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## THE PSYCHOLOGICAL AND BEHAVIOURAL SIDE-EFFECTS OF CORONAVIRUS OUTBREAK (COVID-19) ON THE ALGERIAN RESEARCHERS' SCIENTIFIC WORK AND ACADEMIC PLANS: THE CASE OF MASTER TWO AND PHD STUDENTS

### Abstract

To date, COVID-19 has affected all life aspects. The impact that it had on education was unprecedented and tremendous. This article sheds light on the psychological and behavioural side-effects of the Coronavirus outbreak on the scientific work and academic research carried by Algerian researchers. This study revolves around investigating thoughts, feelings and perspectives of 202 male and female Master Two and PhD students about how the lockdown impacted their research and on what levels. To achieve this aim, a qualitative method was followed in which an online questionnaire was administered. The questionnaire comes in three languages to cover all educational and cultural backgrounds of the targeted population. The analysis has shown that the majority of the participants (72.8%) believed that Coronavirus crisis and the quarantine have negative effects on their mood, spirits and psychological well-being which basically leads to procrastination and loss of motivation. On the same token, many female participants are occupied with the increased housework and their responsibilities towards their family members, their health and safety. The same sample will be surveyed soon in the future to investigate the longer term impacts of the crisis.

**Keywords:** Academic Research, Coronavirus, COVID-19, education, psychological and behavioural State.

### 1. Introduction

The novel coronavirus disease that emerged at the end of 2019 has achieved pandemic status. By the 28<sup>th</sup> May 2020, there are over 5,826,000 confirmed cases with more than 358,000 deaths worldwide. Pandemics are not just a medical phenomenon; they affect individuals and society on many levels. In other words, they do not bring only the risk of death from infection but also cause unbearable psychological side- and after-effects.

The outbreak of Coronavirus pandemic has several short and potentially long term side-effects on not only the affected, suspected or at risk individuals' psychological wellbeing and mental health; the whole general public who are staying quarantined during this tough period are concerned with these aforementioned shortcomings (Kang, Li & Hu, 2020). Almost every newspaper, radio, TV programme and social media platform is filled with scary statistics, advice or even memes about Coronavirus pandemic. Consequently, with this bombardment, it is normal for people to experience a wide range of negative thoughts, feelings and reactions such as feeling angry, helpless, stressed, anxious or overwhelmed; facing difficulties with concentration or sleeping; or even suffering from physical changes such as fatigue, stomach upset, or other uncomfortable symptoms. These in turn paralyse their production and willingness to carry on their work.

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As the situation develops, the crisis has affected even educational systems, leading to the widespread closures of schools and universities. As Leander (2020) wrote: “Psychological research is *essential* at the moment. In times of stability, we develop new theories and tools to test in our laboratories. In times of crisis, we must put those theories and tools to the test”. So, research does not know a pause.

Being motivated by Leander’s quotation, the prime aim of the present study is to explore the psychological and behavioural side-effects of Coronavirus outbreak on the Algerian researchers’ scientific work and academic plans along with their thoughts, feelings and worries regarding Coronavirus crisis and its consequences on their wellbeing as well as on their progress in the academic research plans and projects. Besides, the Algerian researchers’ coping strategies with the coronavirus lockdown to overcome their fear and anxiety and carry on their academic research are targeted.

## **2. Review of Literature**

### *2.1 What is COVID-19?*

By the end of 2019 a novel virus occurred in Wuhan, China, causing a severe acute respiratory syndrome, it was called COVID-19. In March 2020, the World Health Organization (WHO) declared the virus a global pandemic and announced that it is a new type of coronavirus family. Although most human coronavirus infections are mild, the epidemics of the two beta coronaviruses, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV), have caused more than 10,000 cumulative cases in the past two decades, with mortality rates of 10% for SARS-CoV and 37% for MERS-CoV (WHO, 2020).

