

# Study of Psychological Resilience among Health Care Professionals, in Ibn Sina Hospital/Rabat/Morocco

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## Abstract

Psychological resilience is the ability to maintain personal and professional wellbeing in the face of on-going work stress and adversity. The aim is to investigate the state of the psychological resilience of Health Care Professionals (HCP) and the potential risk factors. The study that we conducted carries out a sample of 230 persons (150 nurses and 80 doctors) belonging to the different services of Ibn Sina Hospital of Rabat/Morocco, using two scales. One is a questionnaire containing most of the socio-demographic characteristics, and clinical characteristics. The second is the Dispositional Resilience Scale-15 (DRS15). Otherwise, our results indicate a relatively low rate of resilience of health staff practicing at Ibn Sina Hospital in Rabat/Morocco. 81% of HCP have “low resilience”, 16% have shown “moderate resilience” and only 3% are in the “good resilience” range, based on analyzes of resilience scale results DRS15. The results of the DRS15 validation study indicate a positive correlation between engagement, control and challenge, as well as improved inter and intra-item correlation. Our study also indicates a statistically significant relationship between resilience and socio-economic difficulties of HCP. Sex, marital status, seniority, work schedule and medical history are risk factors. Indeed, women are more resilient than men, single people are more vulnerable than married couples, and new recruits are less resistant than older ones. In addition, the 12/36 continuous work schedule has a protective factor for HCP. These results go in the same direction as those found by some studies. Thus, the results of our study are encouraging and can be used for decision-making in this case.

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## Keywords

Psychological Resilience, Low Resilience, Health Care Professionals, Nurses, Physicians

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## 1. Introduction

Occupational stress presents a major public health problem. It is the subject of many works in Morocco and in the world. Studies indicate that HCP are more exposed to occupational stress [1]-[6]. This phenomenon can disrupt the health of staff and the ability to adapt to their work. Indeed, the complexity of professional activities, the shortage of staff, the requirement of quality of care, emotional overload, role conflicts, noise make work in the hospital more painful and can increase vulnerability to stress [7]. In addition, many studies raise the effect of psychological resilience in the workplace by showing that in stressful working conditions, some people are effective and others have professional difficulties [8]. Psychological resilience is considered as a protective factor for stress effects and a style of functioning that includes cognitive and behavioral qualities [9]. Resistant individuals can cope with stress by actively coping with stressful situations, and less resilient people are more vulnerable and perceive stress as a generative threat of certain psychosomatic, cardiovascular and neuroendocrine diseases [10]-[18]. Psychological resilience includes three dimensions: control, commitment, and challenge. In fact, the control dimension is the belief in one's own ability to influence events through one's own efforts; commitment is the tendency to get involved in activities and to perceive events as interesting, while the challenge is to see change and new experiences as interesting opportunities for learning and development [19].

The main of this study is to establish the profile of psychological resilience and its relationship with certain risk factors, in a sample of HIS health staff in Rabat/Morocco.

## 2. Population and Materials and Methods

### 2.1. Participants

The study that we conducted is carried out on 230 HCP (150 nurses and 80 doctors) belonging to the different services of Ibn Sina hospital of Rabat/Morocco, during the year 2016.

### 2.2. Sampling Tools

- A questionnaire containing most of the socio-demographic characteristics (age, sex, means of transport, work schedule system) and clinical characteristics (medical history) distributed to staff wishing to participate in this study.
- A second questionnaire of the Dispositional Resilience Scale-15 (DRS15) test [19] [20], offered to each respondent to study the psychological resilience.

The test used to assess the personality resistant to stress. It consists of 15 items grouping together the three main factors of resilience: (1) Commitment: items 1, 4, 7, 10, 13; the Control: items 2, 6, 8, 12, 15 and the Challenge: items 3, 5, 9, 11, 14. The participants answer on a scale of four levels, corresponding to the veracity that each item has for them: 0 (“not true at all”), 1 (“a little true”), 2 (“quite true”) and 3 (“absolutely right”). The total score obtained by performing the sum of the 15 items.

### 2.3. Statistical Tools

The collected data filtered and transferred to a statistical support. Correspondence analyzes and significance tests chosen to exploit this data. The results expressed as frequencies for the qualitative variables and as averages for the quantitative variables.

