

Italian validation of the Emotional Style Questionnaire (ESQ): An indicator of emotional health

Francesca Malandrone

Department of Clinical and Biological Sciences, University of Turin

Alberto Catalano

Department of Clinical and Biological Sciences, University of Turin

Federica Carfi

Department of Clinical and Biological Sciences, University of Turin

Claudio Gentili

Department of General Psychology, University of Padova

Silvia Bianchi

Centro di Salute Mentale, Dipartimento di Salute Mentale, Ospedale Vecchio, AUSL Imola, Bologna

Francesco Oliva

Department of Clinical and Biological Sciences, University of Turin

Fulvio Ricceri

Department of Clinical and Biological Sciences, University of Turin

Luca Ostacoli (✉ luca.ostacoli@unito.it)

Department of Clinical and Biological Sciences, University of Turin

Pelin Kesebir

Center for Healthy Minds, University of Wisconsin–Madison

Richard Davidson

Center for Healthy Minds, University of Wisconsin–Madison

Sara Carletto

Department of Neuroscience “Rita Levi Montalcini”, University of Turin

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Abstract

Emotional Style (ES) refers to the unique way of experiencing emotions while going through life. The Emotional Style Questionnaire (ESQ) is a 24-item self-report measure that evaluates how people vary across the six dimensions of ES, providing an overall score of healthy emotionality. The present study aimed to validate the Italian version of ESQ. In Study 1, 208 healthy volunteers were enrolled. Linguistic and cultural adaptation was carried out and the adaptation's psychometric properties were investigated. In Study 2, linguistic changes were made to the ESQ items, modifying also the questionnaires used for assessing convergent and divergent validity to better investigate the constructs underlying each dimension. 197 healthy volunteers stratified by age group were enrolled. The final Italian version of the ESQ is therefore composed of 24 items allowing the identification of five subscales and six constructs due to the overlap between Outlook and Resilience. The questionnaire was found to be a valid and reliable measure, with satisfactory psychometric properties. Moreover, as with the original version, the Italian version too can be considered a measure of overall emotional well-being. Future studies should investigate the properties of the ESQ in clinical samples and its correlations with neurobiological characteristics.

Introduction

Emotions are extremely significant for the human experience. They are responsible for differences in the way we live, perceive, and react, and they are closely related to individual and social psychological well-being. Taking stock of the field, Richard Davidson proposed the concept of Emotional Style with the aim of identifying the components of the emotional life of each individual. Emotional Style refers to individual differences in experiencing emotions (Davidson, 1998, 2000). According to Kesebir and colleagues (Kesebir et al., 2019), each person has their own Emotional Style, which is governed by specific brain circuits identifiable by neuroimaging techniques. As such, our unique Emotional Style reflects the kind of emotional states we experience, as well as their intensity and duration (Kesebir et al., 2019). It is therefore definable as the "atom of our emotional life" (Davidson & Begley, 2013).

The Emotional Style is defined by six dimensions: *Outlook*, *Resilience*, *Social Intuition*, *Self-awareness*, *Sensitivity to Context* and *Attention*. Our emotional Style is a function of where we fall along these six dimensions (Kesebir et al., 2019). Outlook refers to the ability to sustain positive emotions over time. The ability to sustain the experienced positive emotions is what distinguishes non-depressed individuals from depressed ones, characterized by high and low levels of activity of the nucleus accumbens, respectively (Heller et al., 2009). Resilience, like the Outlook dimension, describes a quality of affective chronometry, namely the time course of emotional responding (Davidson et al., 2000). It refers to the ability to recover from negative emotions or events. Resilience is important, because emotional well-being is not only defined by the magnitude of one's initial emotional reaction to an event, but also by how long the emotional response is sustained (Davidson, 2004; Schuyler et al., 2014). Social intuition refers to one's degree of attunement to nonverbal social cues (voice tone, body language, facial expressions). Sensitivity to Context refers to how much our emotional and behavioural responses consider our social context. Self-

Awareness refers to the ability to perceive one's bodily signals that reflect emotions. Finally, Attention refers to the ability to focus on something, screening out distractions and staying focused.

The Emotional Style Questionnaire – ESQ (Kesebir et al., 2019) is an easily implementable, 24-item self-report measure which allows to identify how people vary across the six dimensions. The overall questionnaire score can also serve as a summary metric of a person's emotional health. The ESQ is a psychometric tool that could be used in both research and clinical settings, both as a stand-alone measure of psychological well-being, as well as as a measure of each of the six dimensions. The position along the six dimensions allows to identify the strengths and weaknesses of the Emotional Style of an individual, thus enabling mental interventions exploiting the plasticity of brain structures to modify any dysfunction with the aim of a healthy emotional life. The aim of the present study was to validate the ESQ in Italian language and to assess its psychometric properties in the general population.