The WHO (2020) has reported an incubation period for COVID-19 between 4 to 14 days. However, some literature (COVID-19 Educational Disruption and Response, 2020) suggests that the incubation period can last longer than two weeks and it is possible that a very long incubation period could reflect double exposure. There is no specific antiviral treatment recommended for COVID-19, and no vaccine is currently available; the treatment is symptomatic, and oxygen therapy represents the major treatment intervention for patients with severe infection (WHO, 2020). Mechanical ventilation may be necessary in cases of respiratory failure. Different strategies can be used depending on the severity of the patient. On this line of thought, WHO has recommended quarantine, which is a period of total or partial lockdown that depends on social distancing and preventative procedures.

The advent of Coronavirus (COVID-19) in Algeria has reinforced full lockdown in the district of Blida and partial lockdown on the other districts starting from the 13<sup>th</sup> of March, 2020. Algeria being a collectivistic culture highly dependent on socialization (social support and social connectedness) has been critical towards self-isolation, social-distancing and quarantine and are reluctantly dealing with emotional, psychological, behavioural and social impacts of this crisis’ uncertainty and unpredictability. On the same token, the official tally in Algeria has risen where a total of 140 new confirmed cases and 7 deaths were recorded as of 28<sup>th</sup> of May, 2020, bringing the total number of the confirmed cases to 8,997 and that of deaths to 630.

To stop the virus from further spreading the virus, the Algerian government gradually banned travel. What follow are the taken measures as published on ElBiled Journal official website.

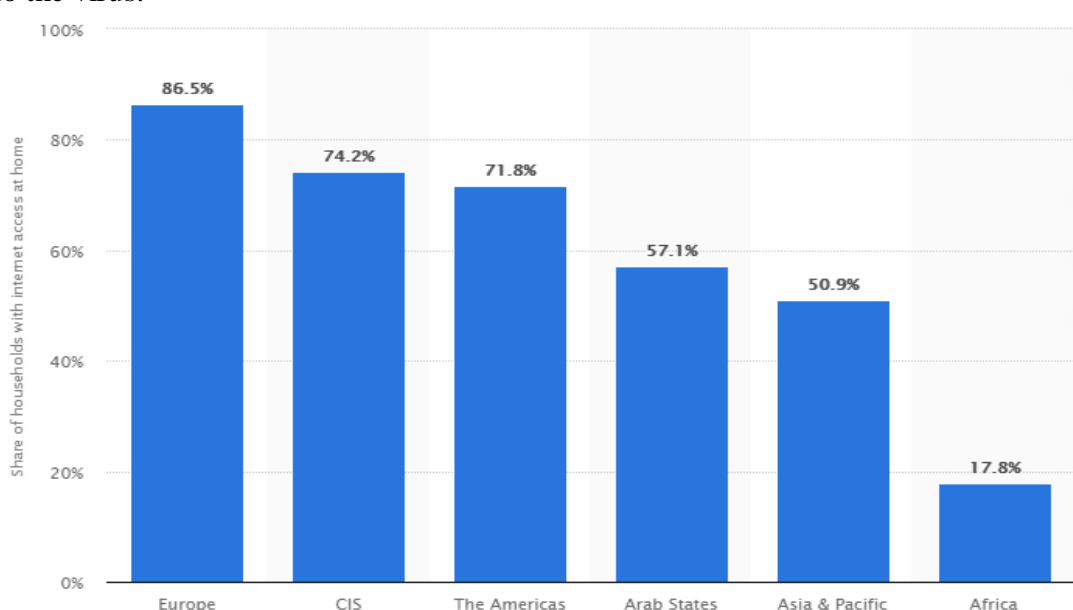
- On March 12<sup>th</sup>, Algeria and Morocco agreed to temporarily suspend flights between the two countries as a precautionary action.
- On March 13<sup>th</sup>, Algerian Airlines decided to cancel flights to and from France towards 7 airports (Setif, Tlemcen, Batna, Annaba, Bejaia, Biskra, El Oued), and kept flights only at reduced rates from the airports of Algiers, Constantine and Oran with a permanent suspension of flights to and from Spain.
- On March 15, 2020, the Algerian Prime Minister Abdelaziz Jarrad, ordered a temporary suspension of all air and sea transportations between Algeria and France.

- On March 19, 2020, “Air Algeria” announced the suspension of all national flights. Additionally, Tassili Airlines announced the suspension of national flights starting from March 22, 2020.
- On March 17, 2020, all public and private transportation within cities and between states, as well as train traffic were suspended.
- On March 23, 2020, the President, Abdel Majid Taboun, decided the prevention of the transportation of taxis across all national territory.

