



# THE IMPACT OF COVID-19 ON PROJECT DELIVERY: A PERSPECTIVE FROM THE CONSTRUCTION SECTOR IN THE UNITED ARAB EMIRATES

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## Abstract

**Purpose of study:** The study aimed at establishing the implications of the COVID-19 pandemic on project delivery in the UAE with a significant focus on the construction industry. The study also sought to determine some of the negative implications of COVID-19 for the construction industry.

**Methodology:** The within-subjects research design was employed in the study. Purposive and simple random sampling was used in the selection of the respondents. A total of 116 project managers in the construction industry were sampled for the study. Data was collecting using self-administered online questionnaires. The SPSS software was applied to analyze the collected data using the paired samples t-test analysis method to compare the means of the projected number of days taken to complete a project before and during the COVID-19 period.

**Main Findings:** The study findings revealed that there is a statistically significant effect of the COVID-19 pandemic on the number of days taken to complete projects in the construction industry in the UAE. The findings of the study revealed that the pandemic resulted in a lack of access to raw materials and labor, thereby leading to a delay in the completion of projects.

**Application of the study:** The revelation of the implications would inform the policy and decision-makers in the country to devise effective ways of addressing the challenges for the stability of the sector. The researcher recommends the same study to be replicated in other areas to identify the effects the pandemic has had on other industries. Another study should also be conducted on the effective strategies that should be adopted to address the effects caused by the COVID-19 pandemic on the construction industry in the UAE.

**Novelty/originality of the study:** This is contemporary studies that deal with a current issue. The study concluded that the construction industry became a victim of COVID-19 to the extent that it has brought its projects to a halt and significantly eroded the market of its beneficiaries. Unlike other industries, construction projects cannot accommodate distance working but facing challenges making on-time delivery impossible and therefore construction industry is at risk.

**Keywords:** *Project, Project Delivery, Work Schedule, Construction Sector, COVID-19, UAE.*

## INTRODUCTION

The primary role of construction industries is to develop infrastructure aimed at solving housing, transport, and business challenges in an area. The success of construction companies depends significantly on the availability of raw materials and other factors of production, such as workforce. Most of the managers within the construction companies in the United Arab Emirates (UAE), just like in other states, work within stipulated timeframes. Those given public and private tenders are given a time schedule within which the projects are required to be completed ([Hinton & Hamilton, 2015](#)). Some of the private companies may withdraw the contract tender if the project team fails to realize the project deliverables within the agreed-upon time. The success of the projects may, however, be negatively affected by unforeseen adverse events such as the current COVID-19 pandemic.

The construction industry in the UAE, just like in other states, has been impacted. Lack of access to essential raw materials, limited movement of the workforce, and the curfews and lockdowns have had negative implications on the success of projects ([Brightmore, 2020](#)). Disasters such as the outbreak of diseases in project sites and unfavorable working environment may hinder the implementation of the proposed projects. For instance, some of the workforces may report increased cases of turnover due to mobility hindrances. The government may also adopt measures aimed at protecting its citizens from the negative implications of the disaster ([Wilhite, Sivakumar, & Pulwarty, 2014](#)). In most cases, the measures involve limiting the movement of people and ensuring that economic activities are altered in the affected regions. The alteration of activities and movements leads to delays, which may, in turn, have negative implications on the realization of deliverables, considering that most of the project activities may be postponed ([GlobalData, 2020](#)).

Additionally, the donors are likely to withdraw from funding the projects, especially when they fail to realize the specific goals that should be realized after every stage of the implementation process. Some arguments regarding delayed project implementation and completion may result in cases of corruption, considering that some of the raw materials and finances are not used immediately; they are disbursed. The project team may, therefore, utilize the resources in satisfying their personal interests while leaving the ventures unaccomplished ([Kerzner, 2017](#)).

