

## Resilience and the COVID-19 Epidemic

H. Berrada<sup>1\*</sup>, F. Azraf<sup>1</sup>, F. Laboudi<sup>1</sup>, A. Ouanass<sup>1</sup>

<sup>1</sup>Ar-razi University Psychiatric Hospital of Salé, Faculty of Medicine and Pharmacy - Mohammed V University of Rabat, Morocco

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\*Corresponding author: H. Berrada

### Abstract

### Original Research Article

**Introduction:** The 2019 corona virus epidemic (COVID -19) is a public health emergency of international concern that is impacting our mental health. Mood disturbances, anxiety attacks, post-traumatic symptoms ... This poses a challenge to psychological resilience. Research data is needed to develop evidence-based strategies to reduce unwanted psychological impacts and psychiatric symptoms during this pandemic. **Objectives:** The objective of our study was to assess the degree of resilience among the Moroccan population due to the covid-19 pandemic perceived as a life threatening situation. **Methodology:** This is a descriptive and analytical observational study with prospective data collection through a questionnaire on Google forms including socio-demographic variables and the Connor and Davidson Resilience Scale (CD-RISC). Statistical analysis was performed using SPSS software. **Results:** Our sample is characterized by a young population, 50.6% of our population had an age between 20 and 30 years of which 74.2% are female, and 62.2% are single, inhabitants in 95.5% of cases in urban settings. 48.7% of participants were students, 97.4% had higher education level 26.6% of participants had medical-surgical history. 8% had psychiatric history. 17, 6% had a substance use disorder. 1.5% of our sample had a score between 0 and 23, i.e. low resilience. 97% of our sample had a score between 30 or more, i.e. high resilience. 1.5% of our sample had a score between 24 and 29, which is average resilience. Regarding the analytical results, we note that women, with a young age and a higher level of education have a high level of resilience with a statistically significant P ( $p < 0.05$ ). **Conclusion:** The corona virus epidemic is a public health emergency hence the importance of psychological resilience.

**Keywords:** COVID-19, general population, resilience, CD-RISC, mental health.

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## 1. INTRODUCTION

Corona virus disease 2019 (COVID-19) that originated in Wuhan spread throughout China from December 2019, posing serious threats to human health. On January 30, the WHO Director General announced the novel corona virus pneumonia outbreak as a public health emergency of international concern [1, 2].

On March 03, 2020, Morocco identified the first case of COVID-19. 17 days after the increase in the new cases, the country officially entered compulsory health lockdown on March 20 of the same year. The infection with the new corona virus is a public health epidemic that has affected the physical and mental health of many people. As COVID-19 progresses, people's daily lives have been altered to some extent, leading to different adverse mental health issues, such as depression, anxiety, fear, and insomnia [1, 3].

In public health emergencies, the negative emotions of citizens often predominate and may not be

favorable to the prevention and control of epidemics. Therefore, dealing with emotional issues is essential to controlling the epidemic [1].

Resilience is the ability to bounce back from trauma or life-threatening events through the activity of thinking and coming out of daze [4].

Psychological resilience refers to the ability, outcome, or dynamic process to successfully adapt to adversity, trauma, or other major stressors [5]. It can also be defined as a dynamic mechanism acting to mitigate the impact of an adverse event [6].

It can be built through positive interactions, sources of secure links, in the confrontation with difference and the thinking of others. The term resilience thus refers to the ability to survive particularly painful events. But this is more than just a capacity for resistance; it is also a dynamic that allows the person to react positively, to build a relatively satisfying existence [7].

Thus, resilience is an essential buffer for stress or a traumatic incident and could defend against psychological distress [6]. As such, assessing individual psychological resilience could help predict mental health status.

The general objective of this work was to assess the degree of resilience to covid-19 in the general Moroccan population.

## 2. METHODOLOGY

This is a descriptive and analytical study conducted from April 30, 2020 to May 30 of the same year, and included all patients > 18 years old, adequate capacity to consent and social media exposure. Out-of-school participants were excluded.

To do this, we used a hetero-questionnaire containing socio-demographic variables and the Connor and Davidson Resilience Scale (CD-RISC).