## 2.2 The Effect of COVID-19 on Education

The lockdown has started almost all over the world, in over 100 countries from the beginning of February. The spread of COVID-19 has affected the global and local air travel which resulted in thousands of students evacuated to their respective countries or stuck in the country they were in. Nevertheless, the shutdown of schools and universities did not entail the stop of education. The efforts were made to continue teaching courses in virtual mode and teachers were asked to give online classes. However, the lack of experience and the unprecedented step have made it very hard for both teachers and students alike to make the whole process work (McCulloch, 2020).

While in some countries, it was argued that they lack the means to do so in the first place given the number of households with internet connection and the speed of the connection itself were considered as basic problems to achieve the virtual mode teaching. As of 24<sup>th</sup> May 2020, approximately 1.725 billion learners are currently affected due to school closures in response to the pandemic. According to UNICEF (2020) monitoring, 153 countries are currently implementing nationwide closures and 24 are implementing local closures, impacting about 98.6% of the world's student population. At the beginning, initial procedures taken by many governments have ranged from 15 to 30 days, but they were extended. In some countries such as the case in Spain and Italy where the decision was announced not to resume face to face classes for the rest of the academic course which normally ends in June, and extend the period of some universities lockdown till 2021 (COVID-19 Educational Disruption and Response, 2020). At the moment, there is no vaccine available and the best prevention is to avoid exposure to the virus.



**Figure 1:** The Percentage of Households with Internet Connection Worldwide in 2019, by Region (Clement, 2020).

Higher education systems, as a whole, have reacted in a solidary manner and practically at a global level, have acted uniformly: they have continued teaching using pedagogical modalities that do not require physical attendance. While in some countries like Algeria, some policies regarding education have been made like postponing the baccalaureate exam and rescheduling the second semester of higher education in October while graduation and days of viva will take place either in June or in September (ElBilad, 2020).

### *2.3 The Effects of COVID-19 on Academic Research*

In order to prevent the spread of the coronavirus, universities, laboratories and libraries all over the world have been shut down which entails moving education to the virtual world. Regardless of the advantages and disadvantages of the digital world, it became the only option to carry on academic research. Many researchers with scholarships or internships have returned to their home, losing access to the research laboratories and university libraries (McCulloch, 2020). Since COVID-19 has affected so many areas of our life, it is also more likely to affect our psychological state.

