

## Social Networks in Increasing Anxiety Regarding COVID-19

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### Abstract

### Original Research Article

**Introduction:** Discovered in December 2019, COVID has affected the entire planet, through direct exposure to its virus; SARS-COV-2, or indirectly through the media. Indeed, on January 20, 2020, the World Health Organization declared COVID-19 "a public health emergency of international concern." Along with other public health crises and collective traumas (terrorism, H1N1 epidemic or SARS-COV), exposure to mediated information about this virus causes psychiatric disorders, including anxiety and lack of well-being. **Objective:** To link exposure to information about this pandemic through social networks to anxiety and lack of well-being. **Methodology:** The use of a questionnaire composed of three items, status and individual conditions, the GAD-7 scale for anxiety and the WHO 5-item well-being index (WHO-5). This questionnaire is dedicated to the general population that has not been in direct contact with the virus, but through social networks. **Results:** We were able to collect 209 participants, they were mainly women with an average age of 28 years, 17.7% had a psychiatric history of anxiety and depression, the median use of social media was 5.7 hours per day. And they were mainly getting their information about the pandemic from Instagram, Facebook, the Moroccan Ministry of Health website, and electronic newspapers. 31.1% of our participants were anxious female gender and history of mood disorder favored this disorder. Increasing age in years decreased the risk of depression in our study. We found a strong negative correlation between anxiety and well-being ( $p < 0.001$ ), and a moderate negative correlation between duration of exposure to social networks and well-being ( $p < 0.001$ ).

**Key-words:** COVID-19, WHO-5, GAD-7, Social media.

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## I. INTRODUCTION

Discovered in December 2019 in the city of Wuhan, China [1], COVID-19 has affected every individual on our planet, either through direct exposure to the virus; SARS-COV-2, or indirectly through the media.

Initially called 2019-NCov then SARS-CoV-2 because it is different from the SARS-CoV virus responsible for the 2003 epidemic and the MERS-CoV responsible for the 2012 epidemic in the Middle East [2].

On January 30, 2020, the World Health Organization declared COVID-19 "a public health emergency of international concern" [3].

And so several measures have been taken in the world to limit the spread of the virus, on the one hand by the measures of containment and sanitary restriction, on the other hand by the implementation of

logistical means to fight the plague (production of vaccines, hospitals of companionship, increase of the litter capacities...) and especially by the publication of information relating to the pandemic, to the virus, to its effects and to the figures of the contaminated and deceased persons.

It is worth mentioning that the mediatized information can originate from reliable or unreliable sources. Along with other public health crises and mass traumas (terrorism, H1N1 epidemic or SARS-COV), exposure to mediated information about this virus causes psychiatric disorders, including anxiety and reduced well-being [4-6].

Would exposure to mediated information on the pandemic be a factor in triggering anxiety and altered well-being in the subject? In other words, is there a link between COVID 19 information and the occurrence of anxious and depressive symptoms?

## II. MATERIEL AND METHODS

### A- Survey

To respond to our research question, we chose a sample of the general population in whom we conducted a self-assessment survey that included 3 parts:

#### 1- Sociodemographic conditions

Age, sex, Profession, city, prior history of medical condition (present or absent) prior history of psychiatric condition (Absent, anxiety and mood disorders) and drug use (present or absent, as well as which substance),

Also, questions related to the pandemic: activity during the state of health emergency (Confined or in the field), whether or not the subject was a suspected or confirmed case and the notion of contact with a confirmed subject.

Use of which electronic means to be current on the subject (Facebook, Instagram, WhatsApp, YouTube, Ministry of Health of the Kingdom of Morocco website, electric newspapers), as well as the length of it in hours.

#### We completed this survey with two scales validated in French

#### 2- The 7-item generalized anxiety scale (GAD-7)

The GAD-7 is a scale that explores anxiety with a sensitivity of 89% and a specificity of 82%, the results are interpreted as: no anxiety, mild anxiety, moderate anxiety or severe anxiety [7, 8].

The French version of the Generalized Anxiety Disorder - 7 (GAD-7) has been validated as a relevant scale for the screening of generalized anxiety disorder in patients with epilepsy.