## 3. Results

### 3.1. Socio-Demographic Characteristics of HCP

**Table 1** presents the socio-demographic and socio-economic characteristics of 230 HCP working in different departments of Ibn Sina Hospital in Rabat. However, 56.96% (n = 131) of the respondents are female and 42.86% (n = 99) male, so 65.2% (n = 150) are nurses, 34.8% are doctors. The distribution of respondents by age shows that 76.52% (n = 176) are between the ages of 25 and 55 (Gaussian distribution). 65.22% (n = 150) of these respondents are married. In addition, 41.74% (n = 96) work in the sector between 5 to 20 years compared to 30.87% who have less than five years of service and 27.39% with more than 20 years of service. On the other hand, 70.4% (n = 162) responded to the “Regular means of transport” question by reaching the workplace by means of transport, compared with 29.6% (n = 68) who reported join him on foot. With regard to the work schedule system followed by each respondent, 68.3% (n = 157) work according to the continuous work schedule, 17.4% (n = 40) work in 12/36 and 13% (n = 30) 13.0% (n = 30) evolve according to the normal time system.

Nevertheless, the distribution of respondents, according to their health states shows that 69.1% (n = 159) answered that they do not suffer from any disease, 11.7% (n = 27) of them confirm to suffer of arterial hypertension and 7 people who remain: 2 cases of cancer and 5 cases suffer from mental disorder

### 3.2. Study of Dispositional Resilience Scale (DRS15)

The study of DRS15 consists of evaluating three dimensions: commitment, control and challenge. In this part we will proceed to the separate analysis of these 3 factors.

#### 3.2.1. Validation Study of the DRS15 Test

**Table 2** summarizes the results of the descriptive analysis of inter/intra-item validation of the three dimensions of DRS15 by the calculation of Cronbach’s Alpha in case of removal of the element. This table shows high fidelity

**Table 1.** Socio-demographic characteristics of the respondents.

Variable	Modality	Gender		Total
		Male	Female	
<b>Grade</b>	Nurse	<b>64</b>	<b>86</b>	<b>150</b>
	Doctor	<b>35</b>	<b>45</b>	<b>80</b>
<b>Age in years</b>	Less to 25	<b>8</b>	<b>21</b>	<b>29</b>
	Between 25 and 55	<b>75</b>	<b>101</b>	<b>176</b>
	Upper to 55	<b>16</b>	<b>9</b>	<b>25</b>
<b>Marital status</b>	Single	<b>32</b>	<b>48</b>	<b>80</b>
	Married	<b>67</b>	<b>83</b>	<b>150</b>
<b>Seniority in years</b>	Less to 5	<b>25</b>	<b>46</b>	<b>71</b>
	Between 5 and 20	<b>42</b>	<b>54</b>	<b>96</b>
	Upper to 20	<b>32</b>	<b>31</b>	<b>63</b>
<b>Total</b>		<b>99</b>	<b>131</b>	<b>230</b>

**Table 2.** Inter and intra-items validation of the three dimensions of DRS15.

Item	Commitment		Control		Challenge	
	Mean $\pm$ SD	Alpha of Cronbach after suppression of item	Mean $\pm$ SD	Alpha of Cronbach after suppression of item	Mean $\pm$ SD	Alpha of Cronbach after suppression of item
Item 1	1.81 $\pm$ 0.95	0.52	-	-	-	-
Item 4	0.66 $\pm$ 0.99	0.53	-	-	-	-
Item 7	2.01 $\pm$ 0.89	0.47	-	-	-	-
Item 10	1.74 $\pm$ 0.93	0.52	-	-	-	-
Item 13	0.86 $\pm$ 0.98	0.51	-	-	-	-
Item 2	-	-	1.83 $\pm$ 1.01	0.48	-	-
Item 6	-	-	1.95 $\pm$ 0.94	0.46	-	-
Item 12	-	-	0.83 $\pm$ 1	0.47	-	-
Item 15	-	-	1.68 $\pm$ 1.1	0.49	-	-
Item 8	-	-	0.80 $\pm$ 0.98	0.52	-	-
Item 5	-	-	-	-	2.49 $\pm$ 0.90	0.51
Item 9	-	-	-	-	1.59 $\pm$ 1.04	0.48
Item 3	-	-	-	-	0.81 $\pm$ 1.00	0.50
Item 11	-	-	-	-	1.21 $\pm$ 1.09	0.49
Item 14	-	-	-	-	1.34 $\pm$ 1.14	0.53

and intra/inter-item compatibility as long as the values of the alpha after deletion become lower than the average Cronbach value of 0.82.

Nevertheless, for the “commitment” dimension, items 1 “I spend most of my time doing things that are useful or meaningful to me”, 7 “I look forward to doing my professional activities” and 10 “most of the time, I find my life interesting thrilling” have posted average scores close to 2, this score corresponds to a level of scale “quite true”. However items 4 “I feel that my life is somehow not very useful or meaningless” and 13 “Generally, life seems boring” recorded means close to 1 which corresponds to a level “A little real”.