Methods

Both study 1 and study 1 were conducted at the University of Torino, Italy, and obtained the University Bioethics Committee approval (prot. number 251935). All methods were carried out in accordance with relevant guidelines and regulations.

Study 1

In the first phase, the ESQ was adapted linguistically and culturally into Italian, after which the psychometric properties were investigated following the protocol of Kesebir et al., 2019. The questionnaires were administered to a group of healthy volunteers stratified by age at baseline (TIME 1) and 4 weeks (TIME 2) to evaluate test-retest reliability.

Translation and cultural adaptation

The translation of the ESQ from English into Italian was conducted by an Italian native speaker. Then, a bilingual Italian-English person (a native English speaker), performed a back-translation. Comparing the original items with the back-translated items, further changes were made in the Italian translation, after which a second back-translation was performed. To verify that the translation was adequate not only from a linguistic but also from a cultural point of view, face validation was conducted with 20 voluntary subjects, who provided useful feedback to improve some lexical and syntactic nuances.

Validation protocol

Following the validation protocol published by Kesebir et al., 2019, in addition to the socio-demographic data, some questionnaires and scales validated in Italian were selected to 1) observe possible correlations with the ESQ subscales and evaluate the convergent validity and 2) observe any correlations with instruments evaluating psychological well-being.

Emotional Style Questionnaire (ESQ)

The Emotional Style Questionnaire – ESQ (Kesebir et al., 2019) is a 24-item self-report measure that allows to evaluate how people vary across the six dimensions, and also provides an overall score of healthy emotionality. Participants completed the ESQ, responding to 24 statements on a scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

Flourishing Scale (FS)

The Flourishing Scale is an 8-item measure that aims to evaluate self-perceived success in domains important to well-being, such as relationships, self-esteem, and purpose in life (Diener et al., 2010; Giuntoli et al., 2017). Participants indicated on a Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) their endorsement of the statements.

Satisfaction With Life Scale (SWLS)

The Satisfaction With Life Scale (Diener et al., 1985; Di Fabio et al., 2009) measures global life satisfaction, an important indicator of wellbeing. The 5-item scale asks participants to select their answer using a 7-point scale (1 = Strongly Disagree; 7 = Strongly Agree).

Positive and Negative Affect Schedule (PANAS)

PANAS aims to assess the prevalence of positive and negative emotions (Watson et al., 1988; Terraciano et al., 2003). Participants were asked to indicate to what extent they generally feel certain negative and positive emotions. The scale consisted of 10 positive (e.g., attentive, enthusiastic) and 10 negative emotion words (e.g., upset, guilty). Responses could range from 1 (Very slightly or not at all) to 5 (Extremely).

Depression, Anxiety and Stress Scale (DASS-21)

DASS-21 is a 21-item scale and it consists of 3 subscales that assess participants' levels of depression, anxiety, and stress (Henry & Crawford, 2005; Bottesi et al., 2015). Participants indicated how much the statement applied to them over the past week, on a scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

Mindful Attention Awareness Scale (MAAS)

This 15-item scale aims to investigate awareness of and attention to what is taking place in the present (Brown & Ryan, 2003; Setti et al., 2014). Participants choose their response on a scale from 1 (Almost Never) to 6 (Almost Always).

Big Five Inventory (BFI)

To measure dimensions of personality, we relied on the 44-item Big Five Inventory (John et al., 2012; Ubbiali et al., 2013). On a scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree), participants rated the extent to which various statements apply to them.

Resilience Scale for Adults (RSA)

Resilience Scale for Adults (Friborg et al., 2003; Capanna et al., 2015) is a 33-item self-report instrument for evaluating six protective dimensions of resilience in adults: (1) Perception of the Self, (2) Planned Future, (3) Social Competence, (4) Family Cohesion, (5) Social Resources, and (6) Structured Style.

Self-Compassion Short Form (SC)

The short 12-item version of the Self-Compassion scale (Neff, 2011; Petrocchi et al., 2014) aims to evaluate an important protective factor in mental health. Self-compassion fosters emotional resilience through dimensions which are Self-Kindness (SK); Self-Judgment (SJ); Common Humanity (CH).

Participants

Individuals between the ages of 18 and 75 were included in the study. Participants were recruited by sharing the questionnaire link via mailing lists and social networks. In the questionnaire, in accordance with the criteria provided by the University Bioethics Committee of University of Torino, Italy, there was a description of the project and research objectives and informed consent.

Data analysis

Data have been described using median and interquartile range or frequencies and percentages, for quantitative and qualitative data respectively. The distribution of the quantitative variables was tested using the Shapiro-Wilk test and almost all distributions deviated from normality. The validation of the Italian version of the Emotional Style Questionnaire was performed following three subsequent analyses.

