial sector, there is great emphasis on innovation for successful work and capturing the target market [5].

H5. *Innovativeness has an impact on the adoption of sustainability innovation.*

Environmental opinion leadership refers to leaders who are more innovative and advanced in their work because of their thinking ability and influence [64]. Knowledgeable leaders support the working organizations for sustainable development, because they can think and understand [65]. In addition, the opinion leaders provide related information in critical situations and facilitate decision-making for adoption of sustainability [66]. For sustainable development, the role of innovative leadership is critical [67]. On the other hand, environmental sustainability refers to the duty of every individual to the environment from misuse of resources and pollution [68]. Sustainable development goals demand that government and private sector organizations focus more on environmental sustainability and protect their resources for future generations [44]. A country with a sustainable environment has no treatment for environmental problems and natural hazards. Environmental sustainability has become critical for business performance and sustainability [69]. The organizations that are working and protecting the environment have digitalization in their operations [70]. The digital transformation of operations is required to achieve sustainability and avoiding traditional working practices [12]. Moreover, the best approach to sustainability is to plan to adopt innovation for green organization practices.

H6. *Adoption of sustainability innovation has an impact on environmental sustainability.*

Environmental opinion leadership plays a critical role in selecting products and services for the satisfaction of consumers [71]. In the current era, the concept of sustainability has increased because many companies are working to adopt sustainable development goals [72]. Organizations working in the industrial sector of Canada are more concerned with sustainable development and sustainability than those working in backward countries [73]. The focus on sustainable development is helping the business sector grow effectively in the target market. The responsibility of business management is to provide effective services and products to the consumer for the longer term [74]. Globalization has

created a challenge for local businesses to provide services related to the sustainability of products and services with regard to environmental concerns [75]. It must be understood that with effective government planning in the business sector, particularly in the hospital sector, environmental sustainability can be achieved that is beneficial for the current generation [76]. The environmental opinion leadership is important to consider when the sustainability achievements of any hospital are better than the other hospitals [77]. Through emphasizing the sustainable development approach in organizations, the information sharing mechanism should be developed for improving the environmental sustainability in the workplace [78].

Similarly, in advanced countries, the concept of sustainability is important because all businesses are bound to work on sustainable development goals [79]. The role of business management is to satisfy the customer's needs by developing their long-term relationship. In the advanced and educated market, it has become hard for a business to sustain and develop without the concept of sustainability [2]. The concept of green packaging and innovation is helpful for the development of businesses in order to get success in the target market compared to competitors ho are not working on green innovation [1]. In this regard, sustainability must be considered an effective tool for developing any business in the target market. The hospital industry in the United States is concerned with sustainable development and environmentally friendly services [80]. Effective management plays a critical role in the sustainability of the tourism sector. Business organizations should work effectively for sustainable development by considering the requirements of customers. Australia is improving the hospital sector through sustainable development and green innovation because sustainability is an effective tool for the development of business and the satisfaction of consumers [81]. In backward countries, the hospital sector is facing problems in innovation adoption and effective development to provide better services to consumers. Environmental opinion leadership is an important trait for successful leadership [82]. The leadership in any modern business is concerned about environmental sustainability [3]. To protect the environment, the leadership and CEOs of multinational businesses should join hands to work for environmental sustainability [64]. The Figure 1 shows the theoretical framework of the study.

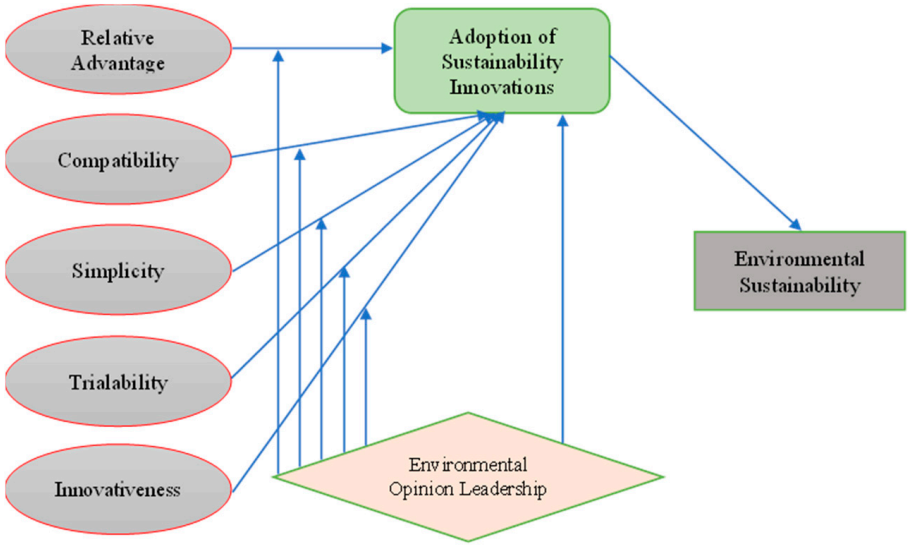


Figure 1. Theoretical framework.

