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Egyptian small and medium sized enterprises' battle against COVID-19 pandemic: March – July 2020

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Abstract

Purpose – The impact of COVID-19 outbreak freeze economic actors and hold innovative startups. This triggered the researchers to investigate the effect of the pandemic on small- and medium-sized enterprises (SMEs) in Egypt and how do these start-ups deal on the whole with this serious situation.

Design/methodology/approach – The research in hand used both qualitative and quantitative methods. It started first with semi-structured interview questions addressed to a number of participants, then a quantitative study took place, ending with conclusion and recommendations.

Findings – There is an agreement among all participants that entrepreneurs should always be flexible and seek for investments in innovation. However, there is a discrepancy among participants' opinions regarding the measurements taken by the Egyptian Government post the pandemic outbreak.

Research limitations/implications – The field study results and the exploratory research results would have come out more accurate if it was not confined only to geographical limitation (Cairo Governorate).

Practical implications – The research in hand suggests that practical measurements should not only provide first aid to start-ups by alleviating the pressure caused by constrained cash flow but also consider long-term measures embedded in and supported by the wider entrepreneurial ecosystem to ensure start-ups rapid recovery and growth.

Social implications – SMEs attribute to social and economic change and have an impact on the local public and social services sector as a result of the business's activities.

Originality/value – This study first illustrates the challenges entrepreneurs are facing because of the pandemic, then it presents how entrepreneurs are dealing with the effects of the crisis.

Keywords COVID-19 outbreak, Innovative start-ups, Exploratory research, Practical measurements, Entrepreneurial Ecosystem

Paper type Research paper

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1. Introduction

On January 30, 2020, COVID-19 was declared a "public health emergency of international concern" by the International Health Regulations Emergency Committee of the World Health Organization. All governments all over the globe took fiscal supportive measures on the macro level during COVID-19 pandemic to prevent a catastrophic economic collapse that would have drastically affected human's social, economic and health life (GDA, 2020 as cited in Kuckertz *et al.*, 2020). The Egyptian Government took actions to contain the spread of the pandemic (COVID-19), such as: the suspension of commercial international passenger flights, school and closures of sports clubs, also a nationwide night-time curfew (Breisinger *et al.*, 2020)

COVID-19 crisis triggered a twofold crisis as it has placed the eyes on the problems of many health systems worldwide, and the measures of infection control that have caused an economic crisis by damaging many economic activities. Innovative startups are largely neglected during the pandemic. Policy initiatives taken through the pandemic mainly focus on protecting existing industry sectors established corporations, and economies, so those measures target to protect employees and focus on the continuation of necessary economic activities. In other words, policies focus on protecting the present and give no attention to the future. However, startups will shape future economic activities. Even in natural times startups also face liabilities of smallness and newness (Stinchcombe, 1968 as cited in Kuckertz *et al.*, 2020) that threaten their existence and the situation get worsen over the time of COVID-19 crisis thus threatens to curtail a tremendous potential for innovation that has been accumulated in recent years and was meant to generate economic and potentially societal and ecological value soon.

Lockdowns that happens through the pandemic combine to create a new and unique atmosphere that has no equivalent in the entrepreneurship literature. Nevertheless, there are a huge number of researches on entrepreneurship and crisis management as Parker *et al.*, 2012, and cowling *et al.*, 2012 and many other types of research that offer two solutions that would be informative in the pandemic; the first stream could label entrepreneurial crisis management and how businesses could deal with the crisis, the second one suggests the policies that could be used to nurture an organization's survival during the crises and the barriers that exist, that second stream could support the policymakers in enhancing and developing appropriate interventions (Kuckertz *et al.*, 2020). Small- and medium-sized enterprises (SMEs) have been one of the most popular forms of business in Egypt over the past decade. With the government initiatives to support SMEs the SME sector in Egypt has only grew ever since. According to Bary (2019), the SMEs sector in Egypt is a key driver in the Egyptian economy and is one of the fastest growing fields that boosts the economic growth and help with the sustainability of the economy. SMEs are one of the key elements in the creation of jobs in the Egyptian market and are one of the most important factors that the Egyptian Government is focusing on to help boost its economy and achieve the sustainable development goals.

This research in hand tackles two main objectives, the first one is identifying how did small and medium size enterprises in Egypt deal with COVID-19 pandemic consequences; the second one is evaluating the measurements taken by the Egyptian government to support small and medium size enterprises. The paper starts with the literature review followed by an exploratory pilot study, then the statistical study and ends with the researchers' conclusions and recommendations.

2. Literature review

2.1 Impact of COVID-19 on small- and medium-sized enterprises

Several studies have been conducted in a very short time to measure the impact of COVID-19 pandemic on entrepreneurs in many countries and try to find ways to overcome the crisis

with the least losses possible and most of the studies agreed that coronavirus has a severe negative impact on all industries. This section will include the most recent studies that have been applied to measure the impact of the pandemic on the entrepreneurs in different countries including Pakistan, Africa, Serbia, the USA and Sri Lanka.

The first study was conducted by the International Trade Center (2020) and it highlighted that the pandemic has been incredibly challenging for the whole world and it has led to a huge health crisis and has had a serious impact on all majors and all aspects of how people trade, work, live and consume.

The study mentioned that SMEs have been on the front lines, as customers are staying at homes, supply chains shut down, and the small-scale industries that provide 70% of work opportunities in countries have been put under severe stress.

