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Barriers to social sustainability in the health-care industry in the UAE

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Abstract

Purpose – This study aims to identify barriers to social sustainability in the health-care industry in the United Arab Emirates. Furthermore, the impact of these dimensions on social sustainability is examined.

Design/methodology/approach – A comprehensive questionnaire has been developed based on semi-structured interviews with different departments of two tertiary hospitals in the first phase. In the second phase, data are collected from ten public and private hospitals situated in the United Arab Emirates. In the third phase, responses are examined using principal component analysis to identify the five major barriers for social sustainability. A measurement model (confirmatory analysis) is developed to examine the relationship among these dimensions. Finally, a structural model is developed to examine the significance of these dimensions to the notion of social sustainability in health care.

Findings – The statistical model shows a 61 per cent variance for social sustainability, which is caused by infrastructure, organizational culture, lack of coordination, stakeholder's disparity and uncertainty, which are positively and highly correlated measurement barriers to social sustainability practices implementation.

Research limitations/implications – Health-care professionals and stakeholders believe that the elimination of obstacles to social sustainability must be multi-dimensional and not limited to specific practices.

Practical implications – This study would enable health-care industry to examine the extent of obstruction for social sustainability. Hospital administrators and medical professionals could use this feedback to assess and benchmark their performance against that of other competitive hospitals.

Originality/value – The contribution of this paper is to advance the understanding of social sustainability in the health-care sector by viewing it from the perspective of the stakeholders and the social exchanges that occur among them.

Keywords Health care, Barriers, Stakeholders, Social sustainability, Social exchange

Paper type Research paper

1. Introduction

The notion of sustainability has become more important than ever in recent years. Driven by the United Nations' goals for sustainability, referred to as Millennium Development Goals (Wynhoven; 2018), countries all over the world are in a race to undo the damage caused to the planet, economies and people. Businesses must join hands with governments to improve their impacts, both positive and negative. As a result, this need has caused the concept of sustainability to emerge (Carter and Rogers, 2008; Seuring and Muller, 2008), with three interdependent dimensions: economic, environmental and social, to achieve the sustainability objectives (Laguna, 2014). These three pillars; though mutually important, are not equally prioritized in practice (Drakakis-Smith, 1995). Furthermore, while the

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literature has given significant attention to the economic and the environmental aspects, the social pillar of sustainability remains fragmented (Ehrgott *et al.*, 2011; Pfeffer, 2010; Pullman and Dillard, 2010).

Social sustainability refers to the ability or opportunity that an individual has to create or experience its *existence* in terms of intellectual, emotional, spiritual and physical health (Silvis, 2012). In business settings, identifying and managing their positive and negative impacts on people reflects their responsible behavior toward societies (United Nations, 2015). Hence, social sustainability addresses issues related to quality of life, driving decision-makers to consider the potential social ramifications of their decisions (Laguna, 2014).

This paper aims to focus on social sustainability in a business context from a stakeholder's perspective, within the health-care services industry in the United Arab Emirates (UAE). Supporting sustainability practices in health care requires an active interaction between hospitals and their stakeholders. A health service is sustainable when operated by an organizational system with the long-term ability to mobilize and allocate sufficient and appropriate resources (manpower, technology, information and finance) for activities that meet individual or public health needs.

In the health-care sector in the UAE, social sustainability is no longer a choice but a necessity, and the Government is committed to supporting health sector reforms that ensure equitable access to efficient, sustainable and quality health-care services (Vision2021, 2010). Added to the fact is that few studies have explored the barriers faced by government and public organizations when implementing sustainability practices (Al-Rashidi, 2010). The literature also falls short in investigating the relationships among the barriers to sustainability (Abou-Warda, 2014). In filling these gaps, the present study aims to emphasize upon the factors that hinder adoption and integration of a social sustainability agenda in UAE's health-care system.

Therefore, the objectives of this paper are as follows:

- to explore the barriers to social sustainability in the health-care industry in the UAE;
- propose a comprehensive framework of barriers to social sustainability in the health-care industry; and
- investigate and validate the relationship among these dominant barriers by introducing first- and second-order confirmatory factor analysis (CFA) models.

The remainder of the paper is organized as follows. Section 2 presents the literature review, followed by the methodology in Section 3. Section 4 presents the analysis and discussion of results. Section 5 presents the paper's conclusions and recommendations for future research.

2. Literature review

2.1 Social sustainability

Sustainability has become a predominant part of business today. The goal of sustainability is grounded in the concept of the triple bottom line, which implies the necessity of balancing objectives related to profits, planet and people, for corporations as they grow and compete in a global economy (Kleindorfer *et al.*, 2005). True sustainability occurs at the intersection of all three areas – environment, society and economy – where an organization explicitly and comprehensively incorporates goals in developing a strategic vision as well as a long-term strategic mission (Carter and Rogers, 2008). However, there has been an extensive focus on the economic and environmental pillars of

sustainability compared to the social aspect (Shrivastava, 1995; Starik and Rands, 1995; Seuring and Muller, 2008), which has been described as the most elusive and conceptually vague pillar in the sustainable development discourse (Thin, 2002; Dempsey *et al.*, 2011; Casula Vifell and Soneryd, 2012). As a result, the concept of social sustainability has been under-theorized or oversimplified in the existing theoretical constructs (Littig and Grießler, 2005).