During recruitment, the following parameters were collected: socio-demographic information such as: age, sex, habitat, profession, marital status and level of education, as well as medical, psychiatric and addictive behaviors history.

The measure of resilience capacities was made using the Connor and Davidson Resilience Scale. It's a 25-item scale that contains three conceptually distinct subscales: strength (eg, coping with stress strengthens), tenacity (eg, when things seem hopeless, I don't give up) and optimism (eg seeing the humorous side of things). Responses to items are measured on a 5-point Likert scale ranging from 0 (not true at all) to 4 (true most of the time). Items are added to achieve scores between 0 and 100, with higher scores denoting great resilience [8].

Data collection was done using Google Forms, data was entered and coded in Excel. Statistical analysis was performed using SPSS13 statistical analysis software. A univariate analysis correlating the different socio-demographic variables against the Connor and Davidson resilience scale using the  $\chi^2$  test.

Qualitative variables were expressed as numbers and percentages. A P value <0.05 was considered statistically significant.

## 3. RESULTS

The study was launched on April 30, 2020 and was spread over a period of one month until May 30, 2020. 268 participants responded to our online questionnaire, only one questionnaire was excluded as participant no. did not meet the inclusion criteria. A total of 267 participants were recruited into the study.

- **Descriptive results:**

Our sample is characterized by a young population, 50.6% of our population had an age between 20 and 30 years of which 74.2% are female, and 62.2% are single, inhabitants of urban areas in 95.5% of cases. 48.7% of participants were students, 97.4% had higher education level See table 1.

Regarding the background:

26.6% of participants had a medical-surgical history, 8% had a psychiatric history, and 17.6% had a substance use disorder.

Based on the CD-RISC scale, we found that psychological resilience was high in 97% of cases with a score of  $\geq 30$ , these people have more ability to return to a satisfactory balance after this health crisis. 1, 5% of our sample had a score between 0 and 23, i.e. low resilience, these subjects have poorer mental resilience and greater psychological vulnerability. While 1.5% of our sample had a score between 24 and 29, which is average resilience.

- **Analytical results:**

We performed a univariate analysis correlating the different variables (age, sex, antecedents, etc.) against the Connor and Davidson resilience scale See Table 2.

We note that women, with a young age and a higher level of education have a high level of resilience with a statistically significant P (p <0.005) respectively equal to 0.04; <0.001 and 0.018.

Marital status, living environment, occupation, presence or no history do not show any statistically significant relationship with resilience.

**Table 1: Sociodemographic and clinical characteristics of the patients included**

Variables	N(%)
Sex	
Male	69 (25,8)
Feminine	<b>198 (74,2)</b>
Age	
<20 years	46 (17,2)
between 20 et 30 years	<b>135 (50,6)</b>
between 31 et 40 years	34 (12,7)
between 41 et 50 years	28 (10,5)
between 51 et 60 years	19 (7,1)
> 60 years	5 (1,9)
Marital status	
single	<b>166 (62,2)</b>
Maried	91 (34,1)
Divorced	9 (3,4)
Widower	1 (0,4)
Living environment	
Rural	12 (4,5)
Urbain	<b>255 (95,5)</b>
Profession	
Employee	111 (41,6)
Unemployed	18 (6,7)
Retirement	8 (3)
Student	<b>130 (48,7)</b>
Educational level	
Primary	0
Secondary	7(2,6)
Superior	<b>260(97,4)</b>

**Table 2: Correlation of socio-demographic variables and history compared to the CD-RISC scale**

		CD-RISC			P
		Low	Medium	High	
<b>Sex</b>	Male	3	0	66	0,04
	Feminine	1	4	193	
<b>Age</b>	<20 years	0	1	45	<0,001
	20<≤30 years	0	3	132	
	31<≤40 years	1	0	33	
	41<≤50 years	0	0	28	
	51<≤60 years	3	0	16	
	> 60 years	0	0	5	
<b>Marital status</b>	Single	0	3	163	0,225
	Maried	4	1	86	
	Divorced	0	0	9	
	Widower	0	0	1	
<b>Living environment</b>	Rural	1	0	11	0,126
	Urbain	3	4	248	
<b>Educational level</b>	Secondary	1	0	6	0,018
	Superior	3	4	253	
	Employee	3	1	107	0,112
	Unemployed	1	0	17	
	Retirement	0	0	8	
	Student	0	3	127	
<b>Surgical medical history</b>	Yes	2	2	67	0,314
	No	2	2	192	
<b>Psychiatric history</b>	Yes	1	1	20	0,649
	No	3	3	239	
<b>Addictive behaviors</b>	Yes	0	1	46	0,995
	No	4	3	213	