The construction industry promotes the development of a country. It is a source of employment for a considerable number of people, especially those involved in construction activities. Also, the quality of life of the suppliers in this industry depends on the degree to which they sell their products to the contractors. The sector plays a significant role in developing infrastructure whose effects on the stability of the economy cannot go unnoticed (Ghandour, 2020). The COVID-19 pandemic adversely impacted this sector (PWC, 2020). The government of the UAE has made significant efforts to strengthen health, education, and other strategic sectors. For instance, the health sector has been equipped, and medical practitioners were motivated to improve their morale for fighting the disease. Also, the education sector has been funded, with most students enrolled in online classes, which was a move aimed at ensuring that learning is not affected (Federal Competitiveness and Statistics Authority, 2020). UAE construction industry is one of the sectors that have been adversely affected by the COVID-19 pandemic (Nagraj, 2020, June 11). The government has, however, done little to leverage the construction industry from the negative implications of the pandemic. The study is aimed at establishing some of the negative implications of COVID-19 to the construction industry. The study was limited to only project managers in the construction industry. The primary focus was on the effects of the pandemic. The revelation of the implications would inform the policy and decision-makers in the country to devise effective ways of addressing the challenges for the stability of the sector. It is the objective of this study to find out the effect of the COVID-19 pandemic on the number of days taken to complete projects in the construction industry in the UAE.

The construction industry influences the economic development of the country to a significant extent. A considerable portion of government revenues is sourced from this sector, meaning its collapse is likely to reduce the government's revenue, thereby altering its operations. It was thus essential for the study to be conducted to establish the effects of the pandemic on the industry. The establishment of the effects would allow the government and other development partners to adopt effective measures with the aim of enhancing the stability of the industry. Therefore, this study is aiming at establishing the implications of the COVID-19 pandemic on project delivery in the UAE with a significant focus on the construction industry.

This paper is presented in five sections. The first section contains an introduction to the central topic of the paper. The literature was reviewed in the second section. The third section discusses the methodology followed by results and analysis whereas the fifth section illustrates the discussion, implications, and limitations of the current study. Conclusion and recommendations are presented at the end of the paper.

## LITERATURE REVIEW

The construction sector and real states are impacted massively by COVID-19 (Bailey, Bouchardie, & Madalena, 2020) to the extent that it has brought its projects to a halt and significantly eroded the market of its beneficiaries. Unlike other industries, construction projects cannot accommodate distance working but facing challenges making on-time delivery impossible. These were highlighted by Chopra (2020) as factors that are related to the human resources, shutting down of the production industries, inflation, reduced working hours and work duration, reduced sale and project demands, economic downfall, increased cost of the material and equipment. The lack of human resources or workers has occurred because many expatriates from gulf countries became jobless and have sent to their countries during this Covid-19. Therefore, the construction industry is facing a lack of skilled individuals. In another research by Rodela et al. (2020) in which they argued that along with other sectors the construction sector is also becoming a victim of this Covid-19. They found that the economic downfall around the globe is causing increased inflation and these impacts are prolonged. To follow this, the literature along these impacts have been reviewed in the context of the UAE.

### COVID-19 and the Construction Industry

The COVID-19 pandemic has significantly affected the operations in the construction industry. A considerable number of project managers have switched to remote working while at the same time ensuring that the critical systems of the project are working. According to Baldwin and Mauro (2020), 90% of the project managers were working from home during the closure of March 2020. Only a small portion of the staff was allowed to continue working at the project site in most of the construction industries in UAE. Most of these staff members attended specific areas that had a high level of urgency, meaning that most of the project activities were not carried out during the pandemic. The contractors involved in private entities such as the construction of residential premises and commercial buildings have also resorted to homeworking, with most of them allocating one or two days on project sites. The shift from work to home supervision has had some adverse implications, particularly in terms of failure to manage resources at the site adequately.

