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Design and Validation of a Model Identifying the Dimensions and Determinants of Corporate Social Responsibility Development, With an Emphasis on Green Nudges in the Social Security Health Management of Kurdistan Province

ABSTRACT

This research aimed to construct and assess a model for the dimensions and factors impacting the advancement of corporate social responsibility, emphasizing green nudges. The study was descriptive-exploratory in its goals and used a mixed-methods design (sequential qualitative-quantitative). In the qualitative section, a phenomenological method was adopted to study and interpret the views and experiences of specialists, to identify the dimensions and elements forming the research model. In the quantitative section, the designed model was examined and verified. The qualitative part included university experts and executives from the Social Security Healthcare Management Organization, who had in-depth familiarity with the subject matter. A purposive non-random sampling technique was employed to select participants, and theoretical saturation was reached after collecting the insights of 15 specialists. The quantitative population included senior officials, administrative heads, HR managers, deputies, supervisors, and analysts from the Social Security Healthcare Management Organization in Kurdistan Province, as well as personnel from Saqez and Sanandaj hospitals and operating clinics in other cities of the province. The sample count was established using the Krejcie and Morgan (1970) table, and a stratified random sampling method was used. For collecting data, semi-structured interviews were utilized in the qualitative stage to determine the effective elements and variables of the research model, and in the quantitative stage, a researcher-designed questionnaire based on the qualitative findings was employed. Regarding data analysis approaches, phenomenology was used in the qualitative stage through a three-step coding system (open, axial, and selective), whereas in the quantitative section, the gathered data were assessed using SPSS and SMARTPLS software tools. Results from the qualitative section demonstrated that the model comprised six dimensions and 27 elements: focus on cultural enhancement needs (6 elements), focus on efficient use of organizational capacities (5 elements), focus on collaborative and interactive necessities (5 elements), focus on applying proven scientific and practical practices (5 elements), focus on strategy, planning, and policy-making needs (4 elements), and focus on governance and institutional bodies (3 elements). Quantitative results indicated that with t-values higher than 1.96 (at the 95% confidence level), all relationships among the study variables were verified, and the resulting values (being below 0.05) were statistically meaningful. Moreover, fit indicators—like the normalized fit index, root mean square residual standardized index, and the outer model's residual covariance matrix index—were within acceptable limits, thereby verifying the suitability of the model's fit.

Keywords: Model design and validation, corporate social responsibility development, green nudges.

Introduction

Corporate social responsibility (CSR) has increasingly become a focal point of academic and managerial discourse, reflecting the evolving expectations of organizations to act as socially responsible entities in addition to pursuing financial performance. Scholars emphasize that CSR embodies the set of obligations an organization has toward society and the environment, obligations that extend beyond legal compliance and profit maximization [1, 2]. At the same time, environmental degradation, climate change, and resource depletion have placed sustainability at the center of organizational strategies worldwide, pressing organizations to consider the ecological impact of their operations [3, 4]. Within this discourse, employee pro-environmental behavior is recognized as a critical determinant of how organizations translate CSR commitments into practice, with workplace spirituality, intrinsic motivation, and environmental passion identified as key antecedents of sustainable conduct [1, 5].

While conventional CSR frameworks have highlighted ethical, economic, and social dimensions, the growing emphasis on environmental stewardship has underscored the importance of innovative approaches to behavioral change. Nudging, as introduced in behavioral economics, has provided a new lens through which organizations can influence individual and collective decisions without coercion, by subtly altering choice environments [6]. The concept of "green nudging" extends this behavioral perspective to environmental contexts, encouraging individuals to adopt eco-friendly practices through social comparisons, defaults, or informational cues. For example, studies have shown that providing households with information on their energy use relative to neighbors can significantly reduce consumption [7]. Meta-analyses across multiple domains confirm that nudges are broadly effective in shaping behavior in desirable ways [8]. In organizational settings, nudging has emerged as a promising tool to strengthen CSR initiatives by linking individual actions to collective environmental outcomes [9, 10].

The integration of nudges into CSR also reflects broader debates about organizational agency and autonomy. Libertarian paternalism suggests that nudges respect freedom of choice while guiding individuals toward welfare-enhancing behaviors, yet critical scholars argue that organizations must carefully consider the ethics of influencing employees' subconscious decisions [6]. Nevertheless, growing evidence suggests that nudges can align with employees' values and intrinsic motivations, fostering authentic pro-environmental conduct [5]. Experimental and field studies have demonstrated that employees' place attachment, recycling behavior, and substitution practices are positively influenced by organizational nudges, reinforcing the notion that behavioral interventions complement traditional CSR mechanisms [11, 12].

At the same time, CSR as a strategic construct continues to evolve, integrating digital technologies, stakeholder engagement, and sustainability imperatives. Scholars argue that CSR contributes not only to organizational legitimacy but also to employee satisfaction, citizenship behaviors, and long-term competitiveness [13, 14]. Digital transformation has expanded the ways organizations implement CSR, with digital platforms enabling transparency, stakeholder participation, and improved accountability [15]. In parallel, human resource management has been reframed to incorporate CSR values into leadership culture and employee development, fostering a work environment where social and environmental responsibilities are embedded into daily practices [16, 17].

Despite this global momentum, disparities in CSR adoption persist between developed and developing countries. In advanced economies, governments and civil society have established institutional frameworks that incentivize CSR, while in many developing nations, CSR is hampered by weak governance, lack of transparency, and competing economic priorities

[18]. Scholars caution against transplanting CSR models from developed contexts without adaptation, advocating for approaches tailored to local socio-economic and cultural conditions [18]. This is particularly relevant in public sector organizations and healthcare systems, where trust, equity, and stakeholder engagement are critical. Empirical research demonstrates that organizational transparency significantly strengthens CSR, especially in public organizations delivering essential services [19]. For instance, studies in the Iranian banking sector identified five CSR dimensions—economic, political-legal, cultural-ethical-social, humanitarian, and technological—underscoring the multidimensional nature of responsibility in contexts with high social visibility [20].