Another study was conducted to measure the impact of the pandemic on innovative startups in Pakistan. Shafi *et al.* (2020) shed light on how coronavirus has affected the Pakistani economy and mentioned that the most affected segment is the small- and medium-sized entrepreneurs (SMEs). The research targets to assess the impact of the pandemic on this segment and try to find policies to help them in reducing their losses and survive. The methodology used was exploratory research with data from 184 Pakistani SMEs through and an online survey. The results of the research found that most of the enterprises on Pakistan have been affected negatively and they are facing many financial, distribution and supply chain problems which led to a reduction in their profits and sales.

Moreover, on a broader scale, Bartik *et al.* (2020) researched how does the pandemic affect small businesses using a survey of 5,800 SMEs in the USA. Survey results found that there are four main results for the pandemic; first, 43% of small-scale businesses are temporarily closed since Jan-2020, second, they found that small businesses are fragile on the financial wise, third, most of the businesses planned to seek financial funds from the CARES but there are many barriers with accessing the aid, and the fourth result is businesses have huge different beliefs about the COVID-19 duration.

Beraha and Đuričin (2020) stated the impact of the pandemic on the operation of SMEs in Serbia and discuss the major problems that faced them in times of the pandemic. The methodology used in this research was in a form of online survey during March and April 2020, results of the survey showed that the crisis has negatively affected the daily actions of SMEs in several ways and with different impacts, 20% of the enterprises in Serbia have moved to work online from their home, this results in a decrease of supply chain and business capacity utilization. About 10% of SMEs faced other problems as a reduction in working hours, scarcity of resources, payment of wages, inefficient production, etc.

According to Gustavsson and Larsson (2020), marketing innovation is an essential tool for SMEs to deal with crises. SMEs in time of crises are advised to adopt innovative marketing strategies with changes in the marketing mix (product, price, place and promotion). Studies have proved that marketing innovations have positive impact on SMEs profitability.

The international lockdown which found place during the outbreak of COVID-19 pandemic, caused a socio-economic shock that affected citizens and SMEs everywhere as it hindered their operations and trade which are essential for their survival and sustainability.

The prevailing situation forces the need for SMEs to adopt online businesses and online marketing strategies to be able to survive pandemic and to be able to face the post-pandemic challenges (Acee-Eke and Ogonu, 2020).

Last but not least, Gondwe (2020), revealed a study that measures the impact of the virus on African countries and how life has been changed from the first quarter of 2020 presenting the most serious sever global health crisis and how its negative impact continues to rise.

The research mentioned that the pandemic causes the African GDP to fall by 1.4% and with smaller economies the fall in the GDP reaches 7.8%, highlighting that the most affected segment is the innovative startups due to the fall of fuel prices by 60%, the fall in the foreign direct investments, and the fall in global demand for exports. The methodology used is the generalized methods of moments with 20 behavioral equations and 3 identities. The study recommended that African countries should enhance their fiscal and monetary policies to enhance the industrial and health situations and it is also required to construct productive capacities to manage underlying vulnerabilities and provide better continental capabilities to manage crises.

Finally, Robinson and Kengatharan (2020) tackled the impact of COVID-19 pandemic on SMEs in Sri Lanka as the topic has received huge worldwide attention. The study has been conducted using 14 SMEs in Sri Lanka. The methodology used is a qualitative interview.

The research found that protocols and strategies used to overcome the negative impact of coronavirus have come at high human and economic costs including the decline in local and global demand, shortage of materials, cancellation of orders, difficulties in repaying debts, lack of investments and savings and also the high cost of applying COVID-19 strategies in the workplace. The main result of the research is COVID-19 emotionally challenging operators and employees of the SMEs. They recommend that the government have to find and apply the best policies and rules to support the industrial sector and the SMEs and the study ensures the crucial importance of creating revival policies after the crisis. To conclude, they found that SMEs' resilience completely depends on the great efforts of the policymakers, SMEs operators and the government.

2.2 Important role of entrepreneurs and start-ups in any country's economy

Owing to the important role of entrepreneurs and start-ups in any economy and their huge impact on the country's GDP. Many economists reflect their importance on the economy and how can they survive at the time of crises. In this section, there is an illustration of the most two important theories that tackle entrepreneurship which is; Schumpeter's theory of innovation, creative destruction and entrepreneurship, Carl Menger Theory, and Frank Knights theory of entrepreneurship.

According to Schumpeter's theory of entrepreneurship and innovation in 1934, firms become innovative when it creates a mixture between factors of productions. This may be an introduction for new products or existing products with better quality, re-organization of the firm, opening up new markets or the use of new materials. Schumpeter's firm theory trigger changes and this helps to develop the country's productive powers. The competition in markets changed and force other firms to lose apart from their market shares or to adjust and finally, it ends up to exit the market. Only a small number of firms are made up of Schumpeterian firms and other firms follow the lead of Schumpeterian firms to contribute to economic development. In addition to that, Schumpeter also creates the concept of "Creative Destruction" and he stated that the firm can be bid or small even the start-ups, but not all small and medium enterprises are following the Schumpeterian role especially in developing countries because they are poor countries and its enterprises are poverty-driven. According to this theory, SMEs can be sorted into three different groups: Schumpeterian SMEs, normal SMEs and Poverty-driven SMEs.

He also mentioned that it's famously known that the number of SMEs increases in times of crisis as people try to anything to survive and these types disappear during the economic development, as they provide stress and bad working conditions or they leave because they pay extremely low wages in comparison with the national standards Herr and Nettekoven (2018).

We can say that Schumpeter has a different view on entrepreneurship rather than any other economist as he illustrated his view through the concept of creative destruction, which is combining technology and innovation with the production process or with the economy to produce more efficient products with low costs and low constraints. Therefore, he described the start-ups as the source of creating new ideas and new demand that makes the existing ideas obsolete. To conclude, Schumpeter defined the entrepreneur as not a normal or an ordinary person as he creates new industrial structures, ideals, technologies, products and markets as well (Smith and Chimucheka, 2014).

