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ORIGINAL ARTICLE

Emotional regulation in the relationship between mindfulness and perceived stress in health care personnel

Regulación emocional en la relación del *mindfulness* con el estrés percibido en el personal de salud

Regulação emocional na relação entre mindfulness e estresse percebido em pessoal de saúde

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ABSTRACT

Introduction: while a number of research studies have shown that mindfulness influences perceived stress, there is a lack of research that have tested the relationship between emotional regulation, mindfulness and perceived stress, specifically in those health workers who work in intensive care units. **Objective:** test relationship between mindfulness and perceived stress in health workers of public and private hospitals in Santo Domingo de los Colorados, Ecuador, in order to identify whether this relationship is mediated by emotional regulation. **Method:** a quantitative study of descriptive correlational scope and cross-sectional design was carried out, where a questionnaire consisting of 39 questions taken from three psychosomatic scales was applied to 382 health care workers in intensive care units of the aforementioned institutions. Variables used were as follow: mindfulness, emotional regulation and perceived stress. Statistical analyses were structured using two specialized softwares Excel and Statistical Package for Social Sciences 21. **Results:** statistical analyses showed that mindfulness influenced perceived stress (β=0.428**), and also emotional regulation (β=0.488**), at the same time, emotional regulation influenced perceived stress (β=0.417**). **Conclusions:** it was corroborated that emotional regulation played a mediating effect between mindfulness and perceived stress felt by the health care workers who work in intensive care units. Frequently, these personnel develop activities without mindfulness, however, they have control over their work activities and are able to regulate and hide emotions that may arise in their work environment and, in this way, reduce the risks of suffering stress.

Keywords: mindfulness; emotional regulation; perceived stress; health workers

RESUMEN

Introducción: a pesar de que varias investigaciones han demostrado que el *mindfulness* o atención plena influye en el estrés percibido, se ha evidenciado la carencia de estudios que hayan probado las relaciones entre la regulación emocional, la atención plena y el estrés percibido, específicamente en el personal de la salud que labora en unidades de cuidados intensivos. **Objetivo:** probar la relación entre la atención plena y el estrés percibido en el personal de salud de hospitales públicos y privados de Santo Domingo de los Colorados, Ecuador, para identificar si esta relación es mediada por la regulación emocional. **Método:** se realizó un estudio cuantitativo de alcance descriptivo correlacional y diseño transversal donde se aplicó un cuestionario conformado por 39 preguntas tomadas de tres escalas psicosomáticas a 382 trabajadores de la salud de unidades de cuidados intensivos de las instituciones antes mencionadas. Se midieron las variables: atención plena, regulación emocional y estrés percibido. Los análisis estadísticos fueron desarrollados a través de Excel y Statistical Package for Social Sciences 21. **Resultados:** los análisis estadísticos evidenciaron que la atención plena influyó en el estrés percibido (β=0,428**) y, también, en la regulación emocional (β=0,488**), así mismo la regulación emocional influyó sobre el estrés percibido (β=0,417**). **Conclusiones:** se corrobora que la regulación emocional tiene un efecto mediador entre el *mindfulness* o atención plena y el estrés percibido en los trabajadores de la salud de las unidades de cuidados intensivos. Este personal a menudo desarrolla actividades sin prestar atención plena, sin embargo, tienen control sobre sus actividades laborales y están en la capacidad de regular y ocultar emociones que se les pueda presentar dentro de los contextos laborales de la salud y, de esta manera, disminuir los riesgos de padecer estrés.

