

# Evaluation of effectiveness of an interactive intervention for stress management in health professionals

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Original article

## ABSTRACT

### Background

The effects of stress depend on a person's perception of stressors and their skills for coping with stressful situations.

### Objective

Evaluate an interactive intervention to develop resources and skills for proper stress management among healthcare professionals.

### Method

This intervention was tested using a chart document designed to evaluate the knowledge, skill, and attitude components of stress management, consisting of 17 statements about Knowledge, 11 about Stress Management and 20 about Attitudes for reacting to stress. A total of 165 professionals and interns from related careers participated. Statistical analyses were conducted to compare the scores of the three components before and after the intervention using the Student's *t* test. McNemar's test was used to compare the results.

### Results

In regard to the effectiveness of the intervention, an analysis of the comparison of scores found statistically significant differences in favor of intervention in the three components: Knowledge ( $t = -9.77$ ,  $df = 164$ ,  $p = .000$ ), Skills ( $t = -10.19$ ,  $df = 164$ ,  $p = .000$ ), and Attitudes ( $t = -4.80$ ,  $df = 164$ ,  $p = .000$ ). The item analysis showed statistically significant increases in the number of correct answers after the intervention in the three components.

### Discussion and conclusion

The results of this interactive intervention were statistically significant in Knowledge, Skills and Attitudes for stress management. In addition to being a brief, innovative intervention, based on knowledge transfer (four weeks) and available on the internet, the evidence of its effectiveness suggests it is a valid tool for proper stress management.

**Key words:** Health professionals, health promotion, online intervention, prevention, stress.

## RESUMEN

### Antecedentes

Los efectos del estrés dependen de la percepción de los estresores y de las habilidades para afrontar situaciones estresantes.

### Objetivo

Evaluar una intervención interactiva para desarrollar recursos y habilidades para un manejo adecuado del estrés en profesionales de la salud.

### Método

Esta intervención se probó utilizando un Cédula diseñada para evaluar componentes de Conocimientos, Habilidades y Actitudes sobre manejo del estrés, conformada por 17 afirmaciones para dimensión de Conocimientos, 11 sobre Habilidades para manejo del estrés; y 20 sobre Actitudes para reaccionar ante el estrés. Participaron 165 profesionales y pasantes de carreras afines. Se hicieron análisis estadísticos para comparar los puntajes de los tres componentes antes y después de la intervención utilizando la prueba *t* de Student, se aplicó la prueba de McNemar para comparar los resultados.

### Resultados

Sobre la efectividad de la intervención, en los análisis de comparación de los puntajes, se encontraron diferencias estadísticamente significativas a favor de la intervención en los tres componentes: Conocimientos ( $t = -9.77$ ,  $gl = 164$ ,  $p = .000$ ), Habilidades ( $t = -10.19$ ,  $gl = 164$ ,  $p = .000$ ) y Actitudes ( $t = -4.80$ ,  $gl = 164$ ,  $p = .000$ ). Los análisis por reactivo mostraron incrementos estadísticamente significativos en el número de respuestas correctas después de la intervención en los tres componentes.

### Discusión y conclusión

Los resultados de esta intervención interactiva fueron estadísticamente significativos en Conocimientos, Habilidades y Actitudes para manejo del estrés. Además de ser una intervención innovadora, breve, basada en la traslación del conocimiento (4 semanas), y disponible en Internet, la evidencia de su efectividad hace que se perfila como una herramienta válida para el manejo adecuado del estrés.

**Palabras clave:** Estrés, intervención en línea, prevención, profesionales de la salud, promoción de la salud.

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## BACKGROUND

Stress is a highly-organized set of physiological, cognitive, emotional, and behavioral responses which are always present and which prepare an individual to stay alert, adapt, survive, and confront situations of tension.<sup>1,2</sup>

From a psychological perspective, stress is the result of a particular relationship between the individual and their environment, which they assess as threatening or overwhelming to their resources and which endangers their wellbeing. The effects of stress depend on both the perception of stressors and the skills, capacities, and personal and social resources for dealing with potentially stressful situations.<sup>3</sup> In this sense, although certain situations can cause stress in some individuals and groups, there are some differences in terms of their level of stress and type of response, because they differ in both their sensitivity and vulnerability, as well as in their interpretation and reaction to those situations.<sup>1,4</sup>