H7. *Environmental opinion leadership that moderates the relationship between relative advantage has an impact on the adoption of sustainability innovation.*

H8. *Environmental opinion leadership moderates the relationship between compatibility and impacts the adoption of sustainability innovation.*

H9. *Environmental opinion leadership moderates the relationship between simplicity and impacts the adoption of sustainability innovation.*

H10. *Environmental opinion leadership that moderates the relationship between trialability has to impact on the adoption of sustainability innovation.*

H11. *Environmental opinion leadership moderates the relationship between innovativeness and impacts the adoption of sustainability innovation.*

3. Research Methodology

The study was conducted using a survey-based method because the survey method is widely used for data collection. A five-point Likert scale questionnaire was prepared for this study to collect the data from the target respondents. In addition to it, there were two sections of the questionnaire. The first section was to collect the demographic information of the respondents. The second section of the questionnaire contained the scale items for data collection to determine the results of this research. In this regard, the measurement items for trialability, environmental opinion leadership, simplicity, innovativeness, and relative advantage were employed from Smerecnik and Andersen [14].

Furthermore, the scale items for adopting sustainable innovation were also taken from Smerecnik and Andersen [14]. In addition, the scale items for environmental sustainability and compatibility were adapted from Smerecnik and Andersen [14]. All the adapted items were reviewed by the experts, and the face validity of these constructs was confirmed before collecting the sample. These scale items were used in different contexts of sustainability and innovation adoption in the earlier studies. Cronbach's alpha for all these items were greater than 0.70. Furthermore, these constructs were high in factor loading more than 0.60. Therefore, the validity of these items was considered in an earlier stage of questionnaire development. Data from the study's target population were collected using a Likert scale questionnaire. However, through a random data collection method, 600 questionnaires were developed and distributed to respondents, who were the workers from managers to storekeepers in the hospitals of the public sector in Pakistan. After a thorough review, 500 questionnaires were determined to be eligible for data analysis in the study because the remaining 100 questionnaires were not filled out completely due to a lack of interest of the respondents in the study. This is a valid data collection technique employed in prior research on the hospital management sector. Similarly, a summary of the study was delivered to the respondents along with the questionnaire to ensure they were aware of its purpose. They received confirmation that their data would be kept secure and kept for study purposes only. The respondents also received the researcher's email address, which they could use to contact him with any queries they might have about the study. All of the respondents' queries were ethically answered to help them complete the questionnaires. Finally, the respondents were acknowledged for their valuable input into the study. This email to the respondents was sent on 22 April 2022, and the responses were collated before 28 April 2022.

The data from the study identified that most of the employees working in the Pakistani hospitals are married. A total of 75% of the respondents are married, and 25% are unmarried. Furthermore, it is observed that only 22% of employees are females. However, 78% of employees are males. Additionally, 18% of the employees have an age between 20 to 30 years, 40% of the employees have an age between 30 to 40, 23% of the employees have an age between 40 to 50, and 19% of the employees have an age between 50 to 60. Furthermore, most of the employees are master's degree holders, including those with certificates in medical fields.

4. Results

4.1. Convergent Validity

The convergent validity of study constructs incorporated into the questionnaire for data collection was tested (See Figure 2). For this, the PLS Algorithm was used to get the

values of factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). The values of factor loading for every construct of the study exceeded 0.60. Further, the composite reliability value exceeded the threshold of 0.70 suggested by Fornell and Larcker [83]. The value of AVE for each variable exceeded the threshold of 0.50. As a result, the constructs of the study are significant, and there is clear reliability and validity (Table 1).