Palabras clave: mindfulness; atención plena; regulación emocional; estrés percibido; personal de salud

RESUMO

Introdução: apesar de várias investigações mostrarem que *mindfulness* ou atenção plena influenciam o estresse percebido, faltam estudos que comprovem as relações entre regulação emocional, *mindfulness* e estresse percebido, especificamente no pessoal de saúde que trabalha em unidades de terapia intensiva. **Objetivo:** testar a relação entre *mindfulness* e estresse percebido em trabalhadores de saúde de hospitais públicos e privados de Santo Domingo de los Colorados, Equador, para identificar se essa relação é mediada pela regulação emocional. **Método:** estudo quantitativo, de alcance descritivo correlacional e delineamento transversal, onde foi aplicado um questionário composto por 39 questões extraídas de três escalas psicossomáticas a 382 trabalhadores de saúde de unidades de terapia intensiva das referidas instituições. As variáveis foram medidas: atenção plena, regulação emocional e estresse percebido. As análises estatísticas foram realizadas usando o Excel e o Statistical Package for Social Sciences 21. **Resultados:** as análises estatísticas mostraram que a atenção plena influenciou o estresse percebido (β=0,428**) e também a regulação emocional (β=0,488**), da mesma forma que a regulação emocional influenciou a percepção tensão (β=0,417**). **Conclusões:** corrobora-se que a regulação emocional tem efeito mediador entre *mindfulness* ou atenção plena e estresse percebido em trabalhadores de saúde em unidades de terapia intensiva. Esses profissionais muitas vezes realizam atividades sem total atenção, porém, possuem controle sobre suas atividades laborais e são capazes de regular e ocultar emoções que possam surgir nos contextos de trabalho em saúde e, assim, reduzir os riscos de estresse.

Palavras-chave: atenção plena; atenção total; regulação emocional; estresse percebido; pessoal de saúde

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INTRODUCTION

Perceived stress (PS) is one of the most relevant issues in current labor contexts, and the need for human talent to develop in an adequate work environment allows public or private organizations to consolidate their business objectives.[1] International health organizations have determined that occupational stress is one of the new diseases currently affecting professionals, to such an extent that before the pandemic more than 40% of Ecuadorians had mental health problems due to working conditions, and this year this figure increased to 55%.[2]

Within the Ecuadorian health context, stress within work activities has been strongly felt due to the psychological pressure that health personnel must face daily when attending patients.[3] In economic terms, work stress in Ecuador has generated a strong economic recession since the beginning of the pandemic, to such an extent that productivity levels have fallen by 25%, leading to annual losses of up to 600 million dollars. Work stress is also known by some researchers as burnout, or burned-out worker syndrome, which refers to the chronification that manifests itself through a state of physical and mental exhaustion that is prolonged over time and may alter the personality and self-esteem of the worker.[1]

Healthcare professionals experience a high incidence of PS due to exposure to numerous work-related sources,[4] including technologization of the work environment, critical events, severity of cases, close contact with death, pain, and other factors. Within the healthcare field, PE severely affects mental health as well as professional performance, eventually leading to reduced quality of care.[5]

PS is a type of individual reaction to long-term stress at work; this reaction is characterized by emotional exhaustion, alienation, apathy toward work, cynical attitudes toward others, and diminished self-fulfillment.[5] Some authors have determined that the two main measures of PS are job control and loss of job control.[6] Job control refers to the actions that a person develops in order to cope with adversities that arise within their work contexts, while loss of job control focuses on identifying whether the research participants are unable to cope and provide solutions at work when they witness chaotic situations.[6]

On the other hand, the effects of emotional regulation (ER) and mindfulness (MF), have become highly relevant topics within the field of scientific research in the areas of health.[7] ER refers to the regularization and utilization of the human being's own emotions to then guide thinking, self-motivation, action and the good management of emotions in relationships,[8] while MF involves intentionally engaging in one's present experience without judgment,[9] i.e., it is not only a psychological state, but also an individual coping capacity.

Several investigations have shown that MF and ER are predictors of PS,[10] but reports evaluating the relationships between MF, ER and PS, specifically in the field of health care workers, are scarce, so exploring such relationships could help to improve the influence of mindfulness on burnout and develop intervention strategies for burnout in health care personnel (physicians and nurses) in intensive care units.[6]

The research problem addressed in the study was the knowledge gap within the academic literature on studies that determine whether MF practices and RE allow counteracting the effects of PS in health care workers working in UCI.