First, the stability of the questionnaire over time was tested. The stability was investigated by estimating the Spearman's rank correlation coefficient between each item response at Time 1 and the same response at Time 2. The same type of analysis was also performed for the dimensions detected and investigated in this study.

Second, in order to confirm the six dimensions identified in Kesebir et al. (2019) a Factor Analysis with six factors was conducted. An Exploratory Factor Analysis (EFA) was performed to identify which items form each of these factors. This was done after checking the suitability of the data for Factor Analysis through the Kaiser-Meyer-Olkin (KMO) test to measure the sampling adequacy (MSA), and the Bartlett's test of sphericity to test whether the correlation matrix is significantly different from an identity matrix. Since the data are not normally distributed, principal axis factoring (PAF) was used as the extraction method of choice, because it does not assume normality of data. As to the rotation method, both varimax and oblimin were used; however, as they led to the same conclusions, we only present the results for the varimax method. Besides, the internal consistency reliability of the factors extracted in the EFA was estimated with Cronbach's alpha. Due to not complete consistency of the results, the suitable number of factors through the parallel analysis ($n=5$) was identified and then we reran the EFA using 5 factors. Because the results collapsed the Outlook and Resilience dimensions into one dimension only, the four

items related to this dimension with the lowest factor loadings were excluded and the EFA was rerun. This implementation was performed on both the detection at Time 1 and the detection at Time 2.

Finally, the correlation between ESQ total score and the scales and subscales detected in the questionnaire were estimated. Spearman's rank correlation coefficient was used to estimate the correlation coefficients given the non-normality of the data. The analyses were performed using R (Version 4.0.2).

Results

Sample characteristics are described in Supplementary Material 2 (S2A). The sample was composed of 208 participants with a median age of 43.00 years (IQR= 30.00 – 58.00). To test the stability of the questionnaire over time, we estimated the correlation coefficients between each item response at Time 1 and the same response at Time 2 and between each of the six dimensions investigated in this study in two different times. The results are summarized in S2B in Supplementary Material 2. All correlations were positive and statistically significant, showing that the questionnaire was stable both at the item and at the dimension level.

Before conducting the Factor Analysis, we performed the KMO test and the Bartlett's test of sphericity to determine if the data was suitable for this type of analysis. The overall MSA was 0.75 and Bartlett's test was statistically significant at 95% confidence level ($\chi^2 = 1281.18$). For this reason, we concluded that the data was appropriate.

S2C in Supplementary Material 2 shows the factor loadings related to the EFA conducted at Time 1, which considered the 6 factors described in Kesebir et al. (2019). From the loading, it emerged that the first principal axis (PA1) extracted identified two dimensions (Outlook and Resilience even if one question is missing), while PA2, PA3, PA4, and PA5 each identified a single dimension, respectively Sensitivity to Context, Attention, Social Intuition and Self-Awareness. Finally, PA6 did not identify any dimension. For this reason, this Factor Analysis did not seem to identify the six dimensions correctly. In total, the extracted factors explained 41.6% of the total variance. Next, we determined the internal consistency of each dimension by estimating Cronbach's alphas. The values are summarized in S2D in Supplementary Material 2. Some low values of the Cronbach's alphas, such as the alpha associated with Social Intuition ($\alpha = 0.57$), were at the limit of acceptability.

Since the Factor Analysis with six factors did not identify the six dimensions correctly, we conducted the same analysis excluding the items relating to the Outlook and Resilience dimensions with the lowest factor loadings (i.e. items 1, 2, 8, and 14). Therefore, we ran a new EFA by considering only the remaining 20 items.

By performing the KMO test (overall MSA = 0.71) and the Bartlett's test of sphericity ($\chi^2 = 999.18$), we observed that the data was even more suitable for a Factor Analysis. Then, we chose the appropriate number of factors through the parallel analysis. The plot relating to the parallel analysis is shown in

Figure 1 and it suggested that the suitable number of factors was five; for this reason, we ran an EFA by extracting only five factors. S2E in Supplementary Material 2 summarizes the factor loadings. As the table shows, each factor extracted identified a single dimension. In fact, the remaining four items related to the Outlook and Resilience dimensions were identified by the first factor and together form the first dimension, which we called “Resilience”; PA3 clearly identified the dimension of “Sensitivity to Context”, PA4 identified the dimension of “Attention”, Social Intuition was identified by PA2 and finally PA5 identified the “Self-Awareness” dimension. In total, the extracted factors explained 41.1% of the total variance.

Regarding the internal consistency, S2F in Supplementary Material 2 shows the Cronbach’s alphas related to the five dimensions. As the table shows, the alphas related to the first dimension increased compared to the previous alphas.

Finally, in the third analysis, we estimated the correlation coefficients between the ESQ total score and the scales and subscales detected in the questionnaire. We used the Spearman’s rank correlation coefficients because by performing the Shapiro-Wilk test we observed that these variables were not normally distributed. The correlation coefficients at TIME 1 are shown in S2G in Supplementary Material 2. As expected, almost all subscales correlated with the score of the appropriate questionnaire.