The behavioral perspective provided by green nudging adds a valuable dimension to these structural and strategic models. In experimental economics, nudges combined with fiscal policies such as taxes have been shown to influence contributions to environmental public goods, with individuals' environmental sensitivity moderating their responses [10]. Similarly, in organizational contexts, nudges have been linked to subconscious cognitive processes that drive sustainable conduct, suggesting a role for CSR in aligning organizational strategy with employees' implicit motivations [12]. Models of sustainable consumption highlight how environmental attitudes, personal norms, and behavioral intentions interact with nudging to shape pro-environmental outcomes, demonstrating the complex interplay between individual agency and organizational architecture [21].

The relevance of CSR to healthcare organizations adds another layer of urgency. Unlike commercial firms, healthcare institutions operate under heightened public expectations, as their responsibilities directly influence social welfare and community well-being. In such contexts, the absence of clear CSR frameworks has been shown to undermine stakeholder trust and organizational legitimacy [19]. Furthermore, research suggests that employee collaboration, transparency, and stakeholder engagement are critical in overcoming barriers to CSR implementation, particularly when environmental responsibilities are involved [3, 4]. Public organizations, including healthcare providers, thus face the dual challenge of improving efficiency and sustainability while also meeting the ethical and social obligations embedded in CSR.

Given these considerations, scholars have increasingly highlighted the potential of CSR to improve long-term profitability, reduce reputational risks, and foster resilience in times of crisis [13, 14]. In healthcare and public services, CSR also carries the potential to improve patient outcomes, ensure equitable access, and promote environmental stewardship in highly resource-intensive systems. Integrating green nudging into CSR frameworks represents an opportunity to translate abstract commitments into concrete practices by influencing employee behavior in ways that respect autonomy yet promote collective goals. This complements broader organizational strategies such as policy-making, planning, and leadership development [19, 20].

Despite the proliferation of research on CSR, pro-environmental behaviors, and nudging, the literature reveals important gaps. Much of the existing research focuses on private industry or government sectors outside healthcare [5, 11]. Studies have demonstrated the effectiveness of nudges in experimental and consumer contexts [10, 21], yet comprehensive models uniting CSR with green nudging in healthcare organizations remain scarce. Furthermore, developing countries continue to face unique institutional and cultural challenges that limit CSR's effectiveness unless adapted to local realities [18]. While digital transformation and HRM 2.0 approaches offer promising avenues for integrating CSR into organizational practices [15-17], empirical research in the healthcare sector remains limited.

Taken together, these insights illustrate the need for a deeper exploration of how CSR can be developed and institutionalized through green nudges in healthcare organizations. The combination of behavioral interventions, organizational transparency, and strategic CSR frameworks offers a pathway to addressing environmental concerns while meeting the ethical and social expectations of stakeholders. In contexts such as healthcare management, where sustainability and responsibility intersect directly with public trust, the integration of green nudging into CSR represents a novel and timely area for academic inquiry and organizational practice. This research aimed to construct and assess a model for the dimensions and factors impacting the advancement of corporate social responsibility, emphasizing green nudges.

Methods and Materials

This study is descriptive-exploratory in its objectives and utilizes a mixed research approach (qualitative-quantitative, sequential). In the qualitative phase, a phenomenological method was employed to investigate and analyze the views and experiences of experts and scholars to identify the dimensions and components that influence the development of corporate social responsibility (CSR), particularly focusing on green nudging. A conceptual model was developed based on these insights. Following this, the proposed model was tested and validated in the quantitative phase. The qualitative participants included academic experts and managers working in the healthcare management division of the Social Security Organization, all of whom have in-depth knowledge of the research topic. Non-probability purposive sampling was applied to select the sample, with theoretical saturation reached after gathering input from 15 experts. The inclusion criteria for participants in the qualitative phase of the study were as follows:

1. Selection of academic individuals or active managers within the healthcare management organization of the Social Security Organization who had sufficient knowledge of the research topic had adequate professional or academic experience and were interested in participating in the study.
2. Having sufficient work experience (at least 10 years of work experience in either the academic environment or the healthcare management organization of the Social Security Organization).

The demographic description of the interviewees (the selected samples in the qualitative section) indicated that, in terms of gender, 4 experts were women and the rest were men. Six of the experts held a PhD in specialized fields and were faculty members of universities (4 associate professors, 1 full professor, and 1 assistant professor), while the remaining experts held a PhD in general medicine. These experts included the heads of Sanandaj Hospital, Saqqez Hospital, Baneh General Clinic, Marivan Specialized Clinic, Bijar Specialized Clinic, Qorveh Specialized Clinic, Divandarreh General Clinic, and the head of the Sanandaj Polyclinic. In terms of work experience, all interviewees had more than 10 years of work experience (with 5 experts having 11 to 15 years of experience, 5 experts having 15 to 20 years, and the remaining experts having over 20 years of experience).