It consists of 7 questions related to behavior and feelings during the last two weeks with 4 responses possible: never (0), several times (1), more than half of the time (2) and almost every day (3).

#### These items are as follows

- 1-A feeling of nervousness, anxiety or tension<sup>[1]</sup>
- 2-An inability to stop worrying or to control worrying<sup>[1]</sup>
- 3-Excessive worrying about different things<sup>[1]</sup>
- 4-Difficulty relaxing<sup>[1]</sup>
- 5-An agitation that makes it difficult to stay in place<sup>[1]</sup>
- 6-A tendency to be easily upset or irritable<sup>[1]</sup>
- 7-A feeling of fear as if something terrible might happen

The total score is obtained by adding the score obtained for each item from 0 to 3 with a maximum score of 21.

It specifies the level of anxiety;

- 0-4 no anxiety
- 5-9 mild anxiety
- 10-14 moderate anxiety
- ≥15 severe anxiety

A cut-off was established based on the literature; a score below 10 eliminates clinical anxiety while a score greater than or equal to 10 confirms its presence.

#### 3- The WHO well-being scale or (WHO-5)

A 5-item scale established by the World Health Organization in 1999 [9]. It covers 5 topics related to the state of well-being during the last two weeks.

#### With 6 possible answers for each item rated from 0 to 5

Never (0), Occasionally (1), Less than half the time (2), More than half the time (3), Most of the time (4), All the time (5).

- 1- I felt good and in a good mood
- 2- I felt calm and peaceful
- 3- I felt full of energy and vigorous
- 4- I woke up feeling fresh and available
- 5- My daily life has been filled with interesting things.

This scale has a sensitivity of 93% and a specificity of 64% in diagnosing a risk of depression; a score above 50 rules out depression with a probability of 98%. A score <50 defines a risk of depression or reduced well-being.

### B- Targeted population

The combination of the 3 parts allowed the development of a survey made on Google forms and published on social media in order to have a better sample to achieve our goal. The gathering of the results was done between May 17 and June 6, 2020.

#### ¥ Inclusion criteria

Any individual 18 years of age or older  
Whose work is not related to COVID (frontline health personnel, law enforcement...)  
In contact with the pandemic only through social media

#### ¥ Exclusion criteria

Frontline workers  
Have been a suspected or confirmed case or in direct contact with an infected patient.

### C- Statistical investigation

The treatment of the data was done on Microsoft Excel and Jamovi 1.6.23. Continuous variables were represented in means ± SD or median [interquartile range] according to the normal or non-normal distribution of the variables.

Qualitative variables were represented in percentages and numbers. Factors associated with well-

being and anxiety (sex, age, medical and surgical history, psychiatric history, addictive behaviors, activity during confinement, and length of exposure to social networks) were studied using a binary logistic regression model in univariate and multivariate analysis.

Pearson and Spearman correlations were used for well-being score with the length of exposure to social networks and the score of the two scales.

A value of  $p < 0.05$  was considered statistically significant.

A significance threshold for inclusion of variables in the multivariate regression model was set at 0.25.

### III. RESULTS

#### A. Descriptive statistics

##### 1. Sociodemographic conditions

We were able to collect 253 responses and after applying the inclusion and exclusion criteria we were able to retain 209 participants.

Our participants were mainly females (88.5%).

The average age was 28.1 years (+/-7.91).

45.4% were in the Casablanca-Settat region, followed by Rabat-Salé (22%) in Morocco. 89.4% had no prior medical or surgical record.

17.7% were followed for anxiety-depressive disorders.

##### Addictive behaviors

- a. 14.35% Tobacco
- b. 5.26% Alcohol
- c. 2% Cannabis
- d. 1.43% Benzodiazepines

##### Median daily social media use was 4 hours (3-6) using

Instagram (27%) followed by Facebook (23%), The Moroccan health department's website (13%), electronic newspaper (13%) then others (24%).