Also, the project managers have been forced to dismiss some of the project team members due to reduced activities at the site. The COVID-19 pandemic has limited the number of activities carried out at the project site. The current UAE regulations require that individuals should keep a social distance. This means that gathering at workplaces has been abolished, forcing the managers to reduce the number of staff representatives at workplaces. The reduction in the number of employees, according to Ruiz-Torres, Alomoto, and Paletta (2015), affects not only the duration of completion but also the quality of output. The more the workforce is reduced, the longer it takes to complete the project. Also, the reduction of the workforce forces the retained workforce to overwork in order to meet the set deadlines. The overburdening may have adverse implications on their productivity, considering that they may have their wellness compromised. The result is that they would not participate in the subsequent project activities, which is a factor that is

likely to result in delays in realizing the deliverables of the projects ([Ammendolia, Cancelliere, & Cassidy, 2016](#)). These regulations have negative implications on the project, considering that the deliverables would not be realized within the set timeframes. Additionally, the lack of supervision of the workforce has had negative implications on the quality of the work done. In most cases, the supervisors oversee the project activities in the comfort of their homes. This approach to supervision makes it challenging for the project managers to establish any flows in the implementation process, which is a factor that is likely to affect the quality of the final deliverables.

### **COVID-19 and Access to Raw Materials in Construction Industry**

The country paid attention to the preparation of the health sector to ensure that the medical practitioners were capable of handling the increasing number of cases related to the pandemic ([Baldwin & Mauro, 2020](#)). The measures also extended to the other sectors. Most people shared an understanding that failure to adopt control measures to regulate the operations of other sectors would result in increased spread of the virus, thereby straining the health sector. UAE was one of the first countries to be affected by the Covid-19 pandemic hence the state adopted timely measures to combat the spread of the disease ([Federal Competitiveness and Statistics Authority, 2020](#)). The first measure involved adjusting the opening hours of business premises. All malls and other commercial premises had their operational time shortened in order to give room for sanitization of public spaces in the evenings. As a result of newly established limitations, some of the small firms known to sell construction materials could not operate for the normal 24 hours ([Baldwin & Mauro, 2020](#)). In the UAE, businesses in major cities such as Dubai, Abu Dhabi, and Sharjah are known for their full-time operational culture. However, the night curfews and lockdowns reduced the operating time of these enterprises, while others were shut down closely. The lockdown and curfews have, to a significant degree, helped in limiting the spread of the disease. However, businesses can meet their sales targets within longer timeframes, with construction firms forced to postpone their operations due to lack of raw materials.

There have also been restrictions on movement (Lockdown and curfew) in the UAE, just like in other countries as measures to confront the pandemic. After the first cases of COVID-19 were reported, the government suspended all the internal and external movements of citizens. For instance, the train and Dubai Metro service vehicles had their operations stopped, which was a decision aimed at reducing the movement of people from one region to another. Also, the country suspended all the international flights to its trade partners, such as the US and other European countries, as part of a strategy for combating the spread of the virus ([Carruthers, 2020](#)). The restriction of movements has affected the operation of businesses. Some of the firms that relied on the importation of raw materials could no longer access the factors of production. The construction industry was one of those affected by regulations aimed at restricting movement. A significant number of contractors could not import the construction materials. Also, the constructors could not source some of the needed construction materials internally due to the reduced hours of operation ([Bodenstein, Corsetti, & Guerrieri, 2020](#)).

### **COVID-19 and Access to and Sourcing of Workforce in the Construction Industry**

The COVID-19 pandemic has also limited the association of people, which became a factor likely to affect the sourcing of employees. The UAE's government has adopted strict measures to break the transmission chain of the virus. The social distancing directive provides that all persons should avoid social gatherings ([Ahani & Nilashi, 2020](#)). This directive has had negative implications in the construction industry. Some of the firms could not hire the workforce to participate in constructive works. Project managers have, therefore, maintained a small portion of the employees at the project site. The reduction in the project management team has also impacted the progress of the construction works considering that the fewer the number of workers, the longer it takes to realize each of the stated deliverables.

Accessing and hiring the workforce has also become a challenge that affected the operations of the construction industry. According to [Ahani and Nilashi \(2020\)](#), curfew orders make it hard for the workforce to travel to distant places for construction activities. It also becomes difficult for the activities of this industry to be conducted, especially when the area neighboring the site lacks the personnel to take part in the construction works. [Lee, Malatesta, and Fernandez \(2019\)](#) asserted that outsourcing may be costly to the project team since the employees would force the companies to incur transport and maintenance costs, which may impact their financial stability. Also, the hiring procedures for managers and workers in the construction industry have been hindered by the social distancing regulations. The panels that would have sat to interview and appoint the officers and workers have suspended their gatherings, which is a factor likely to impact the operations of the sector negatively.