In consideration of the above, the purpose of this research is to test the relationship between MF and PS of health personnel in public or private medical units in Santo Domingo, and then to identify whether this relationship is mediated by ER; the following research sub questions are posed:

a) Does full MF have a positive influence on the PS of health workers?
b) Does the ER measure the relationship between MF and PE of health workers?

Figure 1 presents the hypothesized model to be tested in the study.

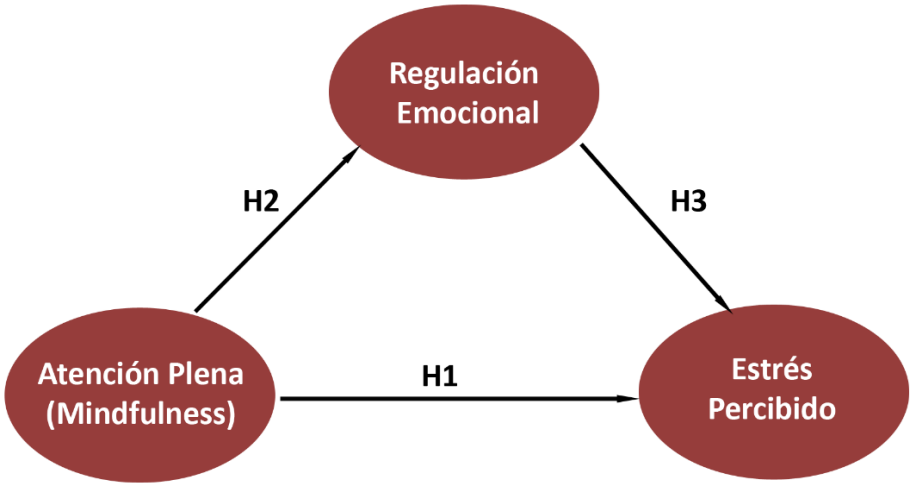

Fig. 1. Research model Hypothesis on the relationship between mindfulness, emotional regulation and perceived stress

In order to test this hypothesized model and to respond to the purpose of the research, the hypotheses to be tested in the study are presented below.

H1. Mindfulness has a positive influence on the perceived stress of healthcare personnel.
H2. Mindfulness has a positive influence on the emotional regulation of healthcare personnel.
H3. Emotional regulation positively influences the perceived stress of health care workers.

METHOD

A quantitative, cross-sectional, and cross-sectional design quantitative study was conducted and applied to health personnel of medical units in Santo Domingo de los Tsáchilas, Ecuador, during December 2022.

The study population consisted of health care workers. Since there is no general data on the number of health personnel working in Santo Domingo de los Tsáchilas, the sampling was determined through the sampling calculation formula for infinite populations, which resulted in a total of 384 surveys.

In order to evaluate the sampling bias, first a pilot test was carried out with 5% of the sample and, once it was identified that the survey was understood by the pre-test participants, the survey was applied to 384 health workers. It is necessary to emphasize that the sampling was non-probabilistic and that 2 surveys were eliminated because they did not belong to the unit of analysis (nursing assistants), leaving 382 observations to be analyzed in the study.

A total of 39 questions were used in the instrument, which were obtained from questionnaires that have been validated by other research. In the case of MF, it was measured by using the psychometric questionnaire of the Mindful Attention Awareness Scale (MAAS),[11] which is composed of 15 questions.

ER was measured by means of the questionnaire used in Batistoni's research,[12] a two-dimensional instrument consisting of 10 items quantified by means of seven-point scales. Finally, the PS was analyzed by means of the perceived stress questionnaire designed by Luft,[13] a two-dimensional questionnaire consisting of 14 questions, which allows the measurement of self-perception of stress during the last 30 days and is made up of 14 items quantified through five scales.

Once the questionnaire was developed, it was validated by a panel of experts made up of 3 health professionals with more than 10 years of experience working in the UCI, a university professor of nursing and an expert in scientific research with 5 years of experience publishing scientific articles.