On the other hand, the statistical population for the quantitative section of the research consisted of senior managers, administrative managers, human resources managers, deputy managers, supervisors, and experts from the Healthcare Management Organization of the Social Security Organization in Kurdistan province, along with two hospitals in Saqqez and Sanandaj, and active clinics in various cities of the province (including Baneh, Divandarreh, Qorveh, Marivan, Kamyaran, Bijar, and Sanandaj, etc.) (detailed in Table 1). To determine the required sample size for this population, the Krejcie and Morgan (1970) table was used, which resulted in a recommendation of 77 samples. Additionally, stratified random sampling was

applied to select the sample from this population. The number of samples taken from each stratum is listed in Table 1. It is worth mentioning that after collecting 77 questionnaires from members of the study population, a description of the demographic variables—gender, age, education, and work experience—was conducted. The results showed that 32.4% (25 respondents) of the participants were women, while 52% (62 respondents) were men. Thus, the majority of the participants were male. Most of the respondents were over 46 years old (more than 68%). Additionally, most of the respondents held a master's degree or higher (over 81%), and the majority had between 11 and 20 years of work experience (more than 54%).

Table 1.

Population and Sample Size of the Study by Category

Study Population:	Population Size	Percentage of Total Population	Sample Taken	Percentage of Total Sample
Senior managers, administrative managers, human resources managers, deputies, and supervisors of the Social Security Organization's Treatment Management in Kurdistan Province.	19	20.2%	16	20.2%
Experts from various departments of the Social Security Organization's Treatment Management in Kurdistan Province.	27	27.8%	23	27.8%
Director, manager, head of financial affairs, and heads of various administrative departments of Sanandaj Hospital.	15	15.5%	12	15.5%
Director, manager, head of financial affairs, and heads of various administrative departments of Saqqez Hospital.	15	15.5%	12	15.5%
Polyclinic of Sanandaj, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Divandareh Clinic, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Kamyaran Clinic, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Bijar Clinic, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Marivan Clinic, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Qorveh Clinic, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Baneh Clinic, including the director, head of financial affairs, and head of administration.	3	3%	2	3%
Total	97	100%	77	100%

Given the mixed-method approach, the data collection tools used were as follows: in the qualitative section, semi-structured interviews were conducted to identify the factors and components influencing the development of the research model, while in the quantitative section, a researcher-designed questionnaire was based on the dimensions and components identified in the qualitative section. Specifically, in the qualitative part, after coordinating with the samples, the following questions were asked of the interviewees, and their responses were collected for subsequent analysis:

1. What are your experiences regarding the development of corporate social responsibility with an emphasis on green nudges?
2. In your opinion, what obstacles and challenges does the development of corporate social responsibility with an emphasis on green nudges face in the management of social security healthcare in Kurdistan Province?
3. In your opinion, what advantages and outcomes can the development of corporate social responsibility with an emphasis on green nudges bring to the management of social security healthcare in Kurdistan Province?
4. What conditions (both internal and external to the organization) do you think are necessary and important for the realization of corporate social responsibility with an emphasis on green nudges in the management of social security healthcare in Kurdistan Province?
5. Please provide any additional comments on the topic being discussed.

For collecting quantitative data to answer the related questions, a survey method was used, and a researcher-designed questionnaire was employed. Based on the dimensions and components identified in the qualitative phase, the questionnaire was developed, and after testing its validity and reliability, it was used to gather data from the target population. The

questionnaire consisted of 54 items related to 27 components, utilizing a 5-point Likert scale. The questionnaire was divided into two sections: the first section included demographic variables (such as gender, age, education, and work experience), and the second section contained the main research questions. The output of using this tool was aimed at testing and validating the research model.

In this study, to assess scientific validity in the qualitative section, four criteria were used: credibility, transferability, dependability, and confirmability. Efforts were made to select participants with a maximum diversity of experiences, and their viewpoints and opinions were used as the basis for review. In the quantitative section, the following methods were used to assess validity and reliability:

1. **Discriminant Validity:** Discriminant validity was measured using the Fornell-Larcker test (see results in Table 5).
2. **Convergent Validity:** Convergent validity in this study was measured using the Average Variance Extracted (AVE) test (see results in Table 6).

Additionally, in this study, Cronbach's alpha coefficient was used to determine reliability (see results in Table 7).

In terms of data analysis methods, it should be noted that in the qualitative section, a phenomenological approach was used. The phenomenological method is a qualitative research approach that explores and analyzes the in-depth views, emotions, and experiences of the sample group regarding specific phenomena. Based on this approach, the data analysis method used in the research was inductive content analysis. Since there were no pre-determined structures or categories, a three-stage coding process (open, axial, and selective) was employed. In the quantitative section, after data collection, the information was analyzed using statistical software such as SPSS and SMARTPLS.

Findings and Results

After conducting interviews with 15 participants, the qualitative analysis based on the three-stage coding process was performed using the data collected from the interviews. In the end, the conceptual model based on the identified categories and concepts was presented. The stages of this three-stage coding process are as follows:

Open Coding: In this stage, the interview texts were read line by line, and the corresponding open codes were extracted. A sample of the interview text (Table 2) and the extracted codes (Table 3) are presented.

Table 2.

A Sample of Interview Texts Conducted with Experts

Excerpt from the Interview with Expert 1:
Based on my experiences (both in the workplace and academic), I have realized that relying on a single method is not effective. A combination of various methods, techniques, and tools should be used to promote corporate social responsibility (CSR), with an emphasis on environmental responsibility. The Green Nudge tool is one of these methods and helpful tools for implementing this strategy and achieving the desired outcomes. To achieve this, specific organizational actions and policies should be monitored and aligned with stakeholder expectations. Additionally, effective communication and awareness-raising initiatives, along with management innovations and the allocation of sufficient resources, should be implemented to achieve the final result. A clear program and strategy, as well as the necessary budget and financial resources for training and awareness programs, should be in place. The capacity for stakeholder participation (both internal and external) should be utilized optimally, and after implementing the Green Nudge, a feedback and evaluation process should be conducted to assess the outcomes and measure the extent to which our objectives are achieved.
Excerpt from the Interview with Expert 2:
The Green Nudge is seen as a normative cost that organizations must consider to effectively implement green leadership. Any organization aiming to engage in environmentally responsible behavior needs to bear this cost to direct its employees and stakeholders toward developing green behaviors and cultivating a sense of responsibility toward the surrounding environment. My experience tells me that CSR, with an emphasis on the Green Nudge, has improved in the country in recent years, and awareness among managers has increased. However, there is still a significant gap between theory and practice, and therefore, the development of specific mechanisms and practical steps for CSR requires a clear understanding of the existing gap and planning to bridge it. This is not something that can be achieved overnight; it should be a gradual process over time.
Excerpt from the Interview with Expert 3:
Despite some efforts by government organizations in the field of CSR, I believe that there have been limited initiatives specifically focusing on environmental issues. What we observe in the country's organizations is an overemphasis by managers on financial performance and evaluations from that perspective, while the positive impact of promoting CSR on overall organizational performance is often overlooked. As a manager in a public organization, if we are considering the development of CSR with a focus