Study 2

In the light of the results of Study 1, linguistic changes were made to the questionnaire items. In particular, sentences were converted to positive to improve comprehensibility. The final version of the Emotional Style Questionnaire (Italian) is in Supplementary Material 1 (S1). The questionnaires used to investigate psychometric properties were modified in order to observe which constructs each dimension measured. The questionnaires were administered to a group of healthy volunteers stratified by age groups.

Validation protocol

Emotional Style Questionnaire (ESQ)

As in Study 1, participants completed the ESQ and some questionnaires useful to detect the constructs investigated by each dimension.

Depression, Anxiety and Stress Scale (DASS-21)

Description of DASS-21 is provided under Study 1.

Mindful Attention Awareness Scale (MAAS)

Description of MAAS is provided under Study 1.

Multidimensional Assessment of Interoceptive Awareness (MAIA)

MAIA is a multidimensional measure of interoceptive body awareness (Mehling et al., 2012; Committeri et al., 2012). Its 32 items assess eight concepts related to interoceptive awareness (e.g., awareness of body sensations, awareness of the connection between body sensations and emotional states). Participants responded to this measure using a 7-point Likert scale (1 = Strongly Disagree; 7 = Strongly Agree). The MAIA scale was used to test its correlation with the ESQ subscale of self-awareness.

Resilience Scale for Adults (RSA)

Description of RSA is provided under Study 1.

Life Orientation Test - Revised

LOT-R scale, developed by Scheier et al. (Scheier et al., 1994; Giannini et al., 2008), measures people's expectations regarding the favorability of future outcomes. On a 7-point scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree), participants indicated their agreement with the statements. The LOT-R scale was used to check its correlation with the Outlook subscale of the ESQ.

Autism Spectrum Quotient (AQ-10)

AQ-10 scale was developed by Allison et al. (Allison et al., 2012; Ruta et al., 2012) and measures the autism level. Participants express their agreement with the sentences on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The AQ-10 scale was used to check its correlation with the social intuition subscale of the ESQ.

Participants

Individuals between the ages of 18 and 75 were included in the study. Participants were recruited by sharing the questionnaire link via mailing lists and social networks. In the questionnaire, in accordance with the criteria provided by the University Bioethics Committee of Università degli Studi di Torino (Italy), there was a description of the project and research objectives and informed consent.

Data analysis

As in Study 1, we have described the data by using the median and interquartile range of frequencies and percentages, while the distribution of the quantitative variables was tested using the Shapiro-Wilk test. Then, we ran an EFA in the new data to identify which items form each of these factors, after checking the suitability of data for a Factor Analysis through the KMO test and the Bartlett's test of sphericity. The appropriate number of factors was identified through the parallel analysis. Since the data are not normally distributed, we used the PAF as an extraction method of choice. Moreover, we used both varimax and oblimin as rotation methods, which both led to the same conclusions, and then we estimated Cronbach's alpha for each dimension identified. Finally, we estimated the correlation between the total score of each dimension and the scales and subscales detected in the questionnaire, by using

the Spearman's rank correlation coefficient given the non-normality of data. The analyses were conducted both on the entire sample and subjects who reported a DASS depression subscale score ≤ 13 and a DASS anxiety subscale ≤ 9 .

Results

Out of the 261 subjects who were recruited in the study, 197 reported a DASS Depression subscale score ≤ 13 and a DASS Anxiety subscale ≤ 9 . Table 1 summarizes the sample characteristics and shows that the median age was 33 years (IQR= 26.00 – 53.00) and most of them were university graduates.

Table 1 – Study 2 sample characteristics.

Variable	Freq.	Perc.
<i>Entire population</i>		
<i>Education</i>		
Low secondary school	9	3.45
High secondary school	61	23.37
University	154	59.00
Post-graduate	37	14.18
<i>Age</i>	33.00 (26.00 – 53.00)*	
<i>Subjects after exclusion of subjects with anxiety and depression cutoffs greater than 10 and 14 respectively</i>		
<i>Education</i>		
Low secondary school	6	3.05
High secondary school	45	22.84
University	115	58.38
Post-graduate	31	15.73
<i>Age</i>	33.00 (26.00 – 53.00)*	

Before running the EFA, we performed the KMO test and the Bartlett's test of sphericity. By focusing on the entire sample, the overall MSA was 0.86 and Bartlett's test was statistically significant at 95% confidence level ($\chi^2 = 2870.67$), suggesting that the data were suitable for a Factor Analysis. S2H in Supplementary Material 2 shows the factor loadings related to the EFA, by considering 5 factors as the parallel analysis suggested (Figure 2). From loadings, it emerged that the first principal axis (PA1) identified the Outlook and Resilience dimensions together, while PA3, PA5, PA2 and PA4 each identified a single dimension,

respectively Attention, Self-Awareness, Social Intuition and Sensitivity to Context. In total, the extracted factors explained 53.2% of the total variance.

