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The Role of Healthcare Employees' Pro-Environmental Behavior for De-Carbonization: An Energy Conservation Approach from CSR Perspective

Li Xu [1,2,*], Jacob Cherian [3], Muhammad Zaheer [4], Muhammad Safdar Sial [5], Ubaldo Comite [6], Laura Mariana Cismas [7], Juan Felipe Espinosa Cristia [8] and Judit Oláh [9]

1   Economics and Management School, Wuhan University, Wuhan 430072, China
2   College of Economics and Management, Three Gorges University, Yichang 443005, China
3   College of Business, Abu Dhabi University, Abu Dhabi P.O. Box 59911, United Arab Emirates;
    jacob.cherian@adu.ac.ae
4   Department of Management Sciences, Faculty of Management, Virtual University of Pakistan, Lahore 54000,
    Pakistan; mzaheer@vu.edu.pk
5   Department of Management Sciences, COMSATS University Islamabad (CUI), Islamabad 44000, Pakistan;
    safdarsial@comsats.edu.pk
6   Department of Business Sciences, University Giustino Fortunato, 82100 Benevento, Italy;
    u.comite@unifortunato.eu
7   Faculty of Economics and Business Administration, West University of Timisoara, 300006 Timisoara, Romania;
    laura.cismas@e-uvt.ro
8   Departamento de Ingeniería Comercial, Universidad Técnica Federico Santa María, 2390123 Valparaíso, Chile;
    juan.espinosacr@usm.cl
9   Department of Management, Faculty of Applied Sciences, WSB University, 41-300 Dabrowa Górnicza, Poland;
    juditdrolah@gmail.com
*   Correspondence: xuli2015@whu.edu.cn

Abstract: Buildings worldwide use a large amount of energy and, hence, contribute to increasing the level of greenhouse gases emission (GHG). It was realized that most electrical energy is used in buildings for heating, cooling, and ventilation purposes. To deal with environmental issues, the concepts of renewable energies and clean or green energy sources have been a part of academic discussions. A review of the literature unveils that most of the prior research in the GHG domain focused on the production side of producing renewable energy by opting for different cleaner energy sources (for example, solar energy). Although such studies have contributed significantly to advancing the field, it is also important to change the energy consumption behavior at the level of individuals for decarbonization. However, such a debate to promote the pro-environmental behavior (PEB) of employees from the perspective of energy consumption remains an understudied area. Against this backdrop, this research was carried out to promote PEB at the level of employees through corporate social responsibility (CSR) and green organizational practices in the healthcare sector of an emerging economy. The current research also focused on personal employee values, especially altruistic values, to spur their PEB. The data for the current work was collected from employees of different hospitals by employing a survey strategy (n = 441). To analyze the data, structural equation modeling was considered. The results showed that CSR directly and indirectly (via green organizational practices) influences employees' PEB, whereas the altruistic values of employees produce a significant conditional indirect effect on the above relationship. The current research offers different implications for theory and practice, which are discussed in detail.

Keywords: sustainability; carbon neutrality; CSR; energy; pro-environmental behavior

1. Introduction

Climate change leads to severe and irreversible damage to nature and a community, implying that the sustainability of the environment is a matter of concern for all societies

and economies throughout the globe. Realizing that environmental sustainability is one of the major challenges in modern society, environmental scientists have emphasized the urgency of taking action at all levels and called for a significant reduction in carbon dioxide (CO_2) emissions [1]. Indeed, consumption at the level of individuals contributes significantly to the amount of greenhouse gases emission (GHGs). According to a research study, about 60% of the world's GHGs emission is associated with consumption at the individual level [2]. In this regard, the latest United Nations Environmental Program (UNEP) report posits that the sustainable consumption behavior of individuals can mitigate the climate change issue significantly [3].

The above discussion provides ample evidence that manmade problems are directly related to the recent world's environmental issues. Climate data indicates that global warming is shortening the transition times for low-carbon communities and the need for more environmental initiatives [4]. Moving to a production system based on renewable and clean resources is essential to mitigate climate change and represents a key element of global environmental policies. Additionally, the pollution and depletion of natural resources are of paramount importance in achieving a sustainable future. To this end, the negative externalities caused by businesses are not the only cause of an environmental hazard, because inadequate attitudes and behaviors of individuals toward the environment in their daily lives also have negative effects. In one case, it was estimated that 16% of the European Union's emissions are due to energy consumption at the level of individuals [5]. Specifically, it was mentioned that the energy sector is the critical enabler to raise the level of GHGs globally. More specifically, a UN report showed that the energy sector accounts for nearly 35% of global GHGs. In this vein, global energy consumption at the level of individuals is approximately 30%, accounting for 21% of the total CO_2 emissions. Despite the fact that environmental scientists around the world have been increasingly highlighting the critical contribution of individuals' unsustainable behaviors in increasing the environmental issues [6,7], it seems that a consensus has not yet been reached to decide what the factors are that guide pro-environmental behaviors (a kind of eco-friendly behavior) at the level of individuals.

Characterized by an accelerated rate of environmental deterioration due to intense industrialization, businesses are blamed for giving rise to environmental hazards. Massive industrial practices lead businesses to intense uses of natural resources. Therefore, businesses in almost every economy and sector now face continuous pressure from diverse stakeholders to mitigate their environmental footprint [8]. There is no denial in accepting the fact that industries in many economies, especially in developed economies, have taken different organizational measures toward carbon neutrality. Nevertheless, despite the importance of negative externalities of businesses from an environmental perspective, it is also important to promote the PEB of employees in an organization. Since negative externalities of businesses due to their industrial practices are not the only cause of the current environmental pandemic, it is worthwhile to promote PEB among employees. Compared to a household's sustainable behavior [9–11], research under the stream of PEB at the level of employees is still underexplored. Similarly, another knowledge gap that can be revealed by exploring the relevant literature is that a growing body of knowledge in the environmental domain has investigated PEB outcomes. The recent studies of Nisar et al. [12] and Ahmad et al. [7] are some relevant examples. From a competition and performance perspective, we think these studies were logical. However, we also feel it is worthwhile to investigate what drives PEB at the level of employees in an organizational context. Therefore, the basic aim of our research is to explore the factors that influence employees' PEB in an organizational setting, especially their energy consumption behavior.