In response, there has been an increasing interest in the social pillar of sustainability, driven by the political agenda and business objectives aimed toward developing communities. This drive has led to a variety of articles on the topic from a range of perspectives (Sachs, 1999; Polèse and Stren, 2000; Biart, 2002; Littig and Grießler, 2005; Colantonio, 2009).

While a generalized definition of social sustainability is unachievable, this pillar has been commonly incorporated with the human side of sustainability, including human rights, health and safety and community (Huq *et al.*, 2014). Accordingly, in response to their urge to keep pace with global transformations, communities and business organizations are increasingly following the notion of social sustainability (Fontaine *et al.*, 2006).

2.2 Health care in the UAE

With the demographic transition and the rising prevalence of lifestyle-related diseases, development of the health-care sector has taken center stage in the Gulf Cooperation Council countries. Governments have taken the initiatives to ease the growing pressure on the health-care systems (Vig, 2016). Identified as one of the priority sectors by the UAE Government, the health-care sector has witnessed significant development and progress in the past few years. The sector is seeing an astonishing boom in both the quality and quantity of services it provides (Bell, 2016).

The UAE has shown an upward trend in health care in comparison to other developing countries. However, it has yet to provide health care that matches those in industrialized countries. Table I provides a comparison between UAE health-related indicators and other countries, namely, China, Saudi Arabia and the USA and UK.

As the UAE is going through a transition from an oil- to knowledge-based economy (Clayson *et al.*, 2015), the focus on patients and improving the health-care delivery system continue to drive the growth of the UAE health-care industry (Vig, 2016).

Indicator	UAE	USA	UK	China	KSA
Population (millions)	9.4	322.6	63.5	1,393.8	29.4
Human development index	0.835	0.915	0.907	0.727	0.837
Rank in human development	41	8	14	90	39
Life expectancy at birth	77	79.1	80.7	75.8	74.3
Public health expenditure (percentage of GDP)	3.2	17.1	9.1	5.6	3.2
Adult mortality rate, female (per 1,000 people)	59	76	55	76	67
Adult mortality rate, male (per 1,000 people)	84	128	88	103	89
Deaths owing to tuberculosis (per 100,000 people)	0.1	0.1	0.5	3.2	3.9
Infant mortality rate (per 1,000 live births)	7	5.9	3.9	10.9	13.4
Infants lacking immunization, DTP (percentage of one-year-olds)	6	2	2	1	2
Infants lacking immunization, measles (percentage of one-year-olds)	6	9	5	1	2
Under-five mortality rate (per 1,000 live births)	8.2	6.9	4.6	12.7	15.5
Health quality index (Rank of 149 countries)	28	32	20	40	45

Table I.
Demographic and health-related indicators (UNDP, 2014)

2.3 Theoretical background

Within the context of the sustainability literature, only a few articles have addressed social sustainability from a theoretical perspective (Carter and Easton, 2011). Those theories could be stakeholder theory (Freeman, 1984); social exchange theory (Homans, 1961, 1974); resource-based view (RBV; Wernerfelt, 1984); transaction cost economics (TCE; Williamson, 1975); structuration theory (Giddens, 1976, 1979, 1984); contingency theory (Burns and Stalker, 1961); and strategic choice theory (Child, 1972).

The first two theories in this list have a direct link with sustainability implementation (Meixell and Luoma, 2015). Moreover, Gold *et al.* (2013) indicated that stakeholders are essential in overcoming institutional barriers, creating legitimacy and overcoming gaps between focal companies and communities.

Stakeholder theory (Freeman, 1984) suggests that there are many groups and individuals, other than shareholders, who have stakes in a business and can affect or are affected by the achievement of the organization's objectives, and without the support of which the organization would not meet its goals (Blair *et al.*, 2002). Health-care organizations have realized the need to take into consideration the perspectives and priorities of their stakeholders and partners so that they can achieve their organizational goals (Ali, 2013).

Social exchange theory (Homans, 1961, 1974) relies on the fact that the scarcity of resources (Das and Teng, 2002; Sumner, 2008) pushes people to enter into a relationship with an expectation to receive benefits or reduce costs. This analysis of the benefits and costs influences people's decision to enter and sustain a relationship (Muthusamy and White, 2005; Sumner, 2008). Relationships that are based on trust, moral commitment (Donaldson and Preston,1995) and reciprocity (Lockner, 2013) are argued to maintain stability in a supply chain alliance (Kwon and Suh, 2005; Yang *et al.*, 2008). Thus, in a health-care setting, a mutual belief in social exchange is believed to reduce the level of the barriers while implementing social sustainability.