The estimates related to the Cronbach's alphas are summarized in S21 in Supplementary Material 2. Because all alphas were greater than 0.71, we can conclude that the questionnaire identified five consistent dimensions.

Conducting the EFA on the subjects who reported a DASS Depression subscale score ≤ 13 and a DASS Anxiety subscale ≤ 9 , the results are very similar. The overall MSA was 0.78, the Bartlett's test of sphericity was statistically significant at 95% confidence level ($\chi^2 = 1893.54$) and the parallel analysis, whose plot is shown in Figure 3, suggested extracting 5 factors. The results of the EFA are summarized in Table 2. Again, from loadings it emerged that PA1 identified two dimensions (Outlook and Resilience) together, while the other factors extracted each identified a single dimension: Attention, Self-Awareness, Social Intuition and Sensitivity to Context, respectively. The extracted factors explained 49.5% of the total variance. Regarding the internal consistency, Table 3 shows the Cronbach's alphas related to the five dimensions. As the estimates show, the alphas were slightly smaller than those of the entire sample.

Table 2
 Study 2 factor loadings related to the EFA considering 5 factors, after exclusion of subjects with anxiety and depression cutoffs greater than 10 and 14 respectively.

<i>Item</i>	<i>PA1</i>	<i>PA3</i>	<i>PA5</i>	<i>PA2</i>	<i>PA4</i>
Item 1	0.505	-0.128	0.238	0.174	
Item 2	0.646				
Item 3				0.707	
Item 4			0.769		
Item 5					0.849
Item 6		0.782			
Item 7	0.811				
Item 8	0.591	0.255			
Item 9			0.211	0.701	
Item 10	-0.123		0.722		
Item 11					0.652
Item 12		0.715			
Item 13	0.590	-0.103			
Item 14	0.610		0.142	-0.129	
Item 15				0.701	
Item 16			0.755		
Item 17					0.694
Item 18		0.692	0.132		0.137
Item 19	0.707			0.111	
Item 20	0.639	0.191	-0.157		
Item 21				0.646	
Item 22		0.117	0.418		
Item 23		0.243			0.226
Item 24		0.697			

Table 3
 Study 2 values of Cronbach's alphas after
 exclusion of subjects with anxiety and depression
 cutoffs greater than 10 and 14 respectively.

Dimension	<i>Alpha</i>	<i>Mean</i>	<i>SD</i>
Outlook/Resilience	0.86	4.5	1.00
Social Intuition	0.78	5.5	0.86
Self-Awareness	0.78	5.4	1.10
Sensitivity to context	0.69	5.4	1.10
Attention	0.82	4.7	1.20

Finally, we estimated the correlation coefficients between the total score of each dimension and the scales and subscales detected in the questionnaire, as suggested by the literature. The Spearman's rank correlation coefficients are summarized in Table 4. As the results show, almost all correlations were statistically significant at the 95% confidence level.

Table 4
Study 2 Spearman's rank correlation coefficients.

Scale	Outlook/ Resilience	Social Intuition	Self- Awareness	Sensitivity to Context	Attention
<i>Entire population</i>					
LOTR	0.56***				
RSA PS	-0.35***				
RSA PF	0.60***				
RSA CS	0.05				
RSA SS	-0.04				
RSA CF	0.41***				
RSA RS	0.40***				
RSA TOT	0.53***				
ASQ		-0.28***			
MAAS			0.43***	0.35***	0.57***
MAIA NOT			0.38***		
MAIA NOT DIST			0.11		
MAIA NOT WORR			0.07		
MAIA ATTREG			0.38***		
MAIA EMAW			0.36***		
MAIA SELF-REG			0.37***		
MAIA BODYLIST			0.45***		
MAIA TRUST			0.45***		
<i>Subjects after exclusion of subjects with anxiety and depression cutoffs greater than 10 and 14 respectively</i>					
LOTR	0.46***				
RSA PS	-0.26***				
RSA PF	0.48***				
RSA CS	0.01				

Scale	Outlook/ Resilience	Social Intuition	Self- Awareness	Sensitivity to Context	Attention
RSA SS	-0.01				
RSA CF	0.34***				
RSA RS	0.25***				
RSA TOT	0.44***				
ASQ		-0.28***			
MAAS			0.39***	0.33***	0.56***
MAIA NOT			0.40***		
MAIA NOT DIST			0.11		
MAIA NOT WORR			0.09		
MAIA ATTREG			0.36***		
MAIA EMAW			0.29***		
MAIA SELF-REG			0.33***		
MAIA BODYLIST			0.33***		
MAIA TRUST			0.39***		

Discussion

This study aimed to validate the Italian translation of the ESQ (Kesebir et al., 2019), which, as has been pointed out by Kesebir et al. (2019), is an easily implementable self-report measure which allows to reveal how people vary across six dimensions (Outlook, Resilience, Social Intuition, Self-awareness, Sensitivity to Context and Attention), as well as to identify their Emotional Style.

