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The psychological properties of the Arabic BDI-II and the psychological state of the general Moroccan population during the mandatory quarantine due to the COVID-19 pandemic

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ABSTRACT

The main objective of this work is to study the psychological impact (stress and depression) of the mandatory quarantine applied on the Moroccan population in order to limit the spread of the new coronavirus (COVID-19), then the study of the psychometric properties of the Arab BDI-II in the general Moroccan population. 263 respondents were asked to respond to a BDI-II and PSS-10 socio-demographic questionnaire conducted during the first month of quarantine. 55.9% of the respondents were in a normal state of stress and 36.1% in a moderate state. However, 38.4% and 27.8% exhibited minimal and severe depression respectively. The results of factor analysis with the varimax rotation method revealed three factors predicting 55.56% of the total variance of BDI-II, while two factors predicting 60.97% of the total variance of PSS-10. Cronbach's alpha values for BDI and PSS-10 were $\alpha = 0.93$ and $\alpha = 0.58$ respectively. In conclusion, the BDI-II is a reliable and valid assessment for measuring symptoms of depression in the general Moroccan population and also very important to pay more attention to the side effects of mandatory quarantine.

Keywords: COVID-19, Depression, Stress, Psychometric properties, BDI-II, PSS-10.

INTRODUCTION

Coronaviruses are common ARN viruses of the family *Coronaviridae* of the superfamily Nidovirus, they can infect animals of all kinds, such as bats and alpacas, just as they can affect humans by causing mild respiratory infections such as the common cold (Broadbent, Boonnak & Subbarao 2015). It is generally transmitted through the oral-fecal and respiratory routes from small droplets of saliva or on fomites. Unfortunately, many coronaviruses, including the Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), can cause more serious and sometimes fatal human infections (Limeres Posse, Diz Dios & Scully 2017). After H1N1 Influenza (2009), Polio (2014), Ebola in West Africa (2014), Zika (2016), Ebola in DRC (2019), the World Health Organization (WHO) on January 30, 2020 declared the emergence of the novel coronavirus as a public health emergency of international concern (PHEIC) which is the sixth PHEIC under the International Health Regulations (IHR) (Eurosurveillance editorial 2020). Officially, WHO named the novel

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coronavirus as COVID-19 (Corona Virus Disease 2019) on February 11, 2020 (WHO 2020a). It all began in Wuhan, Hubei Province, China when a cluster of 44 cases of pneumonia of unknown etiology was announced on December 30, 2019. On January 9, 2020, the Chinese CDC in collaboration with WHO reported that the new coronavirus phylogenetically found in the SARS-CoV clade is the main cause of this viral outbreak (Roy et al. 2020). Up to the time of writing this article (04-08-2020), the total number of confirmed positive cases of covid-19, exceeds 18 406221cases worldwide, from 215 countries, of those, over 695906 deaths and 11 617888 recovered were reported (WHO 2020b). Morocco is one of the countries affected by the new coronavirus. Since the recording of the first positive test COVID-19 on March 2, 2020, the total number of COVID-19 cases confirmed positive on 03-08- 2020, has reached 26 196 (401 deaths and 18 968 recoveries) nationwide, and this number continues to rise (covid19 Morocco 2020). In order to prevent the spread of COVID-19 in the country, the Moroccan government started the specific provisions for the state of health emergency from March, 20, 2020 until further order (the official bultin 6867 2020). COVID-19 has brought the Moroccan population to a high level of vigilance in the face of incomplete knowledge of the virus (Bendaif *et al.* 2020). It also starts another war in the face of several psychological and mental problems such as stress, depression, anxiety due to lack of communication and interpersonal distance on the one hand, and the development of fear, stigma and discrimination on the other hand (Bao *et al.* 2020; WHO 2020b; Xiao 2020). Among the preventive approach put on the ground by Morocco, the Ministry of Health in partnership with the National Authority of Moroccan Doctors has launched a free, voluntary service based on remote medical advice via an online platform (telemedical advice); physicians from all specialties including mental health participated by answering all questions 24/7, via chat, voice and video calls, providing personalized medical advice, with relevant recommendations (Moroccan Ministry of Health 2020; tbib24 2020). In Morocco as well as in the Arab world, epidemiological studies of psychiatric disorders are quite rare (Farah *et al.* 2009). However, mental health has a direct health impact on the success of the fight against the new pandemic, whose health concerns are expected to increase day by day. Research assessing the various mental problems, including depression and stress during this period of COVID-19, is very limited. So, the main purpose of this study was to study the mental state within the Moroccan population during the period of the obligatory quarantine.