The contribution of this paper is to advance the understanding of social sustainability in the health-care sector by viewing it from the perspective of the stakeholder and the social exchanges that occur among them. Hence, it is essential to closely examine the perspective of stakeholders in relation to the factors that might inhabitant social sustainability implementation.

Barriers to social sustainability in health-care services are explored in the next section.

2.4 Barriers to social sustainability

Health-care practitioners can benefit from social interactions in health-care supply chains to facilitate the exchange of information, win people's trust and commitment, and foster internal and external collaboration (Fawcett *et al.*, 2008). Formulating health-care development strategies to promote better accessibility should be based on people's needs and aspirations (Lenssen *et al.*, 2012). Unless strategists and planners consider stakeholders, innovative health strategies may never be implemented (Dart, 2005).

Stakeholders may have a supportive or conflictive influence (Coakes and Elliman, 1999). Each group of stakeholders has a set of unique relationships with the focal firm that affects the way the firm responds to their concerns (Rowley, 1998).

Relying on stakeholder theory, Dart (2005) noted that barriers to health services become more complicated if fewer resources are being dedicated toward improving community health. Both Dunphy (2014) and Walker and Jones (2012) contended that economic and resource constraints were key workplace barriers to sustainability, whereas Pagell *et al.* (2010) found that misallocation of these resources is the reason for poor implementation of social practices. These limitations cause the organizations to pressure suppliers to reduce

prices (Walker *et al.*, 2008; Huq *et al.*, 2014) instead of sharing implementation costs with their suppliers (Huq *et al.*, 2014). Wong *et al.* (2017) found that despite a financially sustainable health-care system in China, citizens contribute the largest share of health-care costs, while the government is reducing its financial commitments.

In addition to resource limitations, other constraints are imposed by law (Liu *et al.*, 2011). Institutional policies, regulations and guidelines influence the ethical judgements of employees, who feel an obligation to conform to these regulations even if they conflict with personal values.

Communities, on the other hand, demand that organizations make the best decisions and reduce their impacts on people's lives by maintaining accountability in society. Dart (2005) argued that if the organization cannot meet these demands, disparities with their society would develop. Social accounting initiatives, hence, have become increasingly popular. Belal (2002) indicated that recent social audit reports contain more information on environmental issues than social ones. Huq *et al.* (2014) argued that some suppliers escape non-compliance with standards through audit-fraud (Jiang, 2009). Some suppliers may lack of a commonly agreed framework for reporting purposes within their published social reports. Accountability can act as a barrier to social sustainability practices if the focus of accountability initiatives is to manage and control stakeholders rather than to be socially responsible (Belal, 2002). Companies may also be using the notion of "stakeholder engagement" as a tool for legitimization instead of a means of extending corporate accountability and transparency (Owen *et al.*, 2001).

Relying on social exchange theory, Holthausen (2013) argued that relations are interdependent. Poor communication and interaction issues among stakeholders can lead two similar projects to have different outcomes (Walker and Jones, 2012), affecting the performance and advancement of projects (Angeleanu *et al.*, 2016).

Huibin Shi (2014) highlighted the benefits of cooperation between low and high-level hospitals. Organizations are motivated to be involved in stakeholder engagement only to the extent that it can have a positive impact on their profit (Berman *et al.*, 1999). Additionally, Dunphy (2014) argued that conflicts arise when employees of all the stakeholders are not trained to the same standards of responsible actions. Lack of education and professional development about sustainability may also contribute to these problems.

Dunphy (2014) also reported that workplace culture is a common barrier to responsible health-care practices. Jiang (2009) focused on the misalignment between codes of conduct and local culture. This cultural mismatch has been mirrored in Walker and Jones (2012), which discusses the conflicts between suppliers from different locations.

Moreover, as organizations grow and their external interactions become more complex, the processes, structures and systems that once worked well become barriers to efficiency, customer service, employee morale and financial profitability (Allen, 2012).

With the political and social changes, leaders and community stakeholders must learn to survive in an environment that is becoming increasingly more complex and unstable (Blair and Fottler, 1990; Goby *et al.*, 2015). Freeman (1984) explained that societies comprise not only diverse but also evolving populations; thus, organizations must be willing to be fluid as well as diverse to meet the ever-changing needs in ever changing communities.

Delmas (2001) found external stakeholder involvement (customers/clients, shareholders, community members, distributors and regulatory agencies) to have a strong and positive impact on competitive advantage. Some of the stakeholders that are influential inside the firm include employees and mid-level managers.

To adopt a sustainability goal, there has to be awareness that sustainability is essential (Meixell and Luoma, 2015). Appendix summarizes the barriers to social sustainability, as noted in the literature reviewed.