Research into stress has approached both the precipitating factors as well as the consequences and repercussions of stressful experiences on the physical and mental health of different population groups with greater vulnerability to experiencing stressful situations, whether due to the activity, their gender, or their stage of life –adolescents, women, professionals, students, and healthcare professionals–, etc.<sup>5</sup>

Among the scientific bibliography on the effects, coping styles, and interventions on stress for healthcare professionals, one work stands out by Aguado (2013), who carried out a review of 26 cross-sectional descriptive studies published between 2009 and 2012, the aim of which was to assess the stress experienced by healthcare staff in various countries of Latin America, Europe, and Asia. The author concluded that stress levels are raised in this population and that this has repercussions on their physical and mental health. Based on these results, Aguado recommended taking into account the psychosocial risks of stress for the design of preventative interventions and promoters of health directed to this population.<sup>6</sup>

In terms of interventions for stress management in healthcare professionals, Czabala (2011) reviewed the bibliography with the aim of determining the most effective focus of psychosocial interventions for the promotion of mental health in the workplace. From a primary review of 4865 articles published in English between 1988 and 2009, they selected 79 works which reported effective results of assessment on this type of intervention; 30% of them had an objective population of healthcare professionals. The interventions assessed were categorized in terms of their objective, focuses, objective population, etc. The results indicated that the objectives of these interventions were primarily to reduce stress, improve coping abilities, and improve mental health. In the same way, training in social skills was the most effective focus of intervention to achieve the aim of reducing stress.<sup>7</sup>

In terms of the importance of interventions focused on the development of resources to deal with stress, González et al. concluded that given that each person plays an active part in their stress, according to Lazarus and Folkman's transactional theory,<sup>8</sup> changing the perception held of a certain situation or of one's resources will modify the perception of stress.<sup>8</sup>

The majority of the investigation's results confirm that healthcare professionals require programs to manage the stress they experience, and that interventions to manage stress based on *social skills training* are promising because they help to develop a repertoire of resources to better be able to tackle stressors. As a response to this need, and deriving from the psychosocial and clinical research carried out by the Ramón de la Fuente Muñiz National Institute of Psychiatry, an intervention was developed which had the aim of health professionals having a prevention tool which promoted strategies to suitably manage stress.

This interactive intervention is based on the WHO's Skills for Health Model<sup>9</sup> and on the Transactional Model of Stress,<sup>8</sup> which is the conceptual framework which underlines this *Interactive Intervention for Stress Management*, formed as a resource to tackle the process of secondary assessment of stress.

From the transactional perspective of stress, cognitive assessment is a process by which a person determines the repercussions or consequences a situation will cause, and it has a primary and a secondary stage. 1) The primary assessment evaluates the significance of a specific transaction as irrelevant, good, or stressful for their wellbeing. When it is assessed as stressful, it is then determined whether this constitutes: a) damage or loss (danger derived from injury, illness, or loss); b) threat (assessment of potential injury or damage); c) challenge (assessment of dominance or gain which will be achieved by facing the situation). 2) In the secondary assessment, the person determines what they can do to face the stressful situation and assesses their coping resources. The way they will approach the situation depends on both the resources they have available and the skills they have to apply them in the context of a certain interaction. In other words, the secondary assessment refers to the resources a person has, and which they apply to adequately deal with a stressor.<sup>1,3,4</sup>

Resources are factors which precede and influence the facing of stressful situations. Social skills constitute a relevant coping resource due to the social activity in adapting and in human interaction, because they favor assertive communication, facilitate effective problem-solving, and increase the ability to obtain support.

In this context, the aim of the present work was to assess an interactive intervention for developing resources and skills to appropriately manage stress in healthcare professionals.

## METHOD

This was a study with a non-experimental design<sup>10</sup> which used a Pre/post Assessment Document for an intervention for stress management.

### Materials

Healthcare professionals from various parts of the country were recruited for the study, as well as interns in psychology and social work, etc. In order to design the Assessment Document, three components were defined: the knowledge, skills, and attitudes they developed during the intervention to deal with stress.<sup>11</sup> The Document was applied before and after the intervention and it was made up as follows:

*Knowledge:* 17 indicators with dichotomous response options (yes or no) to inquire into types of stress, factors which bring it on, and the positive and negative ways of dealing with it.