on the Green Nudge, we need to establish collaboration and cooperation between all internal and external groups that influence or are affected by the organization's decisions.
Excerpt from the Interview with Expert 4:
Implementing CSR activities that can bring positive effects requires certain prerequisites, frameworks, and infrastructure, including human, financial, and informational resources. By leveraging the synergy of these resources, a model can be developed to guide CSR activities within the organization. However, it is important to note that when we are still faced with challenges in government organizations such as ineffective leadership, poor management, and politically motivated changes, it becomes difficult to set overarching goals, create plans, and conduct thorough evaluations. To sum it up, achieving CSR requires certain essential prerequisites and infrastructures, and slogans, speeches, and a few seminars will not lead to significant outcomes in our organizations.
Excerpt from the Interview with Expert 5:
Since the focus of the Social Security Organization is on meeting public expectations and fulfilling its CSR responsibilities, this approach can lead to long-term profitability and positive effects for the organization's stakeholders. Therefore, it is essential to design and implement clear and specific strategies for CSR and the efficient use of the Green Nudge tool, in collaboration with all stakeholders, to achieve the potential effectiveness of this approach. To promote environmental behaviors and elevate social responsibility within these organizations, they need to focus on learning from successful organizations, collaborating with other effective entities, and establishing CSR structures within their organization for practical implementation.

Table 3.

A Sample of Extracted Codes from Interview Texts

Number	Open Codes Derived from Interviews:	Number	Open Codes Derived from Interviews:
1	Understanding stakeholder expectations	12	Overcoming cultural barriers to implementing the "Green Nudge" in the organization
2	Recognizing the importance of environmental issues and environmental behaviors	13	Focusing on organizational participation
3	Serious support from higher-level responsible institutions	14	Clear program and strategy
4	Sufficient and comprehensive knowledge of the "Green Nudge" tool and its functions	15	Feedback and evaluation process regarding the outcome and achievement of goals
5	Organizational and management concerns	16	Utilizing the capacity and potential of stakeholder participation in the organization
6	Employing skilled internal and external personnel	17	Education and Awareness
7	Formulating clear and specific strategies and solutions in the field of corporate social responsibility	18	Awareness of the role and function of the "Green Nudge" tool in promoting desirable environmental behaviors
8	Cooperation and collaboration with all stakeholders of the organization	19	Understanding the function of the "Green Nudge" in promoting desirable environmental behaviors in government organizations
9	Avoiding slogan-driven management	20	Avoiding superficiality and hollow slogans
10	Considering the capacity, talents, and internal capabilities	21	Emphasizing the importance of academic research on the "Green Nudge" and its functions at the national level
11	Synergy with other environmentally responsible institutions	22	Sharing findings

It should be noted that after conducting 15 interviews, 218 initial codes were extracted.

2. Axial Coding: After conducting open coding, in this stage, codes, and categories that were similar to each other were merged using the axial coding method. The result of this work was the identification of subcategories and main categories (Table 4).

Table 4.

Findings from Axial Coding

Number	Public awareness	Main categories (resulting from the aggregation of subcategories)
1	Managers' attitudes toward the function of green nudging	Attention to the requirements of cultural development
2	Providing continuous and systematic training	
3	Managers' concerns and beliefs about the function of green nudging	
4	Collective encouragement and motivation	
5	Establishing accountability mechanisms and transparency	
6	Mobilizing essential resources and capabilities	
7	Employing skilled external consultants	Attention to the requirements of optimal utilization of organizational resources
8	Utilizing experienced in-house human resources	
9	Using skilled and knowledgeable managers	
10	Creating a conducive environment	
11	Considering stakeholders' needs and expectations	
12	Engaging with external stakeholders	Attention to the requirements of cooperation and interaction
13	Internal organizational cooperation and interaction	
14	Synergy with other environmental governing bodies	
15	Sharing best practices	