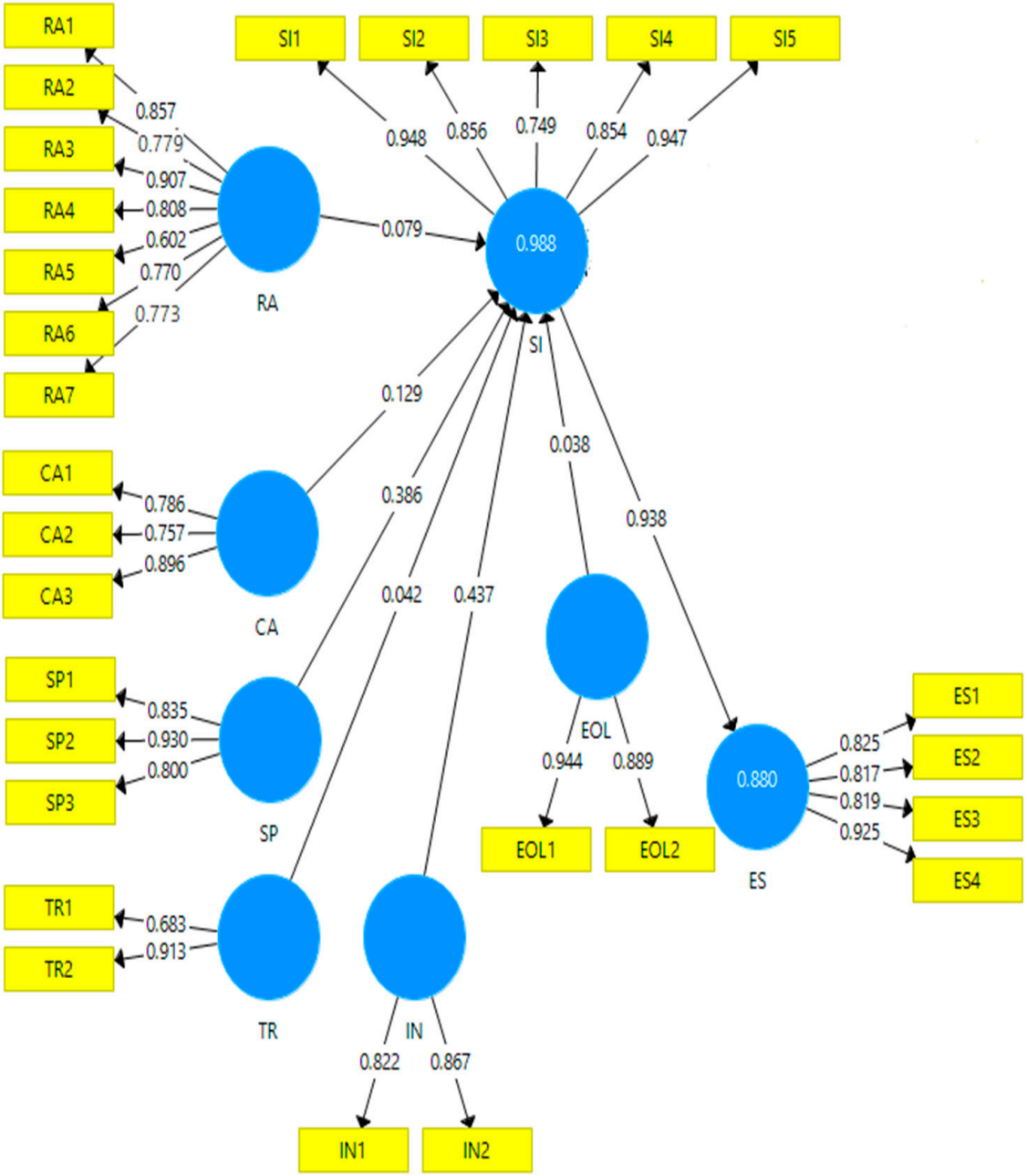


Figure 2. Measurement model. TR = Trialability, SP = Simplicity, SI = Adoption of Sustainability Innovations, RA = Relative Advantage, IN = Innovativeness, ES = Environmental Sustainability, EOL = Environmental Opinion Leadership, and CA = Compatibility.

Table 1. Convergent Validity.

Variables	Items		Factor Loadings	Alpha	CR	AVE
Compatibility	CA1	Working a sustainably fits with the way I work.	0.786	0.781	0.855	0.665
	CA2	Working a sustainably fits with my practice preferences.	0.757			
	CA3	Working a sustainably fits with my service needs.	0.896			
Environmental Opinion Leadership	EOL1	Our hospital is likely to be consulted by other hospitals in our industry about sustainability innovations.	0.944	0.815	0.913	0.840
	EOL2	Our hospital is considered by other hospitals to be a reliable source of information on environmental sustainability.	0.889			
Environmental Sustainability	ES1	Creation of an environmental committee.	0.825	0.869	0.910	0.718
	ES2	Creation of an environmental impact assessment report.	0.817			
	ES3	Creation of a detailed program to reduce environmental impacts.	0.819			
	ES4	The hiring of external consultants to advise on environmental policies or programs.	0.925			
Innovativeness	IN1	Our hospital often embraces new ideas.	0.822	0.789	0.833	0.714
	IN2	Our hospital will often adopt new practices and products before other resorts in our industry.	0.867			
Relative Advantage	RA1	Relative advantage will add significant value and market advantage to our hospital's profile and services.	0.857	0.853	0.884	0.532
	RA2	Relative advantage will increase customer satisfaction.	0.779			
	RA3	Relative advantage will increase employee satisfaction, retention, and productivity.	0.907			
	RA4	Relative advantage is well matched to our current procedures.	0.808			
	RA5	Relative advantage is compatible with our existing employee practices.	0.602			
	RA6	Relative advantage requires too much technical expertise.	0.770			
	RA7	Relative advantage is much too complex to implement at this time.	0.773			
Adoption of Sustainability Innovations	SI1	Energy saver control system in guest rooms.	0.948	0.921	0.941	0.763
	SI2	The keycard control system in guest rooms that shuts off power when the card is removed.	0.856			
	SI3	Using energy-saving light bulbs in guest rooms.	0.749			
	SI4	Recycling containers in rooms.	0.854			
	SI5	Strategically reducing the number of cleaning chemicals to use.	0.947			
Simplicity	SP1	Simplicity will be a simple and easy process.	0.835	0.817	0.892	0.734
	SP2	Simplicity will be easily attainable because of our expansive knowledge about environmental sustainability.	0.930			
	SP3	Simplicity will require minimal resources.	0.800			

Table 1. *Cont.*

Variables	Items		Factor Loadings	Alpha	CR	AVE
Trialability	TR1	Before adopting a sustainability innovation, our resort would need to test the adoption on a smaller scale.	0.683	0.871	0.784	0.756
	TR2	Having time to try sustainability innovations would motivate our resort to adopt those innovations.	0.913			

TR = Trialability, SP = Simplicity, SI = Adoption of Sustainability Innovations, RA = Relative Advantage, IN = Innovativeness, ES = Environmental Sustainability, EOL = Environmental Opinion Leadership, and CA = Compatibility.