Employees tend to improve their productivity when they work closely with their peers. Competency in project management works is dependent on the degree to which the workforce members acquire new skills and knowledge, as well as on their level of application ([Mahy, Rycx, & Vermeyleen, 2015](#)). The reduction of movement has affected the ability of the personnel in the construction industry to acquire additional skills, considering that they do not associate with their colleagues. Social distancing regulations have suspended training and conferences that are effective avenues in which skills are learned and passed from one individual to another ([PWC, 2020](#)). Workforce development programs are effective in improving the competency of the workforce while thus increasing their productivity ([London & Diamante, 2018](#)). However, the programs have since been suspended due to regulations against social gatherings. The challenge is that the technical skills that characterize the construction industry cannot be theoretically taught via online

communication forms. It, therefore, means that the skills of the workforce may not be improved, which is a factor that can reduce the productivity of personnel in this sector.

Also, a significant portion of the workforce who turned up for work exhibited reduced productivity. Others reported a high level of fear of contracting the virus while others reduced their length of stay at the workplace. [Street, Lacey, and Somoray \(2019\)](#) argued that stress from environmental forces may reduce the attention and productivity of the workforce at their respective places of work. Project managers reported decreased cases of productivity in the workforce subjected to pandemics such as the COVID-19. Some of the junior contractors may have their family members who may be suffering from the challenges posed by the hazards, which is a factor that compromises their productivity. The fear of contracting the disease also forces some of the staff members in the construction industry to keep a distance in the course of project implementation. This work approach is characterized by the desire of the workforce to work independently. Reduced group activity, according to [Ibidunni, Abiodun, and Olokundun \(2019\)](#), compromises the quality of the output, and it also prolongs the time spent in implementing projects. It is thus right to state that the mental and general health status of individuals is a determinant to the quality of output they realize in their duties.

### COVID-19 Effects on Project Beneficiaries

The beneficiaries of the projects in the construction industry are citizens and private entities ([Chopra, 2020](#)). [Carruthers \(2020\)](#) affirmed that the pandemic has delayed the completion of projects, thereby altering economic activities. For instance, business owners with the plans of owning spaces have had delayed in the completion of their spaces. The result is the continued renting of space, which, according to them, increases their operating expenses. Also, some of the roads, especially in rural areas in the UAE, are impassable, thereby altering business activities in the area. The government, in its infrastructural development projects, has initiated programs aimed at developing these roads as a way of enhancing business activities in the area ([Srivastava, 2020](#)). However, the COVID-19 has altered the implementation of the infrastructure development projects considering that the movement of the workforce has been limited. The poor roads continue to impact negatively the business activities, making those involved suffer from losses associated with delayed delivery of commodities to the market ([Altios, 2020](#)).

The synthesis of the literature reveals significant adverse implications of the COVID-10 pandemic on the construction industry. The various effects of COVID-19 on the access of raw materials, workforce, and raw materials have all lead to delays in the completion of the project, thus impacting the beneficiaries. It is the objective of this study to find out the effect of the COVID-19 pandemic on the number of days taken to complete projects in the construction industry in the UAE leading to the following two hypotheses:

**H<sub>1</sub>:** There is a statistically significant effect of the COVID-19 pandemic on the number of days taken to complete projects in the construction industry in the UAE.

**H<sub>0</sub>:** There is no statistically significant effect of the COVID-19 pandemic on the number of days taken to complete projects in the construction industry in the UAE.

### METHODOLOGY

This section discusses the various research approaches that were used in the study. The major aspects of focus include study design, description of the population of the study, techniques used to sample the respondents, and the data collection instruments.

The within-subjects research design was employed in the study. The researcher sought to establish the effects of the COVID-19 pandemic on the completion rates of projects in the construction industry. This study design has been selected since it allows the researcher to compare the results before and after an incident; hence it was the best fit for the study ([Greenwald, 1976](#)). The design permits the direct collection of information, thereby allowing the researcher to seek clarification and explanation from the respondents, especially when the latter presents ambiguous responses that may be difficult to analyze ([Wilson, 2016](#)). The design also allows for an in-depth comparison of the variables, thereby enabling the researcher to have a comprehensive view of the effect of an event on the dependent variables of focus.