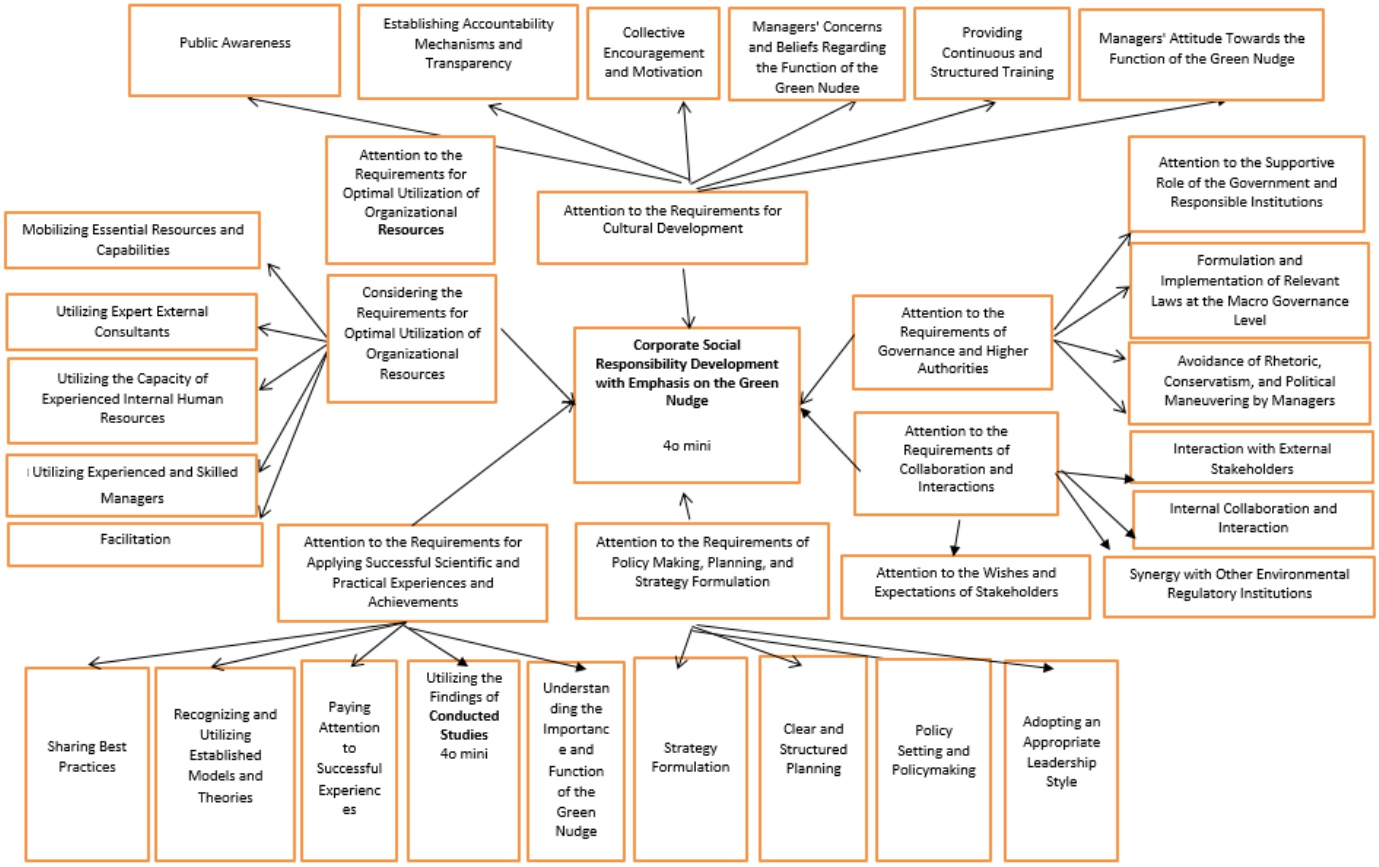
16	Recognizing and utilizing valid models and theories	Attention to the requirements of utilizing successful scientific and practical experiences and achievements
17	Paying attention to successful experiences	
18	Using findings from conducted studies	
19	Understanding the importance and function of green nudging	
20	Developing strategies	
21	Specific and systematic planning	Attention to the requirements of policy-making, planning, and strategy development
22	Policy-making and strategizing	
23	Employing appropriate leadership styles	
24	Acknowledging the supportive role of the government and responsible institutions	
25	Developing and implementing related laws at the macro governance level	Attention to the requirements of governance and higher-level institutions
26	Avoiding slogans, conservatism, and political maneuvering by managers	
27	Public awareness	

The findings showed that 6 dimensions (main categories) and 27 components (subcategories) are effective in corporate social responsibility development with an emphasis on green nudging.

Selective coding: After identifying the categories (main and subcategories), the results of this coding are presented in the form of a conceptual model as shown in the diagram below.

Figure 1.

Proposed Conceptual Model of the Study



The results of this test, using the Fornell-Larcker test, as shown in the table below, indicate that the variables are significantly distinct from each other, and therefore, this validity is confirmed. The table below shows the results of this test.

Table 5.

Results of convergent validity testing

Var.	1	2	3	4	5	6
1- Attention to the requirements of cultural development	0.840					
2- Attention to the requirements of optimal utilization of organizational resources	0.687	0.814				
3- Attention to the requirements of cooperation and interaction	0.749	0.704	0.831			
4- Attention to the requirements of utilizing successful scientific and practical experiences and achievements	0.741	0.622	0.345	0.770		
5- Attention to the requirements of policy-making, planning, and strategy development	0.691	0.515	0.531	0.503	0.760	
6- Attention to the requirements of governance and higher-level institutions	0.802	0.754	0.783	0.496	0.480	0.811

The results of this test, broken down by the dimensions of the questionnaire using the Average Variance Extracted (AVE), are as follows. Given that the values are above the significance threshold of 0.50, this type of validity is also confirmed.

Table 6.

Results of convergent validity testing

Dimensions:	AVE
Attention to the requirements of cultural development	0.663
Attention to the requirements of optimal utilization of organizational resources	0.640
Attention to the requirements of cooperation and interaction	0.658
Attention to the requirements of utilizing successful scientific and practical experiences and achievements	0.706
Attention to the requirements of policy-making, planning, and strategy development	0.578
Attention to the requirements of governance and higher-level institutions	0.592

The results of the reliability test for the various dimensions of the research questionnaire are shown in the table below. Since Cronbach's alpha coefficient is higher than 0.70, the reliability of the research questionnaire and its dimensions is confirmed.

Table 7.

Reliability test of the proposed dimensions in the research questionnaire using Cronbach's alpha coefficient.