4.2. Discriminant Validity

The discriminant validity of the study constructs was identified in this section (see Table 2). For it, the PLS Algorithm was used to determine the Heteritrait–Monotrait (HTMT) method of discriminant validity as it is appropriate for data analysis. The values identified for discriminant validity were below the recommended value of 0.90 by Gold, Malhotra [84]. As a result, this study has clear discriminant validity for the constructs of the study.

Table 2. Discriminant validity.

	CA	EOL	ES	IN	RA	SI	SP	TR
CA								
EOL	0.852							
ES	0.885	0.814						
IN	0.884	0.756	0.722					
RA	0.789	0.738	0.715	0.739				
SI	0.831	0.763	0.749	0.758	0.781			
SP	0.735	0.715	0.792	0.727	0.698	0.783		
TR	0.740	0.811	0.879	0.814	0.873	0.764	0.697	

TR = Trialability, SP = Simplicity, SI = Adoption of Sustainability Innovations, RA = Relative Advantage, IN = Innovativeness, ES = Environmental Sustainability, EOL = Environmental Opinion Leadership, and CA = Compatibility.

4.3. Direct Effect Results—PLS

The findings of this study explore the relationship between different variables (Figure 3). H1 is significant because there is a relationship between RA and SI ($\beta = 0.079$, T = 2.510, and $p = 0.012$). H2 is significant because there is a relationship between CA and SI ($\beta = 0.129$, T = 5.431, and $p = 0.000$). H3 is significant because there is a relationship between SP and SI ($\beta = 0.386$, T = 4.279, and $p = 0.000$). H4 is insignificant because there is no relationship between TR and SI ($\beta = 0.042$, T = 0.849, and $p = 0.396$). H5 is significant because there is a relationship between IN and SI ($\beta = 0.437$, T = 14.097, and $p = 0.000$). H6 is significant because there is a relationship between SI and ES ($\beta = 0.938$, T = 166.016, and $p = 0.000$). The results are available in Table 3.