## 2. Anxiety

### GAD-7 demonstrated

No anxiety (0-4): 26.3%  
Mild anxiety (5-9): 42.6  
Moderate anxiety (10-14): 18.2  
Severe anxiety (> or = 15): 12.9  
Using the Cut-off:  
31.1% had a score greater than 10  
The average score was 7.93 +/- 5.03

## 3. Depression

After adding the individual score points then multiplied by 4 to have a final score out of 100 points. We found that:

The average score was 43.9 +/- 18.4

The prevalence of reduced well-being or risk of depression was 38.3%.

### Combination of depression and anxiety

We found 27.27% of individuals having a combination of reduced well-being (score below 50) and anxiety (score above 10).

## B. Analytical Statistics

### Seeking the most significant relationships in our study

We chose regression models to explain anxiety and depression risk in our sample.

#### 1. Anxiety

In univariate analysis: female gender, the presence of a history of anxiety disorders, and mood disorders appear to be risk factors for anxiety.

In multivariate analysis, adjusting for other confounding factors, being a female multiplies the risk of anxiety by 11, and the presence of a history of mood disorder multiplies the risk of anxiety by almost 5 (Table 1).

**Table-1: Univariate and multivariate analysis of factors related to anxiety.**

	Univariate analysis				Multivariate analysis				
	OR	IC 95%		p	OR	IC 95%		p-value	
		Inf	Sup			Inf	Sup		
Age	0,99	0,95	1,03	0,742					
Gender (F)	12,16	1,6	92,12	0,016	11,67	1,44	94,6	0,021	
Activity	0,47	0,198	1,15	0,102	0,57	0,22	1,5	0,261	
Prior M/C record	0,814	0,3	2,18	0,682					
Prior psychiatric record	Anxiety disorder	2,84	1,154	7,011	0,023	2,3	0,92	5,74	0,073
	Mood disorder	5,12	1,63	16,08	0,005	4,82	1,47	15,78	0,009
Toxic behavior	1,6	0,76	3,04	0,215	1,76	0,78	3,97	0,168	
Duration of exposure to networks	1,022	0,974	1,07	0,38					

## 2. Depression

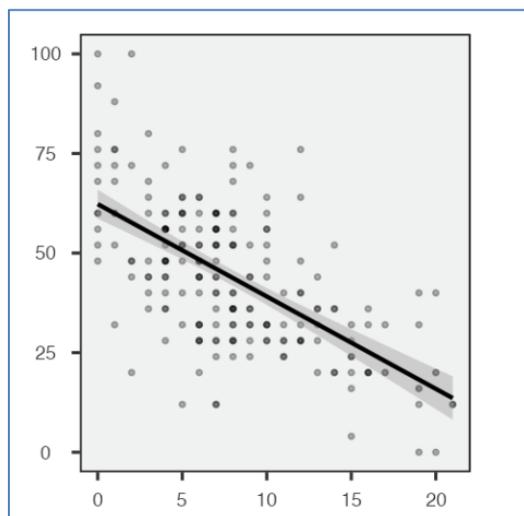
Regarding well-being; in univariate and multivariate analysis the increase in age in every year reduces the risk of depression by 5% (Table 2).

**Table-2: Univariate and multivariate analysis of factors related to the risk of depression**

		Analyse Univariée				Analyse multivariée			
		OR	IC à 95%		p	OR	IC à 95%		p-value
			Inf	Sup			Inf	Suf	
Age		0,94	0,912	0,985	0,006	0,947	0,911	0,986	0,007
Gender (F)		1,42	0,6	3,35	0,42				
Activity		0,97	0,464	2,03	0,934				
Prior M/C record		0,884	0,36	2,17	0,788				
Prior psychiatric record	Anxiety disorder	1,86	0,693	4,98	0,219	1,93	0,71	5,23	0,196
	Mood disorder	2,55	0,687	9,48	0,162	2,35	0,63	8,81	0,2
Toxic behavior		0,69	0,33	1,44	0,323				
Duration of exposure to networks		1,03	0,97	1,09	0,34				

### Seeking for the most significant quantitative relationships in our study

The correlation between the GAD-7 and WHO-5 score (Pearson's  $r = -0.634$ )  $p < 0.001$ : strong negative correlation between the well-being and anxiety score with a highly statistically significant difference (Figure 1).



**Fig-1: Correlation curve of the scores of the two scales GAD-7 and WHO-5.**

There was a moderate negative relationship between social networking time and well-being ( $p < 0.001$ ) Spearman's  $r = -0.231$ .