The population of the study was the construction industry in the UAE. The industry is one of the largest sectors in the country, considering that it is a significant source of employment for a considerable number of citizens and non-nationals. The sector has several companies that are either publicly or privately owned. The study focused on project managers working in this sector. They differed in terms of length of stay in the industry, level of education, age, and gender. According to [Noe and Gelfand \(2018\)](#), sampling is the process of selecting respondents from a population such that the group arrived at has representative features of the general population. The study used purposive and simple random sampling methods in selecting the sample. The purposive sampling helps in ensuring that the persons selected met the criteria for selection before being allowed in the study ([Sinclair, Jullien, & Garner, 2016](#)). In this case, the respondents were expected to be managers or project managers, a company within the construction industry. The advantage of this sampling method is that it ensures that the individuals who are targeted and meeting the study criteria are considered for the study ([Noe & Gelfand, 2018](#)). It also prevents other people who may not be knowledgeable in the study area from participating in research. A total of 150 project managers in the construction industry were purposively sampled. However, the number exceeded the targeted 116, a factor that warranted the use of simple random sampling to

realize the required number of respondents. There are a considerable number of advantages that are associated with the simple random sampling method that led to its selection in the study. First, it allows everyone an opportunity to be considered for the study, thus reducing feelings of unwanted on the part of the respondents (Wilson, 2016). Also, the methods reduce the sampling errors, which, according to Noe and Gelfand (2018), may compromise the accuracy of the findings. The simple random sampling involved the use of 116 papers marked "yes" and another 34 papers demarcated "no." The project managers who selected the "yes" papers were involved in the study, making a total of 116 respondents. The study employed questionnaires in data collection. The questionnaire was developed based on the study objectives to generate relevant information that would help in answering the research questions. They were self-administered to avoid the influence of the researcher in the filling process. The questionnaires were selected due to their advantages over other methods of data collection. First, they allow for the collection of data from a large audience, thus aiding in the gathering of adequate information (Noe & Gelfand, 2018). Also, they allow the respondents to answer the questions based on their experiences and opinions of the subject matter. They, therefore, prevent cases of researcher influence observed in other data collection methods such as interviews and focus group discussion.

A pilot study was conducted before the main research. A total of 50 respondents from three locations outside the area of study were selected for the study. The pilot phase helps establish the degree to which the research instruments are effective in collecting the expected information (Wilson, 2016). The questionnaires were self-administered with the respondents expected to respond to the questions within two days. The three locations for the pilot study were selected because they shared the same characteristics with the areas preserved for the main study. Their responses, therefore, helped in testing the reliability of the research tools and making the necessary modifications for the collection of accurate responses in the main study.

The researcher ensured a high level of accuracy during the research process. All the respondents were reached in their natural settings, a move aimed at ensuring that their movement did not negatively influence their social aspects to other regions. Also, the data collection instruments were self-administered. This reduced the influence of the researcher, at the same time enhancing the accuracy of the responses.

The data collection process followed a specific procedure. First, the researcher explained the purpose of the process to the clients since this is one of the ethical requirements that need to be adhered to in research. The research process began with the creation of rapport between the targeted population and the researcher. The latter visited the study areas to seek appointments with the population. The purpose of the study was explained to the participants, and the researcher clarified how they would benefit from the findings. The research questionnaires were issued to the respondents who were required to fill them within two days. The research assistants, under the guidance of the researcher, remained present through the data collection process to clarify cases of ambiguity in questions to the responses while also seeking clarification of the respondents on some of their responses. The collected data were cross-checked to ensure that the respondents responded to all the questions in the questionnaire.

The SPSS software was applied to analyze the collected data using the paired samples t-test analysis method. The collected data were first grouped into themes for easy analyses. The mean and standard deviation were then calculated. Also, the researcher established the statistical significance of the COVID-19 pandemic on the completion rates of projects in the construction industry.