The literature informs us that employee behavior is formed by different organizational and personal factors [13–16]. Research also shows that employees' perceptions regarding the corporate social responsibility (CSR) activities of an organization can influence the PEB of employees [17,18]. Similarly, the mediating role of green organizational practices was also recently discussed to spur PEB at the level of employees [19]. Likewise, the role of

personal factors like the altruistic values of individuals (caring for others) was also found influential in driving employees' PEB [20,21]. However, such studies are sparse, implying that there is a need to conduct more research in this area. Moreover, the mediating role of green organizational practices and the moderating role of altruistic values in a CSR-PEB framework have not been discussed previously, especially in a developing economy context. Therefore, it will be worthwhile to investigate such relationships to advance the debate on PEB and understand how PEB at the level of employees can help an organization for decarbonization by adopting energy preservation practices.

The target segment of this work will be the healthcare sector of Pakistan, which is a labor-intensive sector known for its out-sized environmental footprint. Healthcare staff, whether private or public, use massive natural resources, especially electricity (air conditioners, heating devices, other electric equipment, etc.), while delivering healthcare to their patients [22]—for example, leaving different electrical devices (surgical, heating and cooling, etc.) switched on while they were not in use. It is estimated that, if not managed efficiently, emissions from air conditioning will increase to almost 90% in 2050 compared to 2017 [23]. Although different developed countries, especially the regions of the EU, have improved their efforts towards decarbonization, the sustainability initiatives in most developing countries of the world are still way behind. Being included in the list of developing countries, Pakistan has been facing vulnerable climatic conditions in recent years [24]. To make matters worse, the environmental quality in the country declines with every passing year [25]. Different cities of Pakistan have been reported several times for their poor air quality index. The country needs emergency measures in all sectors to improve its environmental footprint, with no exception for the healthcare sector, which contributes to an increasing level of GHG emissions through different practices, especially by consuming a large amount of electrical energy. Hence, carrying out this research in a healthcare context will be helpful for this sector to provide fresh insight on how to reduce its environmental footprint by promoting PEB among employees as an outcome of CSR.

2. Literature Review

In order to formulate different hypotheses for this work, we underpinned a theoretical grounding in social learning theory (SLT). This theory was introduced by Bandura and McClelland [26], who posited that a person's social behavior is largely based on observing the behaviors of others. In an organizational context, employees observe the behaviors of others (peers, leaders, and the organization itself) and then imitate those behaviors by practicing them. Different behavioral researchers have long-employed the SLT to explain different individual behaviors in an organizational setting [17,27,28].

Specifically, it was stated that the social behavior of an organization that the workers observe in the form of different CSR activities could drive responsible behavior [29,30]. More specifically, an organization's CSR engagement conveys to the workforce that the organization is committed to reducing its environmental footprint under the umbrella of CSR [31]. This social orientation of a socially responsible organization is not only well-observed by the workers, but they also tend to implicate such behaviors on their part. This process thus motivates them to be engaged in PEB by avoiding such actions that negatively impact the environment, for example, reconsidering their approach towards energy consumption. Along with the CSR philosophy of a socially responsible organization, green organizational practices also guide the eco-friendly behavior of employees. In this vein, employees observe that their organization adopts different technologies that help decarbonization, such as using renewable energy or equipment that uses less electricity. The observation of such energy-efficient behavior of an organization ultimately urges the employees to learn the same. Hence, in response to the greening initiatives of an organization (especially toward energy consumption), employees become responsible and support their organization by minimizing their energy consumption level. In light of the above discussion, we feel that SLT can logically explain PEB at the level of employees as an outcome of CSR and green practices.

The literature discusses the positive influence of the CSR initiatives of an organization on employees' behaviors [27,32,33]. Even a positive relationship between the CSR engagement of a socially responsible organization and employees' PEB was established at different levels [6,17,18]. Indeed, it was noted that employees positively evaluate the CSR activities of an organization. Further, the social activities under the umbrella of CSR are observed by employees as social benefits for all stakeholders, including consumers, employees, the community, and the environment. In other words, when employees observe that their organization is not self-centered and is concerned for the greater benefit of society and the environment, they learn this social behavior as well. Specifically, in the context of sustainability and environmental management, a socially responsible organization shows extra commitment not only to preserve natural resources but to conserve such resources by using them efficiently [34]. Employees not only observe such resource preservation and conservation behaviors of their employer, but they also imitate these behaviors through the process of social learning, which is at the heart of SLT [28,35].