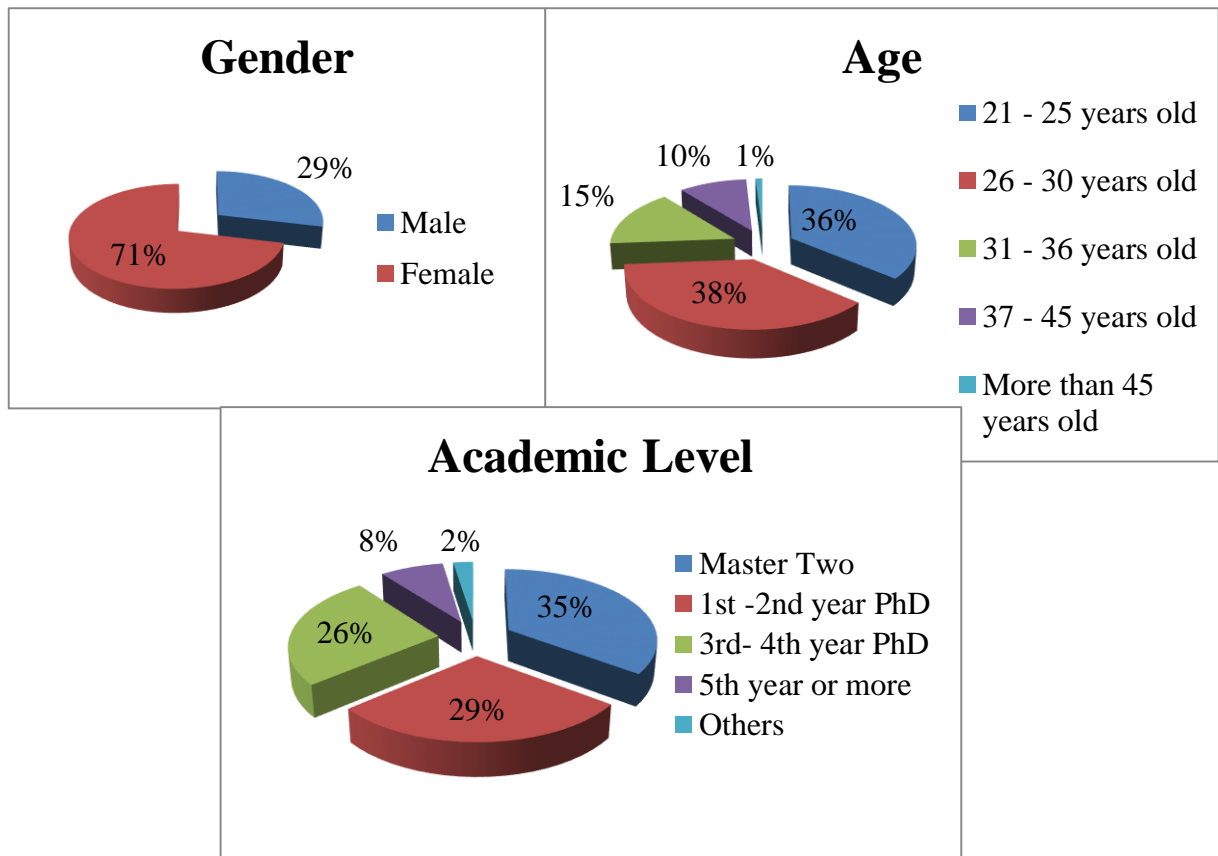
## **3. Methodology**

### *3.1 Context*

The spread of coronavirus pandemic worldwide has put governments under severe pressure. As the situation develops, the crisis has affected educational systems, leading to the widespread closures of schools and universities. The prime aim of the present study is to explore the psychological and behavioural side-effects of Coronavirus outbreak on the Algerian researchers' scientific work and academic plans. Participants in the study completed an online questionnaire, incorporating 24 open-ended and close-ended questions, about their thoughts, feelings and worries regarding Coronavirus crisis and its consequences on their wellbeing as well as on their progress in the academic research plans and projects. Besides, they indicate how they are coping with the coronavirus lockdown to overcome their fear and anxiety and carry on their academic research. In addition, it is important to mention that the questionnaire can be completed in three different languages: English, Arabic and French to allow participation from different intellectual backgrounds.

### *3.2 Participants*

We adopted the snowball sampling method which is suitable in exceptional cases where it is difficult to get in touch with the sample and convince them to participate in the research. The participants in the current study are all living through the confinement of the coronavirus epidemic in Algeria. They are 202 Algerian male and female Master Two and PhD students of mixed ages and backgrounds. They are from 41 different districts and are registered in different fields of study (more than 33 scientific, technical and literal specialties, such as: Law, Literature and Foreign Languages, Human and Social Sciences, Islamic Sciences, Marketing, Biology, Anthropology, Architecture, Mathematics, Medicine, Agricultural science, etc.) at 39 universities or national high schools; and they are all in the process of preparing a scientific research paper. For the age variable, 36% of the respondents are aged between 21 and 25 years old; 38% of them are aged between 26 and 30 years old; 15% are aged between 31 and 36 years old; 10% of them are aged between 37 and 45 years old, and only 1% of the total number of participants are aged more than 45 years old. Therefore, the composition of this sample is representative of the concerned population by this research issue. (More details are shown in figure 2 below).



**Figure 2:** The Sample's Demographic Information

#### 4. Results and Discussion

There are over 5,826,000 confirmed cases with more than 358,000 deaths worldwide. The official coronavirus tally in Algeria has risen where a total of 140 new confirmed cases and 7 deaths were recorded as of 28<sup>th</sup> of May, 2020, bringing the total number of the confirmed cases to 8,997 and that of deaths to 630. It is true that the situation in Algeria is fairly better compared to some European countries; yet this did not limit the negative side-effects of Coronavirus crisis and quarantine.

