

Prospects of Integrating Gig Economy in the Saudi Arabian Health-care System from the Perspectives of Health-care Decision-makers and Practitioners

Turki Alanzi 

Health Information Management and Technology Department, College of Public Health, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Background: Gig economy is an approach in the labor market which is characterized by the prevalence of short-term contracts or freelance work in contrast to permanent jobs. The gig workers are independent workers or temporary contract workers who enter into formal/informal agreements with on-demand companies to provide their services. Rather than employing full-time/permanent employees companies may utilize gig workers as per the demand and work burden, which can minimize the costs incurred in managing permanent employees. However, there is a lack of research on using gig economy in health care, its prospects and the issues involved.

Purpose: The purpose of this study is to identify and evaluate various prospects in integrating gig economy with the Saudi health-care system.

Methods: An online survey questionnaire instrument including 22 prospects under three categories including organizational competitiveness, resource management, and sustainable development was used for collecting data from 712 health-care decision-makers and practitioners in Saudi Arabia. Findings were analyzed using the statistical means and standard deviations for each item in the questionnaire for analyzing the role of each factor in depth, and *t*-tests were used for comparing the responses between the groups.

Results: *T*-tests revealed no significant differences among the experts and health-care workers in relation to organizational competitiveness and resource management; however, significant differences in opinions were identified in relation to sustainable development. Individual factors including motivation for Saudization program (mean=4.5, SD=1.15) and creating employment opportunities in rural areas (mean=4.5, SD=1.08), growth in economy (mean=4.4, SD=1.43), increased opportunities for women and disabled (mean=4.4, SD=1.28), and growth in employment (mean=4.3, SD=1.68) were the major prospects identified in relation to the use of gig economy in the Saudi Arabian health-care system.

Conclusion: Gig economy may offer a wide range of benefits in health care, especially sustainable development, effective resource management, and organizational competitiveness.

Keywords: health care, gig economy, sharing economy, prospects

Introduction

Factors such as changing lifestyles, epidemics such as MERS, SARS-CoV1, Ebola; and the COVID-19 pandemic, and rising number of health complications have led to various health-care challenges across the world, especially in effective utilization of health-care resources for growing need of health-care needs and demands. Though advances in innovation and internet communication technologies (ICTs)

Correspondence: Turki Alanzi
Health Information Management and Technology Department, College of Public Health, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia
Tel +966 133331211
Email talanzi@iau.edu.sa

have addressed a few challenges by introducing various interventions such as eHealth, which was effective for addressing health-care needs, they may not be effective in managing emergencies and critical illness, which require personal care. Globally, it is estimated that there is only one doctor for 1000 population, reflecting the huge gaps in supply and demand in health care. However, it is not same across all countries. There are few countries that have high health-care workforce with low relative need for health care, and low health-care workforce with high relative need,¹ indicating uneven distribution of health-care resources. In addition, the average global health index score was identified to be 40.2 out of 100, reflecting the unpreparedness and challenges of health care in various areas.² However, few countries in the West have established effective health-care systems, which again depended on the country's economy, socioeconomic factors of the citizens, and available resources. While few countries in Africa, which carries 22% of the global burden on disease have been struggling to meet their health-care needs with fewer than three doctors per 10,000 population.¹

Saudi Arabia, one of the fastest developing countries in the Middle East has been effective in improving the health-care system by introduction of innovative technologies such as robotics and artificial intelligence, digitization of health-care services, as a part of the Vision 2030 program in order to transform itself from oil-dependent economy to knowledge-based economy.³ Currently, Saudi Arabia ranks 89 in prevention of diseases, 114 in responding to health-care needs, 81 in health norms and compliances, 71 in severity of risks in health care among the 195 countries, presenting the huge number of health-care challenges in different areas of health care.⁴ Through various initiatives under Vision 2030, efforts are in place to improve health care, especially in reducing appointment waiting times, digitization of health-care services, increasing health-care resources and also health-care investments.^{5,6} However, high dependency of Saudi Arabia on expatriates, especially in health-care sector is one of the major challenges identified which has led to a huge increase in health-care costs.⁷ This current status may be correlated with unpreparedness and poor response to health-care needs as identified in global health index.⁴ Rapid increase in the acute health conditions such as diabetes, coronary diseases in Saudi Arabia^{8,9} is another challenge which need to be effectively managed by effective use of health-care resources along with the health-care technologies.