Regarding the “control” dimension, 3 items out of 5 had average scores close to 2 (quite true level), these items are 2 “Working hard, you can almost always achieve your goals”, 6 “The course of my life depends on my own actions”, 15 “My own choices have a real influence on the unfolding of the events I live”. Items 8 “I do not think I can do much to influence my future” and 12 “It’s up to me to decide what will be the rest of my life” have average scores close to 1 (level a little bit true).

For the challenge dimension, we noted a variation in the responses of items in this dimension. However, the average scores of items 11 “It bothers me when my daily routine is interrupted”, 14 “I like having a schedule that does not change too much” and 3 “I do not like to make changes in my activities are close to 1”, this value corresponds to a wish level (not very true). However, item 9 “I like the challenge of doing more than one task at a time” had a mean score of 1.6 which corresponds to a level 2, then item 5 “I like to change the daily routine”, displays an average score close to 3 which is associated a level (quite true).

### 3.2.2. Global Study of the Three Dimensions

Table 3 presents the results of the multiple correlation between the three dimensions taken 2 to 2. This table shows a very highly significant and positive sign correlation between the commitment and the control ( $r = +0.349$ ) of a share and between commitment and challenge on the other hand ( $r = +0.233$ ). Therefore deduces a strong significant connection between the control and the challenge ( $r = +0.321$ ). Indeed, the correlation between commitment, control and challenge, and the total score is very strong with correlation coefficients of +0.68; +0.78 and +0.72.

### 3.3. Study of Relationship between Categories and Socio-Economic Factors

The categories of levels of psychological resilience to stress were deduced by the method corresponding to the percentile: the 25th percentile corresponds to the average score of 27 and the 75th percentile corresponds to the average score of 33. All faith, the distribution of respondents according to the Resilience category shows that 81.30% of caregivers have low resilience and 2.61% develop high resilience. However, 16.09% of respondents expressed moderate resilience, so this category of caregivers may be highly resilient or may become a low resilience category. Table 4 expresses the results of the association of the degree of resilience and certain socio-demographic factors. This analysis shows that of all

**Table 3.** Multiple correlation of the three dimensions.

	<b>Commitment</b>	<b>Control</b>	<b>Challenge</b>	<b>TOTAL</b>
<b>Commitment</b>	1	0.349**	0.233**	0.681**
		0.000	0.000	0.000
<b>Control</b>	0.349**	1	0.321**	0.783**
			0.000	0.000
<b>Challenge</b>	0.233**	0.321**	1	0.725**
		0.000		0.000
<b>TOTAL</b>	0.681**	0.783**	0.725**	1
	0.000	0.000	0.000	
	230	230	230	230

**Table 4.** Relation between socio-demographic variables and DRS15 scale.

Variable	Modality	DRS-15			Total	chi-2
		Law	Average	High		
Gender	Male	83	16	0	99	6.89 (p < 0.032)*
	Female	104	21	6	131	
Grade	Nurse	123	25	2	150	2.80 (p < 0.25) ns
	Doctor	64	12	4	80	
Age	<25	21	8	0	29	10.16 (p < 0.25) ns
	25<>55	148	22	6	176	
	>55	18	7	0	25	
Marital status	Single	64	14	2	80	11.05 (p < 0.05)*
	Married	123	23	4	150	
Seniority	<5	60	10	1	71	7.50 (p < 0.047)*
	5<>20	82	11	3	96	
	>20	45	16	2	63	
Transport tools	Auto	132	24	4	160	0.53 (p < 0.93)
	By foot	55	13	2	70	
Hour of work	12/36	31	8	1	40	2.43 (p < 0.05)*
	Continue	127	25	5	157	
	Normal	26	4	0	30	
Antecedent	None	134	21	4	159	8.80 (p < 0.041)*
	HT	21	6	0	27	
	Cancer	2	0	0	2	
	Psychologic	3	1	1	5	
Total		187	37	6	230	

Law (<27); Average (28 <> 33); high (>34); ns: not significant difference; s: significant difference.

the variables tested, sex, marital status, seniority, work schedule, and antecedents are risk factors for stress resilience.