3. Methodology

In the first phase, to develop our questionnaire, semi-structured interviews were conducted with top-level executives from four departments of two tertiary hospitals and controlling bodies Abu Dhabi Health Services Company (SEHA) and Health Authority Abu Dhabi (HAAD).

- Purchasing/procurement (to represent suppliers);
- operations/HR (to represent the organization);
- customer services (to represent customers); and
- SEHA and HAAD (to represent the regulatory bodies).

This is an important step in developing scale items to measure the barriers to social sustainability, considering that the literature is fragmented, in social sustainability barriers in relation to stakeholders' perspective, within the context of a developing region, such as the UAE. The interviewees were asked to report both internal and external items that forbid and prevent the adoption of social sustainability standards. Overall, the interviews resulted in a 34-question survey, which was developed to further investigate barriers, using a 5-point Likert scale.

Conducting a pilot study provides preliminary information about validity of the measurement scales. The survey was shared with 50 managers of the 4 (above) departments from 2 other hospitals to validate the content, text and sentence-structure of the survey. On the basis of the 34 responses received, the survey was adjusted/revised accordingly.

In the second phase, ten big hospitals (public and private) were chosen from different locations in Abu Dhabi. These public hospitals are mainly administered by SEHA and governed by HAAD. HAAD is also responsible for governing the private hospitals. It should be noted that Abu Dhabi accounts for more than 85 per cent of UAE's total area. From the above three departments in these hospitals, 700 representatives were requested to respond to the survey through Survey Monkey. A total of 207 responses were received.

The third phase was to test these responses. We used principle component analysis (PCA) to explain the maximum amount of common variance with the smallest number of explanatory constructs (factors or latent variables). These factors represent clusters of barriers that correlate highly with each other. A Cronbach's alpha (α) ranged from 0.76 to 0.92, showing that the responses are reliable enough for further analysis. Confirmatory factor analysis (CFA) was used to assess and validate constructs that describe social sustainability in the health-care industry. This three-phase methodology is depicted in Figure 1.

3.1 Exploratory factor analysis

Before the analysis, several tests were conducted to determine the suitability of the data. The Kaiser–Meyer–Olkin (KMO) Test and Bartlett's Test of Sphericity were used. The results are shown in Table II.

The Kaiser–Meyer–Olkin Test (KMO > 0.50) shows that these items are suitable for the factor analysis performed and show no serious multicollinearity problems in the data. Bartlett's Test of Sphericity (Sig. < 0.05) shows that the correlation between the items is sufficient to run the factor analysis. After the two tests were performed, EFA

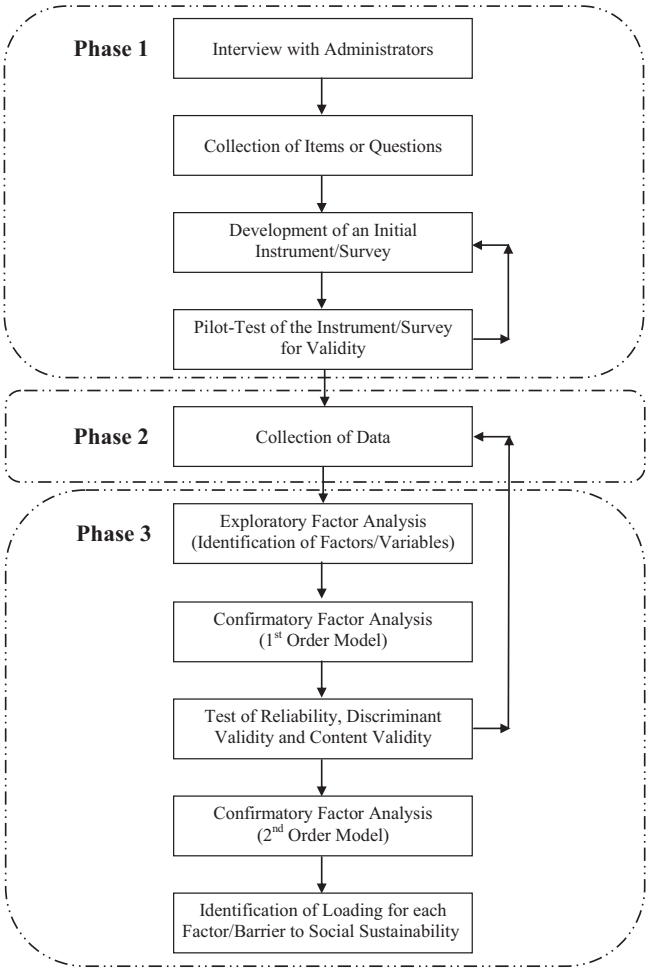

Figure 1.
Design/methodology of research

Kaiser–Meyer–Olkin measure of sampling adequacy		0.934
Bartlett's Test of Sphericity	Approx. Chi Square	4194
	df	561
	Sig	0.000

Table II.
KMO Test and Bartlett's test

was used with the principal component analysis extraction method and Varimax rotation on the 34-item instrument. The number of factors to retain was based on a combination of methods (e.g. eigenvalue > 1.0, scree plot) and the theoretical salience of the rotated factors. Items should preferably load greater than 0.40 on the relevant factor and less than 0.40 on all other factors (Stevens, 2012). One factor was dropped from the subsequent analysis as it was associated with only one item (18). This procedure

resulted in a 33-item instrument that accounted for 61 per cent of the variance in responses.