However, need for additional 13,700 doctors and more than 30,000 other health-care workers, and more than 20,000 additional beds is identified in Saudi Arabia.¹⁰ With increasing need for health-care services, the recent COVID-19 pandemic has created challenges not only associated with patients, but also with physicians. Many physicians in Saudi Arabia reported that they are dealing with psychological stress, anxiety, and depression in the recent times due to growing challenges, overburden of work, and limited resources.¹¹ An increase in private hospitals, and allowing 100% foreign direct investments (FDIs), allocating 15.6% of national budget to health care were a few initiatives taken by the government.¹⁰ However, privatization of health care may create unequal health-care access between poor and rich, and further increase health-care costs. Therefore, to address the growing health-care needs, effective utilization of the health-care workforce is essential.

Gig economy is an approach in the labor market which is characterized by the prevalence of short-term contracts or freelance work in contrast to permanent jobs. The gig workers are independent workers or temporary contract workers who enter into formal/informal agreements with on-demand companies to provide their services. Rather than employing full-time/permanent employees, companies may utilize gig workers as per the demand and work burden, which can minimize the costs incurred in managing permanent employees. It is also beneficial for gig workers, as they work as per their interests and when convenient with a freedom of choice at work. As a result, it is beneficial both for companies and gig workers. Studies^{12,13} have identified ineffective practices in the health-care systems, which can significantly increase the operational costs. For instance, employing a doctor as a permanent employee requires the hospital to pay the doctor irrespective of the patients' appointments with the doctor. As a result, in some cases, the hospital may need to pay the doctor even if no appointments are registered with doctor. This scenario can be effectively improved using the gig economy approach. For instance, providing on-demand services by the hospitals to patients, and by assigning consultations (gigs) on-demand with doctors (gig workers) can help hospitals in reducing the costs and also the doctors in providing on-demand services, rather than working as a permanent employee. Therefore, integrating gig economy in the health-care system may significantly reduce operational costs, improve service delivery, and enable effective human resource management.¹⁴

Gig economy, which focuses on individuals working at their own availability and comfort rather than being employed full-time¹⁵ offers a window of opportunities in the Saudi Arabian health-care system. Strategies such as sharing/renting of health-care equipment, using physicians and other health-care staff according to the demand and need, etc, can significantly reduce the operational costs and increase the service accessibility.¹⁶ However, there is a lack of research in the area of gig economy in health care,¹⁶ requiring further investigations in this area. Considering these aspects, the purpose of this study is to identify and evaluate various prospects in integrating gig economy in the Saudi Arabian health-care system. To further streamline the study, three research questions are formulated, which include:

1. Can gig economy improve organizational competitiveness in health care?
2. Can gig economy support sustainable development in health care?
3. Can gig economy contribute to the resource management in health-care sector?

Literature Review

Factors such as increasing unemployment, market uncertainty, increasing stress in full-time employment, and the recent economic recession have contributed to the change in attitude of the people toward employment.¹⁷ There is an increasing belief among the workforce in the principles of freedom at work, freedom in choice of employment, and flexibility in working hours rather than working in a full-time job with pre-defined regulations. This has led to the development of a new approach in employment, which is referred to as gig economy. It is a concept that reflects an approach toward employment in which people rely on independent tasks (gigs) offered by clients, enabling them to choose the gigs at their convenience and achieve flexibility in working.¹⁵ They are usually termed as gig workers or independent workers or freelancers. There is an increasing trend observed in gig economy, where many individuals are finding gig culture to be favorable in contrast to full-time jobs where they need to obey the rules and regulations of the employers, which lacks the freedom and convenience at work.¹⁵ In addition, developments across ICTs have led to the design of various intermediary platforms such as Upwork which acts as a platform for freelancers to post their skills and knowledge, and the

areas of service offered; and for clients to post their gigs and recruit gig workers based on predefined payment terms.

This approach can be beneficial both for companies and gig workers. While gig workers can choose the type of work to suit their availability, companies can lower costs of full-time employment and additional benefits, and systematically recruit gig workers based on the needs at different times.¹⁸ With these benefits in place, many individuals across the globe are opting for gig work. It was estimated that in the US, the number of gig workers increased from 3.7 million in 2014 to 62.2 million in 2019,^{19,20} reflecting a steep increase in the gig workforce. With the increase in the gig workforce that is diverse with a variety of skilled workers, both small and large companies are relying on them in order to minimize operational costs. Among the Fortune 500 companies, nearly 30% of them (mostly technology-based companies) are relying on intermediary platforms to recruit gig workers from different countries.²⁰ A skilled workforce spread across the globe is one of the major advantages for the companies to recruit gig workers according to their convenience and need, increasing the chances of maintaining a healthy workforce and increase their competitive edge.

