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ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

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Emotion Regulation Questionnaire
A validity and reliability study in Greece

OBJECTIVE **To investigate the structural validity of the Emotion Regulation Questionnaire (ERQ) with adults in Greece.** METHOD **A total of 605 adults were included in the study, of whom 398 were men, 206 (34%) were women and one did not specify gender. Three analyses of their responses on the ERQ scale were carried out, an exploratory factor analysis, a confirmatory factor analysis, and finally a reliability analysis.** RESULTS **The findings from all analyses revealed the structural validity of the ERQ in the Greek domain. Cronbach's alpha values were also satisfactory.** CONCLUSIONS **The Greek version of the ERQ exhibited satisfactory psychometric properties, indicating its reliability for measuring and assessing emotion regulation situations in the Greek population.**

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Ερωτηματολόγιο ρύθμισης συναισθημάτων: Μελέτη εγκυρότητας και αξιοπιστίας στην Ελλάδα

Περίληψη στο τέλος του άρθρου

Emotions have been regarded for many decades as passions that can come and go, unintentionally.[1] The belief has developed, at the same time, that individuals can exercise significant control over their emotions through a wide range of strategies. These strategies aim to influence the occurrence and the management of these emotions.[2] On the other hand, the questions are asked to what extent does individuality play a role in the differing use of these techniques, and to what extent do individual differences have a significant impact on adaptation? In the current situation, specifically, how do emotions change during a world pandemic?

Coronavirus disease (COVID-19) is a new infectious disease that was discovered in December 2019[3] and has now spread worldwide and is classified as a pandemic. It began in late 2019 in Wuhan, China, and has since spread rapidly around the world, affecting more than 146,050,000 people worldwide, with at least 3,090,000 confirmed deaths in 220 countries and territories.[4] As countries begin to report new cases daily, and the number of victims is increasing, there is intense panic and anxiety associated with an unknown disease. Even though the mortality rate is lower than that of previous contagious diseases (e.g., SARS, MERS), this fact is insufficient to alleviate the fear felt by millions of people worldwide.[5]

Aside from the enormous economic losses suffered by countries and their citizens, people are affected by the strict quarantine measures, travel restrictions, excessive control, and need for compliance that are in place. The misinformation circulating on social media adds to people's anxiety about the illness, including misinformation that contributes to the spread of the disease, which is referred to as Misinfodemics, and is particularly common for COVID-19.[6] Despite the clear guidelines of the World Health Organization (WHO) and the US Centers for Disease Control and Prevention (CDC), people ignore precautionary measures and resort to ineffective treatment methods, contributing to the further spread of the virus. This fear of an unknown infection is exacerbated by stigmatization and marginalization.[7]

SARS-CoV-2 was contained by strict public health measures, as in previous cases of infectious diseases (e.g., SARS,

H1N1).[8,9] In the current pandemic, however, measures of social isolation were applied to entire populations rather than just those known to be infected with the virus. Governments and the international community have reacted in an unprecedented manner.[10]

While researchers work hard to develop an effective anti-viral defense system and a COVID-19 vaccine, the psychological effects of the disease are largely ignored.

Such pandemics are more than just a medical occurrence; they have a negative impact on everyone's quality of life, and can cause social breakdown.

Stigmatization, xenophobia, mass hysteria, and panic are all common examples of the results. People begin to accumulate medical supplies, isolate themselves from physical contact, limit their social interaction, and enter a constant state of health anxiety as the global prevalence rises, overreacting to even in mild states that can mimic the disease, such as the common flu.[11] People suffering from mental illnesses are especially vulnerable to these effects, as are health care workers in hospitals and laboratories, and volunteers, and social workers, as well as those who have been quarantined for an extended period of time.[12]

Adherence to transmission-reducing behaviors is critical to protecting people and inhibiting or delaying, transmission[10] until Coronavirus vaccine confers immunity or effective treatment for COVID-19 is available. However, while adopting transmission-reducing behaviors reduces the risk of developing COVID-19, both individually and in the general population, it can have a negative impact on human health, particularly mental health.[13,14] The impact of the COVID-19 pandemic on mental health may differ across groups of the general population, because of pre-existing differences, such as the discomfort of living in low-income areas, less secure housing, and other situations.[15] The impact of COVID-19 may be greater for people with long-term conditions that require supported self-management,[16] or for those who live in isolation, for example, due to age.[17]

Greece has been affected by the COVID-19 pandemic, both in terms of numbers of patients and the disease effects. Greek people are renowned for their highly emotional reactions, and the pandemic is a major cause for emotional transitions. Because of the unique psychological condition of the Greek population, it was determined that a suitable psychometric instrument, such as the Emotion Regulation Questionnaire (ERQ), would be required for future research. The goal of this study was to investigate the structural validity of the ERQ in the Greek domain.