In our Italian version, the division into 6 sub-subscales was not valid, leading to identifying the outlook and resilience dimensions as a single subscale, consisting of 8 items. In the original validation, Kesebir and colleagues (Kesebir et al., 2019) found a strong correlation between Outlook and Resilience dimensions (0.79 with $p < 0.01$). As the authors themselves commented, Outlook and Resilience seem to be two very overlapping constructs. A possible explanation for this new unique dimension in the Italian version is that there was a cultural influence which, in our sample, made Outlook and Resilience indistinguishable. Our hypothesis is that the Outlook is a component of resilience and not a separate construct, thereby we propose that the label of the fifth dimension is “Resilience and Outlook”. The subscale identified correlates significantly with both the Resilience Scale for Adults and the Life

Orientation Test Revised, indicating that it is able to measure both the Outlook and Resilience constructs. Cameron and colleagues (Cameron et al., 2007) suggested a strong role of culture in the determination of resilience, together with the social environment and psychologic and physiologic processes. Other authors also suggested that resilience is deeply correlated with the ability to experience a sense of satisfaction and positive emotions, identifying resilience not only as the ability to overcome adversity but also as the ability to increase positive affectivity (Campbell-Sills & Stein, 2007; Di Fabio & Palazzeschi, 2015; Morgan & Farsides, 2009).

The final version of the ESQ in Italian language is therefore composed of 24 items that allow the identification of five subscales (i.e. Resilience and Perspective, Context Sensitivity, Social Intuition, Attention, Awareness) and six constructs (i.e. Resilience, Perspective, Context Sensitivity, Social Intuition, Attention, Awareness). The questionnaire is a valid and reliable measure, showing satisfactory psychometric properties. In addition, as for the original version, the Italian version is also a measure of healthy emotionality.

The main limitation of this study is that education level was not equally distributed in the sample, with a high number of university graduates. Despite this, the Italian version of the ESQ offers interesting implications for future research. By using this tool, future studies can deepen the cultural characteristics of emotions in Italian population, with clinical and social implications.

More and more studies are attempting to identify which factors moderate or predict the effects of psychological interventions (recent work includes, for example, Linardon et al., 2016; Levy et al., 2018; Löw et al., 2020; Tamura et al., 2021). The ESQ could be used as an outcome predictor of psychological interventions, such as Mindfulness-Based Interventions. In addition, it would allow for the tailoring of therapeutic strategies based on emotional style characteristics, for example by studying the effects of individual Mindfulness practices on dimensions. Future studies should also validate the instrument in clinical samples to identify possible correlations with psychological symptoms. The Italian version of the ESQ opens the possibility to enrich the research landscape with new knowledge that will be useful to deepen pathogenetic as well as therapeutic aspects of psychological distress and emotional dysregulation.

Declarations

Public Significance Statements

The Italian version of Emotional Style Questionnaire is a reliable and valid measure which also provides quantitative data on emotional health.

Competing Interests

The authors declare no competing interests. This project was conducted with no specific funding support.

Authors contribution

Each author gave substantial contributions to the conception and the design of the work, the acquisition, analysis, and interpretation of data. Moreover, each author participated in the drafting and revision of the work. Each author approves the submitted version and agree both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

Ethic statement

The study was approved by the Bioethics Committee of University of Torino, Italy. Informed consent was obtained by asking all participants to click a button at the beginning of the online survey to consent to participate.

Data availability statement

Raw data cannot be made freely available because of restrictions imposed by the Ethical Committees which do not allow open/public sharing of data on individuals. However aggregated data are available for other researchers, on request. Requests should be sent to the corresponding author.