Focusing on the gig environment, which is mainly driven using online technologies, its nature can be characterized by three actors: gig workers, the requestors or clients, and the intermediary (platforms or firms such as Upwork).²² The intermediary platforms, such as Upwork, play an important role in gig environment, which acts as a bridge between the clients and gig workers distributed across the world. The recent trends in gig economy reflected that it is mostly adopted in developed countries such as the US, the UK, Australia, etc. However, gig workers in these countries charge a high price for gigs,²² as a result of which clients are relying on gig workers from developing countries where the gig workers' charges are usually low. This reflects the trend of outsourcing gigs rather than complete operations to the companies in developing countries such as India and Philippines, where the costs for gigs are usually low.²³ Considering these advantages, gig economy has been one of the major focuses in the health-care industry, where both health-care services such as on-demand diagnosis and treatment, booking appointments, health services (physiotherapy, consultancy etc) and health-care activities such as administrative tasks, research and surveys, information technology tasks such as data entry, records management, system maintenance, etc

can be managed using gig economy approaches.¹⁶ Companies are increasingly relying on the gig workers as they come at low costs.²⁴

Digital market places have been one of the driving forces for the development of gig economy. Features of digital marketplaces, such as larger pools of supply and demand, ease of use, digital payment system and infrastructure, transparency of information (profiles, reviews, ratings of gig workers), better search and matching can be effective for increasing the prospects of adopting gig economy.^{25,28} These features can lead to various benefits such as reducing unemployment, improving organizational competitiveness, freedom for workers, opportunities for women and disabled,²⁷ greater recruitment flexibility and a cost-effective pricing strategy. Based on the profession, health care was identified as having greater prospects for gig workers; and based on industry, both education and health-care sectors were identified with highest prospects for gig economy,²⁶ indicating the scope for using gig economy in health care. Considering gig economy in favor of gig workers, it was identified that economic, industrial, and political factors may threaten to slow or halt the growth of gig economy.²⁸ Moreover, with the growing number of gig workers, it may not be an easy task to limit the growth of gig economy by these factors; however, policies and legislations can be launched to regulate it. Accordingly, the need for representation, voice, and collective bargaining in the gig economy was identified, which is already in process in several countries in Europe.^{29,31} For effective deployment of gig economy, the need for regulatory framework was realized, and the need for clarifying or expanding definitions of “employment”; creating a new category of “independent worker”; creating rights for “workers”, not employees; and reconsidering the concept of an “employer” was essential to create and enforce laws in this context.³⁰ Creating a regulatory framework and regulation can help in effective deployment of gig economy that would provide access to the diverse pool of flexible workers, improve access to services, increase opportunities, develop the economy by creating employment opportunities in rural areas supporting balanced regional development. Accordingly, studies^{32–34} reflected that gig economy has greater prospects in developing business models which can benefit both clients and gig workers by addressing a few issues associated with it such as building regulatory and legal frameworks, providing security for gig workers, and integrating international gig culture.

Methods

Study Design

Various prospects of gig economy were identified from studies^{17–34,44} reviewed in the literature. These factors are further analyzed in the context of health-care sectors and a list of prospects and benefits were analyzed by the author in the context of Saudi Arabia. This is a descriptive cross-sectional study focused on investigating the prospects of integrating gig economy in healthcare. An online survey questionnaire instrument is adopted to evaluate the impact of identified prospects in integrating gig economy and health-care services and operations in Saudi Arabia. The prospects were grouped under three categories with relevance to the research questions, which included organizational competitiveness, resource management, and sustainable development and were also identified as the benefits of gig economy.^{45–47} The first category includes five items comprising growth in employment, economy, improved competitiveness, cost-effective pricing strategy, and ability to scale quickly, which can lead to organizational competitiveness.^{18,20,22} The second category includes seven items comprising motivation for Saudization program, reduced dependency on expatriates, freedom to workers, opportunities for women and disabled, availability of high-demand and specialized skill sets, greater recruitment flexibility, diverse pool of flexible workers relating to effective resource management.^{16,21,23–27,44} The third category includes items: effective health-care services management, improved access to health-care services, increasing opportunities in ever-growing market (healthcare) sector, effective project management, a business model for future, advanced ICTs supporting gig business models, an effective way for sharing health-care resources, restructuring business operations (due to lack of necessity for few operations such as talent management), balanced regional development, employment opportunities in rural areas, which can contribute to sustainable development.^{28–34,44}

