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COMPREHENSIVE ASSESSMENT OF ACT PROCESSES COMPACT. ROMANIAN ADAPTATION AND SHORT FORM VALIDATION

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Abstract

The current paper presents the translation and validation for Romanian non-clinical population of Comprehensive Assessment of ACT Processes – CompACT (Francis et al., 2016), an instrument that evaluates three dimensions of psychological flexibility: openness to experience, present moment awareness (mindfulness) and valued action. The psychometric properties of the Romanian version of the instrument were investigated, convergent validity in relation with AQQ-II and concurrent validity in relation with DASS-21 (with comparable results with ones reported for the original instrument). Considering modest model fit with theoretical factor structure of the instrument, current paper proposes a shorter, more stable Romanian Version, and tests its psychometric properties.

Keywords*:* Acceptance and Commitment Therapy, ACT measures, psychological flexibility, openness to experience, mindfulness and valued action.

The Acceptance and Commitment Therapy (ACT) is one of the best empirically supported therapies of the third wave cognitive behavioural therapies for adults (A-Tjak, Davis, Morina, Powers, Smits & Emmelkamp, 2015, Gloster, Walder, Twohig & Karekla, 2020) and children (Fang & Ding, 2020).

In 2019, after more than 30 years from the first ACT interventions, his initiator (Hayes, 2019) reported more than 2,000 studies on the psychological flexibility processes and on ACT outcomes, from this over 280 were randomized controlled trials with a total of 33,000 participants and more than 40 were ACT meta-analyses.

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ACT aims to help people be more open to experience and act in a committed way to one's personal values (Hayes & Gifford, 1997) by increasing psychological flexibility, the ability to be fully in contact the present moment and to adapt behaviour according to personal values (Hayes, Luoma, Bond, Masuda & Lillis, 2006).

Psychological flexibility is defined as a combination of six related processes: acceptance, cognitive defusing, present moment awareness, self as a context, values, and committed action (Hayes & Gifford, 1997). The process of being present (mindful) supports a more flexible behaviour by experiencing directly and non-judgmentally the inner and outer events in the individual's life and supports the individual's true values (Christie, Atkins & Donald, 2017). Through mindfulness exercises, metaphors and experiential processes like defusing and acceptance, a sense of self as a context is developed (Stoddard & Afari, 2014). Personal values are individual purposes that direct actions in one's life, with intrinsic reinforces, that in a mindful state are easier to follow (Hayes, Villatte, Levin & Hildebrandt, 2011); they can form a purpose in themselves and can be fulfilled through the involvement of effective, committed actions (McCracken, Sato & Taylor, 2013).

Meta-analytical studies show that ACT interventions are effective for anxiety and depression (Bai, Luo, Zhang, Wu, Chi, 2020), delivered individual or in group therapy (Coto-Lesmes, Fernández-Rodríguez & González-Fernández, 2020), for substance use (Osaji, Ojimba, & Ahmed, 2020), for burnout (Lloyd, Bond & Flaxman, 2013), chronic pain (Veehof, Oskam, Schreurs & Bohlmeijer, 2011) and to reduce psychological stress in patients with inflammatory bowel diseases (Wynne, McHugh, Gao, Keegan, Byrne, Rowan et al., 2019), cancer (González-Fernández & Fernández-Rodríguez, 2019) and chronic or long-term conditions (Graham, Gouick, Krahe & Gillanders, 2016).

Acceptance and commitment therapy is an effective intervention, even web-delivered, to protect mental health and enhance well-being (Brown, Glendenning, Hoon, & John, 2016).

A systematic review on available ACT-measures (Batink, Jansen & Peeters, 2015) presents more than 50 questionnaires assessing psychological flexibility or ACT-components, in general population and in groups with specific disorders. One of the most important instruments is the Acceptance and Action Questionnaire – AAQ-II, (Bond, Hayes, Baer, Carpenter, Guenole, Orcutt, Waltz, & Zettle, 2011), instrument designed to assess psychological inflexibility and experiential avoidance, with lower scores on the AAQ-II indicating greater flexibility and acceptance.