MATERIAL AND METHOD

Sample

The sample consisted of 605 adults, of which 398 (65.8%) were men, 206 (34.0%) were women, and one did not indicate gender.

Questionnaire

The ERQ[2] which was the instrument being tested consists of two dimensions, with ten items that are scored on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The first dimension, named "Reappraisal" contains six items, while the second dimension, named "Suppression" contains the remaining four items.

Measurement process

The questionnaire was first translated into Greek using the two-directional method (back-to-back translation).[19] First, two English teachers who specialize in translation translated the questionnaire into Greek. The Greek version of the questionnaire was presented to two official translators for translation into English. Finally, after deliberation and in the presence of all four translators and the researchers, agreement was reached on the formulation of the questions in the Greek version of the questionnaire.

Research data, namely the responses of the participants to the items on the questionnaire, were collected using an electronic form (Google Form), as the researchers considered its use mandatory in compliance with the new Coronavirus protection rules (COVID-19), avoiding unnecessary physical contact. The data collection period lasted two months (April–May 2020, during the first lockdown). The reason for selecting the specific period is related to the duration of the outbreak of COVID-19 and the mandatory isolation, in Greece.

The participants were informed about all the parameters and ethical issues concerning the research, including voluntary participation, anonymity of participants, the right to leave voluntarily at any stage of the questionnaire and the exclusive use of the data for research purposes. They were informed by provision of all the necessary information on the first page of the questionnaire. If they agreed they continued with the procedure.

Statistical analyses

Three analyses were carried out: (a) An exploratory factor analysis was carried out using the Statistical Package for Social Sciences (SPSS), v. 18.0 software, to test structural validity (SPSS Inc, Chicago, IL). (b) LISREL 8.80 was used to perform a confirmatory factor analysis. The theoretical model was developed based on previous research.[18] The adequacy ratios and acceptable values are: 2/E (degrees of freedom) <5, root mean square error of approximation (RMSEA) <0.08, standardized root mean square residual (SRMR) <0.05, and comparative fit index (CFI) >0.90, normed fit index (NFI) >0.90 (Bentler, 1990). (c) Finally, Cronbach's alpha,

composite reliability (CR), and average variance extracted (AVE) were used to perform an internal consistency analysis.

RESULTS

Principal component analysis was used to extract the factors. The axes were rotated by the revolving rotation (varimax rotation). The eigenvalues of the two factors were greater than 1.1. Factor queries with only questions with values greater than 0.40. The questionnaire also met the criteria for factorization (KMO=0.840, Bartlett's test of sphericity, $p<0.001$). Only questions with 0.40 or higher were included in subsequent analyses. The two factors identified by the analysis accounted for 57% of the total variance (tab. 1).

The confirmatory factor analysis revealed that the hypothesized model yielded a significant Chi-square: $x^2(127.44)/df(34)=3.75$, NFI=0.96, CFI=0.97, RMSE=0.067, SRMR=0.038 and $p<0.001$. The theoretical model is made up of two factors (two latent variables), the first of which is called "Reappraisal", and the second "Suppression". The two factors demonstrated good internal consistency, with composite reliability index values of 0.881 and 0.829, respectively. The AVE index had marginally acceptable discriminant and convergent validity values of 0.556 and

0.550, respectively (tab. 2). Finally, the internal consistency[19] for the questionnaire variables was 0.83 for "Reappraisal" and 0.78 for "Suppression".

DISCUSSION

The goal of this study was to investigate the structural validity of ERQ. To the best of our knowledge, no similar studies on this instrument have been conducted in Greece.

Initially, data factor analysis revealed that ERQ is valid and reliable in its Greek version. Specifically, the analysis confirmed the existence of two factors that had previously been reported. The satisfactory internal consistency of the questionnaire factors confirms the reliability of the scale and supports its application in the Greek professional context.

The theoretical model of confirmatory factor analysis included investigating the existence of two factors, one examining the degree of reappraisal (i.e., when confronted with a stressful situation, I force myself to think about it in a way that helps me stay calm), and one examining suppression (i.e., I keep my emotions to myself). The proposed theoretical model was confirmed by confirmatory factor analysis. The internal consistency of the overall scale and the two factors was very high, yielding results like those of the first study.[4]

The researchers can thus claim that the ERQ is a reliable measurement in the Greek population, because of the stability of the internal reliability of the two factors, and the stability of the averages presented.