The results were processed through Excel and SPSS, where first a consistency analysis of the instrument was applied to measure the reliability of the questions through a Cronbach's alpha test for each dimension, and then an exploratory factor analysis (EFA) to demonstrate the grouping of the questions in their corresponding constructs in order to ratify the feasibility. Finally, a correlational analysis was performed to demonstrate the approval or rejection of the assumptions planned in the research model.

Inclusion criteria were health care workers, who through informed consent agreed to participate in the study and who determined that they had at least 5 years of experience working in the UCI of public and private hospitals. Health personnel who did not meet these criteria were excluded from the study.

In order to promote the ethical aspects of the research, the research participants were informed that all the information obtained would be used exclusively for the study and that the anonymity of the participants was guaranteed.

RESULTS

Demographic characteristics of the respondents

The following (Table 1) shows the demographic characteristics of the 382 workers from public and private hospitals in Santo Domingo who took part in the study.

Table 1. Characteristics of the participants

Social characteristics	n=382	
	fi	%
Place of work		
La Concordia	7	1,8
Santo Domingo	375	98,2
Sex		
Male	162	42,5
Female	220	57,5
Age range		
22-27	73	19,1
28-33	155	40,6
34-43	123	32,2
44-57	31	8,1
Education		
Third level (Bachelor's degree)	311	81,4
Fourth level (Master's Degree)	71	18,6
Profession		
Physician	108	28,3
Nurse	274	71,7

Descriptive analyses of PA (mindfulness), ER and PS

The MAAS evaluates in general the dispositional capacity of a person to be fully aware of the different activities that he or she carries out as part of his or her daily life. To measure the elevation of care provided by health personnel, the average of all the scores of the 15 questions was calculated and the result obtained was compared with the 6 rating scales of the questionnaire, where 6 represents Almost always and 1 represents Almost never.[11]

The results of the study showed that health personnel who have worked in the ICU obtained an average rating of 3.8, which showed that they often carry out daily activities without being aware of what they are doing.

On the other hand, the emotional regulation questionnaire, through the cognitive reappraisal sub-dimension (questions 1,3,5,7,8 and 10), analyzed the capacity of these health personnel to modify their emotional reactions, while the expressive suppression sub-dimension (questions 2,4,6 and 9) measured the capacity to hide these emotions. For the measurement, the average of the scores of each sub-dimension was calculated and the result obtained was compared with the 7 rating scales of the questionnaire, where 7 represents Strongly Agree and 1 Strongly Disagree.[12]

The results obtained allowed us to identify that the health personnel obtained a value of 5.4 within the cognitive reevaluation, which showed that this group of professionals agreed that they regulate their emotions through the modification of their emotional reactions to a given event. On the other hand, the expressive suppression score reached a value of 5.1, which showed that these health personnel who have worked in the ICU somewhat agree that they hide their emotions.

Finally, the perceived stress scale questionnaire through the sub-dimension of job control (questions 4,5,6,7,9,10,13) and the sub-dimension of loss of job control (questions 1,2,3,8,11,12,14), evaluated the level at which health personnel who have worked in the ICU have become stressful. For the measurement, the average of the scores for each sub-dimension was calculated and the result obtained was compared with the 5 rating scales of the questionnaire, where 5 represents Every day and 1 represents Never.[13]

The results showed that the health personnel who have worked in the ICU obtained a value of 3.9 in the work control sub-dimension, which indicates that almost every day they seek ways to keep their work activities under control in order to avoid stressful situations. On the other hand, this group of professionals obtained a value of 3.1 in the loss of control dimension, as evidence that from time to time they lose control at work.

Estimates of the hypothesized research model

The model was analyzed by means of an AFC, where the consistency of the instrument was first tested by means of a Cronbach's alpha test. This showed that the values of the dimensions and of the questionnaire in general exceeded the base of 0.70 determined in the academic literature.[14] We then proceeded to calculate the composite reliability (CC) and the mean variance extracted (VME); for convergent validity to exist, the CC values must exceed 0.70 and the VME values exceed 0.50 and are lower than the CC values.[15,16] Table 2 presents the results obtained in the determination of reliability and convergent validity.