Moreover, Carl Menger defined the entrepreneur as the one who can overlook the importance of some products to produce more productive and higher products than the old one using his ideas and mixing technology to be more productive and efficient. These goods are considered as economic goods and can enhance and stimulate the economy. This means that an entrepreneur is a person who can classify and distinguish between productive and unproductive economic goods using his skills from ideas, technology, collection of info, will-power, supervision of production to bring higher and more efficient goods (Campagnolo and Vivel, 2014).

Frank Knights also discussed a theory for entrepreneurship and built it on risk and uncertainty, from his point of view, the entrepreneur receives his profits as he takes the risk and starts a project in a risky condition from the economy's unpredictable characters that gain profits from creating opportunities. Also, Cantillon has the same point of view as Knights and both of them identified start-ups and entrepreneurs as an ordinary individual who decided to take the risk (Uzunidis *et al.*, 2014).

2.3 Egyptian Government adopted strong policies to support small- and medium-sized enterprises during the COVID-19 pandemic

Recently there have been many legal and financial reforms to support entrepreneurial initiatives and start-ups in Egypt. Examples of the legal reforms: facilitating of starting a business and allowing a total foreign ownership, in addition to freedom of transferring profits outside the country. Furthermore, SMEs have been granted financial incentives and credit facilities and new entrepreneurship ecosystem has been established in the past few years in terms of business incubators, angel investors and financial institutions. Entrepreneurial marketing intensity is very much recommended in times of economic disruption and instability and pandemics as well. It means SMEs should enjoy more flexibility and adaptability to be able to exploit market opportunities and continue their entrepreneurial activities (Mahrous *et al.*, 2020).

According to Mabrouk *et al.* (2020) it is advisable for Egypt during economic crises and pandemics to adopt digital transformation in all sectors' practices: government, private sector and across the whole society. This transformation is crucial to combat the impact of the COVID-19 pandemic, but a successful transformation is depending a great deal on the condition of the technological and informational infrastructure in the country. The COVID-19 pandemic by right should push the Egyptian government to coordinate its efforts with the private sector and the civil society in order to think more ambitiously and creatively toward mega investments in infrastructure and enhanced technology and towards more skillful and able human resources.

Furthermore, the Egyptian government should concentrate job creation especially for women and youth and informal workers through supporting micro-enterprises and SMEs.

The monetary measures taken by the Egyptian Government during the COVID-19 pandemic outbreak were wise and rational, especially those measures related to supporting MSMEs. (El-Khishin, 2020)

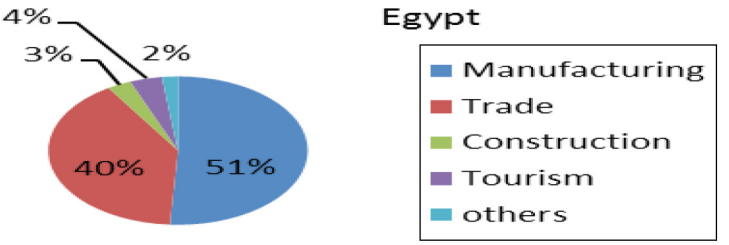
During the past two decades, Egyptian Government and policy makers recognized the significant importance and contribution of the SMEs sector to economic development and job creation. Therefore, the Egyptian Government adopted strong policies to support SMEs and provided business support financial services and a network of business incubators. According to Egypt's Small and Micro Enterprise Law (No. 141, 2004) SMEs, are classified based upon number of employees *a maximum of 50 employees*, capital investment *up to 5 million EGP* and sales turnover *up to 10 million EGP*. Although, the Central Bank of Egypt defined MSMEs by size as: micro (less than 10 employees), small and medium enterprises between 10 and 200 employees and large more than 200 employees. (Ayadi *et al.*, 2017)

The sectorial distribution of Egyptian SMEs shows that they concentrate in the manufacturing and trade sectors *51% and 40%, respectively; 4% for the tourism sector; 3% for the construction; and 2% for other activities.* (Elseoud *et al.*, 2019) (Figure 1)

As for the size distribution of MSMEs in Egypt, 91% are micro firms, while 8% represent SMEs and large scale enterprises represent only 1%. (CAPMAS, 2018). The main challenges facing SMEs in Egypt is the financial aspect and this is due to no availability of reliable collateral, lacking of proper communication with lenders; beside that lenders have no confidence in SMEs. Furthermore, no record of accomplishment and modest business management and skills. (JYES, 2015: 14–15 as cited in Elseoud *et al.*, 2019).

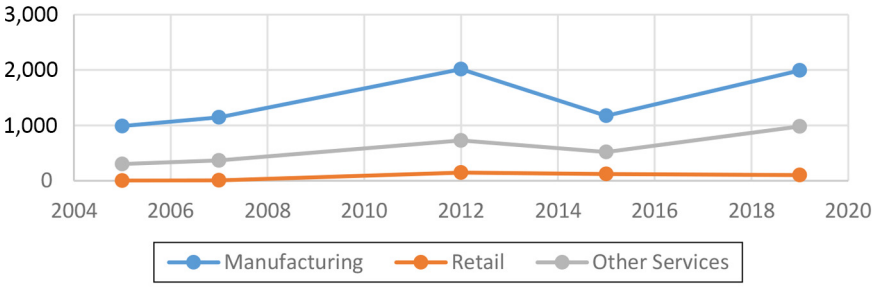
Noticed from Figure 2 that the number of manufacturing enterprises is the highest, followed by the enterprises working in retail sector, followed by enterprises from other sectors.