Further, following the crux of SLT, employees also become the agents of a socially responsible organization to support its sustainability objectives for a better and more sustainable future. In this vein, they partake in different eco-friendly behaviors. Furthermore, observing the resource conservation approach of their socially responsible employer, following the social learning process, employees apply the same approach to themselves. Thus, they also emphasize such practices that guide them to act in ways that produce minimum harm to the environment. For instance, they use less electricity (not turning on the air conditioners or electric lights unnecessarily, using stairs rather than electric escalators, etc.) and use public transport to reach the workplace instead of using their own vehicle [36]. All such activities are associated with their PEB [32,37]. The recent study of Si et al. [38] also mentioned the importance of an individual's mask-saving intentions in the post-COVID-19 era from a perspective of sustainability. The above discussion can be summarized by stating a positive link between CSR and employees' PEB. Therefore:

H1: *The CSR activities of a socially responsible organization positively influence PEB at the level of employees.*

It has been mentioned in the literature that, in response to increasing pressure from various stakeholders, organizations in the current era have adopted different green practices to decarbonize their environmental footprint [39,40]. Industries in the current age, irrelevant in size and sector, including healthcare, implement different green strategies under a CSR framework to achieve corporate sustainability [41,42]. Extending this debate, Lagoudis and Shakri [43] showed the importance of green initiatives in neutralizing carbon emissions. The work of Yu et al. [44] also discussed the importance of green practices of an organization as an outcome of CSR. They mentioned green purchasing and recycling initiatives as green practices of an organization from a CSR perspective. Hens et al. [45] emphasized the need for a greener organizational environment to deal with the environmental issues through inside and outside CSR plans. In the context of the IT industry, Bohas and Poussing [46] argued that an organization's discretionary CSR activities thrive on its potential to adopt green practices.

Despite the fact that a direct link between CSR and green organizational practices has remained a topic of discussion previously, recently, the mediating role of green organizational practices to spur PEB at the level of employees in a CSR framework was also discussed [19]. Afsar et al. [47] posited that enterprises need to integrate CSR activities into sustainable corporate strategies to influence the eco-friendly behavior of their employees. Employees positively evaluate the CSR activities of their organization [48,49], especially when they observe that their organization aligns its CSR activities with sustainability by adopting different green practices, the social learning process helps them to learn such behaviors. Ultimately, employees are self-convinced to respond positively to their socially responsible organization and provide their needed support to the organization for achiev-

ing its sustainability objectives. Thus, they become morally responsible by showing a better and more sustainable behavior to align themselves with the sustainability initiatives of an organization. Therefore, CSR activities not only influence the employees' PEB directly, but the presence of green organizational practices provides a further explanation for this relationship. Therefore:

H2: *CSR activities lead an organization towards the adoption of green practices.*

H3: *Green organizational practices mediate between CSR and PEB of employees.*

The role of personal values to influence the behavior of individuals is well-established in the literature at many levels [50,51]. For example, the literature mentioned that the individual values for collectivism could drive entrepreneurial behavioral intentions at the level of an individual [52]. The work of Frank et al. [53] posited that personal values could significantly influence the repurchase behavioral intentions of an individual. The study of Barbarossa et al. [54] highlighted the role of personal environmental values to adopt low-energy consumption technology equipment like electronic vehicles. From the perspective of employees in an organizational setting, it was noted that the environmental values of an employee motivate them to act pro-environmentally [55]. A similar case was reported by Sabokro et al. [56], who mentioned that employees' personal values for greening were positively related to employees' green behaviors. Although the seminal role of altruistic values to form sustainable behavior in individuals was discussed many years ago [57], nevertheless, the current environmental crisis throughout the globe urges scholars to investigate the role of altruistic values more explicitly for eco-friendly behavior formation at the level of individuals. Perhaps this is one of the reasons that a surge in the literature on environmental management from a value perspective (especially altruistic values) has been seen [58–60].

Although values provide a foundation for behavior formation, nevertheless, values only provide a general basis to guide one's behavior in a specific context. This indicates that, instead of examining the direct role of personal values on individual behavior, it is more important to test the moderating effect of such values in a specific framework. Buttressing this, Al-Ghazali and Afsar [61] discussed the conditional indirect role of employees' green values to spur employee green creativity in a green human resource framework. Similarly, the moderating role of personal values to guide the purchase behavior of individuals for low-carbon emission cars was also discussed recently [54]. In the same vein, the conditional indirect role of employees' green values in a transformational leadership framework was tested by Zhou et al. [62]. They reported a positive conditional indirect effect of green values between the mediated relationship of transformational leadership and green product development performance. From the perspective of CSR and PEB of employees, the recent work of Shao et al. [20] highlighted the important role of altruistic values to spur employees' PEB. To summarize the above debate, it can be stated that there is a clear role of individual values to form a behavior. However, the general nature of values requires a specific context to guide the behaviors of individuals in a specific direction. In this aspect, altruistic values stress the well-being of others, which is also the subject of a socially responsible organization that takes different measures through its green practices for a sustainable future. When combined, CSR and green organizational practices are generally believed to enhance PEB at the level of employees. However, employees' altruistic values provide further strength to this relationship. Therefore:

H4: *Altruistic values of employees moderate the mediated relationship between CSR and PEB via green organizational practices such that the relationship is strong in the presence of altruistic values.*