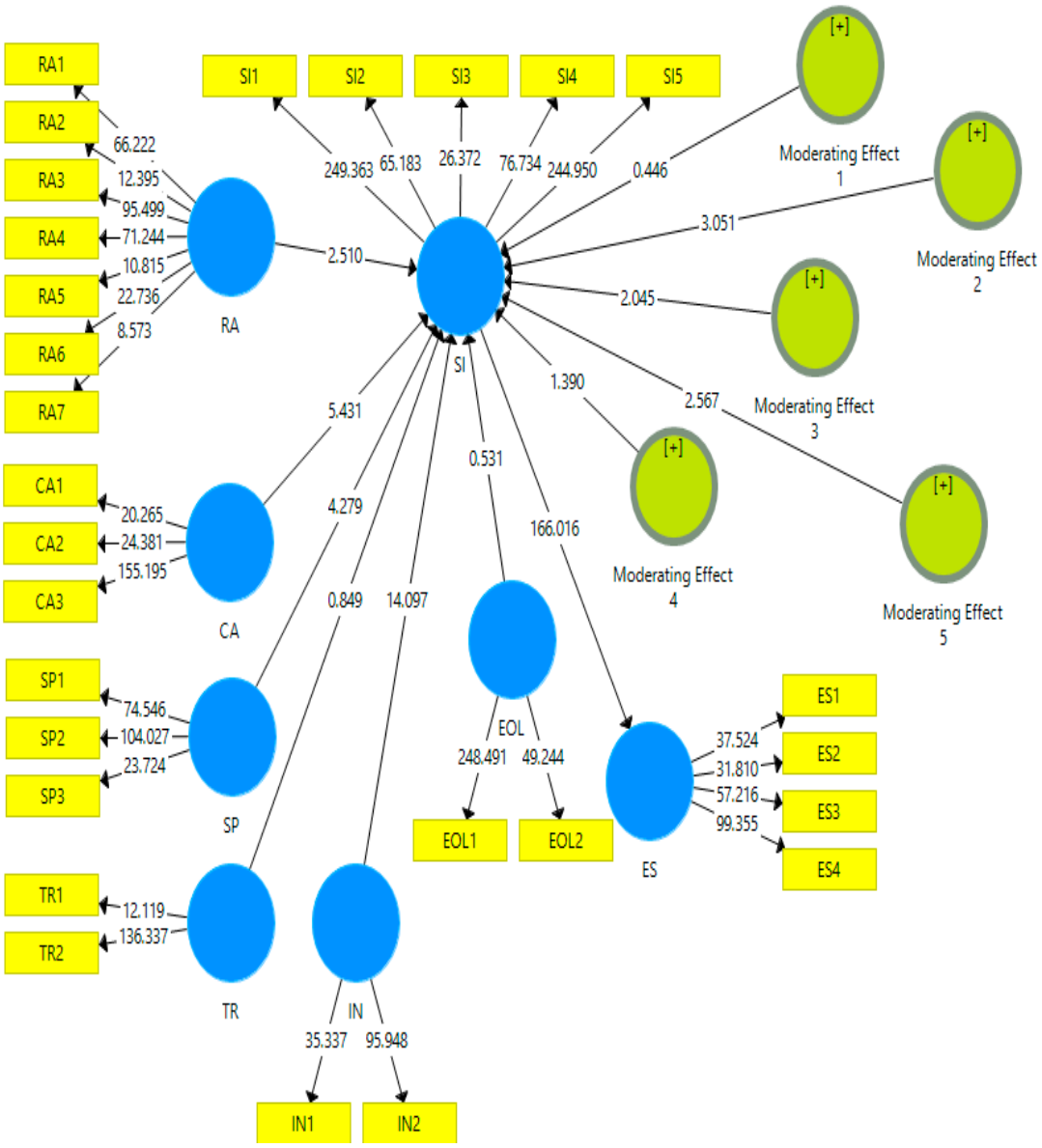


Figure 3. Structural model. TR = Trialability, SP = Simplicity, SI = Adoption of Sustainability Innovations, RA = Relative Advantage, IN = Innovativeness, ES = Environmental Sustainability, EOL = Environmental Opinion Leadership, and CA = Compatibility.

Table 3. Direct impacts.

Direct Relationship	Original Sample	Standard Deviation	T Statistics	*p* Values	Results
H1. RA -> SI	0.079	0.031	2.510	0.012	Significant
H2. CA -> SI	0.129	0.024	5.431	0.000	Significant
H3. SP -> SI	0.386	0.090	4.279	0.000	Significant
H4. TR -> SI	0.042	0.050	0.849	0.396	Insignificant
H5. IN -> SI	0.437	0.031	14.097	0.000	Significant
H6. SI -> ES	0.938	0.006	166.016	0.000	Significant

TR = Trialability, SP = Simplicity, SI = Adoption of Sustainability Innovations, RA = Relative Advantage, IN = Innovativeness, ES = Environmental Sustainability, EOL = Environmental Opinion Leadership, and CA = Compatibility.

4.4. Moderating Results

The results of this research explain the moderating relationship between different variables (Table 4). H7 is insignificant because there is no moderating role of EOL in the relationship between RA and SI (β = 0.056, T = 0.446, and p = 0.655). H8 is significant because there is moderating role of EOL in the relationship between CA and SI (β = 0.197, T = 3.051, and p = 0.002). Further, EOL strengthens the relationship between CA and SI (see Figure 4). H9 is significant because there is moderating role of EOL in the relationship between SP and SI (β = 0.160, T = 2.045, and p = 0.041). Moreover, EOL strengthens the relationship between SP and SI (see Figure 5). H10 is insignificant because there is no moderating role of EOL in the relationship between TR and SI (β = 0.043, T = 1.390, and p = 0.165). H11 is significant because there is moderating role of EOL in the relationship between IN and SI (β = 0.189, T = 2.567, and p = 0.011). Moreover, EOL strengthens the relationship between IN and SI (see Figure 6).

Table 4. Moderating impacts.

Direct Relationship	Original Sample	Standard Deviation	T Statistics	*p* Values	Results
H7. Moderating Effect 1 -> SI	0.056	0.125	0.446	0.655	Insignificant
H8. Moderating Effect 2 -> SI	0.197	0.064	3.051	0.002	Significant
H9. Moderating Effect 3 -> SI	0.160	0.078	2.045	0.041	Significant
H10. Moderating Effect 4 -> SI	0.043	0.031	1.390	0.165	Insignificant
H11. Moderating Effect 5 -> SI	0.189	0.074	2.567	0.011	Significant

SI = Adoption of Sustainability Innovations.