Table 2. Convergent validity

Variable	Item	Charge	Alpha	CC	VME
Mindfulness (MF)	AP.1	0.743	0.965	0.955	0.586
	AP.2	0.799			
	AP.3	0.793			
	AP.4	0.705			
	AP.5	0.715			
	AP.6	0.702			
	AP.7	0.768			
	AP.8	0.794			
	AP.9	0.750			
	AP.10	0.822			
	AP.11	0.771			
	AP.12	0.806			
	AP.13	0.723			
	AP.14	0.799			
	AP.15	0.778			
Emotional regulation (ER)	RE.1	0.823	0.892	0.950	0.655
	RE.2	0.800			
	RE.3	0.865			
	RE.4	0.751			
	RE.5	0.716			
	RE.6	0.843			
	RE.7	0.816			
	RE.8	0.803			
	RE.9	0.877			
	RE.10	0.784			
Perceived stress (PS)	EP.1	0.826	0.780	0.973	0.717
	EP.2	0.847			
	EP.3	0.817			
	EP.4	0.854			
	EP.5	0.837			
	EP.6	0.891			
	EP.7	0.889			
	EP.8	0.813			
	EP.9	0.885			
	EP.10	0.817			
	EP.11	0.835			
	EP.12	0.861			
	EP.13	0.871			
	EP.14	0.806			
Alpha total: 0.953					

For the verification of discriminant validity (DV), the root mean square variance extracted (RCVME) was calculated and compared with the values obtained from the bivariate correlations between each pair of construct that formed part of the research model. To indicate the existence of discriminant validity, it is necessary that the values of the RCVME be greater than the values of the correlations of the variables.[14,15] Table 3 shows the existence of validity.

Table 3. Discriminant validity

Variable	Mindfulness	Emotional regulation	Perceived stress	(RCVME)
Mindfulness	0,586 [a]	-	-	0,766
Emotional regulation	0,634**	0,655 [a]	-	0,809
Perceived stress	0,536**	0,543**	0,717 [a]	0,847

**Significancia a nivel 0.01 bilateral. [a] Valores de la VME.

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Perceived stress	0,536**	0,543**	0,717 [a]	0,847

**Significancia a nivel 0.01 bilateral. [a] Valores de la VME.

In consideration of what was previously stated in Tables 2 and 3, it was determined that there is convergent and discriminant validity, which allowed us to continue with the modeling of structural equations.

Structural modeling: model fitting and hypothesis testing

In order to determine that the hypotheses of the model proposed in this research are accepted, structural equation modeling was developed in AMOS 24, where the maximum likelihood method was applied and it was identified that the three hypothesized variables were related.

The results obtained allowed identifying that the research model had a good fit since the following fit values were reached: χ2 (gl=292.819 (103); χ2/g=2.84; TLI= 0.929; NFI= 0.949; CFI= 0.951 and RMSEA= 0.051, values that are accepted by the academic literature.[1-14,15,16]

The analysis of the statistical significance levels and the β values obtained, allowed us to accept the three hypotheses put forward. The results of the AMOS 24 Output determined that MF (mindfulness) influenced PD (β=0.428**), and also does so with ER (β=0.488**). Likewise, it was found that ER influenced PD (β=0.417**), which made it possible to answer the research sub-questions and affirm that PA (mindfulness) influenced PD and that ER fulfills a mediating effect between the former and PD. Table 4 explains the approval or devolution of the assumptions.