The ERQ was identified as a reliable tool for measuring and evaluating the emotional levels of respondents over a

Table 1. Question loadings of the Emotion Regulation Questionnaire.

Questions	Factors	
	1	2
When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about	0.676	
I keep my emotions to myself		0.775
When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about	0.657	
When I am feeling positive emotions, I am careful not to express them		0.727
When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm	0.639	
I control my emotions by not expressing them		0.810
When I want to feel more positive emotion, I change the way I'm thinking about the situation	0.821	
I control my emotions by changing the way I think about the situation I'm in	0.812	
When I am feeling negative emotions, I make sure not to express them		0.760
When I want to feel less negative emotion, I change the way I'm thinking about the situation	0.765	

Table 2. The Greek version of the Emotion Regulation Questionnaire: Composite reliability (CR) and average variance extracted (AVE).

Construct	Item	CR	AVE
	0.68	0.881	0.556
	0.65		
	0.69		
	0.88		
	0.80		
	0.75		
	0.80	0.829	0.550
	0.68		
	0.77		
	0.71		

period in Greece. The self-reported questionnaire was found to be effective in measuring perceived emotions. The safe use of a questionnaire to assess an individual's emotional state can significantly contribute, firstly, to the design and implementation of recognition strategies, and then to the management of the individual's emotional situation. The researchers hypothesize that the ability to record immediately a person's emotional state will allow for more prompt intervention and, as a result, faster reduction of negative consequences. Individuals could, for example, be advised to practice meditation to reduce perceived stress levels.[22] The individuals' responses could be recorded on a collective scale to promote and support their emotional expressiveness.[2,22] This questionnaire could also be particularly useful to sports psychologists in providing appropriate support to coaches, in their efforts to learn to regulate their emotions when under intense stress.[22] Similar results have been indicated by previous research.[2,21,25]

The validated questionnaire could be used in all phases of the pandemic. Measurement of emotional conditions is important during the pandemic period, but researchers are convinced that measurement of the post-COVID-19 emotional residue is equally important. Finally, as the validated questionnaire proved to be reliable in a stressful and difficult period such as the COVID-19 pandemic, researchers assumed that it will be useful in any crisis period.

With limited in-person communication because of COVID-19, the use of technological tools and other forms of assessment is more important than ever. Access to online investigation and interventions can help individuals by relieving their stress and possibly protecting them from negative mental health symptoms.[24]

Limitations of the study should be mentioned, for example, the researchers had to rely on a sample, which, regardless of its size, lacked randomization. Nonetheless, the researchers believe that the results will be comparable to the state of the rest of the Greek population because the psychometric attributes remained valid and stable across all subgroup analyses. Its application can predict a variety of health-related outcomes in clinical and non-clinical conditions that are thought to be associated with estimated stress.

ΠΕΡΙΛΗΨΗ

Ερωτηματολόγιο ρύθμισης συναισθημάτων: Μελέτη εγκυρότητας και αξιοπιστίας στην Ελλάδα

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ΣΚΟΠΟΣ Η διερεύνηση της δομικής εγκυρότητας του «Ερωτηματολογίου ρύθμισης συναισθημάτων» (ΕΡΣ) στον ενήλικο πληθυσμό, στην Ελλάδα. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Το δείγμα αποτέλεσαν 605 ενήλικες. Πιο συγκεκριμένα, 398 ήταν άνδρες, 206 γυναίκες (34%) και 1 δεν δήλωσε το φύλο (0,2%). Πραγματοποιήθηκαν τρεις αναλύσεις. Η πρώτη ήταν μια διερευνητική ανάλυση παραγόντων, η δεύτερη ήταν μια ανάλυση επιβεβαιωτικών παραγόντων της κλίμακας και η τρίτη αφορούσε στην τελική ανάλυση αξιοπιστίας. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Τα αποτελέσματα όλων των αναλύσεων υποστήριξαν τη δομική εγκυρότητα του «ΕΡΣ» στον ελλαδικό χώρο. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Τα αποτελέσματα της μελέτης έδειξαν ότι το «ΕΡΣ» παρουσίασε ικανοποιητικές ψυχομετρικές ιδιότητες και ως εκ τούτου δικαιολογείται η αξιοπιστία του για τη μέτρηση και την αξιολόγηση καταστάσεων ρύθμισης συναισθημάτων και στην Ελλάδα.

Λέξεις ευρετηρίου: Επανεκτίμηση, Ερωτηματολόγιο ρύθμισης συναισθημάτων, Καταστολή, Ψυχολογική ευεξία

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