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Figures

Parallel Analysis Scree Plots

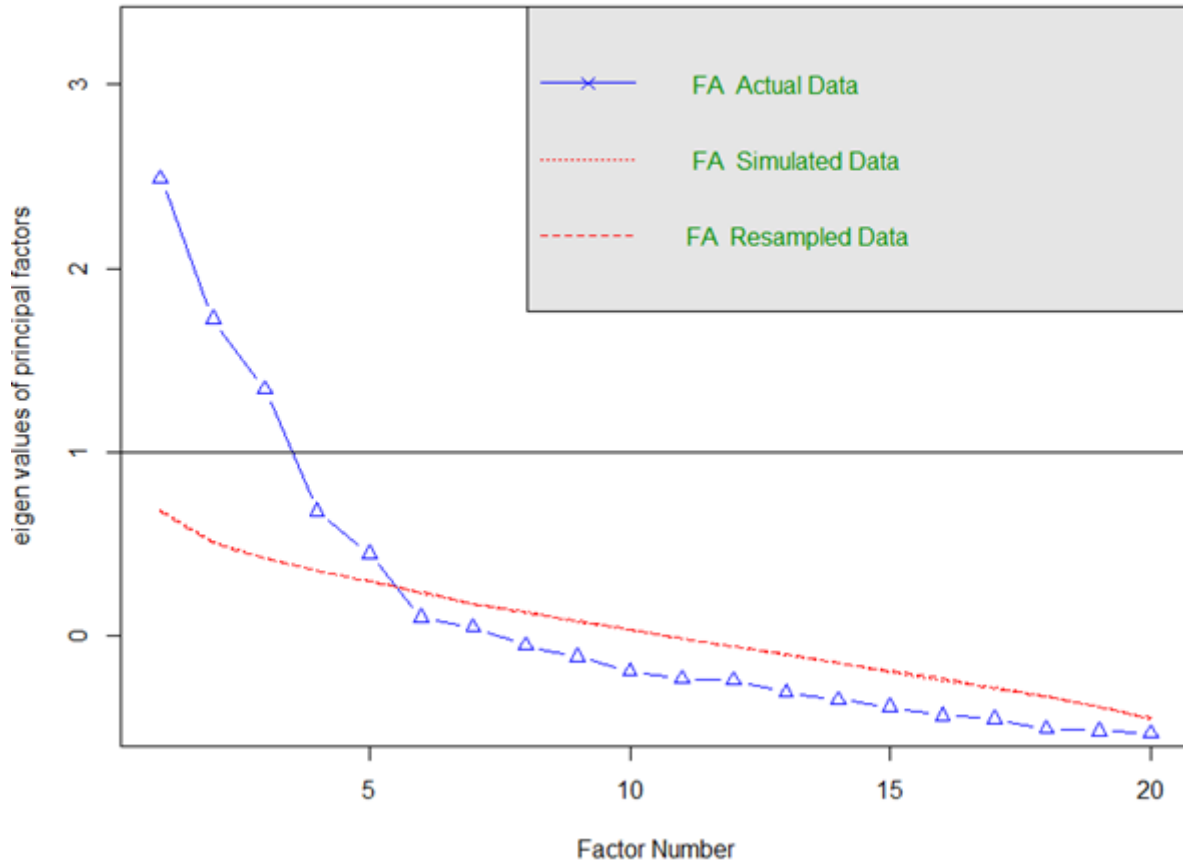


Figure 1

Study 1 Scree plot on entire population.