3. Methodology

3.1. Participants and Procedure

We selected the healthcare segment of Pakistan to test the hypothetical framework of our study (Figure 1). Known for its out-sized contribution to global GHGs, healthcare services need to enhance their sustainability efforts for net carbon neutrality. Especially during patient surgeries and healing processes, hospital staffs use intensive electrical energy, which directly contributes to GHG emissions. To elucidate further, some staff members do not switch off different electrical equipment, even when they are not in any use. To decarbonize this sector, it is important to promote sustainable behavior among employees in the healthcare sector. Being a labor-intensive sector of Pakistan [63], a change in employees' behaviors, especially in their energy consumption behavior, can definitely help the country improve its environmental quality, which is currently a widespread issue. Cities like Lahore and Karachi are known for their industrial activities in Pakistan. However, the masses in these two cities live in an environment surrounded by poor air quality. To further elucidate the climatic vulnerability in these two cities, climate data show that both of these cities are included in the list of top ten global cities notorious for poor environmental quality [31,64]. A large number of hospitals operate in these two cities (private and public); hence, we selected these cities as the base to collect the data for this work.
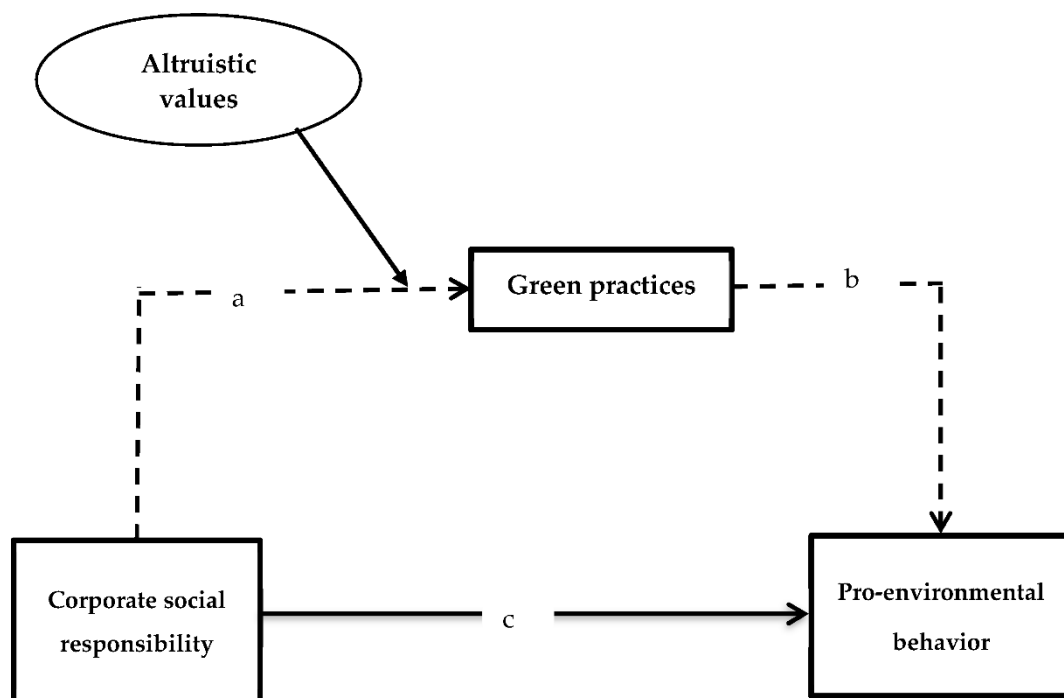

Figure 1. Hypothetical model of this study. Note: a, b, c shows the direction of variables.

We identified hospitals that were engaged in different CSR activities. We explored the web pages of different hospitals in this regard. Additionally, in some cases, we identified the CSR engagement of a hospital through personal visits. Nevertheless, this activity helped us form an initial list of potential hospitals to contact. Thus, we formally asked different hospitals to support us in the activity of data collection in the larger interest of the field and academia. Seven hospitals responded positively from these two cities, which we felt were sufficient to collect the data. We settled the different issues with the management of these hospitals, for example, the scheduling of surveys, dates to approach a hospital, etc. After addressing these issues, we then proceeded with the data collection activity.

3.2. Instrumentation

We employed an adapted questionnaire to collect the data from different hospital employees who were the respondents in this survey. The unit of analysis of this work was the "individuals". The respondent filled out the adapted questionnaire using the paper and pencil method. To ensure the suitability of our questionnaire, a group of experts (from academia and hospitals) was requested to assess the appropriateness of our questionnaire in line with the context of this research. Previous scholars also suggested these steps to validate a questionnaire before distributing it among the respondents [65–67]. Mainly, the questionnaire constituted two parts, which included the demographic information of respondents (age, gender, education, etc.) and the variable-related information on a five-point Likert scale. To maintain the ethical standards, we followed the major guidelines mentioned in the Helsinki Declaration as proposed by the previous researchers [68–71]. To explain further, the anonymity of every respondent was strictly maintained.

Similarly, informed consent was provided by every respondent. Likewise, the respondents were told that their participation was entirely voluntary. We distributed 700 questionnaires initially to be filled out by the employees. Eventually, we received a positive response of 63% (*n* = 441). A multiwave strategy was considered to collect the data. This was done due to two specific reasons. First, a multiwave data collection strategy may be helpful to reduce the issue of common method variance (CMV). Second, a multiwave strategy reduces the element of fatigue on the part of the respondents. In this regard, a two-wave strategy was considered in which the demographic information and employees' CSR perceptions of their organization were obtained. In the second wave, we collected the information from the remaining three variables. The data were collected between September and November 2021. The demographic information of the sample is presented in Table 1.

Table 1. Demographic details.