The advent of Coronavirus (COVID-19) in Algeria has reinforced full lockdown in the district of Blida and partial lockdown on the other districts starting from 03/13/2020. The outbreak of pandemic COVID-19 has several short and potentially long term detrimental side-effects on not only the affected, suspected or at risk individuals' psychological wellbeing and mental health; the whole general public who are staying quarantined during this tough period are concerned with these aforementioned shortcomings (Kang, Li & Hu, 2020).

The results of the statistical analysis of the obtained data showed that the majority of the participants (60.40%) are facing crucial effects of the crisis on their daily programmes to work on their academic research papers. Additionally, eventhough 56.93% of the participants believed that the crisis has no effect on their motivation; 72.8% believed that it has a negative effect on their mood, spirits and psychological well-being because of the negative feeling associated with the quarantine such as feeling worried, anxious, powerless or bored. Furthermore, 53.5% of the participants' surrounding conditions are affected negatively by the crisis. Consequently, 55% of them are procrastinating instead of finishing their papers (See table 1 below).

**Table 1**

*The Participants Answers of the Questions N° 10, 12, 13, 14, 15, 7, 8, 9 Respectively*

	<i>Minor effects</i>	<i>Crucial effects</i>	<i>No effects at all</i>
To what extent does this crisis affect your daily programme to end your thesis / dissertation / article / research work?	40 participants	122 participants	40 participants
To what extent does this crisis affect your motivation for scientific production?	59 participants	28 participants	115 participants

	<i>Great positive effect</i>	<i>Minor positive effect</i>	<i>No effect at all</i>	<i>Minor negative effect</i>	<i>Great negative effect</i>
The effect of the crisis on the participants' surrounding conditions for working on their thesis/dissertation / article / academic research	10,90%	24,80%	10,80%	39,10%	14,40%
The effect of the crisis on the participants' procrastination to work on their thesis / dissertation / article / academic research	4%	15,80%	25,20%	32,70%	22,30%
The effect of the crisis on the participants' mood, spirits and psychological well-being	5,90%	9,40%	11,90%	51%	21,80%

	<i>Almost never</i>	<i>Sometimes</i>	<i>Almost always</i>
Do you feel worried or anxious about the spread of this epidemic?	14 participants	99 participants	89 participants
Do you feel powerless due to the spread of this epidemic?	27 participants	96 participants	79 participants
Do you feel bored by the spread of this epidemic?	48 participants	81 participants	73 participants

Moreover, the participants were asked if they see the Coronavirus outbreak and quarantine as an opportunity to finish their academic research papers (dissertation, thesis, article, etc.). Unlike almost half of the participants (49.5%) who believe that this crisis *is not an opportunity at all*, 37.13% of the respondents think that *it is a good opportunity* in the sense that the researcher can focus all his/her effort on the research paper far from any other work that distracts him/her. One participant said: *“This extended holiday is a valuable opportunity for me, as I divided my time and planned what to do and the conditions help in terms of calm and quietness: there are no family visits, no weddings, or family events and I cancelled even my sporting activities. Now I have enough time to study; I have no excuse.”* Another participant added: *“We must look at the crisis positively. Although it poses a threat to the people and the country, researchers must have/take advantage of this period of time at home to advance in writing their various scientific works.”* In the same vein, a third respondent stated: *“Praise to God, Corona helped me a lot, I’m a father and responsible for my family, and before Corona I had several obligatory occasions which waste my time such as weddings, family visits, excursions, etc. Now, thanks to God, I devoted myself to finish my scientific research, and I found valuable information and references related to my topic, because I gave it enough time.”*

Importantly, 7.43% of the participants believe that the coronavirus crisis *might be a good opportunity* to finish their academic research papers *if there are good conditions at home*. Namely, closing libraries, cyber and information centres resulted in the lack of a suitable research environment for many students and researchers. Also, many female participants are occupied with the increased housework and their responsibilities towards their family members and their health and safety. One of the participants said: *“As an Algerian girl, staying at home means daily responsibilities and housework... which means insufficient time for research.”* Another added: *“I am one of the students who cannot study at home due to the special circumstances in my house. I planned to go every day to the university and work on my research paper in the library which allows me to contact the supervisor continuously and receive his feedback.”* Besides, *“... the house is small and overcrowding, all the family members are at home all the day, meaning that the atmosphere is not suitable to concentrate and study...”*. Moreover, *“family problems and difficult surrounding circumstances make things worse for me... I can never do research or edit data and ideas at home!”* In addition, *“...The type of Algerian family relations, and for me as a girl staying at home means doing housework!”* These constraints affected them psychologically and reduced their desire and motivation to study, which in turn influenced their daily studying programme.