The survey questionnaire was designed in two parts. The first part provides the introduction to the survey, a brief description about the purpose of study, data usage policy, privacy aspects for fully informing the participants about the study and its objectives. At the end of first section, an acceptance button is provided to which participants provide their consent. The second part of the questionnaire included 22 prospects as explained previously. Items related to each category in the questionnaire were carried out to be rated using a five-item Likert scale (1=strongly disagree;

2=disagree; 3=neither agree nor disagree; 4=agree; 5=strongly agree) ratings.³⁵ The questionnaire was then translated to Arabic using two professional Arabic translators.

A pilot study was conducted with 12 health-care workers randomly selected from online health portals. Cronbach's alpha (0.83 > 0.70)³⁸ was used for calculating the reliability of the questionnaire items, indicating good reliability and consistency (Table 1).

In addition, feedback was collected from all the participants in the pilot study, based on which few words were rewritten in Arabic to reflect more accurate meaning in relation to the items in the English version of the questionnaire. The Arabic version of questionnaire was then uploaded to QuestionPro application,³⁷ generating a link to the questionnaire. The Institutional Review Board at Imam Abdulrahman Bin Faisal University approved the ethical protocol of this research. Anonymity of the participants is ensured in this study and informed consent was obtained from the participants.

Recruitment and Sampling

As the objective of this study was to identify and evaluate the prospects associated with using gig economy in the Saudi Arabian health-care system, the need to include a diverse group with large sample was realized. To calculate the sample size (S), Cochran's formula was used.

$$S = \frac{Z^2 pq}{e^2}$$

- e is the desired level of precision (ie, the margin of error),
- p is the (estimated) proportion of the population which has the attribute in question,
- q is $1-p$.

At $p=0.5$, and 95% confidence interval, and at least 5%—plus or minus—precision; a 95% confidence level gives us Z values of 1.96, per the normal tables, so the sample size was calculated to be 385.

Table 1 Reliability Analysis (Cronbach's Alpha) for Prospects

Category	No. of Items	Cronbach's α	Result
Organizational competitiveness	5	0.836	Good
Resource management	7	0.841	Good
Sustainable development	10	0.832	Good

$$S = \left((1.96)^2 (0.5)(0.5) \right) / (0.05)^2 = 385$$

A purposive sampling³⁵ was adopted in selecting the participants. Accordingly, the sample includes two different populations. Two types of participants were included. Firstly, various experts (managers, department heads, senior executives) working under the Ministry of Health (MOH): they are considered to be decision-makers involved in policy-making; and secondly, the health-care workers in Saudi Arabia, including physicians, senior physicians, nurses, administrative managers: who are considered to be frontline workers who might be directly involved in the gig economy process. The survey link was forwarded to various online health groups and communities, using health portals (health-care workers community portals) and also to experts using the government portals (health-care officers online community portals) on various social platforms using a wide range of applications such as WhatsApp, Facebook, Instagram, and Twitter. The survey was conducted over a period of eight weeks, from November 3, 2020 and December 29, 2020. The survey link was initially forwarded to 995 individuals (586 health-care workers and 409 experts) using various methods explained above. Out of the 995 individuals, 156 respondents (94 health-care workers and 62 experts) partly completed the survey, and 127 individuals (51 health-care workers and 76 experts) did not take part in survey, as a result, a final sample of 712 (441 health-care workers and 271 experts) was achieved, reflecting a response rate of 71.5%.

Data Analysis

The responses for the questionnaire items were downloaded from the QuestionPro application, and loaded into Statistical Package for the Social Sciences (IBM SPSS) version 21. Average ratings (mean) and standard deviations for each item were calculated in order to prioritize the opinions of the participants and to analyze the variance in responses respectively. Furthermore, t -tests were conducted to identify the significant differences between the groups. Accordingly, the findings are discussed in the next section.