The factor pattern and items loadings are presented in a rotated-component-matrix (Table III). The next step is to look at the content of questions that load highly on the same factor to try to identify common themes. The questions that load highly on factor 1 seem to relate to different aspects of preparedness and readiness; therefore, we label this factor *infrastructure*. This factor consists of 11 items and accounts for 20.36 per cent of the variance. The questions that load highly on Factor 2 all seem to relate to practices and

Items		Infrastructure	Organizational culture	Poor coordination	Stakeholders' disparity	Uncertainty
14	Lack of demand for eco-friendly products	0.754				
31	Poor risk management capabilities	0.714				
27	Unclear demand from hospital	0.708				
34	Transportation and shipping costs	0.696				
22	Lack of training	0.664				
16	Lack of experience	0.655				
15	Lack of established standards	0.608				
25	Negative outcomes	0.594				
6	Cost of implementation	0.575				
8	Financial reimbursement	0.550				
26	Safety issues	0.509				
1	Lack of empowerment		0.694			
21	Lack of commitment		0.656			
33	Poor organizational design		0.617			
3	Regulations and policies		0.560			
20	Quality issues		0.499			
19	Traditional approach		0.482			
28	Lack of management support		0.398			
17	Lack of coordination			0.764		
2	Budgetary issues			0.707		
11	Contractual issues			0.667		
32	Products and services differentiation			0.574		
24	Life cycle assessment			0.485		
9	Switching cost			0.425		
7	Customer reaction				0.605	
29	Profitability				0.597	
30	Sense of accountability				0.579	
4	Lack of social audit				0.543	
5	Sense of competition				0.539	
10	Frequency and size of orders					0.743
12	A highly demanding market					0.669
23	Changing business environment					0.510
13	Lack of information sharing between stakeholders					0.439
	Average variance extracted (percentage)	20.38	12.37	10.63	9.06	8.60
	Construct reliability	0.92	0.84	0.87	0.78	0.76

Table III.
Rotated component matrix

traditions. Therefore, we label this factor *organizational culture*. This factor consists of seven items and accounts for 12.37 per cent of the variance. The questions that load highly on Factor 3 all seem to relate to interrelationships between stakeholders; therefore, we label this factor *poor coordination*. This factor consists of six items and accounts for 10.63 per cent of the variance. Similarly, the questions that load highly on Factor 4 all seem to relate to differences in interests among stakeholders; therefore, we label this factor *stakeholders' disparity*. This factor consists of five items and accounts for 9.06 per cent of the variance. Finally, the four questions that load highly on Factor 5 contain some component of ambiguity in business; therefore, we label this factor *uncertainty*. This factor consists of four items and accounts for 8.60 per cent of the variance.

3.2 Internal consistency and content validity

The degree of consistency of responses over a construct is referred to as its reliability. The reliability coefficient, Cronbach'sα, is generally used for this test. As shown in Table III, the Cronbach's α for the five latent constructs of social sustainability range between 0.76 and 0.92. These results show that the suggested constructs exhibit good psychometric properties.

3.2.1 Convergent validity. Convergent validity can be evaluated using the Bentler–Bonett's Normed Fit Index (NFI). This index provides the degree to which the different approaches to measuring a construct generate the same results (Ahire *et al.*, 1996). According to a generally accepted principle, the NFI values of 0.90 or above are considered as a satisfactory fit index (Bentler, 1992). As shown in Table IV, the items in each construct converge well for further analysis.

3.2.2 Discriminant validity. Discriminant validity is the degree to which different latent constructs and their indicators can be distinguished from the other constructs and their indicators (Bagozzi *et al.*, 1991). For calculating the discriminant validity, we compare Cronbach's α of a latent construct to its mean correlations with other latent constructs. A significance difference between these two measures is an indicator of discriminant validity (Ghiselli *et al.*, 1981). As shown by the values in Table IV, the five constructs are conceptually distinct.

3.3 Confirmatory factor analysis

The exploratory factor analysis in this research has identified *infrastructure*, *organizational culture*, *poor coordination*, *stakeholders' disparity* and *uncertainty* as *a priori* factors of barriers in social sustainability practices in a health-care industry. In the first-order model, *infrastructure*, *organizational culture*, *poor coordination*, *stakeholders' disparity* and *uncertainty* are correlated measurement factors for barriers to social sustainability practice implementation. Alternatively, barriers to social sustainability practice implementation may

Table IV. Construct validity analysis

	Convergent validity	Discriminant validity
	Bentler–Bonett	
Factors/constructs	NFI	Factor Cronbach's α – average correlation between factors
Infrastructure	0.94	0.15
Organizational culture	0.92	0.07
Poor coordination	0.94	0.10
Stakeholders' disparity	0.98	0.01
Uncertainty	0.93	0.02

be operationalized as a second-order model, where the five factors are governed by a higher-order factor, i.e. *social sustainability barriers*. The results of the model estimation are shown in Figures 1 and 2.