Variable	Number of components	Number of indicators	Cronbach's alpha coefficient	Reliability result
Attention to the requirements of cultural development	6	12	0.814	Confirmed
Attention to the requirements of optimal utilization of organizational resources	5	10	0.786	Confirmed
Attention to the requirements of cooperation and interaction	4	8	0.829	Confirmed
Attention to the requirements of utilizing successful scientific and practical experiences and achievements	5	10	0.770	Confirmed
Attention to the requirements of policy-making, planning, and strategy development	4	8	0.768	Confirmed
Attention to the requirements of governance and higher-level institutions	3	6	0.843	Confirmed
Entire questionnaire	27	54	0.744	Confirmed

Therefore, based on the results obtained, the validity and reliability of the research instrument are confirmed.

This section of the research findings is dedicated to analyzing the proposed model of the study. Structural equation modeling was used to examine and test it, utilizing Smart PLS 3 software in both t and standard modes.

Figure 2.

Model test in t-statistic significance mode

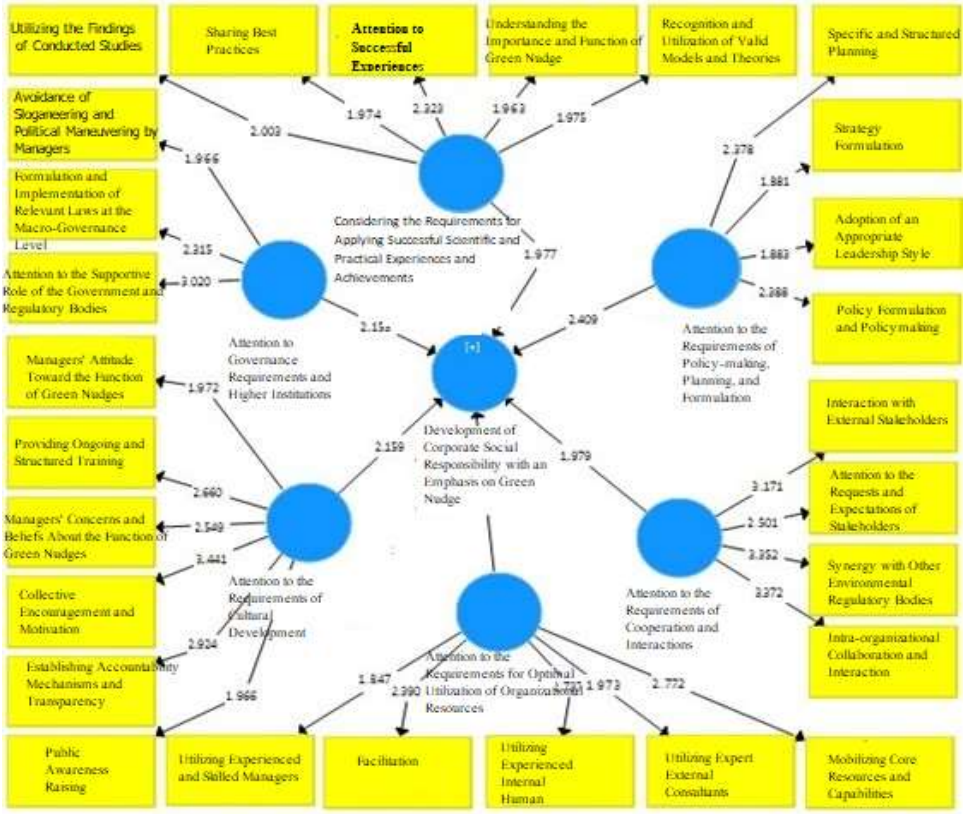
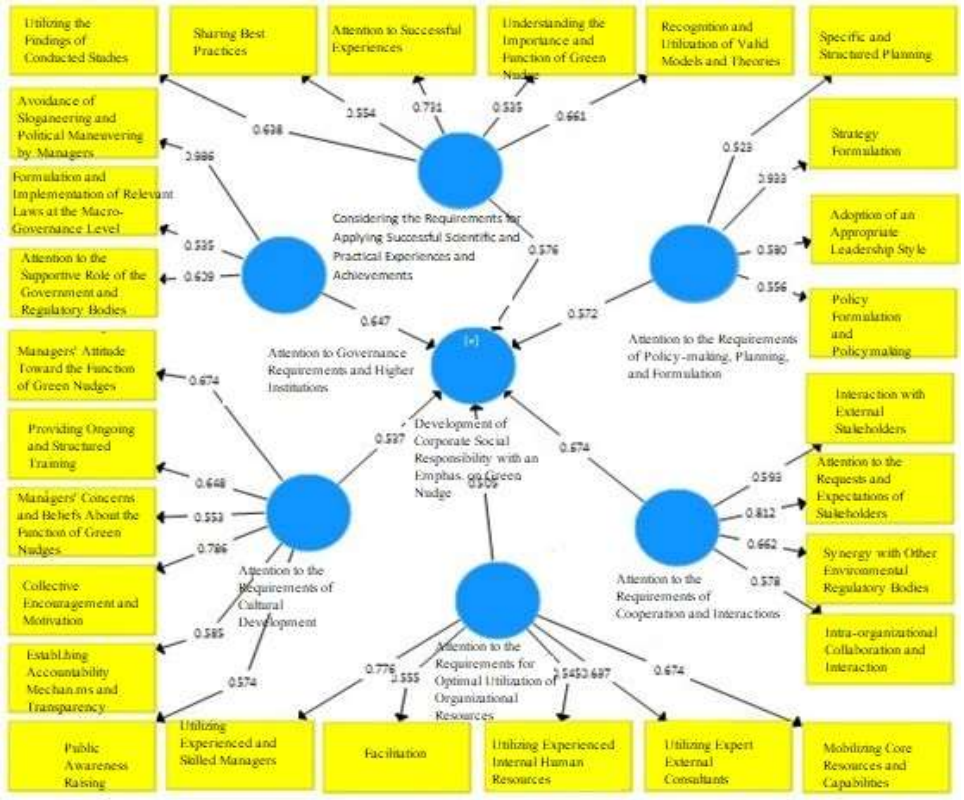


Figure 3.