MATERIALS AND METHODS

Study design

The present study falls within the frame work of a quantitative transversal study aiming to analyze the psychological state of the general population during the quarantine period due to pandemic Covid-19. It was conducted in Morocco between March, 28 and April, 8 2020. The questionnaire was performed using Google forms. The link to the questionnaire was sent to 300 Moroccans who agreed to participate in the study via social media (Facebook, Instagram, email, WhatsApp, telegram etc.). By clicking on the link, participants were automatically directed to information about the study.

The online self-reported questionnaire contained the following three sections: questionnaire with sociodemographic characteristics, the Perceived Stress Scale (PSS 10), and the Beck Depression Inventory II (BDI-II). The average time of completion of the whole questionnaire was 20 minutes. The inclusion criteria were: age > 18 years, Arabic native speakers. However, the exclusion criteria were: pregnant and lactating women, people with previous diagnosis of depression, and people used psycho-tropic treatment, including antidepressants, anxiolytics, and other treatments.

Instruments

Assessment of socio-demographic and general information

The following socio-demographic and general health information of the interviewers were recorded: Sex (woman and man), age (18-24, 25-35, 36-45, 46-60 and over 60), and income (generally high, middle and low), the marital status (single, married, divorce, widower), educational level (illiterate, primary school, secondary school, graduated, professional training), job distribution and place of residency (city, village). Participants were also asked about the consumption of alcohol, smoking, drug abuse and traditional medicine use

Beck Depression Inventory second edition (BDI-II)

The Beck Depression Inventory-II (BDI-II), a revised version of the amended BDI (BDI-IA) represents a self-report survey assessing the severity and the presence of depressive symptoms (Harris & D'Eon 2008). It includes

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21 items rated to 4 point-Likert-scale (0 = symptom absent; 1 = symptom present; 2 = moderate symptom; and 3 = severe symptom) measuring the severity of the experience within the last two weeks of time span. Total score ranged from 0 to 63 and higher score reflected extreme depressive symptoms. BDI-II was categorized into four levels of severity: minimal depression, total score = 0-13; mild depression, total score = 14-19; moderate depression, total score = 20-28 and severe depression, total score ≥ 29 (Rivera, Bernal & Rosselló 2005; Adewuya, Ola & Aloba 2007). The Arabic version was translated and prepared according the earlier data (Ghareeb 2000). Previous study examined the psychometric properties of the BDI-II into 17 Arabic countries and a proper validity and reliability evidence for Arabic samples which Alpha Cronbach ranged from 0.82 to 0.93 in these countries (Al-Musawi 2001; Rahat, Rahimi & Mohamadi 2012).

Perceived Stress Scale (PSS) -10

The perceived stress scale (PSS) -10 is an easy way to use questionnaire. It was originally developed by Cohen, Kamarck & Mermelstein (1983) as a "means to measure the degree to which situations in one's life are appraised as stressful" (p. 385) (Cohen, Kamarck & Mermelstein 1983). PSS-10 detected assess psychological distress, it appraised how responder life is considered to be uncontrolled, unpredictable, or overloaded during the last four weeks (Smith & Emerson 2014). The original instrument consisted of 14-items of self-reporting, the 14 items scale discerned between two subscales including the negative and positive ones (Yokokura *et al*. 2017). Later, a shorter and re-conceptualized 10-items form was generated rating on five-point Likert-scale of statement occurrences (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, 4 = very often) (Gitchel Roessler & Turner 2011). Among the ten items, four are reversed reflected positive emotions and the ability to act in stressful situations while the other six ones are non-reversed reflected negative feelings. In addition, the inability to deal with stress total score can range from 0 to 40 with higher scores indicating more ability from individuals to confront surrounding environment (Gitchel, Roessler & Turner 2011; Yokokura *et al*. 2017). Previous study examined the psychometric characteristics of the PSS reported that PSS-10 exhibited reliable results when compared to the PSS-14 (Lee 2012). Psychometric properties of the PSS-10 - including the Arabic version used in this study- showed high reliability and validity (Ben Loubir *et al.* 2014; Lee 2012)