The first-order model for testing the barriers in social sustainability (Figure 2) implies that *infrastructure*, *organizational culture*, *poor coordination*, *stakeholders' disparity* and *uncertainty* are correlated but not governed by a common latent factor. Although χ^2 is significant ($p = 0.000$), other fit indices shown in Figure 2 acceptably support the first-order model for barriers to social sustainability practices in the health-care facility.

The test of the second-order model (Figure 3) implies that a higher-order latent factor, i.e. the overall trait of *social sustainability barriers*, governs the correlations among

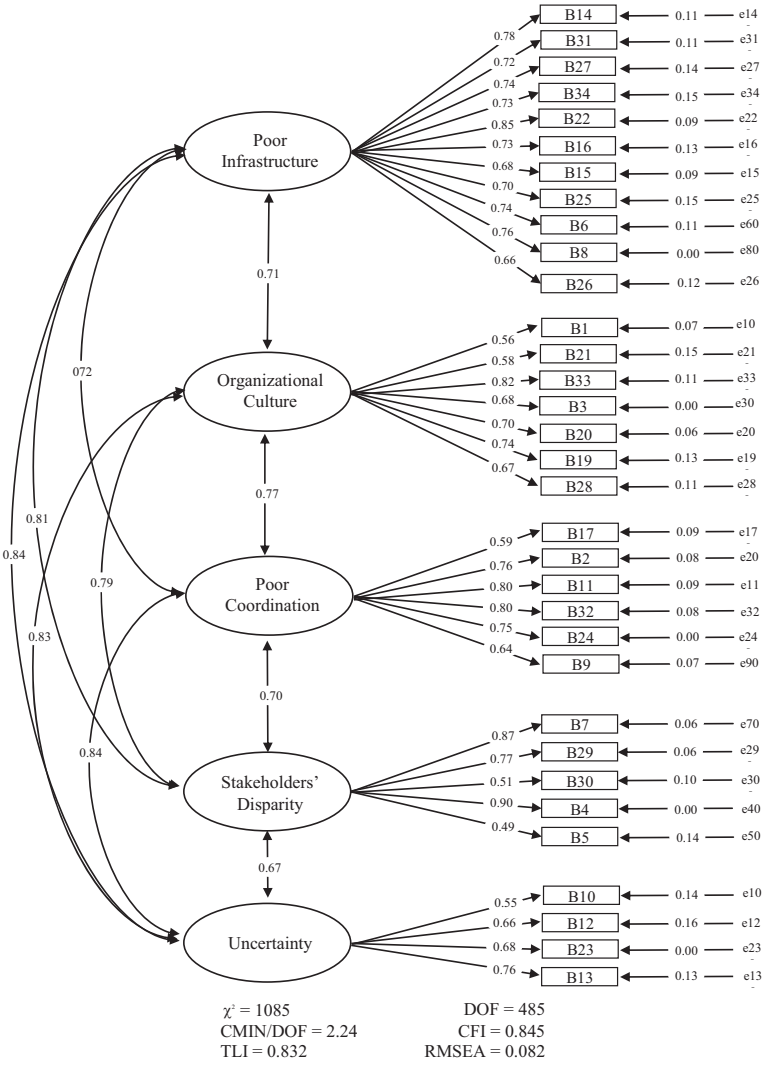

Figure 2.
First-order measurement model for barriers to social sustainability

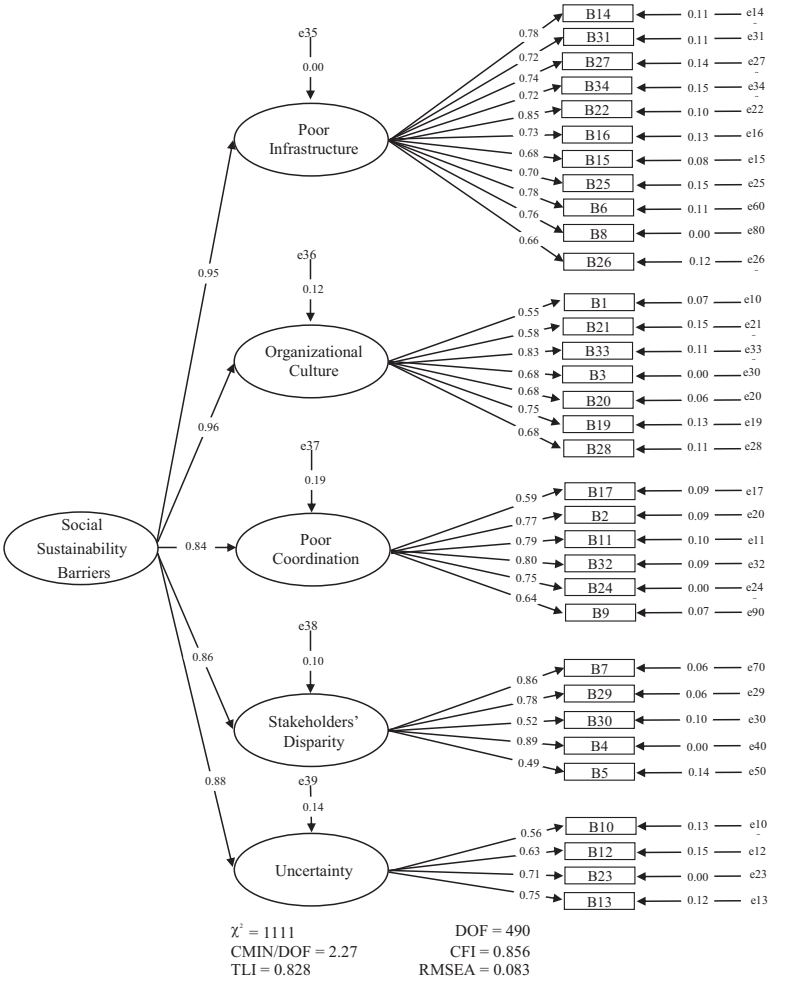

Figure 3.
Second-order measurement model for barriers to social sustainability

infrastructure, *organizational culture*, *poor coordination*, *stakeholders' disparity* and *uncertainty*. The second-order model also produces an acceptable goodness of fit. An examination of the second-order model of the barriers shows the significance of the coefficient estimates of *infrastructure*, *organizational culture*, *poor coordination*, *stakeholders' disparity* and *uncertainty*, which describe the relationships or paths of the five factors on the higher-order. The highest and the lowest impact of barriers appear to be from organizational culture and poor coordination, respectively.

4. Discussion

This paper presents one of the first large-scale empirical investigations of the social sustainability within the health-care industry in the context of developing countries, and more specifically, the UAE. The contribution of this paper is to advance the understanding

of social sustainability in the health-care sector by viewing it from the perspective of the stakeholders and the social exchanges that occur among them. While a lack of research is evident regarding stakeholder perceptions of public health practices, the present study bridges this gap. Without understanding the expectations of all the stakeholders, health-care practitioners and managers would experience resistance and conflict from stakeholders (Blair and Fottler, 1990). Moreover, social exchanges between hospitals and their stakeholders can provide insights into the impact of integrating social sustainability into health-care facilities (Marshall *et al.*, 2015) and drive the change of health-care practices to support sustainability.