The Central Bank of Egypt provided a study regarding the forms of financing SMEs in Egypt, indicated that SMEs share of financing presents the lowest percentage of financing which is 2 – 4% of the total amount of bank financing. Only 8% of small businesses in Egypt have bank loans (CBJ, 2017).



Source: Elseoud *et al.* (2019)

Figure 1.
Percentage of SMEs in Egypt during 2018



Source: World Bank Data: 2010

Figure 2.
Total number of SMEs in Egypt during the period 2004 till 2020

The CBE recommended, that the Egyptian Government should develop a committee to discuss a draft law regulating all MSMEs financial and legal services. This committee should also include representatives from all institutions and agencies concerned with the MSME development and success, such as Monetary Financial Institutions (MFIs), the Central Bank of Egypt, insurance companies, the Ministries of Finance and Investment, private companies[. . .] etc. (Ahmed Abd El Wahab, 2017)

The Union of Arab Banks declared that SMEs funding meets only 10% of their needs. In 2015, the Central Bank of Egypt decided that the portfolio of SMEs loans should increase from 2%–4% to 20% of the Bank's total credit portfolio and the lending rate should not exceed 5% within 4 years from the date of issuing the deal. Beside the above-mentioned challenges, there are marketing and exporting constraints as well. SMEs in Egypt have a main problem regarding local market networks and lack of market information and insufficient resources. Also, weak correlation between SMEs and large scale businesses and low investment in market research and media.

As for exporting aspect, Egyptian SMEs are facing many obstacles, such as:

- Most SMEs are not aware of the international product specification and/or modifications needed to be marketed internationally.
- Owing to high input prices, many SMEs cannot compete in the global market.
- Lack of finance to cover export expenses. (Elseoud *et al.*, 2019).

In the year 2018, the micro, small and medium enterprises development agency (MSMEDA) worked on a draft of a new law and finalized it in 2019 to be reviewed by the legislative committee of the Justice Ministry before it was referred to the cabinet. The MSMEDA conducted several meetings with operating banks in the Egyptian market and with all institutions which are concerned with the SMEs' success and development to discuss the draft law and overcome any obstacle before approving it. The draft law is providing several advantages for micro, SMEs, such as facilitating procedures for SMEs seeking funds through the one-window system, legalizing the informal sector situation, and initiating tax system that will benefit the government and business owners as well. We may say that this law will focus on end-beneficiaries that can generate job opportunities for young people and women and will provide debt financing for first-time borrowers. Mainly, entrepreneurs will attain debt financing through financial intermediaries such as: micro-finance institutions, factoring and leasing companies, and banks.

3. Exploratory Research (A Pilot Study): interview with owners of small- and medium-sized enterprises (see questions in appendix)

The researchers thought of conducting an exploratory research followed by a quantitative study to provide insights and new explanations to ideas that were already had been overlooked through conceptual tools in order to allow a researcher ask specific questions to study the chosen sample through active involvement that gives a researcher the chance to jump in someone else's shoes and see things from their perspective (Reiter,2017). Trying to come up with a clearer picture of the current business situation caused by COVID-19, researchers gathered some responses from startups' owners in different industries through semi-structured interviews to end up with reliable answers and solutions and share advices for survival (Table 1).

3.1 Researchers' data tracking and documentation

The researchers took participants' permission for recording the interviews to be used as reference for later analysis and reflection on the research. These records helped researchers

Table 1. Descriptive statistics of the companies

Company's Title	Sector/Activity	Location	Years of Operations	No. of Employees
1. Olive Hill Foods	Table Olives	Cairo/Alexandria Desert Road	20 years	17
3. Travco Holidays (Headquarters)	Tourism and Travel	6th of October City, Egypt	41 years	230
4. Rich Bake (Headquarters)	Bread and Baked Goods	6th of October City, Egypt	23 years	3500
5. Fun Kids	Parties and Events	6th of October City, Egypt	8 years	70
6. Salah El Din Pharmacy	Pharmaceutical	Lebanon square/ Mohandiseen/ Giza	15 years	21

to identify comments that were later vital in the analysis. Moreover, researchers used biographical research technique in analyzing the interviews' results, which allowed them to study participants' experiences as told to the researcher.

3.2 Interview procedures and time duration

The interview procedure used for this research is semi-structured interviews. Semi-structured interviews can be considered in mixed methods research, especially if the researcher discovers that he/she important questions that cannot be effectively addressed without more open end questions. (Newcomer *et al.*, 2015) The benefit of semi-structured interview is that it guides the conversation yet provides the interviewee the space to mention aspects and insights that they see to be relevant. Hence providing a more in-depth outlook on the topic.

Moreover, during a semi-structured interview a set of questions were used to guide the interview to obtain from experts the impact of COVID-19 pandemic on SMEs survival and continuation during these drastic crises. Each interview lasted between 1.5 and 2 h.

3.3 Interview results

3.3.1 Table olives' company. We also interviewed the owner and founder of "Olive Hill Foods" since the year 2000 (64 years old), he stated that the current situation affected the business exports and all clients froze their deals and their commitments. Based upon that, the financial in-flaw nearly stopped and the business recovery is related to the country's and the world whole economic recovery.

Then, researchers approached him with a question regarding the government's support during the COVID-19 outbreak, he said that he is waiting for a financial aid since more than two months, which he believes he will get but unfortunately after quite some time and the business may not survive till then. Researchers also asked about his customers' relations and staff support policy, he answered saying that the company is trying to keep the link with its customers via internet and various social media platforms, offering them reduced prices and free services. As for the employees, they did not lay off any of them nor reduce or cut off the salaries. Only the fringe benefits are eliminated. Finally, researchers asked him about his opinion regarding the government's decision of not shutting down completely the commercial and industrial enterprises, he said it is a good decision, as the government is trying to keep the businesses going as much as possible in addition following the health guidelines.