Concerning the anxiety score there was a small positive correlation with the time of exposure to social networks Spearman's  $r = 0.172$  ( $p = 0.016$ ).

## IV. DISCUSSION

"An infodemic is an overabundance of information, some accurate and some not, making it difficult for people to find reliable sources and trusted advice when they need it."

To address this, WHO organized a two-day global online consultation with experts in different disciplines and 1375 participants on April 7-8, 2020 for the management of the COVID-19 infodemic (Epi-WIN), which aims to make decisions about the management of this affliction [10, 11].

### According to our study we were able to discover that among our 209 participants

More than one third of the studied population had an anxious disorder with as a factor related to this event; female gender OR=11.67 IC95% [1.44-94.6], and the presence of a history of mood disorder OR=4.82 IC95% [1.47-15.78].

The presence of a prior history of an anxious disorder does not increase its reappearance, which raises the following question:

Is it because they are currently stable patients under treatment? A study focusing on the impact of social networks on pandemic anxiety among 406 American adults using the same anxiety scale found that the mean score was  $17.2 \pm 3.2$ .

An exposure time greater than 4 hours increased the anxiety score by 1.29 (0.47 to 2.11)  $p = 0.002$ . In this study, female gender did not appear to increase the score statistically significantly 0.66 (-0.12-1.45)  $p = 0.1$  [12].

In the existing scientific research, the prevalence of anxiety is between 1.6 and 5%. Therefore, the prevalence of anxiety in our sample is much greater [7, 13–15].

In another study carried out by a Colombian team on 3042 participants during the pandemic using the GAD-7, 22% had a score higher than 10, which is still much lower than our population [16].

38% of our participants had a risk of depression or reduced well-being. Only age represents a factor protecting against depression OR=0.947 IC95% [0.911-0.986].

38% of the participants have a risk of depression or reduced well-being. Age is the only factor protecting against depression OR=0.947 IC95% [0.911-0.986]

An international study was conducted on approximately 23,500 participants, aged 18 to 40 years, in 24 countries. Data collected from late October 2020 to early January 2021 provide key information about where young people are searching for information regarding COVID-19, the people they trust as reliable sources, their awareness and responses to fake news, and their concerns. Some of the key findings include:

	Our study	Chinese study
Anxiety	31,1%	22,6%
Depression	61,7%	48,3%
Combination of anxiety and depression	27,27%	19,4%

Depression was greater in the 21-30-year range OR = 1.49, 95% CI (1.12-1.99) and 31-40 years OR = 1.54, 95% CI (1.11-2.14) which is in line with our result. The effect of female gender on anxiety was not statistically significant.

## V. CONCLUSION

The covid-19 pandemic is a major event of the 21st century's. This calamity has affected individuals either through the virus or, as with other epidemics and pandemics, through information received through social networks and media, which may or may not be safe, given the difficulty of controlling this kind of information. Through our work, we have found some risk factors influencing well-being and anxiety during this pandemic.

### This study only serves for further work on the same topic, we are proposing the following

¥ To compare with other works concerning the impact of infodemic also occurred during the various other public health crises (Ebola, terrorism...).

¥ Understand the reason for the percentage difference between our study and the Chinese study.

The WHO has stated that the treatment of this pandemic is both medical and by controlling the infodemic.

**“We’re not just fighting an epidemic; we’re fighting an infodemic.”**

WHO Director-General Tedros Adhanom Ghebreyesus Munich Security Conference, February 15 2020 [19].

More than 90% of participants said they were either very or fairly concerned about the risk of infection. In addition to getting sick, participants' main concern (55.5%) was the risk of friends or family members being infected with Coronavirus, there second concern was the collapse of the economy (53.8%) [17].

A Chinese article published by J Gao *et al.* on April 16, 2020 [18]. Using the same scales (WHO-5 and GAD-7) on 4872 participants 48.3% depression, 22.6% anxiety, and 19.4% for the combination of both.

This work concluded that the greater the exposure to social networks during the pandemic, the greater the risk of anxiety and the combination of anxiety and depression.

### Comparison to our study

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