While stakeholder theory has received more attention in the sustainability literature, social exchange theory is yet to enjoy the attention. Therefore, the inclusion of these two notions in a conceptual framework helps understand how stakeholders and their social interactions with health-care organizations play an important role in driving or imbedding a sustainability agenda. Moreover, such an endeavor can contribute to the literature of both theories by benchmarking health-care social sustainability practices, based on a large-scale survey.

In terms of practical contribution, the study suggests that health-care organizations are moving toward integrating social sustainability in their strategies but are facing hardships in doing so. This seems particularly obvious about understanding and addressing the social complexities among stakeholders. Health-care managers and practitioners must face a group of challenges while leading the organizations toward more socially sustainable approaches. Accordingly, a group of barriers must be dealt with proactively for health-care professionals to drive the transformation toward more human-centered practices (Gerard *et al.*, 2017).

Using 207 responses from a health-care industry in the UAE, the key aim of this paper is to establish and investigate constructs of barriers for implementing social sustainability practices. The validity and reliability of a measurement scale was tested for evaluating the facets that inhibit the implementation of social sustainability practices.

An exploratory factor analysis (EFA) model is used to uncover the underlying structure of the set of barriers identified. This has resulted in a framework of social sustainability barriers, which classifies the measurement items into five dimensions: *infrastructure, organizational culture, poor coordination, stakeholder's disparity* and *uncertainty*.

A CFA was used to test the significance of the first- and second-order models as well as the relationships among items and scales. Both the models acceptably fit the data collected.

The first-order model predicts 61 per cent of the variance of social sustainability. This explanatory power is caused by *infrastructure, organizational culture, poor coordination, stakeholders' disparity* and *uncertainty*, which are positively highly correlated measurement barriers to social sustainability practices implementation. For instance, poor infrastructure leads to poor coordination (r = 0.72). This means that organizations find difficulty in implementing social sustainability practices because of the lack of coordination between stakeholders, which is driven by the lack of established standards to guide the efforts, as well as the lack of training and experience.