Ethical consideration

The Human Ethics Review Committee at the Faculty of Sciences, Fez, Morocco reviewed and approved this study. Besides, this study was done according to principles outlined in the Declaration of Helsinki, as well as institutional review boards and ethics committees at participating sites approved the protocol. After detailed explanation of the study aims and procedures, the interviewers accepted participating in the study. The participants not willing to be parts of the study could simply not complete the survey. No back tracing to participants level was possible and all surveys were analysed anonymously.

Data analysis

Descriptive statistics were calculated for socio-demographic characteristics (effects and percentages) using ordinal regression, as well as means and standard deviation using descriptive analysis. All tests were bilaterally, with a significance level of $p < 0.05$. Statistical analysis was conducted with SPSS Statistic 20 (IBM SPSS Statistics, New York, United States). The BDI-II and PSS-10 items were subject to Principal Factor Analysis (PFA) via employing Maximum Likelihood extraction method with VARIMAX rotation method to determine the factor structure of the assessments. Data factorability was revealed by Bartlett's test of sphericity and simultaneously by the Kaiser-Meyer-Olkin (KMO) sampling adequacy measure. Internal consistency was estimated by Cronbach's alpha coefficient (α).

RESULTS

Descriptive statistics

In this study, 263 participants of 18-year olds or older and who are Arabic native speakers were invited to participate in this study. Participation rate was 100% (48.67% women vs. 51.33% men). 21.3% fall within the age groups of 18-24; 31.2% within 25-35; 19.8% within 36-45; 17.9% within 46-60 and 9.9% within over 60-year olds. Marital status of participants were as follows: 39.9% were single, 42.2% married, 13.7% divorced and 4.2 % widowed. Given education criteria 36.1% were highly educated, while 28.9% enrolled in higher secondary

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school, and 11.1% had a primary qualification. Job distributions were reported as follows: 45.6% were working people. Non-active participants were distributed as follows: 6.1% were unable to work, 21.7% unemployed and 5.3% retired participants. More than two-thirds of the study population were not addicted (alcohol, cigarette, drugs) and almost half of the interviewers were used to consume aromatic and medicinal plants as a remedy for depression and stress (Table 1). Table 2 presents the matrix of correlations between the raw scores for the PSS-10 items. The results of this table exhibit the significance of the PSS items with PSS1 and PSS2 (In the last month how often were you bothered by an unexpected event; In the last month how often did you find it difficult to control the important things in your life).

Table 3 shows the descriptive characteristics of the levels of depression and stress according to the instruments used. The mean score of depression and stress of the respondents measured on the BDI-II (21 items) and PSS-10 (10 items) scales, revealed mean scores of 20.41 (SD = 13.56) and 18.49 (SD = 5.44) respectively for the total sample. During this quarantine period, over half of the population surveyed (55.9%) showed a mild state of stress and 7.6% were considered to have a normal stress, while 36.1% were in a moderate state of stress and 0.4% were considered to have a severe stress.

On the other hand, 38.4% and 27.8% of the population exhibited minimal and severe levels of depression respectively, while the rest of the population represents either mild (15.6%) or moderate depression (18.3%). PSS-10 scores are generally equitable with a slight elevation in males (Mean =18.70, SD = 5.08) compared to females (Mean = 18.26, SD=5.81) when BDI-II scores are also similar to a slight elevation in females (Mean = 20.73, SD = 12.47) compared to males (Mean = 20.10, SD =14.55).

Table 1. Demographic characteristics of the study sample (N = 263).