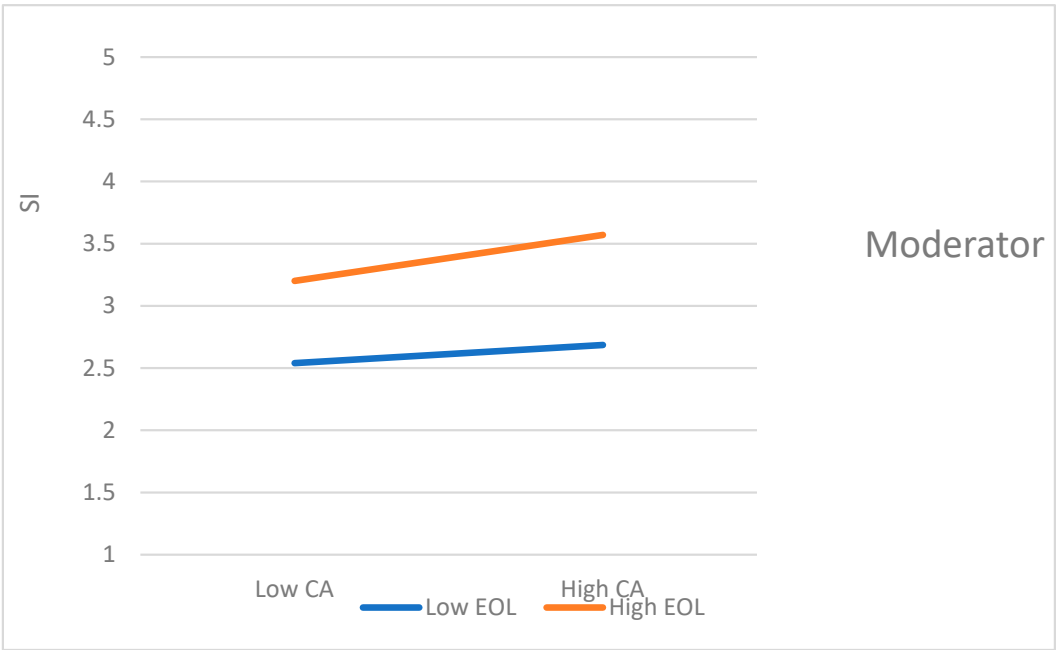


Figure 4. Moderating effect. SI = Adoption of Sustainability Innovations, EOL = Environmental Opinion Leadership, and CA = Compatibility.

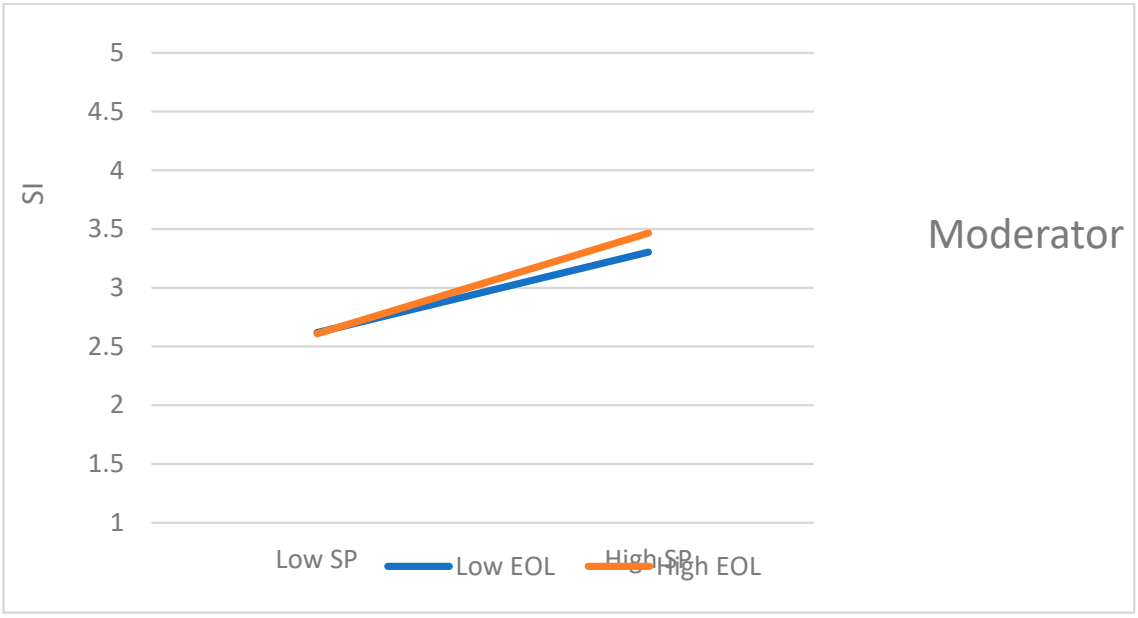


Figure 5. Moderating effect. SP = Simplicity, SI = Adoption of Sustainability Innovations, and EOL = Environmental Opinion Leadership.