Results

A total of 712 experts and health-care workers participated in this study as shown in Table 2. The majority of the participants in the study were male (56.8%), and

Table 2 Frequency Distribution of Demographic Variables

Variables	N (%)
Gender	
Male	405 (56.8)
Female	307 (43.2)
Age	
20–29	132 (18.5)
30–39	297 (41.7)
40–49	173 (24.3)
50–59	87 (12.2)
>59	23 (3.3)
Education	
Bachelor's degree	275 (38.6)
Master's degree	179 (25.2)
PhD	22 (3.1)
Diploma/others	236 (33.1)
Job Position	
Physician	236 (33.2)
Nurse	134 (18.9)
Administrative manager	71 (9.9)
Managers (MOH)	104 (14.6)
Administrative head (MOH)	153 (21.5)
Senior executive (MOH)	14 (1.9)

a considerable number of female participants (43.2%) were included. Considering the participants' age, the majority of the participants were in the age group of 30–39 years (41.7%), followed by 40–49 years (24.3%), 20–29 years (18.5%), 12.2% in 50–59 years (12.2%), and those aged more than 59 years (3.3%). In relation to the participants' educational levels, the majority of them held bachelor's degree (38.6%), followed by diploma holders or involved in other education (33.1%), master's degree holders (25.2%), and PhD holders (3.1%). In relation to job positions, 38.1% of the participants were experts working in various departments at the Ministry of Health (14.6% managers, 21.5% administrative heads, and 1.9% senior executives) and 61.9% were health-care workers (18.9% nurses, 33.2% physicians, and 9.9% administrative managers).

The majority of the prospects (13/22) were strongly agreed (mean >4) by the participants. Motivation for Saudization program (mean=4.5, SD=1.15) and creating employment opportunities in rural areas (mean=4.5, SD=1.08) were the most agreed prospects by the majority of participants (as shown in Table 3). *T*-tests were conducted considering all the participants to identify if there are any difference in the findings between the different participant groups (health-care workers and experts) as

presented in Table 4. Comparing the responses of the participants in relation to the prospects of gig economy leading to organizational competitiveness, no significant difference was observed among the health-care workers (N=441, mean=3.9) and experts (N=271, mean=4.0) participants with *t*-value=1.0948 and *p*-value=0.2740 (*p*>0.05) at 95% confidence interval. Similarly, comparing the responses of the participants in relation to the prospects of gig economy leading to effective resource management, no significant difference was observed among the health-care workers (N=441, mean=3.9) and experts (N=271, mean=3.8) participants with *t*-value=0.8443 and *p*-value=0.3988 (*p*>0.05) at 95% confidence interval. However, comparing the responses of the participants in relation to the prospects of gig economy leading to sustainable development, significant difference was observed among the healthcare workers (N=441, mean=3.9) and experts (N=271, mean=4.2) participants with *t*-value=6.1319 and *p*-value=0.0013 (*p*<0.05) at 95% confidence interval. Overall results indicated that prospects related to sustainable development were identified to be more related benefits in integrating gig economy with the healthcare system in Saudi Arabia; followed by organizational competitiveness and resource management.

Discussion

As a part of Saudization program^{39,40} which focuses on decreasing the dependency on expatriates by increasing the skilled workers in Saudi Arabia, various development initiatives such as improving education through partnership from various internationally recognized universities promoting research and development, and skill development programs have been deployed during the past decade. The program has been delivering positive results in improving the skilled labor workforce in the country.^{45,46} The concept of Saudization is deeply rooted in Saudi citizens, especially women who have been increasing their presence in various sectors and are capitalizing on the opportunities in gig economy.⁴⁶ Increasing labor force motivated by Saudization and gig economy can help Saudis to capitalize on opportunities in the health-care sector. These may include resource sharing (mean=4.2, SD=4.12), gig works such as consulting doctors, on-demand services by male nurses, etc, according to the availability of gig workers and the needs of hospitals. However, difference of opinion is observed with respect to resource sharing, as few participants strongly agreed to it, while very few strongly disagreed to it. These

Table 3 Opinion Levels of Participants in Relation to Prospects of Using Gig Economy in Health care