3.3.2 Tourism and travel. When interviewed one of "Travco" travel agency owners (around 40 years old and a family member), and asked her about the current tourism situation in Egypt, she mentioned that this sector is suffering the most and there is nearly a complete shutdown till the situation gets better or the pandemic crises ease up. This depends a great deal on the decrease of COVID-19 infections globally and locally. She also said the local tourism is on hold too as people are worried and afraid to move.

Miss Marie said that they had to cut off 65% of employees and workers' salaries and many already left. Unfortunately, she mentioned that there is no hope for rising up again, unless the whole tourism sector revives again and travel restrictions stops. She also believes that they have lost 100% of their revenues. She thinks this may go on for a while, even after the regression and abatement of COVID-19. When researchers asked her whether they received any support of any kind from the government, she said as far as she knows the government supported all tourism companies financially, but of course this is a temporary solution which will not last long as the main source of business supply is cut off.

Researchers asked her about their future plans, she said that they will turn into digital operations with all their stakeholders and will reduce their prices to encourage people to travel locally and internationally after the government releases the travelling restrictions.

Finally, they asked about her opinion regarding government's decision of the half shutdown of commercial and industrial enterprises, she said she believes this helped bigger businesses not small ones, but still it is a good decision.

3.3.3 Bread and baked goods company. When researchers asked the CEO and co-owner of Rich Bake company since 2000 (52 years old), about the impact of COVID-19 on their business, he said that the essential bread line is not affected, although supermarkets and grocers do not pay right-a-way which caused a problem in their cash-flow. He meant financially the B2B business is negatively affected by COVID-19. He sadly mentioned that all snacks and fast food lines dropped by 50%–60%, but on the whole they lost around 20%–30% of their revenues/profits. People are just buying the essentials. Researchers asked him about what plans does he have in mind to mitigate this drastic impact, he answered saying that first of all they are stressing on managing cash plans as a priority number one; then he said we will concentrate on social media platforms to connect with customers and finally, he mentioned that there is one or two positives coming out of this crises, which are first the ease of conducting zoom meetings whenever is necessary and nearly at any time and that eliminated the physical presence obstacles. Second, we learnt how to think out of the box and squeeze our brains to come up with innovative and creative solutions to boost our business. He also, mentioned that the company's R&D department is working on a daily basis on innovative ideas for combating the crises. When asked about the government's support, he said he appreciated the online government technical consultations. Finally, researchers asked him his opinion regarding the government's decision of not completely shutting commercial and industrial companies during the outbreak of the pandemic, he answered saying he believes this decision is a wise one and it helped even partially the economic condition in Egypt.

3.3.4 Parties and events company. Researchers also addressed the CEO and founder of "Fun Kids" company since the year 2016 (24 years old) with few questions regarding the company's financial and managerial situation post COVID-19 outbreak, he answered saying that he definitely got affected as his company's main business is depending on children's and adults' parties and events' celebrations which mainly take place in houses, clubs, hotels, and malls. All these places froze its activities after the outbreak of COVID-19. He mentioned that they lost 100% of their revenues/profits at least during the first 2 months of pandemic outbreak. When researchers asked him about alternative strategies taken by the company to

combat this drastic effect on the business, he mentioned that indeed he and his team thought of a creative idea to help partially towards the financial matters.

Actually, he said that they came up with the "Game Box" idea, which is a box full of entertainment stuff, such as Sudoku, domino, chess, puzzles, and other games for children and adults to use and enjoy during the down-lock. Furthermore, researchers asked him about measures taken to support his staff financially and psychologically, he mentioned that he did not lay-off employees or workers beside he only cut down the fringe benefits and kept their wages and salaries intact. Finally, when researchers asked him if he is considering changing his business strategies and make investments in innovation in the coming near future, he assured that this is definitely his target and aim and that he already started this policy with Game Box idea; and will give at most importance to digital marketing, sales, and business management operations during the coming near future. When researchers asked about the Egyptian Government's decision of not shutting down completely the commercial and industrial enterprises, he said he agrees with it, but it will only help big business as many small ones are already forced to shut down due to no nosiness at all.

3.3.5 Salah El Din pharmacy (Lebanon Square Branch). The researchers interviewed one of the owners of the chemist (48 years old) and asked him as usual about the financial case of the chemist after COVID-19 outbreak, he said they were not affected at all, as customers turned to all chemists looking for all types of medicines and supplements which increase the immunity system and combat the virus. Actually, it is bad to say that they flourished financially because of the pandemic and their revenues and profits reached 100%. Although their supply chain got moderately affected because of the sudden seize of medicines' and medication formulations importing. When he was asked about their customers and employees relations, he answered saying that their relations with customers is very good and they will offer them many free services in the near future. Regarding their employees, nothing has changed due to the pandemic, as they still take full salaries and wages and come to work on a daily basis but complying to the health guidelines and restrictions. Researchers tackled the issue of digital operations and new database, he said definitely yes for both. Then, researchers asked him about his opinion regarding the government's decision of not shutting down the commercial and industrial companies completely during the pandemic outbreak, he mentioned that he believes it did not help much.

3.4 Researchers' comment on interviews' results

To conclude, all participants agreed on the importance of innovation and creativity and furthermore, the importance of digital marketing and customer relationship management. Moreover, majority of participants mentioned that they did not receive any financial support from the government, in addition they believe that the government's decision regarding not shutting down completely the commercial and industrial companies during the pandemic outbreak, was benefiting only big businesses.