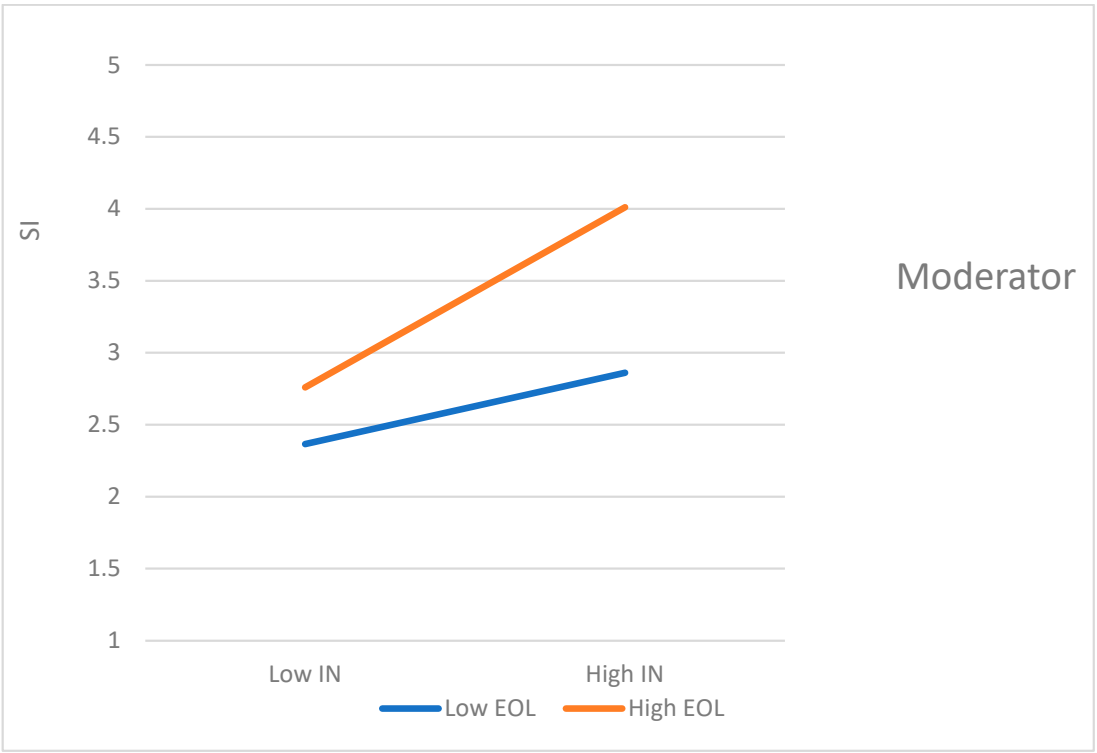


Figure 6. Moderating Effect. SI = Adoption of Sustainability Innovations, IN = Innovativeness, and EOL = Environmental Opinion Leadership.

5. Discussion

Firstly, H1 is significant because there is a relationship between RA and SI. The findings of this hypothesis are consistent with the conclusions of earlier studies [17,18,28]. The relative advantage is appropriate for getting better performance by the employees in the medical field [85]. Furthermore, relative advantage is necessary for the successful achievement of sustainability [86]. Secondly, H2 is significant because there is a relationship

between CA and SI. The results of this hypothesis are also lined up with prior studies in the literature [87]. Employee compatibility is required if the organization wishes to achieve sustainability [88]. The compatibility of employees in the health sector of Indonesia has played a key role in dealing with health issues to achieve sustainability [88]. Thirdly, H3 is significant because there is a relationship between SP and SI. Likewise, the outcomes of this research are similar to the findings of earlier research [22,38]. Simplicity, in the hospital sector is important for better performance of the employees [89]. Indeed, simplicity facilitates the employees adoption of sustainability without any hurdle [90]. Fourthly, H4 is insignificant because there is no relationship between TR and SI. To a greater extent, the findings of this hypothesis are lined with outcomes of existing research in the body of literature [49,56]. Trialability has been critical in transforming China's health sector [50]. Similarly, Indonesian health sector practices are improved with trialability [55]. Fifthly, H5 is significant because there is a relationship between IN and SI. Likewise, these results validate the findings of existing studies [52,53]. Innovativeness is crucial for the employees of health sector to achieve sustainability [51]. No doubt, the health sector hospitals that failed to incorporate innovativeness in operations also failed to transform [52]. Sixthly, H6 is significant because there is a relationship between SI and ES.

Furthermore, the results of this hypothesis are also in line with the findings of the earlier literature on hospital sector sustainability [87]. Indeed, sustainability is considered an important factor for the better work of organizations in the health sector [91]. Hospitals in Indonesia are adopting sustainability of the environment with sustainable innovation adoption in the organization [1]. On the other hand, the improvements in sustainable work would be increased in the green working patterns of the organizations [87]. Furthermore, H7 is insignificant because there is no moderating role of EOL in the relationship between RA and SI. These findings are not evident in the earlier literature as this study has adopted this moderation to contribute to the body of knowledge. H8 is significant because of EOL's moderating role in the relationship between CA and SI. The results of this hypothesis are relevant to the earlier research conducted on the importance of competitiveness for sustainability in the working environment [67]. H9 is significant because there is a moderating role of EOL in the relationship between SP and SI. Indeed, simplicity is widely discussed in the earlier studies [92,93]; the outcomes of this research are similar to the results of the existing literature. Importantly, environmental opinion leadership is necessary for the protection of the environment in a sustainable way [93]. H10 is insignificant because there is no moderating role of EOL in the relationship between TR and SI. The findings of this research do not greatly differ from the earlier literature. On the other hand, this hypothesis is rejected in this study. H11 is significant because there is a moderating role of EOL in the relationship between IN and SI.