Table 4. The approval or return of assumptions

Hypothesis	Links	B	p-value	Hypothesis
H1	AP-EP	0,428	0,536**	Accepted
H2	AP-RE	0,488	0,543**	Accepted
H3	RE-EP	0,417	0,717**	Accepted

DISCUSSION

Once the convergent and discriminant validity and the adequate fit of the model were evidenced, H1 was accepted, i.e., full MF had a positive influence on the PS of health care workers. This finding shows that despite the fact that health care workers working in the ICU develop their activities in a hurry and without paying much attention to what they are doing, they are almost always in control of all their work activities, generating a self-barrier mechanism that leads to the generation of PS. It also corroborated what has already been shown in several investigations that have determined that PA (mindfulness) reduces stress levels[10] and contradicts the statement that there is no association between these two variables.[7]

On the other hand, H2 was accepted, i.e., MF positively influenced the ER of healthcare personnel. This finding made it possible to determine that despite the fact that health workers who have worked in the ICU often perform tasks without paying full attention to what is being done, they regulate their emotions and are able to hide them when necessary, supporting the determination that mindfulness helps to improve cognitive capacity and favors ER[4,5] and contradicts the position that there is no relationship between the two variables.[7]

Finally, H3 was accepted, which confirmed that emotional ER had a positive influence on the PS of healthcare personnel; thus supporting the finding that the ability to hide and modify emotions helped professionals who have worked in the ICU not to lose control of the work activities they perform and, therefore, not to suffer from stress disorders. This result supported the assertion that emotion regulation, rather than being an influential variable in stress, can become a predictive factor in PS.[10] At the same time, it contradicts the finding that there is no relationship between these two variables.[7]

Critical analysis

Stress has become one of the most important issues for the scientific community, and this disease has become one of the main problems that must be fought within the work context, especially in the health area, where medical personnel daily have to battle with adverse situations and under extreme conditions to safeguard the lives of patients.

However, there has been little interest on the part of Ecuadorian health agencies in proposing actions to improve the work environment[3] and regulate the emotional states of nurses. In consideration of the above, we criticize the health regulatory agencies of Ecuador, who, knowing that the country still does not meet the recommended number of nurses per 10,000 inhabitants, have not developed actions or programs to combat stress and regulate the emotions of nurses in Ecuador's public hospitals; rather, they continue to work long hours and short rotating shifts that end up affecting their health conditions.

One of the limitations that became evident in the study was the bureaucracy for the application of the surveys, due to the fact that permits were requested from the general directors of the health units, which in some cases were impossible to obtain, leading to the fact that the health personnel of these medical units were not considered as part of the study sample.

CONCLUSIONS

The study answered the purpose of the research and proved that mindfulness helps to counteract perceived stress and that the relationship between mindfulness and perceived stress of the health personnel of Santo Domingo de los Colorados, Ecuador, shows that the more mindfulness activities developed by these health personnel, the more emotional regulation will be favored and, consequently, stress levels will be reduced.

REFERENCES

1. Carrión N. Castelo W. Guerrero J. Criollo L. Jaramillo, M. Factores que influyen en el tecnoestrés docente durante la pandemia por la COVID-19. Rev Inf Cient [Internet]. 2022 [cited 10 Oct 2022]; 101(2):1-12. Available in: http://scielo.sld.cu/pdf/ric/v101n2/1028-9933-ric-101-02-e3778.pdf
2. García V, Viveros L, Carrión N, Román J. Comportamiento de los ecuatorianos frente al COVID 19. Horiz Enferm [Internet]. 2020 [cited 27 Oct 2022]; 10(1):55-68. DOI: https://doi.org/10.32645/13906984.992
3. Carrión N. Castelo W. Alcívar M. Quiñonez L. LLambo H. Influencia de la COVID-19 en el clima laboral de trabajadores de la salud en Ecuador. Rev Inf Cient [Internet]. 2022 [cited 11 Oct 2022]; 101(1):e36-32. Available in: http://scielo.sld.cu/pdf/ric/v101n1/1028-9933-ric-101-01-e3632.pdf
4. Lee S. Lee J. Gillen M. Krause N. Job Stress and Work-Related Musculoskeletal Symptoms Among Intensive Care Unit Nurses: A Comparison Between Job Demand-Control and Effort-Reward Imbalance Models. Am J Ind Med [Internet]. 2014 [cited 10 Oct 2022]; 57(2):214-221. DOI: https://doi.org/10.1002/ajim.22274
5. Teal C, Downey L, Lomas J, Ford T, Bunnett E, Stough C. The Role of Dispositional Mindfulness and Emotional Intelligence in Adolescent Males. Mindfulness [Internet]. 2019 Jan [cited 7 Oct 2022]; 10(1):159-167. DOI: https://doi.org/10.1007/s12671-018-0962-8
6. Xie C, Li X, Zeng Y, Hub X. Mindfulness, emotional intelligence, and occupational burnout in intensive care nurses: a mediating effect model. J Nurs Manag [Internet]. 2022 [cited 9 Oct 2022]; 29(3):535-542. DOI: https://doi.org/10.1111/jonm.13193
7. Seminowicz DA, Burrowes S, Kearson A, Zhang J, Krimmel S, Samawi L, *et al*. Enhanced Mindfulness-based stress reduction in episodic migraine: a randomized clinical trial with magnetic resonance imaging outcomes. Pain [Internet]. 2020 [cited 7 Oct 2022]; 161(8):1837-1846. DOI: https://doi.org/10.1097/j.pain.0000000000001860
8. Ackley D. Emotional intelligence: A practical review of models, measures, and applications. Consul Psyc J: Practice and Research [Internet]. 2016 [cited 11 Oct 2022]; 68(4):269-286. DOI: https://doi.org/10.1037/cpb0000070
9. Yuan J, Connolly C, Henje E, Sugrue L, Yang T, Xu D, Tymofiyeva O. Gray Matter Changes in Adolescents Participating in a Meditation Training. Front Hum Neurosci [Internet]. 2020 [cited 10 Oct 2022]; 14(1):319-331. DOI: https://doi.org/10.3389/fnhum.2020.00319