Finally, the minority of the participants (%5.94) stated that *at the beginning they thought that this crisis would be a good opportunity, but in reality, things are different*. What follow are quoted from the participants’ responses:

*“It can be considered as an opportunity if it was a normal spring holidays but with this epidemic I do not think so!”*

*“The spread of this epidemic has paralyzed my determination to finish my research. I have not been able to focus on the thesis. I have not even been able to set a daily programme to start writing. Also, isolating the city of Blida and closing everything is for me a crucial research limitation. Libraries and universities are closed and we cannot contact the supervisors...”*

*“I’m unable to concentrate due to negative psychological factors, anxiety and permanent fear ... I cannot focus, nor write, all my thinking and focus are on this epidemic and especially on myself for not being able to finish my thesis on time.”*

*“The most affected aspect is the psychological one because we do not know what will happen tomorrow and thus we cannot focus on what needs to be done today, we cannot continue working as if nothing had happened and at the same time we cannot stop doing our research work! I’m really confused!”*

To be more precise, we asked the next four questions which are related to specific parts or procedures in academic research. 65.8% of the participants stated that the Coronavirus crisis has a negative effect on their supervising sessions with the research directors. Concerning the effect of Coronavirus crisis on the participants’ willingness to work on the theoretical part of their academic research, 41.6% of the respondents stated that it has negative effect whereas 37.1% of them believed that the crisis has positive effect. Clearly, the practical part of the research paper seems the most affected part by the coronavirus crisis. The majority of the participants (68.9%) stated that the crisis has negative effect (either great or minor effect) on their willingness to conduct the practical part of their research mainly due to the closure of the university laboratories or because the institutions from where the data should be collected do not receive trainees during the quarantine. Another indirect reason for this delay is the temporary suspension of national and international, public and private travel (Algerian Airlines, Tassili Airlines, sea transportation, train traffic and taxis) which started gradually since the 12<sup>th</sup> March, 2020. One participant wrote: *“I did not finish my training abroad and I cannot take advantage of the university library or visit the other universities to collect references; I cannot complete national and international scientific conferences and study days I was preparing for*

*months ago! I feel disappointed!”* In the same way, a female participant said: *“I went to France for a professional practical training which lasted a month and when it was time to go back home, they cancelled my trip and I am now stuck, with no enough money, for almost a week. There is no solution despite the several attempts with the embassy and the university!”* Another participant wrote: *“I am stuck in Turkey. I went there for the professional training and couldn't return back home!”*

*(N.B. These two last answers were collected before the Algerian government took steps to bring them back to the homeland)*

Without a doubt, the participants have different opinions about the effect of the crisis on their presupposed day of the viva. The majority of them (127 participants) predicted a delay of their day of the viva; 10 of them are happy with this postponement. Additionally, 31 participants have confirmed the delay of their viva. 66 participants believe that the crisis has no effect on their presupposed day of the viva. Finally, 31 participants have no idea whether it will be postponed or not.

**Table 2**

*The Participants Answers of the Questions N° 17, 18, 19 Respectively*

	<i>Great positive effect</i>	<i>Minor positive effect</i>	<i>No effect at all</i>	<i>Minor negative effect</i>	<i>Great negative effect</i>
The effect of the crisis on the participants' willingness to work on the theoretical part of their academic research	17,80%	19,30%	21,30%	16,80%	24,80%
The effect of the crisis on the participants' willingness to conduct the practical part of your research	4,40%	5,90%	20,80%	14,40%	54,50%
The effect of the crisis on the supervision sessions with the participants' research directors	0,50%	0,50%	33,20%	15,30%	50,50%