Demographic	Frequency	%
Gender		
Male	256	58.05
Female	185	41.95
Age-group (Year)		
18–25	88	19.95
26–30	112	25.40
31–35	102	23.13
36–40	83	18.82
Above 40	56	12.70
Experience (Years)		
1–3	96	21.77
4–6	177	40.14
7–9	101	22.90
Above	67	15.19
Education		
Graduate (14 years)	289	65.53
Masters	152	34.47
Total	**441**	**100**

3.3. Measures

To measure the variables of this analysis, we adapted measures from different sources. In this regard, to measure the variable of the CSR, we adapted the famous Turker scale [72]. Basically, this scale consisted of different items to measure employees' perceptions and customers' perceptions of different CSR activities for an organization. However, in line with the current study, we adapted 12 items—among which, six items were related to recording the general CSR perceptions of an organization, and the other six items were related to employees' CSR perceptions. Other scholars have also employed this scale [73–76]. An item of this scale was "Our hospital makes investments to create a better life for

future generations". The overall Cronbach's alpha value (α) of this scale was 0.929. To measure green organizational practices GOP, we borrowed 12 items from the study of Suganthi [19] that were process-related. For example, these items were intended to measure the employees' perceptions of the degree to which they agreed or disagreed that their hospital was engaged in greening activities. One item of this process-related scale included "The service delivery process design of our hospital is focused on reducing energy and natural resources consumption". We achieved a significant α = 0.858 for this scale. We employed the scale of PEB from the study of Blok et al. [77], which consisted of 4 items to measure the PEB of an employee with respect to energy consumption, with an α = 0.828. One item of this scale was "I switch off the air conditioner when the outside climate is ok". Lastly, the scale of altruistic values—A.L.V—was adapted from De Groot and Steg [78]. This scale included 8 items—among which, one item was "As a guiding principle in my life, I consider pollution prevention". A significant α = 0.872 was obtained in this case. Please refer Appendix A for the iteams used in survey.

4. Results

4.1. Validity and Reliability

We evaluated the validity and reliability of each variable before proceeding with the hypotheses testing in the phase of data analysis. To verify the convergent validity (CoV) and composite reliability (C.R), we initially evaluated the factor loading to assess if each item of the survey loaded significantly onto its respective factor (minimum λ > 0.5 and ideally $\lambda \geq 0.7$) [79]. A confirmatory factor analysis (CFA) was performed in AMOS to see the factor loadings of every item (Items: CSR = 12, GOP = 12, PEB = 4, and A.L.V = 8). We presented the results of the CFA in Table 2, along with the other results. It was noted that the λ values, in most cases, were significant; however, two items of GOP (GOP4 λ = 0.39 and GOP6 λ = 0.42) and one item of A.L.V (A.L.V5 λ = 0.38) were not significant. Hence we removed these three items from further analysis. After this process, we were able to calculate the CoV by using these factor loading values with the help of the formula given in Equation (1):

$$\text{AVE} = \frac{\sum_{i=i}^{k} \lambda_i^2}{\sum_{i=i}^{k} \lambda_i^2 + \sum_{i=1}^{k} .var(\varepsilon i)} \tag{1}$$

The common practice to decide whether a variable maintains a significant CoV is to detect a positive case with an average value extracted (AVE) value greater than 0.5. In this aspect, it can be seen from the results of Table 2 that all AVEs were positive and significant in each case (CSR, AVE = 0.621; GOP, AVE = 0.546; PEB, AVE = 0.636; and A.L.V, AVE = 0.567). Based upon these significant values, it can be stated that the CoV of each variable was sufficient. Next, we calculated the reliability values (C.R) for all of our studied variables. The factor loadings were again considered for such calculations by employing the formula given in Equation (2):

$$\text{CR} = \frac{(\sum \lambda i)2}{(\sum \lambda i)2 + \sum var(\varepsilon i)} \tag{2}$$

The results showed that the C.R values for all the variables were significant (>0.7), which means there was no critical issue in the C.R values of any variable (CSR, C.R = 0.951; GOP, C.R = 0.923; PEB, C.R = 0.875; and A.L.V, C.R = 0.901).

Table 2. Construct evaluations.

	Λ	λ^2	S.E	T.Values	E-Variance	AVE	C.R
CSR						0.621	0.951
	0.718	0.516	0.052	13.81	0.484		
	0.736	0.542	0.048	15.33	0.458		
	0.722	0.521	0.049	14.73	0.479		
	0.763	0.582	0.044	17.34	0.418		
	0.728	0.530	0.058	12.55	0.470		
	0.866	0.750	0.039	22.21	0.250		
	0.828	0.686	0.041	20.20	0.314		
	0.813	0.661	0.043	18.91	0.339		
	0.788	0.621	0.045	17.51	0.379		
	0.792	0.627	0.044	18.00	0.373		
	0.798	0.637	0.040	19.95	0.363		
	0.882	0.778	0.038	23.21	0.222		
GOP						0.546	0.923
	0.711	0.506	0.064	11.11	0.494		
	0.829	0.687	0.039	21.26	0.313		
	0.733	0.537	0.055	13.33	0.463		
	0.712	0.507	0.059	12.07	0.493		
	0.727	0.529	0.057	12.75	0.471		
	0.708	0.501	0.062	11.42	0.499		
	0.719	0.517	0.054	13.31	0.483		
	0.702	0.493	0.051	13.76	0.507		
	0.717	0.514	0.048	14.94	0.486		
	0.818	0.669	0.037	22.11	0.331		
PEB						0.636	0.875
	0.782	0.612	0.039	20.05	0.388		
	0.768	0.590	0.042	18.29	0.410		
	0.816	0.666	0.035	23.31	0.334		
	0.822	0.676	0.033	24.91	0.324		
A.L.V						0.567	0.901
	0.761	0.579	0.055	13.84	0.421		
	0.723	0.523	0.059	12.25	0.477		
	0.704	0.496	0.057	12.35	0.504		
	0.733	0.537	0.062	11.82	0.463		
	0.705	0.497	0.054	13.06	0.503		
	0.811	0.658	0.051	15.90	0.342		
	0.826	0.682	0.048	17.21	0.318		

Notes: λ = item loadings, C.R = composite reliability, $\sum\lambda^2$ = sum of squares of the item loadings, and E-Variance = error variance.

