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The Psychological Impact of COVID-19 on the General Population in Morocco

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Abstract **Original Research Article**

Introduction: Currently, we are going through an exceptional sanitary crisis due to the appearance of SARS-COV2, the containment being an act of social distancing is taken as a preventive measure to decrease the spread of the virus. It is undeniable that the COVID-19 pandemic affects not only physical health but also mental health and well-being. The objective of our study is to evaluate the impact of the virus in the general population in Morocco, including stress and sleep disorders. ***Methodology*:** To develop this work, we used an anonymous questionnaire based on, in addition to individual status and conditions, scales assessing stress and sleep. The PSS-10 (Cohen's Perceived Stress Scale) for perceived stress and ISI (C. Morin's Insomnia Severity Index) for sleep disorders were chosen. ***Results:*** We collected 1240 participants, the median age of our participants is 29 years (25-34), with a female predominance of 89.5%. Most of our participants at this stage would have already known someone who had not already contracted the virus with a percentage of 71.7%. Regarding the evaluation of perceived stress, 66% had moderate stress, 16% had mild stress and 13.70% had severe stress. For sleep, 34.7% would have had mild insomnia, 32.3% moderate insomnia, 9% severe insomnia and 24% would not have had insomnia. Female gender, being divorced, living in a rural area, and knowing someone close to you who has had the virus were found to be factors influencing perceived stress. For insomnia, being 18 to 29 years old and female increases the risk of insomnia. ***Conclusion:*** The assessment of perceived stress and sleep disturbances concluded that there was a clear impact of the pandemic on the lives of the general population in Morocco.

Keywords: Stress, insomnia, covid-19, general population, PSS-10, ISI.

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INTRODUCTION

Currently, we are going through an exceptional sanitary crisis due to the appearance of SARS-COV2, the containment being an act of social distancing is taken as a preventive measure to decrease the spread of the virus. It is undeniable that the COVID-19 pandemic affects not only physical health but also mental health and well-being.

The pandemic and related containment measures; namely quarantine, social distancing and self-isolation; can have a detrimental effect on mental health, in particular, increased loneliness and reduced social interactions are well known risk factors for several mental disorders.

In addition, worries about one's own health and that of one's loved ones, as well as uncertainty about the future, can generate or exacerbate stress and sleep disorders.

Studies conducted in China show that the pandemic and the sanitary measures taken to contain it, such as quarantine (or containment), put pressure on mental health; according to one study, 28.8% of subjects reported moderate to severe anxiety [1].

The objective of our study is to evaluate the impact of the virus in the general population in Morocco, including stress and sleep disorders.

MATERIALS AND METHODS

We conducted an anonymous self-questionnaire given to participants in paper or electronic format via Google forms. Our questionnaire included 3 main items: different sociodemographic conditions, stress scale, and insomnia scale. The study was conducted from April 14 to May 19, 2020.

Inclusion Criteria

- Subjects over 18 years old.
- Moroccan nationality.
- People without any COVID infection.

Exclusion Criteria

- People under 18 years of age.
- People who have already contracted the virus.
- Front-line health care workers.

The purpose of using sociodemographic data is to assess the terrain and risk factors. To assess perceived stress, Cohen's Perceived Stress Scale (Table 1) was used in French version (PSS-10) [2]. The PSS-10 is composed of two factors, the first group consisting of six negative items measuring the individual's perception of stress, while the second group consists of four positive items, measuring adaptation to stress. The total stress score is obtained by summing the different responses after inversion of the positive items, and it varies from 0 to 40. We have chosen to work on the 10-item version because it not only presents the best overall psychometric qualities but also remains the most economical version in terms of the number of items.

For the evaluation of insomnia, the Insomnia Severity Index (ISI) (Table 2) was used, which is a very short scale composed of 7 questions that assesses the nature of the insomnia, the person's satisfaction with sleep, his or her day-to-day functioning, and his or her anxiety about sleep disorders[3].

Data processing was done through Microsoft Excel 2016 and Jamovi 1.6.7. Data analysis was performed by Chi-square test for univariate qualitative data analysis. A p <0.05 was considered a threshold.... The significance level is 0.05.

RESULTS

We were able to collect 1240 participants, the median age of our participants is 29 years (25-34), with a female predominance of 89.5%, 52% were single and 42.5% were married. The majority of our participants lived in urban areas (90.3%) and 9.7% lived in rural areas. Most of our participants at this stage would have already known someone who had already contracted the virus with a percentage of 71.7% (Table 3).

Regarding the evaluation of perceived stress, out of 1240 people, 66% had moderate stress, 16% had mild stress and 13.70% had severe stress and the average was 19.78 (±6.472). For sleep, 34.7% would have had mild insomnia, 32.3% moderate insomnia, 9% severe insomnia, and 24% would have had no insomnia, and the median was 13 (8-17) (Table 4).

Comparing the presence or absence of stress in the different groups (Table 5), we found that: female gender is strongly associated with the presence of stress, and this difference is statistically highly significant (p < 0.001).