		Male (N)	%	Female (N)	%	Total (%)	mean	SD
Age category	**18-24**	28	10.6	28	10.6	21.3	2.64	1.27
	25-35	40	15.2	42	16	31.2		
	36-45	24	9.1	28	10.6	19.8		
	46-60	28	10.6	19	7.2	17.9		
	+ 60	15	5.7	11	4.2	9.9		
Marital status	**Single**	60	22.8	45	17.1	39.9	1.82	0.82
	married	58	22.1	53	20.2	42.2		
	Divorced	16	6.1	20	7.6	13.7		
	Widower	1	0.4	10	3.8	4.2		
Education level	**Pre-school**	10	3.8	19	7.2	11.1	4.21	1.25
	primary	15	5.7	17	6.5	12.2		
	High school college	38	14.4	38	14.4	28.9		
	graduated	53	20.2	42	16	36.1		
	Vocationnel training	19	7.2	12	4.6	11.8		
Living standards	**low**	20	7.6	18	6.8	14.4	2.00	0.53
	Medium	98	37.3	90	34.2	71.5		
	High	17	6.5	20	7.6	14.1		
Residency	**City**	105	39.9	107	40.7	80.6	1.19	0.39
	Village	30	11.4	21	8	19.4		
Professional status	**Unemployed**	15	5.7	43	16.3	22.1	2.27	1.06
	being employed	76	28.9	44	16.7	45.6		
	Student	29	11	26	9.9	20.9		
	Retired	11	4.2	3	1.1	5.3		
	Unable	4	1.5	12	4.6	6.1		
Smoking cigarette	**No**	59	22.4	118	44.9	67.3	0.33	0.49
	Yes	76	28.9	10	3.8	32.7		
Use of drugs	**No**	105	39.9	125	47.5	87.5	0.13	0.33
	Yes	30	11.4	3	1.1	12.5		
Drinking alcohol	**No**	87	33.1	125	47.5	80.6	0.19	0.39
	Yes	48	18.3	3	1.1	19.4		
Plant Consumption	**No**	81	30.8	67	25.5	56.3	0.44	0.49
	Yes	54	20.5	61	23.2	43.7		

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Table 2. PSS-10 scale item correlations (n = 263).

Item	PSS1	PSS2	PSS3	PSS4	PSS5	PSS6	PSS7	PSS8	PSS9	PSS10
PSS1	1.000									
PSS2	0.617	1.000								
PSS3	0.543	0.524	1.000							
PSS4	-0.129	-0.181	-0.132	1.000						
PSS5	-0.269	-0.306	-0.261	0.560	1.000					
PSS6	0.453	0.498	0.344	-0.102	-0.094	1.000				
PSS7	-0.195	-0.205	-0.141	0.465	0.497	-0.055	1.000			
PSS8	-0.106	-0.309	-0.150	0.509	0.566	-0.180	0.484	1.000		
PSS9	0.554	0.447	0.468	-0.198	-0.329	0.423	-0.224	-0.184	1.000	
PSS10	0.556	0.512	0.426	-0.199	-0.346	0.502	-0.209	-0.241	0.648	1.000

Table 3. Descriptive feature of the BDI-II and PSS-10 instruments.

		Men (N = 135)	%	Women (N = 128)	%	Total N = 263 (%)	Mean	SD
BDI-II Levels	Minimal depression	57	21.7	44	16.7	38.4	20.41	13.56
	Mild depression	19	7.2	22	8.4	15.6		
	Moderate depression	18	6.8	30	11.4	18.3		
	Severe depression	41	15.6	32	12.2	27.8		
PSS-10 Levels	Normal stress	8	3	12	4.6	7.6	18.49	5.44
	Mild stress	77	29.3	70	26.6	55.9		
	Moderate stress	50	19	45	17.1	36.1		
	Severe stress	0	0	1	0.4	0.4		

Item characteristics for BDI-II and PSS-10

Factorial validity of PSS-10

In the exploratory factor analysis, two eigenvalues greater than 1 were selected to explain 60.975% variance, of which the first factor alone explains 41.358% and 19.617% to the second factor. The inter-factor correlation is of the order of 0.61. The Cattell's elbow break is clear after the second value on the eigenvalue graph and specifically those values greater than 1. Therefore, two factors are used for the confirmatory factor analysis. So that, the ten PSS items were specified as follows: the first factor (F-1) saturated distinctly the following items: 1, 2, 3, 6, 9 and 10; while the second factor (F-2) saturated the inverted items 4, 5, 7 and 8 (Fig. 1). This two-factor model shows a significant $\chi 2$ ($\chi 2 = 1039.581$, ddl = 45, $p < 0.001$) which is not surprising given our sample size. The KMO index of 0.84 can be described as excellent or meritorious. It tells us that the correlations between the items are of good quality.