## RESULT and ANALYSIS

**Table 1:** Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre COVID	515.3646	116	687.50296	63.83305
	During COVID	659.5195	116	860.15493	79.86338

**Table 2:** Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre COVID & During COVID	116	.998	.000

The researcher conducted a paired samples t-test to compare the means of the projected number of days taken to complete a project in the construction industry before and during the COVID-19 period. There was a significant difference in the number of days between pre-COVID scores ( $M=515.3646$ ,  $SD=63.83305$ ) and During COVID scores ( $M=659.5195$ ,  $SD=79.86338$ ), under the conditions  $t(115) = -8.621$ ,  $p = .000$ . Hence, the alternative hypothesis was accepted, and the null hypothesis was rejected. The findings indicate that the COVID-19 pandemic has an impact on the number of days taken to finish a project in the construction sector. More so, the results show that during the COVID-19 period, contractors are spending more days to complete projects unlike before the onset of the pandemic.

**Table 3: Paired Samples Test**

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower		Upper		
Pair 1	Pre COVID - During COVID	-144.15491	180.09110	16.72104	-177.27607	-111.03375	-8.621	115	.000

## DISCUSSION

The study sought to establish the effects of COVID-19 on the completion rates of projects in the construction industry in the UAE. The study findings revealed that the pandemic has had an effect on the length of time during which the contractors complete the projects. This implies that the alternative hypothesis, which stated the existence of a statistically significant relationship, is accepted while the null hypothesis that denied the existence of a strong relationship is rejected. The analysis of the findings revealed a p-value of 0, meaning that the relationship between the pandemic and the completion rates of the projects is 100%, which is statistically significant. Also, the p-value of the correlation is 0. The p-value of less than 0.05 indicates the existence of a statistically significant relationship between variables. This, therefore, confirms that the two variables of focus are statistically significant. In the analysis of data using the t-test method, the value of *t* represents the unit of standard error committed. The *t* value in the research is -8.621, which is lower than 0, thus warranting the rejection of the null hypothesis. Essentially, the results imply that the COVID-19 pandemic delays the completion rates of projects, thus impacting the stability of the construction industry.

The findings of the study conquer with significant others cited in the literature review. Baldwin and Mauro (2020) argued that the pandemic has forced a significant number of project supervisors to work from home and supervise their juniors via online platforms. The authors also reported that some of the project deliverables were captured and sent to the managers via digital communication platforms. This form of supervision necessitated by the COVID-19 may have resulted in delays in the completion of the projects. Some of the employees are only productive when their managers closely supervise them. The absence of the latter implies that a significant portion of the juniors would delay meeting their deadlines, which is a factor likely to impact the realization of the desired deliverables (Gao, Chen, & Liu, 2019). According to the authors, the employees who keep a distance from their junior contractors are likely to experience delays since their absence allows the followers to engage in less productive activities that are not related to the construction work. It is thus right to argue that working from the home norm might have hindered the project managers from overseeing the activities of their projects, thereby leading to the delayed realization of deliverables.

A significant number of respondents stated that the COVID-19 pandemic limited the movements of their junior contractors to the construction sites. Their assertions were similar to those of Baldwin and Mauro (2020). They argued that the lockdowns and curfews have had adverse implications on the movement of the workforce from their areas of residence to the construction sites. The degree to which the project meets their deadlines is dependent on the number of the workforce (Ge & Xu, 2016). A limited workforce results in reduced work rates, which in turn prolongs the completion period of the projects. Also, the lack of the physical presence of the project manager to oversee the project activities could lead to delayed completion, considering that the juniors may wait for the direction of their bosses before commencing some of the tasks. The respondents also stated that the reduced workforce at the project sites overburdened the workers who turned up for work. The increased workload reduced their working periods, and this factor also may have led to a delay in the completion of the projects.