4. Quantitative study: the research design and methodology

As mentioned before, the researchers used both qualitative research techniques in parallel with quantitative analysis to develop amore holistic view of the results. As for the quantitative study, the researchers depended on mathematical methods, namely statistics.

Methods used for data collection were mainly self-administered questionnaire addressed to 384 participants representing owners, managers and employees working in small and medium sized enterprises in Egypt. Researchers used Likert scale as it is the most fundamental and frequently used tool in educational and social science research. The sampling technique followed

by the researchers was the non-probability judgmental sampling method, where the researcher selects units to be sampled based on their own professional judgment and knowledge.

Regarding the data coding, verification and entry, the researchers used the Statistical Package for Social Sciences (SPSS).

Research Hypotheses:

H1. Entrepreneurs who change their work strategies into a more flexible culture and make new investments in innovation, will overcome COVID-19 pandemic crises.

H2. The measurements taken by the Egyptian government post the outbreak of COVID-19 pandemic helped SMEs to deal with the crises successfully.

4.1 Statistical analysis techniques used in the empirical study

4.1.1 Data entry and processing stage. The researcher encoded (coded) the variables and data and then entered them into the computer using the programs of the SPSS.

4.1.2 Descriptive statistics stage. The researchers determined the descriptive statistics of the variables related to the research sample characteristics, then the descriptive statistics of the research variables, this includes the frequencies, percentages, weighted arithmetic mean, standard deviation, coefficient of variation and the arrangement on the basis of the least dispersed or most homogeneous values .Most studies refer to weighted average mean categories according to the Likert Scale criteria (meaning that the response levels are five levels).

4.1.3 Inference statistics

- *The one-way analysis of variance (ANOVA)* test to find out whether there is a significant difference in the average opinions (means) between the categories that make up the research sample in terms of the job description and professional experience variables.
- *T-test* is used to determine if there is a significant difference in the average opinions (means) between the categories that make up the research sample in terms of the company size.
- *Cronbach's alpha test* to measure the reliability and validity of the content of the research questionnaire.

4.1.4 Study sample calculation. The researcher relied on determining the sample size on the following law (James *et al.*, 2017):

$$n = \frac{Z^2_{\alpha/2} p(1-p)}{e^2}$$

where:

n: Sample size $\mathbb{Z}^2_{\sharp}$: The critical value of the Normal distribution. for a confidence level of 95%, α is 0.05 and the critical value is 1.96. P: The percentage of the characteristic of interest in populatione: Sampling Error. The sample size is 384. The researchers distributed 390 questionnaires among the participants. The valid questionnaire ready for analysis is 383 item representing 98% of the total sample size.

4.2 Statistical analysis results

4.2.1 Testing questionnaire. In testing the reliability of the questionnaire, the researcher used Cronbach's alpha coefficient, which varies between zero (no reliability) and one

(maximum reliability); and in testing its validity, self-validity coefficient was calculated as the square root of the reliability coefficient (Table 2).

Based on the previous results, it could be concluded that the study instrument is reliable and valid.

4.2.2 T-test for each hypothesis. T-test test for each hypothesis is used to determine if there is a significant difference in the average opinions (means) between the categories that make up the research sample in terms of the company size (small and medium size).

Through the analysis of Table 3 we find that the value of the significance level for *H1* is 0.965, for the second *H0*.889 greater than 5%, this means that the difference between the average small companies and the average medium companies is equal to 0, meaning that there is agreement between the opinions of small companies and the opinions of medium companies about the research hypotheses noting that there is homogeneity between the opinions of small companies and the opinions of medium companies.

4.2.3 One-way analysis of variance (ANOVA) test for each hypothesis. From the One-way ANOVA Test analysis of Table 4 we found the following:

- For *H1* which is "Entrepreneurs who change their work strategies into a more flexible culture and make new investments in innovation, will overcome COVID-19 pandemic crises."

The value of the significance level is sig = 0.596 greater than 5%. This means that there are no significant differences between the average opinions of each of the four categories

Table 2.
Shows the results of Cronbach's alpha coefficient for the reliability and self-validity for the two research hypotheses

Dimensions/Hypotheses	No. of paragraphs	Reliability coefficient (Alpha)	Validity coefficient
Entrepreneurs who change their work strategies into a more flexible culture and make new investments in innovation, will overcome covid-19 pandemic crises	6	0.828	0.91
The measurements taken by the Egyptian government post the outbreak of covid-19 pandemic helped SMEs to deal with the crises successfully	5	0.827	0.909

Table 3.
Shows the results of T-test for each hypothesis

Dimensions	Small companies Mean	Small companies SD	Medium size companies Mean	Medium size companies SD	T. test t	T. test Sig
H1	4.4794	0.54279	4.4954	0.51420	−0.297	0.965
H2	4.4663	0.55517	4.4725	0.54297	−0.11	0.889

Table 4.
Shows the one-way ANOVA test results for each hypothesis in terms of the job description variable

Dimensions	MEAN SMEs Owners	MEAN SMEs Managers	MEAN SMEs High-ranked Employees	MEAN SMEs Low-ranked Employees	F. test F	F. test Sig
H1	4.45	4.5	4.48	4.57	0.632	0.595
H2	4.45	4.45	4.52	4.57	0.701	0.552

according to Job description variable. The averages of opinions of the *H1* are greater than 3. Thus *H1* is accepted.

- For *H2* which is "The measurements taken by the Egyptian Government post the outbreak of COVID-19 pandemic helped SMEs to deal with the crises successfully".