Model test in standard mode



Given the two above figures, the table below summarizes the results of this section:

Table 8.

Results of path testing

From	To	Path Coefficient Standard (β)	t-statistic	Significance Level	Test Result
Attention to the requirements of cultural development	Corporate social responsibility development with an emphasis on green nudging	0.537	2.159	0.000	Confirmed
Attention to the requirements of optimal utilization of organizational resources	Corporate social responsibility development with an emphasis on green nudging	0.505	2.617	0.000	Confirmed
Attention to the requirements of cooperation and interaction	Corporate social responsibility development with an emphasis on green nudging	0.674	1.979	0.000	Confirmed
Attention to the requirements of utilizing successful scientific and practical experiences and achievements	Corporate social responsibility development with an emphasis on green nudging	0.576	1.977	0.000	Confirmed
Attention to the requirements of policy-making, planning, and strategy development	Corporate social responsibility development with an emphasis on green nudging	0.572	2.409	0.000	Confirmed
Attention to the requirements of governance and higher-level institutions	Corporate social responsibility development with an emphasis on green nudging	0.647	2.158	0.000	Confirmed

Based on the results in the table above, it should be noted that, given the t-statistic values greater than 1.96 (at a 95% confidence level), all the paths between the research variables are confirmed. Additionally, considering the significant values obtained (since they are less than 0.05), the results are statistically significant. This answers the second research question (How is the test of the corporate social responsibility development model with an emphasis on the green nudge in the treatment management of the Social Security Organization in Kurdistan Province?). Moreover, among the factors and dimensions that shape the research model, based on the path coefficients, the highest path coefficient (0.674) belongs to the attention to the requirements of collaboration and interaction. Therefore, this dimension is a better explanation of the dependent variable of the model, corporate social responsibility development with an emphasis on the green nudge, compared to other dimensions of the research model. Furthermore, the fit indices of the research model, broken down by the model, are shown in the table below, which indicates the good fit of the research model. This answers the third research question (What is the credibility of the corporate social responsibility development model with an emphasis on the green nudge in the treatment management of the Social Security Organization in Kurdistan Province?).

Table 9.

Results of the Model Fit Test

Index	Explanation of Indices	Standard	Main Research Model
(Normed Fit Index) NFI	Standardized Root Mean Square Residual (SRMR)	Less than 0.1	0.901
SRMR	Covariance Matrix of Residuals from the Outer Model	Or 0.08	0.921
RMS THETA	Explanation of Indices	Less than 0.12	0.101

Discussion and Conclusion

The present study investigated the dimensions and determinants of corporate social responsibility (CSR) development with an emphasis on green nudging in the Social Security Health Management Organization of Kurdistan Province. The findings demonstrated that CSR development can be explained through six main dimensions: attention to cultural development, optimal utilization of organizational resources, cooperation and interaction, the application of scientific and practical experiences, policy-making and strategy development, and governance and higher-level institutional requirements. Each dimension was shown to have a significant relationship with CSR development, with the strongest path coefficient observed for cooperation and interaction. These results highlight the central role of stakeholder collaboration and

organizational networking in driving CSR outcomes, while also confirming that cultural, managerial, and governance-related factors remain essential in creating sustainable change.

The validation of this multidimensional model underscores the complexity of CSR in healthcare contexts. Unlike in private corporations where profitability is a dominant driver, healthcare organizations face heightened societal expectations and must balance efficiency with responsibility toward diverse stakeholders. The significant impact of cooperation and interaction on CSR development resonates with previous research emphasizing the role of stakeholder engagement in achieving social and environmental objectives. For instance, studies show that pro-environmental behaviors within organizations are significantly influenced by employees' place attachment and collaborative practices, particularly when green nudges are introduced to shape workplace culture [11]. This alignment suggests that fostering collaborative networks both internally and externally enhances the credibility and effectiveness of CSR programs.

Another notable finding of the study was the significant role of cultural development in shaping CSR outcomes. This dimension included managers' attitudes, public awareness, accountability, and training, indicating that CSR in healthcare management is deeply rooted in cultural transformation rather than isolated interventions. This observation aligns with earlier work demonstrating that workplace spirituality, intrinsic motivation, and environmental passion foster pro-environmental behavior [1]. By cultivating a culture of environmental responsibility, organizations can reinforce CSR commitments and ensure that green nudges translate into lasting behavioral patterns. Furthermore, comparative studies highlight that pro-environmental workplace behavior varies across cultural contexts, confirming that CSR models must be embedded within specific organizational and societal cultures [4].

The results also indicated that governance and higher-level institutions exert a critical influence on CSR development. The establishment of supportive laws, avoidance of politicization, and acknowledgment of the government's role were identified as core elements of this dimension. This is consistent with research that underscores the enabling role of governance in CSR promotion, particularly in developing countries where regulatory frameworks and institutional pressures strongly shape corporate behavior [18]. Weak governance, lack of transparency, and political interference are often cited as barriers to CSR in the Global South, highlighting the importance of supportive institutional arrangements for sustainable CSR. Similar findings have been reported in banking, where governance, legal frameworks, and ethical standards were found to be essential for CSR implementation [20]. Thus, the evidence suggests that CSR models in healthcare must integrate governance as a systemic dimension rather than treating it as an external constraint.