Parallel Analysis Scree Plots

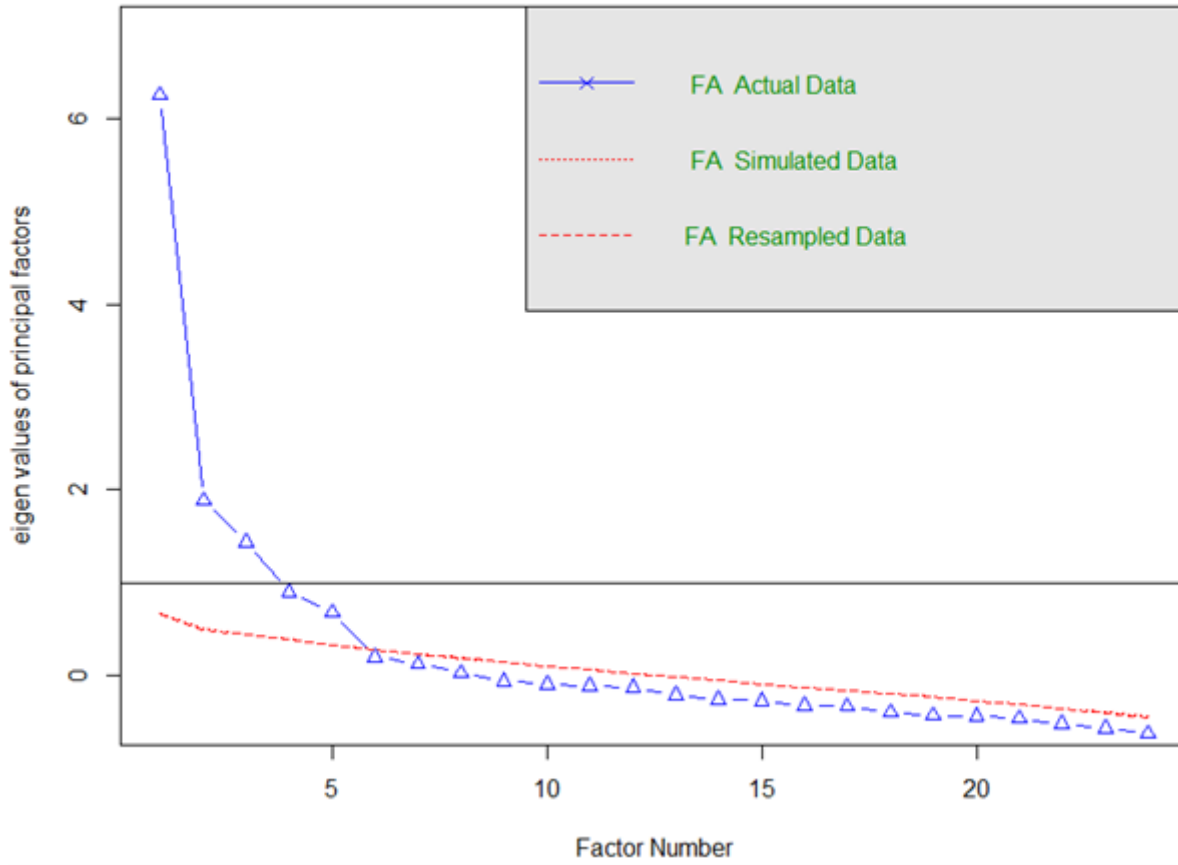


Figure 2

Study 2 Scree plot on entire population.

Parallel Analysis Scree Plots

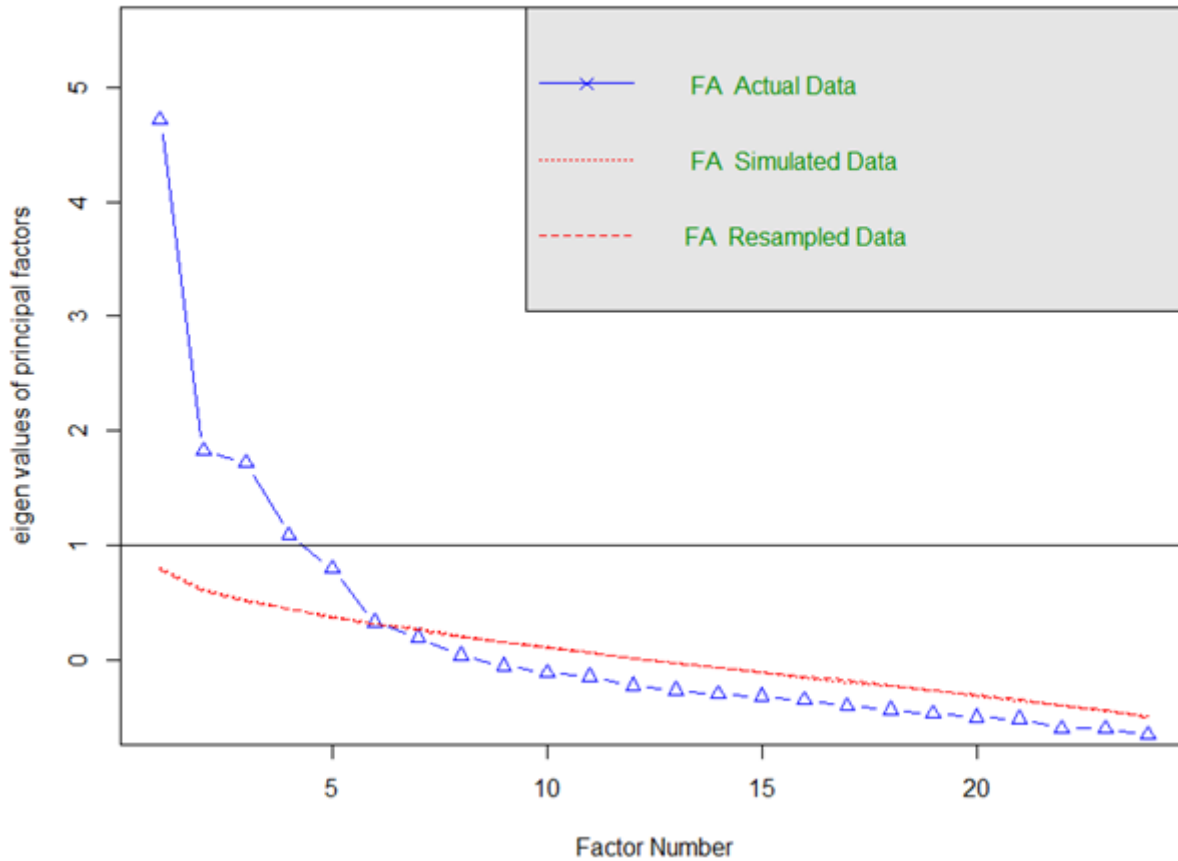


Figure 3

Study 2 Scree plot after exclusion of subjects with anxiety and depression cutoffs greater than 10 and 14 respectively.

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