The value of the significance level is sig = 0.552 greater than 5%. This means that there are no significant differences between the average opinions of each of the Four categories according to job description variable. The averages of opinions of the *H2* are greater than 3. Thus *H2* is accepted:

4.2.4 One-way analysis of variance (ANOVA) test for each hypothesis. From the One-way ANOVA Test analysis of Table 5 we found the following:

- For the First Hypothesis which is "Entrepreneurs who change their work strategies into a more flexible culture and make new investments in innovation, will overcome COVID-19 pandemic crises."

The value of the significance level is sig = 0.74 greater than 5%. This means that there are no significant differences between the average opinions of each of the Four categories according to Professional Experience variable. The averages of opinions of *H1* are greater than 3. Thus, *H1* is accepted.

- For the *H2* which is "The measurements taken by the Egyptian Government post the outbreak of COVID-19 pandemic helped SMEs to deal with the crises successfully".

The value of the significance level is sig = 0.797 greater than 5%. This means that there are no significant differences between the average opinions of each of the four categories according to professional experience variable. The averages of opinions of *H2* are greater than 3. Thus, *H1* is accepted:

4.2.5 T-test for the whole research sample. We test the validity and Acceptance of each of the two hypotheses: if the average opinions of (means) the categories that make up the whole research sample is greater than 3, the results are accepted and valid. As follows:

4.2.6 T-test results for H1 for the whole sample test. Null hypothesis H_0: $\mu = 3$

Alternative hypothesis H_1: $\mu > 3$

where μ: mean of population

Table 6 shows Sig = 0.000. For *H1*, it is less than 5%. This means that the mean of the null *H3*, and therefore it is rejected and the mean of *H1* with is greater than 3 (4.487), and therefore it is accepted. This also means that the respondents who represent the entire research sample agreed and accepted *H1*.

4.2.7 T-test results for H2 for the whole research sample test. Null hypothesis H_0: $\mu = 3$

Alternative hypothesis H_1: $\mu > 3$

Table 7 shows Sig = 0.000. For the *H2*, it is less than 5%. This means that the mean of the null hypothesis equals 3, and therefore it is rejected and the mean of *H2* is greater than 3

Table 5. Shows the one-way ANOVA test for each hypothesis in terms of the professional experience variable

Hypotheses	MEAN less than 5 years	between 5 &10 years	between 10 &15 years	more than 15 years	F. test F	Sig
H1	4.47	4.46	4.51	4.54	0.419	0.74
H2	4.43	4.47	4.47	4.5	0.339	0.797

(4.468), and therefore it is accepted. This also means that the respondents who represent the entire research sample agreed and accepted *H2*.

4.3 Descriptive statistical analysis of H1 statements

"Entrepreneurs who change their work strategies into a more flexible culture and make new investments in innovation, will overcome COVID-19 pandemic crises." (Table 8)

It was found through the participants' answers that there is a large percentage agreeing with these statements on the whole, and this shows from the general mean row, which is (59 + 34 = 93%) and 5% of the sample gave a neutral answer, while the ratio (1 + 1 = 2%) of the sample size does not agree with these statements.

The value of the standard deviation (0.71) which confirms the validity of the sample data. Also, by looking at the values of the coefficient of variation for each of the statements, we will find out that the statements can be arranged in terms of least dispersion as shown in the rank column.

4.4 Descriptive statistical analysis of the H2 statements

"The measurements taken by the Egyptian government post the outbreak of COVID-19 pandemic helped SMEs to deal with the crises successfully". (Table 9)

It was found through the participants' answers that there is a large percentage agreeing with these statements on the whole, and this shows in the general mean row, which is (56 + 37 = 93%) and 5% of the sample gave a neutral answer, while the ratio (1 + 1 = 2%) of the sample size does not agree to these statements.

The value of the standard deviation (0.72) which confirms the validity of the sample data. Also, by looking at the values of the coefficient of variation for each of the statements, we will find out that the statements can be arranged in terms of least dispersion as shown in the rank column.

5. Results

From the previous statistical analysis following results are revealed:

H1 which is "Entrepreneurs who change their work strategies into a more flexible culture and make new investments in innovation, will overcome COVID-19 pandemic crises", *is accepted.*

H2 which is "The measurements taken by the Egyptian government post the outbreak of COVID-19 pandemic helped SMEs to deal with the crises successfully", *is accepted.*

Table 6.
Shows the results of T-test of the first hypothesis for the whole research sample

			T. test	
Dimensions	Mean	SD	t	Sig
H1	4.487	0.529	55.1	0.000

Table 7.
Shows the results of T-test of the second hypothesis for the whole research sample

			T. test	
Dimensions	Mean	SD	t	Sig
H2	4.468	0.549	52.33	0.000

Paragraph	Levels [Frequency/Percent] Totally disagree	Disagree	Neutral	Agree	Totally agree	Mean	SD	Coeff. of variation	Rank
We consider making investments in innovation in the coming near future	4 1%	2 1%	23 6%	119 31%	235 61%	4.51	0.73	16.08%	4
We think of turning into digital operations soon	3 1%	6 2%	22 6%	140 37%	212 55%	4.44	0.74	16.69%	5
We aim for establishing a new database to provide distinguished goods and services for our customers	3 1%	7 2%	23 6%	171 45%	179 47%	4.35	0.74	17.07%	6
We consider minimizing our supply chain to cut cost and for more proximity to our customers	2 1%	4 1%	14 4%	106 28%	257 67%	4.60	0.66	14.41%	1
After the breakout of COVID-19 pandemic, we will equip our company with the latest technology and train our staff on it	4 1%	4 1%	19 5%	107 28%	249 65%	4.55	0.73	16.08%	3
We are restructuring our crises risk management policy after the breakout of COVID-19 pandemic	3 1%	4 1%	21 5%	135 35%	220 57%	4.48	0.72	16.05%	2
General mean	3 1%	4 1%	20 5%	131 34%	225 59%	4.49	0.71	15.92%	