AAQ-II is a unidimensional measure, and authors report good internal consistency (Cronbach's alpha is .9), with good construct validity (Bond et al., 2011). There are more than 20 derivate specific measures of AAQ-II, for pain, stigma, substance use, weight, so on (Batink et al, 2015). Other important ACT

instruments assess cognitive fusion (Cognitive Fusion Questionnaire – CFQ, Gillanders, Bolderston, Bond, Dempster, Flaxman et al., 2014), mindfulness (Five Facet Mindfulness Questionnaire – FFMQ, Bohlmeijer, Lamers, & Fledderus, 2011), values and committed action (Engaged Living Scale – ELS, Trompetter, Ten Klooster, Schreurs, Fledderus, Westerhof & Bohlmeijer, 2013).

A more recent systematic review of psychometric tools within acceptance and commitment therapy (Barrett, O'Connor & McHugh, 2019) underlines the need for multidimensional instrument to assess ACT processes and presents CompACT (Francis et al., 2016) and MPFI (Rolffs, Rogge, & Wilson, 2018) as multidimensional promising instruments, to be further evaluated in different languages/cultures. In the same period, another team of researchers investigated and recommended these two instruments for their clinical utility as ACT process measures (Rogge, Daks, Dubler & Saint, 2019).

ACT multidimensional instruments are essential to track the mechanisms of change in ACT therapies (Stockton, Kellett, Berrios, Sirois, Wilkinson & Miles, 2019), to evaluate in full depth the intervention outcomes (Morin, Grégoire & Lachance, 2020) and of course, to guide the practicians for an adequate process-based therapy (Hofmann & Hayes, 2019).

Comprehensive Assessment of ACT Processes – CompACT (Francis, Dawson, & Golijani-Moghaddam, 2016), one of the instruments recommended by researchers (Barrett, O'Connor, & McHugh, 2019: Rogge, Daks, Dubler & Saint, 2019), aims to assess three dimensions of psychological flexibility: openness to experience, present moment awareness (mindfulness) and valued action.

The strong argument to adapt and validate the CompACT instrument is the need to measure all ACT's processes and, overall, the psychological flexibility, as multidimensional construct, in concordance with the theoretical conceptualizations of the construct (Hayes, 2006). There is a large body of research on acceptance and commitment therapy and its processes, and it is increasing, due to the transdiagnostic relevance of the construct (Levin, MacLane, Daflos, Seeley, Hayes, Biglan & Pistorello, 2012; Faustino, 2021), and is necessary to be able to access, for Romanian studies, multidimensional instruments to evaluate psychological flexibility. There are no valid instruments assessing psychological flexibility for Romanian population, except AAQ-II (Szabó, Vargha, Balázsi, Bartalus, & Bogdan, 2011).

The objective of the present paper is to presents the translation, adaptation and validation of the multidimensional ACT instrument – Comprehensive Assessment of ACT Processes (CompACT, Francis, 2016) and to propose a short version of the instrument.

Method

Participants The study used three samples of volunteering persons, Caucasians, Romanian native speakers. Participants were recruited through university online networking; they filled in the questionnaires anonymously, with no rewards received.

Sample 1 had 78 students, the mean for age is 20.6 (SD 1.2), 58% females. They volunteer to fill in first paper-pencil the Romanian version of CompACT and then online, for retest, in 2 weeks.

Sample 2 had 168 persons, the mean for age is 32.7 (SD 8.4, min 19, max 53), 68% females.

Sample 3 had 215 persons, the mean for age is 27.5 (SD 6.2), 60% women, 59.63% are university students, 64% living in urban area.

Material and Procedure

Comprehensive Assessment of ACT Processes (CompACT, Francis, 2016) – the instrument has 23 items self-report, 10 items for the first dimension (Experiential Openness), 5 items for second dimension (Behavioural Awareness) and 8 items for the third dimension (Valued Action). Items were scored on a seven-point Likert scale, ranging from 0 ("strongly disagree") to 6 ("strongly agree"), some of the items are reversed. Higher scores indicate greater experiential openness, behavioural awareness and valued action, and the higher scores indicates the level of psychological flexibility. An example of item is 'I can identify the things that really matter to me in life and pursue them' /, I make choices based on what is important to me, even if it is stressful.'