Factorial validity of BDI-II

BDI-II items were subject to principal factor analysis. Factorability of data was supported by significance in the value the Bartlett's test of sphericity ($p < 0.001$). Similarly, the KMO test of sampling adequacy, i.e., 0.94 confirmed similar findings with a significant $\chi 2$ ($\chi 2 = 2679.712$, ddl = 210, $p < 0.001$). PFA revealed the presence of a three-factors solution with eigenvalues superior to 1. The first, second and third factors accounted for 9.227, 1.41 and 1.02, explaining 43.93% , 6.27% and 4.89% of total variances respectively. Factor loading for the first factor ranged from 0.070 (indecisiveness) to 0.288 (pessimism). In the case of second factor, loading values ranged from 0.134 (irritability) to 0.374 (loss of energy), while the third factor exhibited values between 0.104 (lost of interest) and 0.336 (self criticalness).

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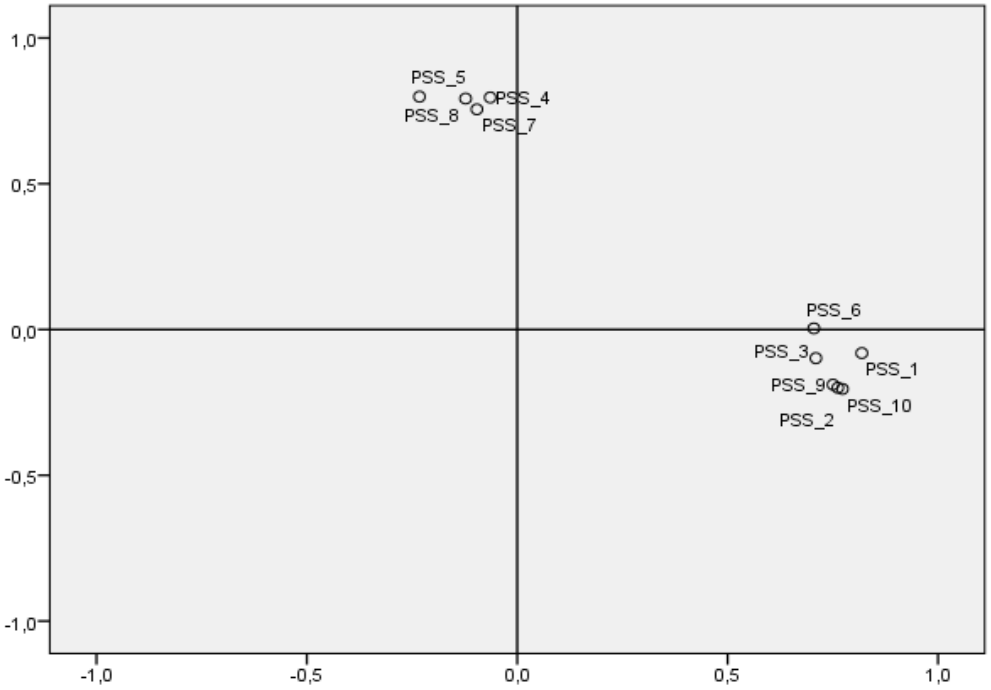

Fig. 1. Component diagram after rotation.

Table 4. Component coordinate coefficient matrix.