Limited access to and sourcing of raw materials is another highlighted reason for the delay experienced in the completion of projects in the construction industry. Most of the respondents reported that the lockdown and curfews that were adopted to combat the spread of the virus made it challenging to access the raw material for construction. Their arguments are in line with claims of Ahani and Nilashi (2020), who averred that the COVID-19 pandemic led to the closure of businesses, thus making it difficult to access raw materials. Even though the movement of cargo from one region to another was allowed, some of the business persons feared contracting the disease in the course of their operations hence preferring to close down their ventures. The closure, according to the respondents, led to delays. The most affected firms are those whose owners had not purchased raw materials before the outbreak of the disease. According to the respondents, some of the business owners continued with their operations. They, however, hiked the prices of the construction commodities due to the increased demand experienced in the industry. The project managers, however, failed to purchase the products with the hope that the pandemic would be contained in a timely manner. However, this was not the case since the rate of spread increased, making the state to adopt more strict measures, and this factor was likely to hinder the progress of projects in the construction industry.

The delay experienced in the completion of projects is also attributed to limitations of cross-border movements. Some of the project managers who participated in the study claimed that their suppliers could no longer ship raw materials from such international markets as China, the US, and other countries in Asia and Europe. Most of the trading partners had closed their international entry points as a move aimed at combating the spread of the virus. Construction materials, according to the respondents, could not be shipped by their suppliers, and this factor contributed to a lack of building materials and subsequent delays. The arguments of the participants are in line with the arguments of [Carruthers \(2020\)](#). This author asserted that the UAE was among the first countries to close its borders. This move, according to the author, altered the operations in the construction industry since the sourcing of raw materials was limited.

The alteration of the operations in the construction industry was also aimed at enhancing the safety of the staff members. Most of the constructors requested their staff to take leaves as a way of increasing the social distance and abiding by the directives of the government. Most of the respondents of the study claimed that they released approximately 55-75% of their employees in the construction and left only a few to execute the projects that had a high level of urgency. This move is also in line with the arguments of [Welsh, Strazdins, Charlesworth, Kulik, and Butterworth \(2016\)](#), who avows that employers need to protect the safety of the employees from realizing their continued productivity. The authors argue that employees should be subjected to a safe environment where their health and welfare are not compromised. The respondents stated that the need to protect the employees from contacting the virus had had implications on the progress of the projects since most of them staid after the employers were allowed to stay home.

**The study was not without its limitations and a numbers of challenges were experienced** in the course of research. First, some of the managers could not be reached at designated times due to the curfew and lockdowns. This delayed the data collection process. Also, unfavorable climatic conditions were a hindrance to the study. There were heavy rains that delayed the research process since some of the sample population could not be reached in a timely manner. Lastly, some of the participants were uncooperative. There were delays experienced in the filling of questions, which became a factor that led to an untimely analysis of the findings.

## CONCLUSION AND RECOMMENDATIONS

COVID-19 has affected several sectors, with the construction industry being one of those affected. The study sought to establish the effects of the pandemic on the period of completing projects in the construction industry in UAE. The findings of the study revealed that there is a statistical difference in the length of project completion before and during the pandemic conditioned by the effects of COVID-19 on the number of days taken by contractors to complete projects. The researcher found out that some of the measures taken by the government to combat the spread of the disease were effective in breaking the transmission chain. However, the construction industry was negatively affected by the approaches considering that the contractors could not access raw materials, and this became a factor that hindered their operations. Also, the researcher found out that the limitations in movement affected the mobility of the workforce in the construction industry. This led to high rates of turnover on the part of the contractors. The number of employees working on the projects, therefore, reduced, leading to the inability to realize the set deliverables within the scheduled timeframe. The researcher also found out that some of the project managers worked from home and rarely visited the construction sites. Their inability to directly supervise the projects compromised the productivity of the junior contractors who, in turn, failed to deliver the deliverables. There is a high likelihood that the pandemic would continue for a longer period of time than initially expected hence the need to adopt measures capable of combating its spread while at the same time ensuring that other strategic sectors are shielded from its effects.

Based on the present analysis, the researcher recommends several studies to be conducted in the future. Firstly, a similar study should be replicated in other spheres of activity to identify the effects the pandemic has had on other sectors. Furthermore, it is recommended to conduct another study in order to establish the most effective strategies that should be adopted to address the negative effects of the COVID-19 pandemic on the construction industry in the UAE.

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