CompACT' authors report a good convergent validity with AAQ-II (r = .79), good psychometric properties (Cronbach's alpha ranges between .87 and .90). The instrument has good convergent validity, tested with AQQ-II (*r* = .79) and concurrent validity, *r* ranging from .57 to .65 with DASS-21 and r = -68 with mental health subscale of SFHS (Short Form Health Survey, Ware, 2002).

AAQ-II Acceptance and Action Questionnaire (Bond et al., 2011), an 8 items instrument, on a 7 point Likert scale, measures psychological flexibility; has good reported psychometrical properties and validity. Greater scores of AAQ-II show grater psychological inflexibility. The instrument was successfully translated and used in many languages, including Romanian (Szabó et al., 2011).

AAQ-II authors report (Bond et al., 2011) strong negative correlation with the Mindfulness Attention and Awareness Scale (MAAS; *r*=-.53), and strong positive correlations with the Cognitive Fusion Questionnaire (CFQ; *r*=.63), strong positive correlations for suppression (*r*=.63), stress (*r*=.57) and depression (*r*=.61) and moderate positive correlations with anxiety (*r*=.49). Example of items 'I'm

afraid of my feelings',' My painful experiences and memories make it difficult for me to live a life that I would value.'

Satisfaction with Life Scale – SWLS (Diener, Emmons, Larsem, & Griffin, 1985) is a scale often used in studies to assess life satisfaction, has only 5 items, on a 5 point Likert scale. It is an instrument with good psychometric properties, translated in many languages, including Romanian (Stevens, Lambru, Sandu, Constantinescu, Butucescu & Uscatescu, 2014). Example of items 'The conditions of my life are excellent.'/ 'I am satisfied with my life.'

Depression, Anxiety, Stress Scale – DASS 21 (Henry & Crawford, 2005), is an well-established distress measure assessing, in a non-diagnostic manner, depression, anxiety and stress symptoms. Items are scored on a three-point Likert scale, higher scores indicate greater levels of distress. The scale is largely used in research, reported, α ranges between .82 and .95. Items examples , I felt that I was rather touchy.'/, I found it hard to calm down after something upset me'. The instrument was successfully translated and used in many languages, including Romanian (Szabó et al., 2011).

Marlowe Crowne Social Desirability Scale – MCSDS (Marlowe & Crowne, 1964) it was initially a 33 self-report items instrument to assess de tendency of subjects to respond, especially to personality questionnaires, in a desirable way. The instrument was translated in many languages and has several short forms. Romanian version (Sârbescu, Rusu, & Costea, 2012), used in present study, is a 13 self-report items, with good psychometric and validity properties reported.

Example item: "There have been occasions when I felt like smashing things".

Procedure

The study used a survey-based approach, volunteering participants signed informed consents and filled in the questionnaires paper-pencil in small pilot sample and online, using Google Forms, for the rest of the samples.

CompACT translation into Romanian language was developed in accordance with ITC (2017) rules and regulations of cultural adaptation (Hambleton, 2001), with double forward translation and a reconciliation procedure. Two Romanian professional translators for English were involved, one living in Romania, the other in USA, one of them being also a psychologist. Both Romanian translations were analysed and correlated by the research team, developing an adequate final version of the original instrument. The team investigated the content equivalence of the items, evaluating items according to Hambleton and Zenisky's guidelines (Hambleton & Zenisky, 2010). Previous studies presenting translation and adaptation of psychological test focusing on psychological flexibility (Szabó et al., 2011) did not report any cultural differences between the two European populations, English (used to validate original instrument) and Romanian.

Back translation, performed by a third professional translator, is available upon request (CompACT is an instrument free to use for research).

The final version of Romanian CompACT was administered to a small sample to assess the level of comprehension of the items and the psychometric premises, together with AAQ II, pencil and paper form. Participants were instructed to ask for help if instructions or items are not clear formulated; they did not report any difficulties. The same sample filled in CompACT questionnaire online, two weeks later, to assess the test-retest reliability.

CompACT was administered, online, along with AAQ II and SWLS, in a second sample, to test validity of construct (via Confirmatory Factor Analysis), convergent and concurrent validity. A shorter version of CompACT is proposed aiming for a better model fit to the theoretical model.