Category	Prospects	Mean	Standard Deviation (SD)
Organizational competitiveness	Growth in employment	4.3	1.68
	Growth in economy	4.4	1.43
	Improved organizational competitiveness	3.4	3.28
	A cost-effective pricing strategy	3.3	1.37
	Ability to scale quickly	4.1	1.59
Average		3.9	
Resource management	Motivation for Saudization program	4.5	1.15
	Reduced dependency on expatriates	2.3	1.29
	Freedom to workers	3.9	1.16
	Opportunities for women and ldisabled	4.4	1.28
	Availability of high-demand and specialized skill sets	4.2	1.39
	Greater recruitment flexibility	3.9	1.47
	Diverse pool of flexible workers	3.9	1.78
Average		3.87	
Sustainable development	Effective health-care services management	4.1	1.31
	Improved access to health-care services	4.2	1.57
	Increasing opportunities in ever-growing market (health care) sector	4.3	3.89
	Effective project management	3.7	3.85
	A business model for future	3.8	3.17
	Advanced ICTs supporting gig business models	4.3	1.28
	An effective way for sharing health-care resources	4.2	4.12
	Restructuring business operations (due to lack of necessity for few operations such as talent management)	3.9	1.35
	Balanced regional development	4.3	1.44
	Employment opportunities in rural areas	4.5	1.08
Average		4.13	

differences may be because of issues such as risk of contamination through sharing, which is a very important factor in light of the recent COVID-19 outbreak. This can further provide opportunities for skilled labor in rural areas as identified in the survey findings, leading to balanced regional development (mean=4.3, SD=1.44). Gig economy can also help in empowering women and disabled (mean=4.4, SD=1.28) in Saudi Arabia, by providing various opportunities to work at their convenience and comfort. Increased participation of Saudi citizens not only

improves the standards of living, but also fuels economic growth (mean=4.4, SD=1.43), which is also one of the major prospects identified by the participants.

The Saudi government, as a part of its Vision 2030, has launched various initiatives for digitization⁴⁴ of services in various sectors. As digital technologies are an important component of gig economy, the digitization program can lead the way for future of gig economy in Saudi Arabia. Accordingly, ICTs supporting gig models (mean=4.3, SD=1.28) are identified to be an important prospect by

Table 4 Comparison of Health-care Workers and Experts Opinions on the Impact of Integrating Gig Economy with Health-care System on Organizational Competitiveness, Resource Management and Sustainable Development

	N	Mean	Standard Deviation	df	t-value	p-value
Organizational Competitiveness						
Health-care workers	441	3.9	1.12	710	1.0948	0.2740
Experts	271	4.0	1.28			
Resource Management						
Health-care workers	441	3.9	1.69	710	0.8443	0.3988
Experts	271	3.8	1.24			
Sustainable Development						
Health-care workers	441	3.9	1.15	199	6.1319	0.0013 (p<0.05)*
Experts	271	4.2	1.29			

Note: *Statistically significant.

the participants for ceasing opportunities in ever-growing market (health care) sector (mean=4.3, SD=3.89). However, difference in participants' opinions (SD=3.89) are observed with respect to opportunities for gig economy in health care. While a few participants strongly agreed, a few others disagreed. The reason for disagreement may be attributed to lack of regulatory or legal frameworks^{33,34} for the adoption of gig economy.

In addition to digitization, there is an equal emphasis on the education sector in Saudi Arabia to increase the skilled labor force.⁴⁵ Accordingly, availability of high demand and specialized skill-sets in health care (mean=4.2, SD=1.39), freedom for workers (mean=3.9, SD=1.16), and diverse pool of workers (mean=3.9, SD=1.78) were identified to be important prospects by the participants. With the availability of the skilled and potential workforce in health care, health-care organizations can improve the ability to scale quickly (mean=4.1, SD=1.59), by improving access to health care (mean=4.2, SD=1.57). Digitization, availability of skilled workers, motivation on Saudization are a few favorable factors that can help organizations to quickly scale their services in accordance with the growing health-care needs by adopting gig culture. Distribution of gigs can reduce the operational responsibility on the health-care organizations, and help them focus more on managing service delivery and quality of services. Accordingly, various benefits such as effective health-care services management, greater recruitment flexibility, effective project management, improved organizational competitiveness, and reducing costs by implementing cost-effective pricing strategy for gigs are identified with the adoption of gig economy in

health care. However, participants' opinions varied with an increase in variance among the responses for project management and operational competitiveness. It may be that few believed employing gig culture may benefit organizations in reducing the costs, managing operations effectively, and increasing competitive advantage by employing skilled workers from large pools of gig workers; while others may have of an opinion about issues such as challenges in integrating gig culture into the traditional work culture model.^{21,48} In addition, adopting a gig economy was also identified with no requirements of certain business activities such as talent management (approach for managing talent by talent identification and retaining) (mean=3.9, SD=1.35), as the skilled workers are readily available on gig platforms who can be used according to the requirements and needs of health-care organizations, which made them believe that gig economy is the business model for the future (mean=3.8, SD=3.17). As gig economy benefits companies to recruit gig workers from any region, it may be possible that health-care organizations may look for gig workers from other geographical regions for low-labor costs^{1,2} compared to local Saudi citizens. Accordingly, one of the important findings in the survey is that the majority of the participants disagreed that gig economy would reduce the dependency on expatriates (mean=2.3, SD=1.29).