*Skills:* 11 indicators on skills to adequately manage stress, with three response options: totally agree, somewhat agree, and totally disagree.

*Attitudes:* 20 indicators on attitudes to react to stress, with three response options: totally agree, somewhat agree, and totally disagree.

### Intervention

The participants had access to the intervention, which was brief, interactive, and virtual. It also included physiological, psychological, cognitive, and behavioral strategies to develop the knowledge, skills, and attitudes to adequately manage stress.<sup>11</sup>

It is structured into five subject modules: 1) Types of stress; 2) Internal and external stressors; 3) Responses to stress; 4) Recognizing stress in different areas, and coping strategies; 5) Techniques to manage stress: Relaxation, Problem-Solving, Managing Thoughts, and Assertive Communi-

cation. The contents are made up both visually and textually: screening instruments, significant vignettes of situations, multimedia resources made up of comics, relaxation exercises, breathing, and audio-guided imagination, as well as videos for modeling solutions based on skills. It also uses expression techniques, situation analysis, discussion, modeling, and reinforcement in individual, group, and comprehensive activities, which facilitate the development of skills, interaction, and exchange of experiences.<sup>11-14</sup>

### Measurements

The sample was made up of 165 healthcare professionals and interns from relevant courses, who filled out the online Document before and after the interactive intervention and who received advice, support, and feedback from a tutor.

*Ethical Considerations.* The Ethics Committee at the Ramón de la Fuente Muñiz National Institute of Psychiatry approved the project to be carried out in 2012.

### Data analysis strategy

Statistical analyses were carried out to compare the scores of each of the three components, using the Student's *t* test, and the McNemar test was applied to compare the results for each of the indicators before and after the intervention.

## RESULTS

### Sociodemographic characteristics of the sample

Some 165 people participated from 23 federal areas of the country, mainly from Puebla (13.3%), Baja California and Chihuahua (9.7%), Sonora and Tamaulipas (7.9%), and Tlaxcala (7.3%). More than half of these were professionals with bachelor's and master's degrees (52.7%), followed by

**Table 1.** Comparison of correct pre/post answers in Knowledge (n = 165)

Indicators	PRE		POST		X <sup>2</sup>	p
	f	(%)	f	(%)		
1. Stress is a natural bodily response to dangerous situations.	150	90.9	164	99.4	38.122	.000
2. Positive stress is intense, long-lasting, and is related with bad experiences.	132	80.0	158	95.8	19.531	.000
3. Positive stress gives us energy, and helps us to resolve challenges and make changes.	136	83.4	161	98.2	18.893	.000
4. Chronic stress is short-lived.	142	86.6	154	93.3	15.187	.035
5. Acute stress is intense, but does not last long.	93	58.5	152	92.7	51.158	.000
6. Stress is only caused by situations outside of ourselves.	144	87.3	155	93.9	45.449	.000
7. Passive, assertive, and aggressive are all different communication styles.	133	82.1	161	98.8	22.321	.000

**Table 2.** Comparison of correct pre/post answers in Skills ( $n = 165$ )

Indicators	PRE		POST		X <sup>2</sup>	p
	f	(%)	f	(%)		
1. Stress is positive when it produces energy directed towards carrying out activities, making changes, and supporting personal growth.	112	69.6	155	93.9	28.314	.000
2. When people feel stressed they forget things, they cannot concentrate, and they make more mistakes.	102	63.0	135	82.3	15.018	.000
3. When stress is experienced for a long time, it causes physical and emotional problems.	140	85.9	158	96.3	9.481	.002
4. When we have positive thoughts, we can manage stress better.	133	81.6	158	95.8	16.690	.000
5. When a person speaks directly, honestly, and respects the rights of others, they have passive communication.	78	48.1	114	69.5	23.592	.000
6. When we have negative thoughts it alters our mood.	131	79.9	146	91.3	8.028	.005
7. Most people say that "Men shouldn't cry even if they are stressed".	25	15.6	53	32.5	16.488	.000

bachelor's interns (47.3%). In terms of professions, the majority were in psychology (73.3%), followed by social work (8.5%), and 18.2% were distributed between professionals in medicine, education, nutrition, nursing, and communication.