The participants in the current study were then asked whether they have received any advice or guidance - to focus their attention on their research plans and continue their daily programme to finish their scientific research - from their supervisors in particular (or the university in which they are studying in general). 168 participants (83.17%) stated that they received nothing supposing that *“many supervisors, especially the elderly, most of the time do not prefer distance learning or E-learning despite its great importance in this period which is characterized by unknown future.”*

After this, they were asked to state the steps they follow to get rid of the permanent thinking in the crisis and to get out of the negative impact of this difficult period on their studies. Almost all the participants focus on spiritual practices (Patience, Prayers, Reading the Quran and seeking forgiveness from Allah), meditation and positive self-talk to stay optimistic and spread positivity to their relatives and neighbours. Yet, based on their answers, the participants can be divided into 4 major categories: (i) those who lost hope and gave up their research, (ii) those who are affected negatively but they are doing good habits far from their research, (iii) participants who are affected negatively by the crisis but kept working on other scientific research paper, and (iv) those who are not affected at all.

To be more precise, 47.5% of the participants stated that they do nothing to overcome their anxiety. The majority of the females keep sterilizing everything and everybody who goes out and follows the latest news and statistics. Males are trying to escape from reality by spending most of the day sleeping believing that it is a good opportunity to have a break and to continue their research and studies after the quarantine.



The second group of the participants gave up on their studies for this period, but they are filling their time with building new beneficial habits such as improving hygiene, healthy diet, reading books, watching movies, motivational or comic videos, practicing sports and exercising, and learning new languages, and so on.

More, only 2.5% of the participants are attempting to prepare other scientific productions that are not related to their theses/dissertations and need less effort and concentration. They also try to take advantage of the free opening opportunity of many electronic libraries.

Finally, a few participants who said that their programmes are not affected by the crisis believed that there is no need to think about the epidemic, as it has specialists who care about it. They prefer paying attention to their field of research and study and stay away from social media that spread rumours and false news. Importantly, some participants stated that they did thorough research about the virus and its prevention; this made them become familiar with it, increased their awareness, and decreased their fear and anxiety.

## **5. Conclusion**

The present piece of work focused on the psychological and behavioural side-effects of Coronavirus outbreak on the Algerian researchers' scientific work and academic plans. This study investigated 202 male and female Master two and PhD students' thoughts, feelings and worries regarding Coronavirus crisis and its consequences on their wellbeing as well as on their progress in the academic research plans and projects along with their coping strategies to overcome their fear and anxiety and carry on their academic research. The participants in the current study reacted differently to the coronavirus crisis as a stressful and a strange situation. How they respond to the outbreak depends on their psychological, emotional and cultural backgrounds as well as their surrounding conditions and the community they are living in. The majority of the participants (72.8%) believed that Coronavirus crisis and the quarantine have negative effects on their mood, spirits and psychological well-being because of the negative feeling associated with the quarantine such as feeling worried, anxious, powerless or bored. Furthermore, the participants' surrounding conditions are affected negatively by the crisis. Namely, the temporary suspension of national and international, public and private travel, in addition to closing libraries, cyber and information centres resulted in the lack of a suitable research environment for many students and researchers.

Also, many female participants are occupied with the increased housework and their responsibilities towards their family members and their health and safety. Consequently, the majority of them are procrastinating instead of finishing their research papers. Moreover, the crisis does not affect only the researchers' daily programmes to work on their academic papers, but also their supervising sessions with the research directors; their motivation and willingness to work on the theoretical as well as the practical part of their theses and dissertation. Additionally, the day of the viva, the date of receiving graduation certificates and diplomas and also the employment entry competitions are postponed. Fortunately, regardless of all these shortcomings associated with the Coronavirus crisis, people in general and researchers in specific are trying to be optimistic and see the situation as an opportunity to build new habits and achieve personal growth.

Finally, to control or at least minimize side- and after-effects of the crisis and protect people from the negative psychological impact on their mental health, personal and professional psychological intervention is urgently needed. It is worth mentioning that this investigation is just to deduce initial results. The same sample will be surveyed soon in the future to investigate the longer-term impacts of the crisis.

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