Furthermore, no differences of opinion were identified among the experts and health-care workers in relation to organizational competitiveness, indicating common agreement over the prospects of integrating gig economy into the health-care system. Though there were differences of opinion observed in relation to the sustainable

development factor, the majority of the responses from both groups supported all the items. As experts may have perceived a wider range of benefits, and health-care workers may not be aware of all the benefits in relation to sustainable development, these differences might have emerged.

Overall, the findings related to prospects of using gig economy in the Saudi Arabian health-care system reveals good scope to adopt gig economy, in line with the Saudization program in achieving the objectives of Vision 2030, which are similar to the opportunities of gig economy in Saudi Arabia analyzed in a recent KPMG study. However, the KPMG study has identified major areas of improvement, which included strategy and leadership, policies and regulations, digital infrastructure, integrating digital and gig culture, improving platforms, and services. The findings in this study can be correlated with the areas of improvement as suggested in KPMG study. In relating the results to the research questions, as explained in previous sections, integrating gig economy and the health-care system in Saudi Arabia can promote sustainable development, which is one of the most important aims of the country's Vision 2030 program. In addition, improved organizational competitiveness and resource management can be two other benefits of integrating gig economy and health care in Saudi Arabia, which can be inferred from the results.

The study can have both practical and theoretical implications. This study contributes to the literature related to the gig economy and health care areas which are scarcely researched. Furthermore, the findings in this study can also pave the way for future research in identifying the risks/benefits/issues/challenges in integrating gig economy and health care in Saudi Arabia. Moreover, the findings in this study can be used by the policy makers in assessing the prospects of integrating gig economy with health care and may develop various initiatives for the same which can result in sustainable development, organizational competitiveness, and resource management.

There are a few limitations observed in this study. Firstly, this study adopted a survey instrument for data collection. Using a mixed methods approach by adopting other data collection methods such as qualitative interviews can lead to collection of quality data. In addition, the low sample achieved in this study makes it difficult to generalize results. Therefore, generalizations of results should be done with care. Furthermore, as there was no

randomization technique adopted in this study in selecting the participants, results should be generalized with care, and future studies may fill this gap by using randomization techniques in data collection. With lack of existing literature in the context of integrating gig economy in various sectors in Saudi Arabia, the findings and limitations in this study can guide the future research. Research areas such as assessment of the digital gig economy ecosystem in light of the COVID-19 crisis; development of gig economy policies, frameworks, and platforms; readiness of ICT infrastructure for adopting gig economy can be considered for future studies.

Conclusion

Various prospects identified in relation to the use of gig economy in the Saudi Arabian health-care system were identified and evaluated in this study. Findings have revealed that motivation for the Saudization program, increasing employment opportunities in rural areas, growth in economy, growth in employment, increased opportunities for women and disabled, increasing opportunities in the ever-growing market (health care) sector, advanced ICTs supporting gig business models, balancing regional development, availability of high-demand and specialized skill sets, improved access to health-care services, an effective way for sharing health-care resources, ability for health-care organizations to scale quickly, and effective health-care services management are the major prospects associated with use of gig economy in the Saudi Arabian health-care system.

The three important aspects of healthcare system, which include sustainability, effective resource management, and organizational competitiveness were identified to be the benefits of integrating gig economy and the health-care system in Saudi Arabia. With all countries gearing up for sustainable development in various areas, Saudi Arabia may be the forerunner in integrating gig economy in health care and lead the way on the global platform, as the results in this study are very convincing. With growing trends in gig economy and health-care needs, it is essential that Saudi Arabia prepares itself for the major changes in working cultures and other relevant aspects of gig economy in relation to the prospects identified in this study. These factors may enable future researchers and decision-makers to focus on the key areas affecting the use of gig economy in the Saudi Arabian health-care system.

Disclosure

The author reports no conflicts of interest in this work.

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