The distribution by sex was 23% men and 77% women. The participants were aged between 23 and 65. It should be noted that 71.6% of the women were under the age of 26, while in men this percentage was 51.7%.

In terms of the effectiveness of the intervention, the comparative analysis of the overall score of the Document was statistically significant ( $t = 87.21$ ,  $gl = 164$ ,  $p = .000$ ); before and after the intervention and the comparison by component, there were also statistically significant differences in favor of positive change in the three components: Knowledge ( $t = -9.77$ ,  $df = 164$ ,  $p = .000$ ), Skills ( $t = -10.19$ ,  $df = 164$ ,  $p = .000$ ), and Attitudes ( $t = -4.80$ ,  $df = 164$ ,  $p = .000$ ).

In the analysis of the indicators, a statistically significant increase was seen in the number of correct answers after the intervention in each of the components: seven of the 17 indicators of Knowledge which represent 41.2% (Table 1), seven of the 11 on Skills, 63.6% (Table 2), and five of the nine for Attitudes, 55.6% (Table 3). In terms of Knowledge, these

indicators primarily refer to types of stress and its physical and emotional consequences. In terms of Skills, this refers to assertive communication, positive reframing of thoughts, and their effects on people's physical and mental state. In terms of Attitudes, the indicators referred to the usefulness of strategies and tools to manage stress, such as deep breathing, guided imagination, and suitable types of communication to express feelings.

## DISCUSSION AND CONCLUSION

The results show that the healthcare professionals who participated in this study recognized the phenomenon of stress as a natural response in human beings. They understood that positive stress is an activation which helps to reach goals or desired change, contrary to the belief that stress is only ever negative and should be avoided or eliminated.

They also understood that acute stress is short-lived—an intense reaction to an immediate threat—and the internal factors which bring it on. Furthermore, they recognized that assertive communication requires knowing how to listen, observe, and speak clearly and with respect. These

**Table 3.** Comparison of correct pre/post answers in Attitudes ( $n = 165$ )

Indicators	PRE		POST		X <sup>2</sup>	P
	f	(%)	f	(%)		
1. If one of my best friends spoke badly of me, it would cause me positive stress.	117	74.1	140	85.9	8.500	.004
2. When I manage stress well, I feel good physically and emotionally.	136	83.4	150	91.5	4.966	.026
3. To respond positively to a stressful situation, I need to think what I do and don't need to do.	139	85.3	154	93.9	6.500	.011
4. I know what situations stress me out the most in my daily life.	132	80.5	148	90.8	7.314	.007
5. When I joke with others and I don't care what they think, my communication is aggressive.	115	71.4	132	81.0	6.250	.012

results agree with the findings of stress-management programs aimed at healthcare professionals.<sup>7,15</sup>

Furthermore, they distinguished the effects of positive and negative stress at a physiological, emotional, and mental level, and understood both the advantages of communication as well as management of positive thoughts when faced with stressful situations.

The intervention favored the understanding of positive and negative stress, as well as the identification of passive, assertive, and aggressive forms of communication, and the importance of managing positive thoughts as an effective strategy to manage stress.

It can be concluded that the results of this Interactive Intervention were statistically significant in Knowledge, Skills, and Attitudes for adequate stress management. Based on the results of this study, it is recommended that future investigations include randomized studies with a comparison group.

The intervention is innovative, based on the transfer of knowledge, short (four weeks; 20 hours), and incorporates simple, brief, easy-to-manage, and non-invasive strategies to adequately face stressors in daily life. As such, it is oriented towards prevention and primary care to impact on the physical and mental health of healthcare professionals.

Due to its characteristics, this intervention, by way of interactive IT technology that is visually attractive and with pertinent content, optimizes resources and offers various substantial benefits, as its coverage is considerable and it ensures quality and fidelity in replication due to its standardized format through internet access. Furthermore, it may reach wide sectors of the population who interact with this type of web technology, reducing costs and facilitating implementation.

### Financing

None.

### Conflict of interest

The authors do not declare any conflicts of interest.

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