Being divorced favored the onset of stress (p =0.04).

Living in a rural area increases the odds of stress occurrence (p =0.031).

People with a salary between the SMIG and 8000DH are more likely to be stressed (p =0.021).

Knowing someone with the virus increases the chance of stress (p = 0.034).

Regarding insomnia (Table 6), being 18 to 29 years old increased the risk of insomnia (p = 0.007). Along with stress, female gender increases the risk of insomnia and this difference is statistically highly significant (p <0.001). In addition, knowing a positive person was predictive of insomnia (p = 0,031).

When crossing stress with sleep (Table 7), the presence of stress increases the risk of insomnia with a highly significant difference (p < 0.001).

Table-1: Cohen's Perceived Stress Scale (PSS-10).

	Often	Quite often	Sometimes	Rarely	Never
Have you been disturbed by an unexpected event?					
Did you find it difficult to control the important things in your life?					
Did you feel nervous or stressed?					
Did you feel confident in taking charge of your personal problems?					
Did you feel that things were going your way?					
Did you ever think that you wouldn't be able to handle all the things you have to do?					
Were you able to control your anger?					
Did you feel that you were in control?					
Did you feel irritated because events were beyond your control?					
Did you find that the difficulties accumulated to the point that you could not control them?					

Table-2: Insomnia Severity Index (ISI)

For each question below, please circle the number corresponding most accurately to your sleep patterns in the **LAST MONTH**.

For the first three questions, please rate the **SEVERITY** of your sleep difficulties.

1. Difficulty falling asleep:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

2. Difficulty staying asleep:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

3. Problem waking up too early in the morning:

None	Mild	Moderate	Severe	Very Severe
0	1	2	3	4

4. How **SATISFIED**/dissatisfied are you with your current sleep pattern?

Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
0	1	2	3	4

5. To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g., daytime fatigue, ability to function at work/daily chores, concentration, memory, mood).

Not at all Interfering	A Little Interfering	Somewhat Interfering	Much Interfering	Very Much Interfering
0	1	2	3	4

6. How **NOTICEABLE** to others do you think your sleeping problem is in terms of impairing the quality of your life?

Not at all Noticeable	A little Noticeable	Somewhat Noticeable	Much Noticeable	Very Much Noticeable
0	1	2	3	4

7. How **WORRIED**/distressed are you about your current sleep problem?

Not at all	A Little	Somewhat	Much	Very Much
0	1	2	3	4

Table-3: Socio-demographic characteristics

Caractéristiques		**Valeur (N=1240)**
Age *		29 (25-34)
Female £		1110(85%)
Marital status £	Singles	646(52%)
	Married	526(42,5%)
Urban living area £		1120 (90,3%)
Member(s) of the entourage already affected £		341(71,7%)

Table-4: Stress and Insomnia in the Study Population

Stress	PSS-10 $	19,78 (±6,472)	
	Slight £	199(16%)	
	Moderate £	818(66%)	1041(84%)
	Severe £	170(13,7%)	
insomnia	ISI*	13(8-17)	
	Subclinical£	299(24%)	
	Slight £	430(34,7%)	941(75,88%)
	Moderate £	400(32,3%)	
	Severe£	111(9%)	

*: Median (interquartile range)

$: the Average (± standard deviation)

£: Number (percentage)

Table-5: Cross-tabulation of individual conditions and stress

Socio-demographic conditions		**Stress**		**P**
		No stress	**Presence of stress**	
Age	18-29	94(14,3%)	565(85,7%)	0,226
	30-39	71(16,9%)	350(83,1%)	
	40-49	24(21,4%)	88(78,6%)	
	50-65	10(21,7%)	36(78,6%)	
	>65	0(0%)	2(100%)	
Gender	Women	157 (14,1%)	953 (85,9%)	**<0,001**
	Male	42 (32,3%)	88 (67,7%)	
Marital status	Singles	108 (16,7%)	538 (83,3%)	**0,040**
	Married	83 (15,8%)	443 (84,2%)	
	Divorced	5 (8,1%)	57 (91,9%)	
	Widower	3 (50%)	3 (50%)	
Medical/surgical history	None	139(15,6%)	752(84,4%)	0,492
	Present	60(17,2%)	289(82,8%)	
Psychiatric history	none	143(15,9%)	755(84,1%)	0,863
	Present	56(16,4%)	286(83,6%)	
Living environment	Rural	11 (9,2%)	109 (90,8%)	**0,031**
	Urban	188 (16,8%)	932 (83,2%)	
Salary	<Smig	23(14,4%)	137(85,6%)	**0,021**
	2700-8000 DH	67(13,3%)	437(86,7%)	
	>8000 DH	95(20,2%)	376(79,8%)	
Number of persons in household	1	27(20,8%)	103(79,2%)	0,320
	2	31(13,8%)	194(86,2%)	
	3-4	91(16,6%)	457(83,4%)	
	>4	50(14,8%)	287(85,2%)	
Level of education	Without	2(28,6%)	5(71,4%)	0,834
	Primary school	2 (28,6%)	5(71,4%)	
	Secondary school	4(14,8%)	23(85,2%)	
	Academic	192(16%)	1007(84%)	
Positive case in the entourage	Yes	44(12,5%)	307(87,5%)	**0,034**
	No	155(17,4%)	734(82,6%)	