	Component		
	1	**2**	**3**
Sadness	0.218		
Pessimism	0.288		
Past failure	0.261		
Loss of plaisure	0.242		
Guilty feelings			0.189
Punishment feelings	0.244		
Self dislike		0.177	
Self criticalness			0.336
Suicidal thoughts		0.207	
Crying			0.274
Agitation			0.281
Loss of interest			0.104
Indecisiveness	0.070		
worthlessness		0.175	
Loss of energy		0.374	
Changes in sleep			0.328
Irritability		0.134	
Changes in appetite			0.261
Concentration difficulty		0.254	
Fatigue or tiredness		0.346	
Loss of interest in sex			0.149

Internal consistency

Cronbach's alpha estimates were calculated for BDI-II and PSS-10 in the general population for the simple total (N = 263). For BDI-II, the coefficient revealed a value of α=0.93 (males: α = 0.94; females: α = 0.92). These values are similar to those reported by Beck *et al.* (2000) (0.85-0.88). However, the coefficient revealed a value of α =0.58 for PSS-10.

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DISCUSSION

The present study was carried out on the Moroccan general population during the first month of the quarantine period following the appearance of the new global pandemic COVID-19 and the declaration by the WHO of a public health emergency of international scope. The results of this study show that 54% of the respondents developed mild to normal depression, while 46% suffered from moderate to severe depression. Similarly, 63% of the population had normal to mild stress, while 35.5% remained moderately to severely stressed. These results were along the same lines as reported in the earlier found data (Wang *et al*. 2020) who reported depression and anxiety in general Chinese population during the COVID-19 quarantine period, stating that 69.7% of the Chinese population exhibited a normal depression score, while 16.5% suffered from moderate to severe depression. They also reported that over 90% of the Chinese population displayed a normal to mild stress score, while 8.1% suffered from moderate to severe stress. Its average scores are due to the fact that the Chinese population is accustomed to this type of phenomenon (HINI, SARS, zika, the explosion of Hiroshima, etc.) which causes the development of psychic ability of toleration, whereas in the case of the Moroccan population, it was the first-time which they encountered with this situation. Hence, the quarantine and the measures of social distancing increased their level of stress and depression.

The results of the present study showed that men generally exhibits slightly higher stress scores than women, which is different from some previous studies (Ben Loubir *et al.* 2014; Smith & Emerson 2014), and seems to be normal given the catastrophic effect of quarantine during the COVID-19 pandemic. As reported in earlier data (Xiao 2020; Zandifar & Badrfam 2020), increased stress, depression and also feelings of loneliness and anger are a direct result of the unpredictability of the hard situation, misinformation and uncertainty about when to control the disease and the severity of the risk. In addition, people in quarantine lose personal relationships and traditional social interventions, which is a stressful phenomenon (Zandifar & Badrfam 2020). Moreover, according to the earlier literature (Rajkumar 2020; Shigemura *et al.* 2020), economic imbalance led to a direct effect on the development of depression, stress and anxiety. Currently, various economic sectors are facing disastrous challenges threatening their operations and solvency, especially small businesses, even as million unprotected workers. The most vulnerable people in the informal economy are exposed to income loss and layoffs (OIT observation 2020).

The present study examined the psychometric properties of the BDI-II Arabic version in Morocco. It allowed verifying the reliability of this version of the BDI-II and analysed its factor structure. The homogeneity of the BDI-II was assessed using Cronbach's alpha coefficient. The coefficient revealed a high value of ($\alpha = 0.93$) with a small difference between men ($\alpha = 0.94$) and women ($\alpha = 0.92$). These values are similar to that brought back by (Beck, Steer & Brown 1996) (0.85 -0.88) which indicate a satisfactory internal coherence of this Arabic version scale. In terms of confirmatory factor analysis (CFA) for BDI-II, previous studies found a template to two or three factors depending on the population studied (Beck *et al.* 1996; Steer *et al*. 1999). Beck and colleagues have found that BDI-II to the side of the BDI-IA version positively correlated to the construction of despair in normative samples (Beck *et al.* 1988), while the factorial analysis of the BDI-II has given two factors: the somatic factors-emotional and cognitive ones (Hiroe *et al*. 2005; Smarr & Keefer 2011).