- The chi-square test shows strong binding between sex and DRS15 (chi-square = 6.89,  $p < 0.032$ ). However, 83.84% ( $n = 83$ ) of men are low resilient compared to 79.39% ( $n = 104$ ) of females. However, 16.16% of males and 16.03% of females expressed moderate resilience. In addition, 6 women and 0 men developed a strong resilience to stress.
- Marital status was associated with DRS15 (chi-square = 11.05,  $p < 0.05$ ). In fact, the rate of singles with low resilience is 82% and that of the groom is 80%. However, of the 6 respondents who showed strong resistance, 4 cases are married and 2 cases are single.
- With respect to the seniority factor expressed as the number of years of exercise, the chi-square test showed a significant relationship with the DRS15 (chi-square = 7.50,  $p < 0.047$ ). Moreover, of all the people who have developed a low resilience, 84.51% have a seniority of less than 5 years, 85.42% have a seniority of 5 to 20 and 71.43% have a seniority of more than 20 years.
- Work schedule is a critical factor in stress resilience (significant chi-square). In fact, the distribution of persons who have developed a low resistance to stress according to the work schedule shows that 86.67% work according to the normal work schedule system, 80.89 work according to the continuous work schedule system and 77.50% work. % chose the 12/36 work system. However, 20% of those with moderate resistance work in the 12/36 system compared to 15.92% and 13%, respectively, for the categories working in the continuous and normal systems.
- Regarding the antecedents of the respondent's health status, the chi-square test showed a strong relationship with DRS15 (chi-square = 8.80,  $p < 0.04$ ). However, out of 159 people who answered that they do not suffer from any disease, 134 showed a weak resistance. In addition, 21 of 27 caregivers with hypertension are low in resistance to stress. The other cancer and psychic illnesses all showed weak resistance.

#### 4. Discussion

Psychological resilience is a force of hardiness that enables people to cope positively with stressful situations [9]. It contributes to improvement, despite the presence of stressful circumstances, performance and health [21]. This study shows numerous results that contribute to the understanding of the concepts developed by the highly resilient respondents. In addition, our results indicate a relatively low rate of resilience of health staff practicing at Ibn Sina Hospital in Rabat/Morocco. An 81% of caregivers have "low resilience", 16% have shown "moderate resilience" and only 3% are in the "good resilience" range, based on analyses of resilience scale results DSR15 [19]. With regard to the surveyed population, we included in this study doctors and nurses because according to the literature, are the most affected professions by occupational stress [1] [2] [3].

Our study, is one of the first Moroccan studies that deals with the assessment of the psychological resilience of HCP in hospitals. However, we used the dispositional resilience scale to evaluate the various components of the state of hardiness including engagement, control, and challenge to provide an effective tool for identifying the psychological resilience of HCP.

The results of the DRS15 validation study indicate a positive correlation between engagement, control and challenge, as well as improved inter/intra-item correlation. This allows us to draw the idea that the stress-resistant personality of carers understands three dimensions intimately linked to each other: “commitment, control and challenge”. indeed, engagement allows to get involved in the work and to adapt positively in the professional context whereas the control dimension contains elements of cognitive evaluation of choices, objectives, actions and decisions and the challenge factor reflects the involvement of HCP in the process of change [19] [20].

Returning to studies that have been done, the resilience of HCP is a protective factor to the detrimental effects of work-related stress [22]. Resilient people can cope positively with stressful events, but vulnerable perceive the stressful situation as threatening, reject change and prefer stability [23].

As a protective factor [24], psychological resilience allows staff to become actively involved in their work environment and demonstrates that they are able to cope with stress, leaving less stressful experiences [10]. In addition, harder workers consciously integrate commitment, control and challenge by using cognitive and behavioral tools to solve problems, make decisions, and manage difficulties and set goals, while quickly dealing with stressful situations.

Our study also indicates a statistically significant relationship between resilience and socio-economic difficulties of HCP. Sex, marital status, seniority, work schedule and antecedents are risk factors. Indeed, women are more resilient than men, single people are more vulnerable than married couples, and new recruits are less resistant than older ones. In addition, the 12/36 continuous work schedule has a protective factor for HCP. These results go in the same direction as those found by some studies. Resilience not only influences stress responses, but can also lead to different data and experiences [25].

A study of soldiers participating in peacekeeping operations showed that those who were more resilient could find more meaning in their activities, which, after their cessation, had certain advantages, for example a better personal experience and better ability to overcome situations [26]. Strong linkage associates the presence of diseases and resilience has been confirmed. This result is consistent with that of Hystad, Eid and Brevik [27], these authors have shown the potential effects of psychological resilience on people’s HCP.

Another research on workplace injuries suggests that participants who are more resistant are less likely to become ill and suffer fewer injuries requiring hospitalization [28]. This allows us to confirm that psychological resilience is a determining factor of well-being at work [29]. In addition, we also found that married subjects are more resilient than single people. This allows us to assume

that conjugal life can provide psychological and social support in situations of occupational stress [30]. Thus, resilient people are ambitious, accept change, see their work better and are more attached to their organization [31].

## 5. Conclusion

At the end of this work on the psychological resilience of HCP, the level of resilience is low at 81.30%, moderate at 16.09%, and high at only 2.61% of them. This correlates strongly with the good resilience to stress in our sample. In addition, seniority, work schedule and antecedents are risk factors for altering the stress resilience of HCP.

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