The short form of Romanian CompACT version (CompACT-R12) was re-administered in a third sample to test the structural model fit and add evidence to concurrent and discriminant validity.

Results

The results obtained in the pilot sample show good reliability (Cronbach 'Alpha α = .9) and good premises for convergent validity (correlation with AAQ II is r = -72, p <.01), as Table 1 presents in detail:

Table 1. CompACT and AAQ-II – Mean, SD, α and Correlations

	Mean (SD)	A	AAQ-II	CompACT OE	CompACT BA	CompACT VA	CompACT Total
			Pearson Correlations				
AAQ	22.9 (6.48)	0.85	1				
CompACT OE	36.23 (10.97)	0.81	-.87**	1			
CompACT BA	19.85 (6.48)	0.83	-.39**	.48**	1		
CompACT VA	38.54 (7.78)	0.89	-.34**	.43**	.53**	1	
CompACT Total	94.62 (20.43)	0.9	-.72**	.85**	.78**	.78**	1

CompACT Comprehensive ACT Assessment Romanian Version, OE Openness to Experience, BA Behavioural Awareness, VA Valued Action, AAQ-II Acceptance and Action Questionnaire.
** Pearson Correlation significant at the .01 level (2-tailed), N=78

The results of the item analysis (descriptive parameters and correlations of each item to sub-scale and scale) are in range with expectation, as Table 2 presents. The item number 20 has lower correlations than the expected ones (r=.3), the translation of item was re-analysed and reconfirmed by the research team.

Table 2. CompACT items analysis

Item (original)	Item Abr.	Mean (SD)	Std. Error	Pearson Correlation	
				To Sub-scale	To Scale
I rush through meaningful activities without being really attentive to them. (R*)	BA*3 **	3.67 (1.68)	0.19	.73**	.46**
I find it difficult to stay focused on what's happening in the present. (R)	BA9	4.06(2.04)	0.23	.80**	.75**
Even when doing the things that matter to me, I find myself doing them without paying attention. (R)	BA12	4.03(1.59)	0.18	.84**	.65**
I do jobs or tasks automatically, without being aware of what I'm doing. (R)	BA16	3.4(1.65)	0.19	.77**	.50**
It seems I am "running on automatic" without much awareness of what I'm doing. (R)	BA19	4.69(1.36)	0.15	.76**	.63**
One of my big goals is to be free from painful emotions. (R)	OE2	3.71(1.70)	0.19	.56**	.34**
I try to stay busy to keep thoughts or feelings from coming. (R)	OE4	4.28(1.79)	0.20	.59**	.56**
I get so caught up in my thoughts that I am unable to do the things that I most want to do. (R)	OE6	4.36(1.76)	0.20	.70**	.80**
I tell myself that I shouldn't have certain thoughts. (R)	OE8	3.09(2.13)	0.24	.74**	.62**
I go out of my way to avoid situations that might bring difficult thoughts, feelings, or sensations. (R)	OE11	3.04(1.88)	0.21	.69**	.53**
I am willing to fully experience whatever thoughts, feelings and sensations come up for me, without trying to change or defend against them.	OE13	3.78(1.75)	0.20	.57**	.42**
I work hard to keep out upsetting feelings. (R)	OE15	3.37(1.70)	0.19	.80**	.63**
Even when something is important to me, I'll rarely do it if there is a chance it will upset me. (R)	OE18	4.01(1.87)	0.21	.62**	.52**
Thoughts are just thoughts – they don't control what I do.	OE20	2.79(1.94)	0.22	.30**	.30**
I can take thoughts and feelings as they come, without attempting to control or avoid them.	OE22	3.79(1.50)	0.17	.52**	.46**
I can identify the things that really matter to me in life and pursue them.	VA1	5(1.07)	0.12	.79**	.66**
I act in ways that are consistent with how I wish to live my life.	VA5	4.37(1.44)	0.16	.76**	.64**
I make choices based on what is important to me, even if it is stressful.	VA7	4.58(1.43)	0.16	.78**	.57**
I behave in line with my personal values.	VA10	5.03(1.15)	0.13	.73**	.54**
I undertake things that are meaningful to me, even when I find it hard to do so.	VA14	4.88(1.2)	0.14	.75**	.55**
I am able to follow my long terms plans including times when progress is slow.	VA17	4.68(1.5)	0.17	.81**	.60**
My values are really reflected in my behaviour.	VA21	4.77(1.33)	0.15	.68**	.57**
I can keep going with something when it's important to me.	VA23	5.23(1.09)	0.12	.80**	.66**