Table 8. Shows the descriptive statistics of participants' responses to hypothesis one statements as follows

The statistical analysis shows the significance of these hypotheses, whether by descriptive analysis or by using inference statistics by using one-way analysis of variance test (ANOVA) and t-tests, as it was found that there is agreement among the research participants on the content of the hypotheses. The hypotheses were also accepted using a *t*-test on the whole sample, which proved that the average opinions for both hypotheses was greater than 3.

6. Conclusion

- Interesting finding of the study, which is that there are sectors which benefitted from the corona virus outbreak: Chemists come on top of the list; as people rushed to buy all sorts of vitamins and immunity supplements. Furthermore, people kept buying sanitizers and medical gloves. This went on since mid-March 2020 till this moment. Their revenues rose and did not decline.

Paragraph	Levels [Frequency/Percent] Totally disagree	Disagree	Neutral	Agree	Totally agree	MEAN	SD	Coeff. of variation	Rank
The government supported SMEs with financial and technical aid	3 1%	4 1%	19 5%	138 36%	219 57%	4.48	0.71	15.88%	3
The government offered the Egyptian entrepreneurs and employees working in SMEs training programs to develop their skills and talents	4 1%	6 2%	17 4%	153 40%	203 53%	4.42	0.74	16.80%	5
The government connected with the Egyptian entrepreneurs via electronic social platforms in order to listen to their problems and identify their needs and try to fulfill them	3 1%	4 1%	18 5%	136 36%	222 58%	4.49	0.71	15.76%	2
During the outbreak of COVID-19, the government offered extra marketing resources to SMEs	2 1%	5 1%	17 4%	141 37%	218 57%	4.48	0.69	15.45%	1
The decision taken by the government concerning not shutting down the commercial and industrial companies completely, helped them to survive during the pandemic and helped the economy as well	3 1%	4 1%	19 5%	141 37%	216 56%	4.47	0.71	15.90%	4
General mean	3 1%	5 1%	18 5%	142 37%	217 56%	4.47	0.72	16.06%	

Table 9.
Shows the descriptive statistics of participants' responses to hypothesis two statements as follows

- As for the government's financial and technical support, the majority of interviewees companies denied any financial support.
- Many participants agreed that the government's decision regarding partial shutdown of industrial and commercial enterprises, did not benefit them but maybe benefitted only big businesses.
- Looking at the results of both the qualitative and quantitative studies, noticed that entrepreneurs who embraced flexible culture and focused on new investments in innovation, succeeded in dealing with COVID-19 pandemic crises and managed to survive in the market. *This is the core of H1*, which was accepted empirically with high percentages and was confirmed through the exploratory research conducted with few enterprises' owners, managers and employees.
- As for the Egyptian government's measurements taken post COVID-19 pandemic outbreak to help businesses especially SMEs to combat the crises effects, *this is the core of H2*, which was accepted empirically with high percentages.

7. Researchers' recommendations

- Entrepreneurs should look at the bright side of the international crises, as it is an opportunity to carefully monitor and review their financial aspects and metrics and realize the importance of cash. In addition, they should start counting on managing the current accounts they have in hand. Entrepreneurs must understand how further stock market declines may affect their financial stability and funding accessibility.
- Entrepreneurs should put great emphasis on creativity and innovation especially during crises and should always be prepared with plan B and C if possible to be well-prepared for any further financial and economical problem.
- Entrepreneurs should start thinking of ways to generate cash by for example, getting government grants or banks' loans with minimum interest rate or exploring programs which are specialized in helping small businesses. In other words, they should be creative with finding sources of cash to survive.
- The government has to do surveys and contacts with small and medium sized enterprises to grasp and come up with their real priorities, needs and wants, especially during crises.
- As for the tourism companies, researchers recommend them to focus on local tourism to mitigate and overcome partially the crises negative impact on their businesses.
- Companies should maintain their employees' physical and mental wellbeing, and develop a back-up plan for impacted staff members to support them physically and psychologically. The also should equip their staff with necessary tools to be able to combat the virus wherever they are.
- Entrepreneurs should hold accurate information between key stakeholders to maintain their confidence. Moreover, they must focus on supply chain assessment and risk management to utilize alternative modes of transportation and do trade-offs based upon needs, cost, service and risk analysis possibilities. Also, they should identify the components and raw materials which have the highest impact on revenue streams.

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Appendix

Exploratory research questions

(1) How has the coronavirus situation impacted your financial state?

(2) How would you describe your production or services situation?

(3) Is your business suffering from supply chain problems post the outbreak of covid-19?

(4) Due to declined or no business revenue, do you consider starting a new product line to help generate income?

(5) What are your plans regarding managing your cash flow?

(6) How far did customers' accessibility been affected due to the pandemic?

(7) Did your business receive any support from the government? If yes, please specify.

(8) During this rough time, how are you supporting your staff both financially and mentally?

(9) Do you think of building a new database through offering free services to your customers?

(10) Are you considering changing your business strategies and make investments in innovation in the coming near future?

(11) Do you consider switching your marketing, sales and business management to digital operations for example, through mobile applications?

(12) Do you believe, the fact that the Egyptian government did not apply a complete shutdown for commercial and industrial businesses, helped them out economically?

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