#### 4. DISCUSSION

William D. and all published a study in September 2020 of 1004 participants (18-35yrs, 562 women) who completed an online questionnaire including the CD-RISC and Beck Depression Score. The goal was to identify factors that might contribute to greater psychological resilience during the COVID-19 pandemic.

They found that people who tended to get out more often, exercise more, perceive more social support from those around them, sleep better, and pray were the most resilient to the mental health challenges imposed by COVID-19. Psychological resilience to the pandemic is related to modifiable factors [9].

The purpose of the study by Tina Kavcic and all was to investigate the buffering role of personal resilience in two aspects of psychological functioning, mental health and stress, among Slovenian adults at the onset of the COVID-19 epidemic.

2722 participants (75% women) completed an online survey measuring mental health and perceived stress, demographics, and personal resilience using the CD-RISC.

This work showed that women, younger, and less educated participants had higher odds of less favorable psychological functioning (had low resilience). The crucial factor promoting good psychological functioning during the COVID-19 pandemic was resilience hence the important role of building resilience [10].

A Spanish study by Alejandro Carriedo Ph. and all aimed to examine the psychological well-being of people during the COVID-19 pandemic and to determine whether compliance with the World Health Organization's global recommendations on physical activity (PA) for health is associated with their resilience, affect and depressive symptoms. A total of 483 Spanish citizens were recruited and responded to the Connor-Davidson CD-RISC resilience scale, the Self-Rated Depressive Symptoms Scale and the International Physical Activity Questionnaire.

Results showed that subjects who regularly engaged in vigorous and moderate-to-vigorous physical activity during midlife reported higher resilience scores, positive affect, and lower depressive symptoms [11].

S. Laconi and all published a study in January 2021 whose main objective was to explore and compare the impact of the COVID-19 pandemic (perceived stress, perceived risk and fear of being contaminated, estimated severity, compliance with containment, quality of life, quality of relationships, loneliness, resilience) during the containment period in a sample of

French metropolitan and Reunion Island, the most populated overseas department.

A sample of 347 participants, aged 18 to 78, responded to a questionnaire distributed over the Internet. The results showed that metropolitan residents, who were more exposed, were more compliant with containment and felt more at risk. Non-significantly high scores of resilience and quality of life contrasted in the Reunion sample, which otherwise estimated severity or fear similarly. In the metropolitan sample, stress was explained by variables related to COVID-19 (fear, severity, compliance), loneliness and negatively by resilience and quality of life. In the Reunion sample, stress was explained by fear and negatively by resilience [12].

A US study by Kira E Riehm and all published in December 2020, involving 6008 participants. The purpose of this study was to examine the association between resilience and mental distress trajectories during the COVID-19 pandemic.

This work demonstrated that in contrast to the high resilience group, participants in the low and normal resilience groups experienced an increase in mental distress during the early months of the pandemic. Males, middle-aged and older adults, black adults, and adults with advanced degrees were more likely to report high resilience, while adults living below the poverty line were less likely to report high resilience [13].

We can conclude that trajectories of mental distress varied considerably by level of resilience during the early months of the COVID-19 pandemic, with low-resilience adults reporting the greatest increases in mental distress during this crisis.

Another study by Pierre Celestin Mboua and all assessing post-traumatic stress disorder symptomatology, as well as resilience, associated with the Covid-19 pandemic in the Western Region, Cameroon. The research used general population mental health survey methodology. The data collection tools used were the Impact of Event Scale-Revised and the Connor-Davidson Resilience Scale.