4.2. Correlations and Divergent Validity

In the next stage of the data analysis, we examined the results of the correlation analysis. These results are presented in Table 2. According to the results, different pairs of variables showed a positive correlational value (*r*). To explain further, the correlation between the CSR and PEB was positive ($r = 0.489$, $p < 0.01$); similarly, the correlation between the CSR and A.L.V was also positive and significant ($r = 0.444$, $p < 0.01$). A similar case could be observed between the CSR and GOP ($r = 0.322$, $p < 0.01$). These results provided initial support of our hypotheses statements.

Likewise, to see if the items of one variable were not similar to the items of other variables or, in other words, to establish divergent validity, we calculated the square root (SQ) of the AVE in every case (SQAVE for CSR = 0.788, GOP = 0.739, PEB = 0.797, and A.L.V = 0.753). These SQAVEs were compared with the correlation values. Generally, to establish a divergent validity, it is necessary that the SQAVE of a variable should be

superior to the correlation values. For instance, the SQAVE for CSR was = 0.788, whereas the *r*-values were (0.0322, 0.0489, and 0.444, respectively) inferior in all cases. Therefore, the divergent validity of the CSR was significant, which means that the items of the CSR were dissimilar from the items of the other variables. A similar case for the other variables can also be seen in Table 3 (the diagonal values).

Table 3. Correlations and discriminant validity.

Construct	CSR	GOP	PEB	A.L.V	Mean	SD
CSR	**0.788**	0.322 **	0.489 **	0.444 **	2.88	0.73
GOP		**0.739**	0.463 **	0.396 **	2.93	0.77
PEB			**0.797**	0.428 **	3.26	0.49
A.L.V				**0.753** **	3.17	0.42

Notes: S.D = standard deviation, ** = significant values of the correlation, and bold diagonal = discriminant validity values.

Table 4 shows the results of different measurement models, including the hypothesized model (model-4). This step was carried out to see which model significantly fits this work's dataset. Different alternate models (model-1, -2, and -3) were developed in this vein, which were then compared to the baseline model (model-4). It was found that the model fit values of our hypothesized model were most significant compared to alternate models. This was an indication that the hypothesized model was the most suitable model in the current study.

Table 4. Model fit comparisons of alternate vs. hypothesized models.

Model	χ^2	*df*	χ^2/df	$\Delta\chi^2/df$	NFI	CFI	RMSEA
4-factor (model-4)	1396.684	692	2.018	–	0.946	0.951	0.046
3-factor (model-3)	1825.569	667	2.736	0.655	0.878	0.893	0.049
2-factor (model-2)	1981.792	522	3.796	1.060	0.844	0.845	0.066
1-factor (model-1)	2258.281	518	4.359	0.563	0.786	0.791	0.074

4.3. Hypotheses Validation

Finally, we evaluated our hypothetical framework through structural equation modeling (SEM). To do this, we used AMOS software (version-23), which is advanced-level software, for the SEM analysis. Indeed, the structural analysis was completed in three stages. First of all, we developed a direct effect model. In this direct effect model, no mediation or moderation effect was measured. Rather, in this stage, we calculated direct effects to validate H1 and H2 of the current study. One can see Table 5 for the direct effect of structural model results. To arrive at a conclusion regarding H1 and H2, we considered the results of Tables 3 and 5. To elucidate further, the *r*-value between the CSR and PEB was 0.489, which was positive and significant. This was in line with the statement of H1 (a positive correlation). Similarly, the results of Table 5 were also in line with the statement of H1 (beta value—β1 = 0.493; S.E = 0.042; *CR* = 11.738; *p* < 0.01). These results indicate that CSR positively predicts the PEB of employees. Thus, it was statistically found that CSR influences PEB positively and significantly (H1 statement). Therefore, H1 of this study was accepted. Repeating the same previous steps, we found a similar conclusion for H2 to test the positive association between the CSR and GOP. Hence, H1 and H2 of this work were accepted in light of the statistical evidence.

Table 5. Direct effect structural model results.

Hypotheses	Relationship Nature	Beta Value (SE)	*t*-Value	*p*-Value	CI	Decision
H1: PEB←CSR	+	(β1) 0.493 **(0.042)	11.738	***	0.639–0.792	Accepted
H2: GOP←CSR	+	(β2) 0.362 **(0.051)	7.098	***	0.733–0.810	Accepted

Notes: CI = 95% confidence interval with lower and upper limits, and ** and *** = significant values.

To proceed further, in the second stage, we evaluated our structural model again by including GOP as a mediator in the model. Table 6 includes the results of the mediation analysis (upper row). To decide about the significance of the mediation effect of GOP, we used the bootstrapping option in AMOS [24] (a bootstrapping sample of 2000 was considered) with a 95% biased-corrected confidence interval. The mediation analysis results showed positive statistical evidence in favor of H3. It was noted that GOP partially mediates between the CSR and PEB of employees (PEB←GOP←CSR: β3 = 0.183, S.E = 0.026, Z-value = 7.038, $p < 0.01$). Furthermore, the mediation effect produced a positive effect (39%) on PEB. Based on these results, we concluded that H3 was statistically significant and accepted. Lastly, we included A.L.V in the structural model to test the conditional indirect effect (H4) in the third stage. The same previous bootstrapping steps were again considered. It was realized that the conditional indirect effect of A.L.V on the mediated relationship between the CSR and PEB via GOP was positive and significant, as the beta value for β4 was improved compared to β3 (β4 = 0.276, $p < 0.01$). Therefore, H4 of our study was also accepted.

Table 6. Mediation and conditional effects.