Our results revealed the presence of three factors, in agreement with previous finding in English (Canada) (Quilty *et al.* 2010), Korean (Korea) (Lee 2012) and Arabic (Bahrain) (Al-Musawi 2001) supporting the presence of various factors solutions (social life, negative attitude, performance difficulty, cognitive, emotional and somatic). The similarities between our study and Bahraini and Canadian studies in terms of factors revealed the presence of two similar factors (e.g. somatic complain and cognition) (Al-Musawi 2001; Quilty *et al.* 2010). The factors found in the present study were assured by the use of Maximum Likelihood extraction method with Varimax rotation, a similar but not identical method employed in the Bahraini study through the use of Promax oblique rotation. The CFA of the Bahraini study was performed by maximum likelihood confirmation factors to assess the adequacy of the three-factor model using three indices: The goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root mean square residual (RMS) (Al-Musawi 2001). The CFA of the Korean study was conducted with Mplus 6.1 by performing all analyses using the weighted least square estimation (WLSMV) method (Lee 2012). For the Canadian study, the CFA was performed with 5.1 by estimating the models using the standardized (Quilty *et al.* 2010). On the further side, the sample sizes of Canadian and Bahraini people, consisting on adult outpatients (homogenous clinical sample) and university students respectively, were close to

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the present study (Canadian N = 425; Bahraini N = 200) (Al-Musawi 2001; Quilty *et al.* 2010), while Lee (2012) worked on Korean adolescents had a larger sample size (n = 1072) (Lee 2012).
On the other hand, other countries/ versions have proposed an optimal two-factor structure solution, i.e., cognitive-affective and somatic factors (García-Batista *et al.* 2018); specific and general factors (Subica *et al.* 2014). This was reported among the Turkish (Uslu *et al.* 2008), Japanese (Kojima *et al.* 2002), and Brazilian versions (Wang *et al*. 2005). However, the BDI-II Spanish version has revealed the presence of a four-factor structure (somatic, sadness/despair, low self-esteem and negative thoughts) (Azocar *et al*. 2001).
To summarize, the second factor represents the following: fatigue, loss of energy, irritability, depreciation, difficulty concentrating, thoughtful person with suicidal tendencies, negative feelings towards oneself; they mainly reflect cognitive, emotional and somatic symptoms. The third factor detected represents the somatic symptoms of depression by combining (organizing) elements: change in sleep habits and change in appetite, crying, agitation, loss of interest, feelings of guilt, critical attitude towards oneself, and loss of pleasure in sex. While the first factor represents the cognitive and emotional symptoms of depression by grouping (including) the following elements: loss of pleasure, pessimism, feeling punished, indecisiveness, sadness and failure in the past. These results indicate that depression, measured using BDI-II, can be represented by the cognitive, emotional and somatic symptoms. The emotional symptoms can change a dimension in the other one according to the context and the composition of the studied samples (Steer *et al.* 1999). According to our results, these symptoms are included either by cognitive symptoms (factor 1) or somatic symptoms (factor 2), which is similar to other studies affirming our results (Kojima *et al*. 2002; Campos & Goncalves 2011), while at the same time, contradictory to other studies (García-Batista *et al.* 2018).
In terms of confirmatory factor analysis (CFA) for PSS-10, and in accordance with the majority of the PSS-10 validation studies (Reis *et al.* 2010) as well as in the original study by Cohen (1988), the analyses of the main components conducted with the PSS-10 postulate the existence of two main factors: the first factor was made up of the six negative items whose content refers to the difficulties encountered by the respondent and to ill-being, and the second one consisting of the four inverted items reflecting the perception of the individual resources. Some authors interpret the first factor as perceived vulnerability or psychological distress, while the second factor is named by ability to coping/control (Wu & Amtmann 2013). However, the negative items are directly influenced by the general distress factor and indirectly by the perceived stress one, while in contrast, the positive items are directly affected by the coping factor and indirectly by the perceived stress one (Smith & Emerson 2014). Bellinghausen *et al.* (2009) reported that the first factor is an indicative of an individual perceived level of overflow. This concept of overflow specifies that a state of stress occurs when the constraints of the environment accumulate beyond the forces that the individual can mobilize to cope with them. However, the second factor has been interpreted in terms of perceived self-efficacy, i.e., an individual believes that he or she has the ability to overcome difficulties in achieving a goal (Bellinghausen *et al.* 2009).