10. Galaiya R, Kinross J, Arulampalam T. Factors associated with burnout syndrome in surgeons: a systematic review. NIH [Internet]. 2020 [cited 11 Oct 2020]; 102(6):401-407. DOI: https://doi.org/10.1308/rcsann.2020.0040
11. SolerRibaudi J, Tejedor R, Feliu A, Pascual Y, Cebolla A, Soriano J. Propiedades psicométricas de la versión Española de la Escala Mindful Attention Awareness Scale (MAAS). Actas Esp Psiq [Internet]. 2012 [cited 19 Oct 2022]; 40(1):18-25. Available in: https://dialnet.unirioja.es/servlet/articulo?codigo=3831644
12. Batistoni S, Ordonez T, Silva T, Nascimento P, Cachioni M. Cuestionario de Regulación Emocional (ERQ): indicadores psicométricos y relaciones afectivas en una muestra de adultos mayores. Psicol Refl Crit [Internet]. 2013 [cited 12 Nov 2022]; 26(1):10-18. DOI: https://doi.org/10.1590/S0102-79722013000100002
13. Luft C, Sanches S, Mazo G, Andrade A. Versión brasileña de la escala de estrés percibido: traducción y validación para ancianos. RSP [Internet]. 2007 [cited 10 Oct 2022]; 41(1):606-615. DOI: https://doi.org/10.1590/S0034-89102007000400015
14. Castelo W, Álvarez Z, Aimacaña M, Sangoluiza R, Carrión, N. Intención de aceptación a la vacunación contra la COVID-19 en sectores vulnerables del Ecuador. Rev Inf Cient [Internet]. 2022 [cited 6 Oct 2022]; 101(1):1-11. Available in: http://scielo.sld.cu/pdf/ric/v101n5/1028-9933-ric-101-05-e3984.pdf
15. Carrión N. Arias L. Martínez A. The influence of price and availability on university millennials' organic food product purchase intention. Brit Food J [Internet]. 2023 [cited 27 Oct 2022]; 125(2):536-550. DOI: https://doi.org/10.1108/BFJ-12-2021-1340
16. Carrión N. Arias L. Factors influencing green purchasing inconsistency of Ecuadorian millennials. Brit Food J [Internet]. 2022 [cited 28 Oct 2022]; 124(8):2461-2480. DOI: https://doi.org/10.1108/BFJ-05-2021-0558

Conflict of interest

The authors declare that there are no conflicts of interest with respect to this research.

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