Path	Estimates	S.E	*t*-Value	*p*-Value	CI	Decision
H3:PEB←GOP←CSR	(β3) 0.183 **	0.026	7.038	***	0.428–0.511	Accepted
H4:CSR→GOP→PEB	(β4) 0.276 **	0.019	14.52	***	0.393–0.399	Accepted

Notes: CI = 95% confidence interval with lower and upper limits, ** and *** = significant values, and S.E = standard error.

5. Discussion

We carried out this study to fill some knowledge gaps to advance the field and academia. In this respect, we mentioned some objectives at the onset of this draft. Based on the statistical evidence, we are now able to discuss our results in line with the study objectives. The first objective of our research was to explore the factors that drive the PEB of employees, especially their energy consumption behavior. In this regard, the data showed that the sustainability activities of a hospital under its CSR practices could significantly influence the PEB of employees. Similarly, the mediating role of green organizational practices was also significant, as per the current analysis results. These results can be discussed further in light of the SLT. As per the basis of this theory, individuals learn different social behaviors from others through a social learning process. These learned behaviors then help the individual to guide their own behavior in a specific context. To this end, when employees observe different sustainability initiatives of a socially responsible hospital for decarbonization through its sustainable practices, the social learning process helps them to learn such socially responsible behaviors. Specifically, when a hospital adopts different energy-efficient measures by improving its service delivery processes (for example, using solar energy instead of conventional nonrenewable energy), employees learn this intention clearly from their organization that resource conservation is preferred in this organization. Through the social learning process, they imitate such social intentions of their organization and practice the same on their part by changing their behaviors in resource consumption, especially their energy conservation behavior. Therefore, the

CSR orientation of a hospital guides the PEB of employees, and they show their greater intentions to reduce their energy usage for net carbon neutrality. This finding of our work that a positive association exists between the CSR and PEB of employees was also supported by previous researchers [6,80]. However, this relationship in the current context, especially from an energy consumption perspective, was barely investigated previously.

Similarly, our work also highlights the mediating role of green organizational practices to spur the relationship between CSR and PEB in the healthcare sector of Pakistan. With this regard, it was realized that, when a hospital takes different steps towards a greener and cleaner environment, for example, replacing the old equipment with new eco-friendly and more energy-efficient technologies, such moves provide a further explanation for developing a positive relationship between CSR and PEB. Though a general relationship exists between employees' CSR perceptions and PEB, the presence of green organizational practices further guides the eco-friendly behavior of employees. The role of green organizational practices as a mediator was also discussed recently in the CSR framework [19,81]. Lastly, our results also discuss the conditional indirect role of altruistic values in the mediated relationship of CSR and PEB via green organizational practices.

Given that the role of values to guide individual behaviors was reported earlier [52,54], it was important to investigate the role of altruistic values in the current framework. As was expected, the results showed that, in the presence of altruistic values of employees, the mediated relationship between CSR and PEB at the level of employees was stronger, which was not the case in its absence. This implies that employees' altruistic values and the sustainability value of a hospital form a value congruence between employee and employer. Since both the CSR orientation of an organization and altruistic values of employees focus on the well-being of others, the presence of one leads to enhancing the strength of others. Therefore, the altruistic values of employees are influenced by the CSR activities of an organization, which then provide strength to the relationship between CSR and PEB via green organizational practices.

5.1. Theoretical Implications

Our work advances the theory in the following ways. First, our work extends the theoretical debate on carbon neutrality by changing their environmental behaviors, especially towards energy conservation, from a CSR perspective. In this aspect, a bunch of studies in the field of carbon emission and energy management were conducted from other perspectives, in which the role of employees was not considered to support an organization for decarbonization. We can refer to the studies of Shan et al. [82] and Shao et al. [83] to support our above argument. Second, our work also extends the debate on CSR and organizational management literature. In this regard, the previous researchers approached CSR from a philanthropic orientation to benefit a society [84,85]. For instance, an organization supporting community education or carrying out different charitable activities. Although approaching CSR from a philanthropic context was important, however, in the current era, which is facing environmental issues at all levels, it was more important to discuss the role of CSR in the decarbonization efforts of an organization. Third, our research advances the available literature on sustainability from the context of a developing economy.

Given that most developed countries, especially from the EU region, have taken different measures towards a net-zero carbon emission by 2050, the case for most developing countries presents a converse story, because developing countries still lag behind in their sustainability initiatives. Therefore, extending the academic debate on the current topic was important. Lastly, our research contributes to the existing literature from a service perspective. A plethora of previous studies in the field of GHGs emissions was conducted in manufacturing industries. Considering the direct environmental hazards that manufacturing industries produce through their industrial operations, we did not undermine the previous work; however, the consideration of the services sector was also important. Especially from a perspective of energy efficiency and resource conservation, it was important to highlight the role of the services sector in net carbon neutrality.

5.2. Practical Implications

Our research also contributes significantly to the healthcare sector of Pakistan by offering different practical implications. To this end, the first critical implication for the field is to understand the seminal role of CSR from a sustainability perspective. Specifically, our research suggests that, despite different organizational measures for energy efficiency (solar energy, green innovation, renewable energy, building design, etc.), there is a clear role of employees in improving the carbon footprint of a hospital. As a labor-intensive sector, if employees' attitude towards energy conservation is improved, there is a greater possibility for the country to improve its environmental footprint. From this perspective, well-planned CSR activities and green organizational practices of a hospital can play a significant strategic role in promoting the PEB at the level of employees.