Limitations of the study

The present study contains limitations which should be mentioned. At first, the study was conducted on a typical educated sample: those who had a smartphone, an email address, account in social networks which does not reflect the real model of the general population etc. So, the results should not be generalized to the whole population. The results of the same study may be completely different in uneducated people and in a so-called normal period. Secondarily, due to COVID-19 requirement for this period, and the ethical requirements for anonymity and confidentiality of the surveys, we were not permitted to record the contact information of respondents. Consequently, a prospective study that would provide genuine results could not be conducted.
In the third place, the sample study was conducted among general population, exclusion of pregnant women was based on the probability of the hormonal disturbances of the woman in this period that could affect the results (profits) and individuals who use psychoactive drugs. We recommend that this questionnaire is soon studied on a healthy population which will be comparable to another clinical population. Finally, The BDI-II is a self-administered survey, the BDI-II is an auto-questionnaire, which can lead to social desirability bias.

CONCLUSION

New pandemic COVID-19 has upset the calculations of the whole worldwide in all fields, especially the psychic state of the population in general and specifically the Moroccans since its appearance at the beginning of the year

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2020 in Wuhan. The Moroccan population has developed a moderate depression according to the average of the results found while it suffers from a light stress. In spite of study limitations, we conclude that the BDI-II is an excellent tool of reliable and valid screening. The study of these psychometric properties justifies its use to measure the gravity of the depressive symptoms to the general population in Morocco.

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Declaration of competing interest
None. The authors declare that they have no conflicts of interest.

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Abbreviation
World Health Organization(WHO); Beck Depression Inventory-II (BDI-II); Perceived stress scale (PSS-10); Coronavirus disease 2019 (COVID-19); Severe acute respiratory syndrome coronavirus 2 (SARS-COV-2); Public health emergency of international concern (PHEIC); The International Health Regulations (IHR); The Middle East Respiratory Syndrome (MERS); Severe Acute Respiratory Syndrome (SARS); Principal Factor Analysis (PFA); The Kaiser-Meyer-Olkin (KMO); Cronbach's alpha coefficient (α); Confirmatory factor analysis (CFA); The goodness-of-fit index (GFI); The adjusted goodness-of-fit index (AGFI); The root mean square residual (RMS). The weighted least square estimation

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ویژگی‌های روان‌شناختی بی دی آی- دو عربی و وضعیت روان شناختی جمعیت عمومی مراکش در خلال قرنطینه اجباری در اثر پاندمی کووید ۱۹

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چکیده

هدف اصلی این مطالعه بررسی تأثیر روان شناختی (استرس و افسردگی) ناشی از قرنطینه اجباری در بین جمعیت مراکش به منظور محدود کردن گسترش کروناویروس جدید (کووید-۱۹) و سپس مطالعه خصوصیات روان شناختی Arab BDI-II در جمعیت مراکش بود. ۲۶۳ نفر پاسخ دهنده به پرسشنامه BDI-II و PSS-10 اجتماعی- جمعیتی در خلال اولین ماه قرنطینه مورد پرسش قرار گرفتند. ۵۵,۹٪ پاسخ دهنده ها در وضعیت متعارف استرسی قرار داشتند و ۳۶,۱٪ در وضعیت استرس متوسط بودند. با وجود این، ۳۸,۴٪ و ۲۷,۸٪ افسردگی کمینه و شدید از خود نشان دادند. نتایج آنالیز فاکتور با روش واریماکس روتیشن سه فاکتور را برای پیش بینی ۵۵,۵۶٪ از واریانس کل BDI-II را آشکار کرد، در حالی که دو فاکتور را با پیش بینی ۶۰,۹۷٪ از واریانس کل PSS-10 نمایان ساخت. مقادیر آلفا ی کرونباخ برای BDI و PSS به ترتیب ۰,۹۳ و ۰,۵۸ بود. در نتیجه، BDI-II روش ارزیابی معتبر و قابل اتکا برای اندازه گیری علایم افسردگی در جمعیت مراکش و همچنین روش مهمی برای توجه به عوارض جانبی قرنطینه اجباری است.

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