Table-6: Cross-tabulation of individual conditions and sleep

Socio-demographic conditions		**Insomnie**		**P**
		Pas d'insomnie	**Présence d'insomnie**	
Age	18-29	146(22,2%)	513(77,8%)	**0,007**
	30-39	102(24,2%)	319(75,8%)	
	40-49	29(25,9%)	83(74,1%)	
	50-65	21(45,7%)	25(54,3%)	
	>65	1(50%)	1(50%)	
Gender	Women	251(22,6%)	859(77,4%)	**<0,001**
	Male	48(36,9%)	82(63,1%)	
Marital status	Singles	150(23,2%)	496(76,8%)	0,708
	Married	130(24,7%)	396(75,3%)	
	Divorced	18(29%)	44(71%)	
	Widower	1(16,7%)	5(83,3%)	
Medical/surgical history	None	217(24,4%)	674(75,6%)	0,768
	Present	82(23,5%)	267(76,5%)	
Psychiatric history	None	211(23,5%)	687(76,5%)	0,415
	present	88(25,7%)	254(74,3%)	
Living environment	Rural	21(17,5%)	99(82,5%)	0,075
	Urban	278(24,8%)	842(75,2%)	
Salary	<Smig	38(23,8%)	122(76,3%)	0,562
	2700-8000 DH	112(22,2%)	392(77,8%)	
	>8000 DH	123(26,1%)	348(73,9%)	
Number of persons	1	28(21,5%)	102(78,5%)	0,656

in household	2	59(26,2%)	166(73,8%)	
	3-4	136(24,8%)	412(75,2%)	
	>4	76(22,6%)	261(77,4%)	
Level of education	Without	1(14,3%)	6(85,7%)	0,632
	Primary school	2(28,6%)	5(71,4%)	
	Secondary school	9(33,3%)	18(66,7%)	
	Academic	287(23,9%)	912(76,1%)	
Positive case in the entourage	Yes	70(19,9%)	281(80,1%)	**0,031**
	No	229(25,8%)	660(74,2%)	

Table-7: Cross-tabulation: insomnia vs. stress

		Insomnia		**p**
		None	**Present**	
Stress	None	109 (54,8%)	90 (45,2%)	<0,001
	Present	190 (18,3%)	851 (81,7%)	

DISCUSSION

In our work, our participants were mostly women, the median age of our participants is 29 years (25-34), living in urban areas, single, with a higher level of education, who would currently be telecommuting, with a salary ranging from 2700 DH to 8000DH, who know someone with the Coronavirus.

84% had experienced moderate to severe stress, with a mean PSS-10 score of 19.78 (±6.472), and 75.9% had insomnia with a median ISI score of 13(±8-17).

Factors impacting stress were

- The female sex,
- Divorce,
- Live in rural areas (probably because the infrastructure is less adapted to the pandemic than in urban areas).
- Have a salary between 2700 and 8000DH
- Positive case in the entourage.

Factors influencing the risk of insomnia:

- Age from 18 to 29 years old,
- female gender
- Positive case in the family.

Living in a rural area increases the risk of stress probably because the infrastructure is less adapted to the pandemic.

The presence of stress influences the appearance of insomnia with a very significant difference. In the literature, a publication by Limcaoco *et al.* in 2020 named: (anxiety, perceived stress in the face of COVID-19 in the world) having used the same scale as our work to quantify perceived stress of 1091 individuals, the average score PSS-10: 17.4 points which is lower than our result (19.78)[4].

A second study made by Perdozo pupo *et al*. in 2020, targeting the Colombian population, also using the same stress scale, 15% had severe stress (13.7% in our study). The average score was 16.5, also lower than ours [5].

Regarding sleep, Yee-man yu *et al*. explored the sleep disturbance in Chinese population using insomnia severity scale, the prevalence of insomnia (score greater than or equal to 10) was 29.9% which is very low compared to 76% in our study [6].

In a second study, also based on the ISI scale, comparing subjects before and during the pandemic, 20% of those who had no disorder before the pandemic had insomnia [7].

Limits

The percentage of women in the study was the highest with 89.5% and the urban population was very predominant.

CONCLUSION

The current COVID-19 pandemic is a particular and unusual reality with many changes and concerns. Support for vulnerable loved ones, the fear of being infected with COVID-19 and passing it on to family members, as well as the financial impact are also among the concerns felt by many. It affected people not only physically, but also psychologically.

This cross-sectional study confirmed a disturbance in the well-being and quality of sleep in the Moroccan population, which raises the following question: What can be done to prevent the occurrence of these abnormalities?

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