409 subjects were recruited. 70.7% of the subjects had symptoms of PTSD. These symptoms were more often mild (40.9%) or moderate (25.6%). Women were more affected (73.7%) by PTSD than men (67.9%). In addition to sex and age, place of residence and marital status appear to be significantly associated with PTSD symptoms: subjects under 35 years of age have a significantly higher prevalence rate than those over 35 years of age; the rate of PTSD is significantly higher in subjects living in urban areas than in those living in rural areas; single subjects are more affected by PTSD (40.1%) than married subjects (26.7%). The

average score recorded on the CD-RISC was 64.3. This mean is in the second quartile of the distribution, indicating average resilience. CD-RISC scores are not affected by gender, age, marital status, education level, or employment status. Thus, these characteristics are not factors in resilience.

The Covid-19 pandemic has had a psychological impact in Cameroon that has made it a major psychosocial stressor. More than 6 out of 10 people show symptoms of PTSD. However, this symptomatology is often mild to moderate, reflecting effective resilience, to balance the traumatic effects of the pandemic [14].

Due to the lack of a vaccine or cure, the COVID-19 pandemic poses a threat to all humans, undermining people's basic sense of security and increasing distress symptoms. Work was done to investigate the extent to which individual resilience, well-being, and demographic characteristics can predict two indicators of coronavirus pandemic: distress symptoms and perceived danger. Two independent samples were used: 1) 605 respondents recruited through an Internet panel company; 2) 741 respondents recruited via social media, using snowball sampling. Both samples completed a structured online questionnaire. Significant negative correlations were found between individual/community resilience and feelings of danger (-0.220 and -0.255 respectively;  $p < 0.001$ ) and distress symptoms (-0.398 and -0.544 respectively;  $p < 0.001$ ). Significant positive correlations were found between gender, community size, economic hardship, and feelings of danger (0.192, 0.117, and 0.244 respectively;  $p < 0.001$ ). Gender and economic hardship were also positively correlated with distress symptoms (0.130 and 0.214, respectively;  $p < 0.001$ ). Path analysis revealed that all paths were significant ( $p < 0.008$  to 0.001), except between family income and distress symptoms ( $p = 0.12$ ). The seven predictors explained 20% of the variance in feelings of danger and 34% of the variance in distress symptoms. The most predictive indicators were the two psychological characteristics, individual resilience and well-being. Age, gender, community size, and economic hardship due to COVID-19 further added to the prediction of distress in contrast to community and national resilience. Individual resilience and well-being were found to be the primary predictors of COVID-19 anxiety [15].

Fugui Li and all did work that aimed to investigate the primary and interactive relationships of social support and resilience on individual mental health during the COVID-19 pandemic in three age groups: emerging adults, adults, and older adults. A survey of 23,192 participants aged 18-85 years was conducted. Respondents completed a questionnaire, which included items about the COVID-19-related support they perceived from different sources, the

Connor-Davidson Resilience Scale Short Form, and the Mental Health Inventory.

The latent profile analysis identified five social support profiles, and the potential profile patterns were similar across all groups. However, the distribution by category within the five profiles was significantly different among age groups. In addition, an analysis using the BCH command showed significant differences in mental health among these profiles. Finally, interactive analyses indicated that resilience had a positive relationship with mental health and that social support served as a buffer against the negative impact of low resilience on mental health. This study provides quantitative evidence for social-emotional selectivity theory and allows for several practical implications for helping different age groups protect mental health during a pandemic [16].

Despite the interest and originality of our study, some limitations should be noted: First, the study was based on a questionnaire distributed via Google forms, making it difficult to contact the participants, and not accessible to other parts of the Moroccan population. Second, the small sample size. And third, the cross-sectional nature of the study, so that the subjects in the sample were investigated for a limited time (short duration of the trial).

## 5. CONCLUSION

The COVID-19 epidemic is a global public health emergency with serious multifaceted consequences for people's lives and mental health.

COVID-19 has not only caused a life-threatening crisis, but has also led to psychological stress: tension, anxiety, fear, and despair among the affected populations.

How to help people overcome traumatic stress reactions and emerge from the psychological crisis is a public concern that needs to be addressed in time. Adaptation and resilience are essential for all of us to cope with the stress imposed by this health crisis at the individual and societal level, and activities that promote this psychological resilience should be included in broader strategies to support mental health throughout the pandemic.

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