Second, on practical grounds, our results can help a country like Pakistan that is already facing an energy crisis. In this vein, it was identified that buildings in the country contribute to more than 40% of the GHGs emissions. Further, 75% of the electricity in Pakistan is used in buildings; among which, around 40% of electricity is consumed for cooling, heating, or ventilation. Furthermore, hospitals in Pakistan consume around 20% of the electric energy [86], which clearly indicates the need for efficient energy management in this sector. Reflecting the above discussion in the current context, the PEB of employees, specifically from the perspective of energy efficiency, can be a way forward for the healthcare sector to achieve its sustainability objectives. Currently, few hospitals in Pakistan are using clean or renewable energy sources; for example, Jinnah Postgraduate Medical Centre in Karachi has established one of the largest solar systems in healthcare for clean and green electricity production. The project was supported by the World Bank [87,88]; however, further efforts to continue this tendency are also required. Importantly, shifting from conventional nonrenewable energy to clean and green energy requires extensive finances; however, dealing with the energy issues by changing the behaviors of employees will not require huge finances, so, for this, a better and well-planned CSR strategy can do wonders.

5.3. Limitations and Future Research Guidelines

Although this work was important to advance the debate on decarbonization through employees in a healthcare context, it still faces some limitations that we want to highlight and provide some suggestions to deal with these issues in the future. A first limitation of our study was the geographic concentration of our work. This work was carried out in two large Pakistan cities, which makes this work's generalizability claim is a bit weaker. Though conducting research in these two cities was important because a plethora of hospitals operate there, for future perspective, it is still suggested to consider more cities from other regions of Pakistan. A second limitation of our work went with its approach to the sampling process. Given that hospitals did not share any lists of their employees with us due to different policy reasons, it was hard to apply a probability sampling technique that is considered superior to a nonprobability sampling technique (the case with the current research). Therefore, it is advisable to adopt a probability sampling technique in future studies if possible. A third limitation lies with the nature of the data, because establishing causal relations is difficult in the presence of a cross-sectional data design. Although the proposed relationships were significant, we still suggest that future researchers consider a longitudinal data design for more robust results and generalizability.

6. Conclusions

Considering a large amount of energy consumption in the building sector globally, the concept of renewable energy in buildings will remain a hot topic of discussion even in the future. However, working only on the production side of clean and green energy is not enough, because along with production, energy utilization is also a matter of consideration. This aspect highlights the importance of individuals' behaviors towards energy consumption. In this regard, efforts to change individual behaviors at all levels are required, with

no exception in the healthcare sector. However, a change in human behavior requires a deeper understanding of the factors that drive individual behavior in a specific context. To this end, hospital management needs to understand that a carefully planned CSR strategy and adoption of green practices can change employees' behaviors from the standpoint of sustainability.

Moreover, there is a clear role of personal values to influence their behaviors. Especially, employees with altruistic values can help a hospital to reduce its carbon footprint. In this regard, hospitals need to reevaluate their hiring and screening procedures to assess employees with higher altruistic values. A better recruitment and selection procedure will help a hospital from the perspective of sustainability, but an arrangement of different training sessions to elevate altruism among employees is also suggested. To conclude, considering the climate vulnerability worldwide and hoping to achieve a net-zero carbon emission in 2050, it is important to manage the supply side of energy (production of energy through green resources), and the consumption side (individual utilization of energy) also requires better management. For this, organizations, especially the healthcare sector, can take advantage of CSR to change employees' energy consumption behaviors for a better and more sustainable future.

Appendix A. The Items Used in the Survey

Items
Our hospital participates in activities that aim to protect and improve the quality of the natural environment (CSR-1)
Our hospital makes investments to create a better life for future generations (CSR-2)
Our hospital implements special programs to minimize its negative impact on the natural environment (CSR-3)
Our hospital targets sustainable growth, which considers the future generations (CSR-4)
Our hospital supports the non-governmental organizations that work in the problematic areas (CSR-5)
Our hospital contributes to the campaigns and projects that promote the well-being of society (CSR-6)
Our hospital encourages its employees to participate in voluntary activities (CSR-7)
Our hospital's policies encourage the employees to develop their skills and careers (CSR-8)
The management of this hospital is primarily concerned with the employees' needs and wants (CSR-9)
Our hospital implements flexible policies to provide a good work environment and life balance for its employees (CSR-10)
The managerial decisions related to the employees are usually fair (CSR-11)
This bank supports employees who want to acquire additional education (CSR-12)
I switch off the lights when I leave my office for a considerable period of time, and there is no one else (PEB-1)

I switch off the air conditioner when the outside climate is ok (PEB-2)

I check whether thermostats of heating or cooling devices are set correctly in my office ((PEB-3)

Instead of using air conditioner or a heating device, I wear suitable clothes to deal with the weather situation. (PEB-4)

The process design ensures there are emission filters and end-of-pipe controls in our hospital (GOP-1)

The process design is focused on reducing energy and natural resources consumption in operations (GOP-2)

Operational planning and control is focused on reducing waste and optimizing materials exploitation (GOP-3)

Our hospital prefers clean technology/equipment in the operational process (GOP-4)

Our hospital prefers purchasing green equipment for the operational process (GOP-5)

During supplier selection, environmental criteria are checked (GOP-6)

Wherever possible our hospital combines several individual consignments (e.g., medicines and other equipment) to make a full container load (GOP-7)

Our hospital prefers cleaner transportation methods (GOP-8)

Our hospital prefers recyclable or reusable packaging/containers in logistics (GOP-9)

Our hospital prefers ecological materials for primary packaging (GOP-10)

The operational processes have recuperation and recycling systems (GOP-11)

The process design ensures responsible disposal of hospital wastes (GOP-12)

Unity with nature (ALV-1)

Preventing pollution (ALV-2)

Protecting the environment (ALV-3)

Respecting the Earth (ALV-4)

Social justice (ALV-5)

A world at peace (ALV-6)

Helpful to others (ALV-7)

Equality (ALV-8)

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