The results of the last hypothesis are in line with earlier studies that argued that environmental opinion leadership should be the focus of an organization to achieve sustainability [92,93]. For patients' happiness, many hospitals in Europe aim to increase innovation and productivity in the hospital sector [64]. Furthermore, developing employees' abilities and talents to adopt innovation and enhance their work quality for patients' welfare and environmental sustainability is receiving greater attention [67]. In any nation, sustainability is regarded as the most effective strategy for a sustainable environment. Adopting a sustainable development target is necessary for the hospital's functionality to function better with effective tactics. The level of patients' happiness can be raised by health facilities with high-quality standards and by enhancing services. Since consumers in the target market desire cutting-edge and durable items, it is crucial to consider their contentment when developing various business organization tactics. Organizational leadership in these modern times is responsible for those who care about sustainability and a healthier environment. Because they are constantly interested in recycling products, patients are concerned about getting environmentally friendly services. The chance for commercial hospitals to expand in the target market with efficient tactics would increase if sustainability received greater attention by the patients [87]. Modern patients are well educated, and health sector em-

ployees should work in a sustainable way to protect the environment under the guidelines of environmental opinion leadership.

6. Conclusions

Customers in modern times are constantly looking to buy a product that functions well to deliver improved service quality. Innovation is regarded in current marketing as the essential element for snatching a sizable market share in the target market for the greater competitive advantage of the organization. The business community is being encouraged by the sustainable development goals to adopt innovation for the sustainable growth of the nation and the economy. In the present era, sustainability is essential since it helps to increase business sector effectiveness and gives customers better opportunities to buy sustainable products and services. The market share of businesses that offer services to promote customer satisfaction through innovation, adoption, and sustainability has grown over time. Business organizations in America and Denmark attempt to improve business quality and sustain development while implementing innovation to meet consumer demands. Any company organization's staff is working to enhance its goods and services to attract more profitable clients. In America, working in the target market with sustainable development and innovation adoption is the core objective of each company organization. Organizations in less developed countries such as Pakistan have a terrible time implementing innovation in the business sector to produce goods and services. As a result, these organizations pose a significant obstacle to the sustainable development of these nations. Additionally, consumers in these nations lack an innovative mindset and are uninterested in buying sustainable products. Service and business sector performance should be in line with consumer expectations and sustainable goals. Customers in the target market get better products and services because there are more new products and services. In a nutshell, the study contributes a significant conceptual framework to the body of knowledge and the literature, explaining the impact of the adoption of sustainability innovation and environmental opinion leadership for environmental sustainability.

6.1. Theoretical Implications

This study's theoretical implications are important for improving the hospital sector in Pakistan. According to the findings of this study, environmental opinion leadership is a game changer for the sustainable development of services provided to consumers. The stakeholders of the hospital industry in Pakistan should consider the importance of environmental opinion leadership for developing effective strategies and implementing strategies for improving the level of sustainability with innovation adoption. Similarly, the earlier literature is silent about the role of relative advantage in the hospital sector of Pakistan, but this study demonstrates that for better service provision, innovation is critical because it helps to provide better services to the consumers. The compatibility between employer and the employees is important for sustainable development and better performance. To achieve environmental sustainability, the stakeholders of the hospital industry need to focus on simplicity, relative advantage, compatibility, and innovativeness. In addition, this study contributes a significant theoretical framework to the body of knowledge.

6.2. Practical Implications

This study provides practical results for implementation in the hospital sector of Pakistan to improve the service performance with the help of irrigation at compatibility to achieve the goal of sustainability. It is critical to understand that improvements regarding sustainability can be achieved with the help of effective management in the hospital sector and the greater role of environmental opinion leadership. In this regard, this study demonstrated that the management should focus on innovation adoption to achieve sustainability in the hospital sector. Similarly, to adopt sustainability in Pakistan's hospital sector, the government should develop effective strategies to be implemented by the public

and private sectors. The HR department should focus on the output and performance of the employees because the performance of the employees is directly linked with service quality. In addition, the service sector should adopt the strategy of relative advantage for products and services because these products and services are appropriate for better service provided to consumers. In this regard, sustainable development is fundamental for innovation production and a better future for the coming generation. The findings of this study highlight that management should think more broadly and develop effective strategies for improving performance with service innovation. Importantly, the findings of this study are not limited to the context of Pakistan, but these applications can be generalized to improve the service performance in the hospital sector of other countries to achieve sustainability. Therefore, the practical implications of this study are important in order to improve the hospital sector worldwide.

6.3. Study Limitations

On the other hand, this study has some limitations. The role of adoption of innovation is discussed in this study, but the important factor of government policy is neglected. Therefore, future research needs to pay attention to the role of government policy in sustainability for improving the environment. Secondly, this study has used environmental opinion leadership as a significant factor. However, the role of sustainable policies in organizations is not addressed in this research. Therefore, scholars need to pay attention of sustainable organizational policies in achieving environmental sustainability. Lastly, this study collected the data in a cross-sectional method. However, sustainability is a continuous process, so future research should collect the sample with a longitudinal method to validate the findings of this research.

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