The second-order model also produces an acceptable goodness of fit, which suggests that measurements of social sustainability barriers acceptably fit the data collected. The implication of these results is that health-care professionals and stakeholders believe that elimination of obstacles to social sustainability must be multi-dimensional, and not limited to specific practices.

Through this multidimensional image, health-care managers can be acquainted with the aspects that positively or negatively affect the achievement of social sustainability. For

example, without a system to report and document medical errors, a culture where medical errors are not acknowledged would be fostered (Dhal, 2014). Furthermore, it is important to make patients aware of their rights to report wrong diagnoses and medical malpractice (Khaishgi, 2016).

5. Conclusions, limitations and future research

As the health-care sector grows in the UAE, the country is faced with many challenges to address social sustainability. The aim of the present paper was to develop a reliable, tested and valid framework for social sustainability in health care, with stakeholder and social exchange perspectives as the basis for integration of social issues.

The level of health in a community is dependent upon ecological and social sustainability. While it has been argued that health-care professionals are to act morally responsible toward the environment, less has been done to address the social aspects. The current research addresses this gap. It is of practical relevance for health-care professionals and managers by suggesting how social exchanges between health-care facilities and their stakeholders facilitate or inhibit socially responsible actions and implementation of sustainable practices.

It is expected that the social sustainability measures of barriers in this study will be suitable for other service industries in general. Evidently, this framework can be effective instrument for measuring the obstacles that are posed.

This paper has several limitations, as well. First, the primary respondents of this study came from a health-care industry. Future studies may examine the framework in other sectors, as well. Second, the framework of this study was tested under UAE health-care organizations. As health-care regulations are not unified, it would be interesting to examine how the framework developed in this study can be applied to other countries. Finally, generalizing the findings to other countries will broaden the scope of this study.

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Appendix

Article	Focus	Theory used	Barriers to sustainability	Context	Type of industry
Belal (2002)	Social Accountability	Stakeholder theory	Poor quality of stakeholder involvement Unwillingness to implement feedback received	UK	service & manufacturing
Dart (2005)	Relationship Dynamics	–	Vagueness in understanding other group's role in the health services delivery system	–	Health care
Wong *et al.* (2007)	Unaffordable health care	–	Health-care costs Reducing governmental financial support	China	Health care
Carter and Rogers (2008)	Sustainable supply chain management	Resource-based view (RBV), Transaction cost economics (TCE)	Lack of understanding of what sustainability is	USA & Germany	Logistics
Jiang (2009)	Supplier management and governance	TCE	Very low management level and know-how with regard to CSR Audit fraud	China	Apparel industry
Park–Poaps and Rees (2010)	Fair labor management issues	Stakeholder theory	Lack of regulation forces to govern labor issues	USA	Apparel and footwear sector
Pagell *et al.* (2010)	Sustainable Sourcing	Stakeholder theory, RBV, TCE	Misallocated resources Increased supplier risk	–	Service & manufacturing
Liu *et al.* (2011)	Corporate social performance	Stakeholder theory	Operational constraints imposed by law, by resource limitations, by bounded rationality in decision-making	UK	Real estate and construction sectors
Walker and Jones (2012)	Sustainable supply chain management (SSCM)	Contingency theory	Limited resources Low prices offered by buyers Lack of management and supplier commitment Communication problems Cultural mismatch with suppliers in different locations	UK	SME (aerospace, retail, pharmaceuticals and food and drink)

(*continued*)

Table AI.
Literature synthesis

Article	Focus	Theory used	Barriers to sustainability	Context	Type of industry
Holthausen (2013)	Buyer -supplier relationship	Social exchange theory	different perceptions of stakeholders and managers	–	Health care
Huq *et al.* (2014)	Drivers, enablers and barriers of social sustainability	TCE	Pressure to reduce prices Buyer reluctance to share implementation costs Fraught relationships Suppliers covering up non-compliance (mock compliance) Buyers ignoring violations Misalignment between codes of conduct and local culture Lack of government support or law enforcement	Bangladesh	Ready-made garment industry
Dunphy (2014)	Health-care professionals' perspectives on environmental sustainability	–	Disconnect between personal and professional judgements and actions Lack of supportive actions on sustainability Lack of education about environmental sustainability Lack of professional development Economic and resource constraints Workplace culture Lack of empowerment Unreformed policies Inconsistent, situation-based moral judgements	Australia	Health care
Huibin Shi (2014)	Relationship benefits between hospitals	Social exchange theory	Lack of coordination	China	Health care

Table AI. (*continued*)

Article	Focus	Theory used	Barriers to sustainability	Context	Type of industry
Marshall *et al.* (2015)	Drivers of social sustainability	Strategic choice theory	Low sustainability culture	Ireland	Multiple industries
Meixell and Luoma (2015)	Stakeholder pressure	–	Changing demands of stakeholders Stakeholder pressure	–	–
Angeleanu *et al.* (2016)	Stakeholder Management	Stakeholder Theory	Stakeholders interaction issues	International	Logistics

Table AI.

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