The findings further revealed that the dimension of applying successful scientific and practical experiences plays a vital role in CSR. This dimension captured the importance of leveraging prior research, successful case studies, and best practices, and it supports the argument that CSR cannot be developed in isolation but must build upon accumulated knowledge. This resonates with studies showing that CSR can be strengthened through benchmarking against successful organizations and the diffusion of effective practices [5, 14]. Moreover, the significance of knowledge transfer and learning processes underscores the relationship between open innovation and CSR performance. Evidence suggests that innovation can substantially enhance the alignment between CSR and organizational objectives, enabling firms to integrate sustainability into strategic management [14]. In healthcare contexts, such knowledge-driven CSR initiatives are especially important due to the need for evidence-based practices and continuous learning.

The quantitative results of the study also validated the role of optimal utilization of organizational resources as a key determinant of CSR. Resource mobilization, human capital, and infrastructure development were central to this dimension, indicating that CSR initiatives cannot be realized without adequate internal capacities. These results echo prior findings that CSR implementation is closely tied to resource allocation and the alignment of internal capacities with external responsibilities [16, 17]. Integration of CSR into human resource management has been particularly emphasized in recent scholarship, which highlights that CSR practices contribute to leadership development, employee satisfaction, and organizational citizenship behaviors [2, 13]. The study's emphasis on resources therefore provides empirical confirmation that CSR development must be underpinned by robust organizational capacities to ensure effectiveness.

Furthermore, the validation of the strategy and policy-making dimension highlights the necessity of institutionalizing CSR within organizational planning processes. Strategy development, clear planning, and leadership styles were found to be essential components, aligning with previous conceptual frameworks that link CSR to strategic management. Research indicates that CSR cannot succeed as an add-on activity; it must be embedded into core strategy and supported by long-term planning [9, 19]. In healthcare organizations, where resources are limited and stakeholder expectations are high, strategic alignment is especially critical. Evidence suggests that the integration of CSR into organizational strategy fosters legitimacy, improves efficiency, and enhances resilience against external pressures [14, 15].

The most significant finding of this study was that cooperation and interaction carried the highest explanatory power for CSR development with green nudges. This reinforces the argument that CSR is inherently relational, relying on the active participation of stakeholders both within and outside the organization. Prior research confirms that pro-environmental behavior is significantly enhanced when organizations build strong partnerships and foster collective responsibility [3, 4]. Moreover, the meta-analysis of nudging interventions confirms that behavioral change is most effective when supported by social mechanisms and collaborative structures [8]. The alignment between the present findings and previous evidence suggests that CSR strategies should prioritize stakeholder engagement and participatory decision-making to maximize the impact of green nudges.

The introduction of nudging into CSR discourse provides a behavioral dimension that complements structural and strategic approaches. Evidence from environmental public goods experiments demonstrates that nudges combined with individuals' environmental sensitivity can significantly alter behavior [10]. Similarly, models of sustainable consumption show how nudge theory interacts with personal norms and attitudes to produce pro-environmental outcomes [21]. The present study's findings align with these insights, confirming that green nudges function as an effective mechanism for CSR development in healthcare management. Importantly, this suggests that CSR strategies must move beyond traditional regulatory or financial incentives to incorporate behavioral science approaches that influence daily practices and subconscious decision-making.

Taken together, the results of this study provide empirical confirmation that CSR development in healthcare is multidimensional, requiring a combination of cultural, organizational, strategic, and governance-related factors, with cooperation and interaction as the most influential determinant. These findings enrich the theoretical discourse on CSR by highlighting the role of green nudges in bridging the gap between organizational intentions and individual behaviors. They also confirm the relevance of existing studies while extending their implications to a healthcare context, which has been relatively underexplored in prior research [5, 11, 12]. By integrating behavioral insights with strategic and institutional dimensions, this study contributes to a more comprehensive understanding of CSR in developing country contexts.

Despite its contributions, this study has certain limitations. First, the research was conducted in a single province and focused on the healthcare division of the Social Security Organization, which may limit the generalizability of the findings to other sectors or regions. Second, while the mixed-method design strengthened the robustness of the results, the qualitative phase relied on a limited number of expert interviews, which could restrict the diversity of perspectives captured. Third, the quantitative analysis, though rigorous, was cross-sectional in nature, preventing causal inferences about the relationships between CSR dimensions and outcomes. Finally, the study emphasized green nudges as the behavioral mechanism of interest, which may have constrained the exploration of alternative or complementary approaches to fostering CSR in healthcare organizations.

Future research could expand upon these findings in several ways. Comparative studies across different provinces or sectors would help to establish the generalizability of the CSR model and identify contextual variations. Longitudinal research designs could explore how CSR development evolves over time and assess the long-term effectiveness of green nudges. Additionally, future studies could investigate the interaction between green nudges and other behavioral interventions, such as boosting or framing, to provide a more nuanced understanding of how choice architecture influences CSR outcomes. Another promising direction lies in examining how digital platforms and technological innovations can further enhance CSR implementation, particularly in healthcare systems that are increasingly reliant on data and digital solutions.

For practitioners, the findings underscore the importance of prioritizing cooperation and interaction as the foundation of CSR development. Healthcare organizations should invest in building collaborative networks with stakeholders, including employees, patients, and external partners, to foster a shared sense of responsibility. Cultural development initiatives, such as training programs and awareness campaigns, should be designed to shift organizational norms toward sustainability. Resource allocation must be carefully managed to ensure that CSR is adequately supported, while strategic planning should integrate CSR objectives into organizational goals. Finally, governance frameworks and supportive policies should be established to institutionalize CSR practices and reduce political or managerial inconsistencies. By combining strategic, cultural, and behavioral approaches, healthcare organizations can effectively integrate CSR into their operations and promote sustainable outcomes.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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