CompACT – Comprehensive ACT Assessment Romanian Version, * OE – Openness to Experience, BA – Behavioural Activation, VA-Valued Action, Number in item abr. is according to order of item in scale , N =78, ** Pearson Correlation significant at the .01 level (2-tailed)

Test-retest results are in range with expectation, correlations between test and retest for total scores and for sub-scales are very strong, highly significant, as Table 3 presents in detail.

Table 3. CompACT-R Test-retest – Mean, SD, α and Correlations

	Mean (SD)	Cronbach Alpha	OE (test)	BA (test)	VA (test)	CompACT (test)
			Pearson Correlations			
OE (retest)	36.26(10.84)	0.82	.90**	.41**	.41**	.77**
BA (retest)	19.77(6.47)	0.83	.38**	.91**	.47**	.67**
VA (retest)	38.12(7.87)	0.89	.39**	.52**	.94**	.73**
CompACT (retest)	94.16(20.82)	0.9	.73**	.70**	.71**	.89**

CompACT – Comprehensive ACT Assessment Romanian Version, OE – Openness to Experience, BA – Behavioural Activation, VA-Valued Action, ** Pearson Correlation significant at the .01 level (2-tailed), N=78

Overall, the results obtained in first sample indicated that Romanian version of CompACT has a good translation and comprehensibility of the items, good results for item statistical analysis, good reliability (internal consistency and test-retest) and promising premises for convergent validity.

Second sample: Romanian version of CompACT was administered in a larger, more heterogeneous sample, to test the validity of the construct. The investigation of convergent and concurrent validity evaluates CompACT in relation with AAQ II (psychological inflexibility) and with SWLS (satisfaction with life).

Descriptive parameters and internal consistency are in line with results in pilot sample, as presented in Table 4.

Table 4. CompACT, AAQ-II and SWLS – Mean, SD, α and Correlations

	Mean (SD)	Alpha	SWLS	AAQ-II	OE	BA	VA	CompACT-R
			Pearson Correlation					
SWLS	14.42(3.22)	0.9	1					
AAQ	24.2(6.24)	0.87	-.36**	1				
CompACT OE	33.09(8.32)	0.80	.37**	-.77**	1			
CompACT BE	20.15(6.36)	0.83	.30**	-.46**	.42**	1		
CompACT VA	38.74 (6.78)	0.86	.38**	-.32**	.37**	.47**	1	
CompACT	91.99(16.8)	0.87	.45**	-.71**	.80**	.78**	.77**	1

CompACT Comprehensive Assessment of ACT processes, AAQ-II Acceptance and Action Questionnaire, SWLS Satisfaction with Life Scale; ** Pearson Correlation significant at the .01 level (2-tailed).

Correlations with AAQ II shows a good convergent reliability (r= -.71), in line with results presented by instrument's authors for CompACT original version

(r = -.79). Correlation with life satisfaction scale SWLS (r =.45) is in line with the one reported in other studies (Lucas & Moore, 2019), showing good concurrent validity.

Construct validity needs to be tested using Confirmatory Factor Analysis (CFA). The analysis is based on a Pearson covariance matrix and Maximum Likelihood Estimation (MLE); the latent variables are constrained to 1.0. In accordance with Hu and Bentler (1999) models have good fit when the absolute fit indices (SRMR and RMSEA) are near or below .06 and incremental fit indices (TLI and CFI) are approximately .95 or larger. There are serious critics for these severe cut-offs, models might be considered having acceptable fit when indices values are near the ones set by Hu and Bentler (1999) and marginal fit when RMSEA <.08 and TLI and CFI are larger than .90 (Marsh, Hau & Wen, 2004).

It was tested the factorial structure of the instrument presented by the authors of the instrument, with three dimensions (openness to experience, behavioural awareness, valued action) and a higher order factor – psychological flexibility. The model is presented, with standardized loadings, in Figure 1.

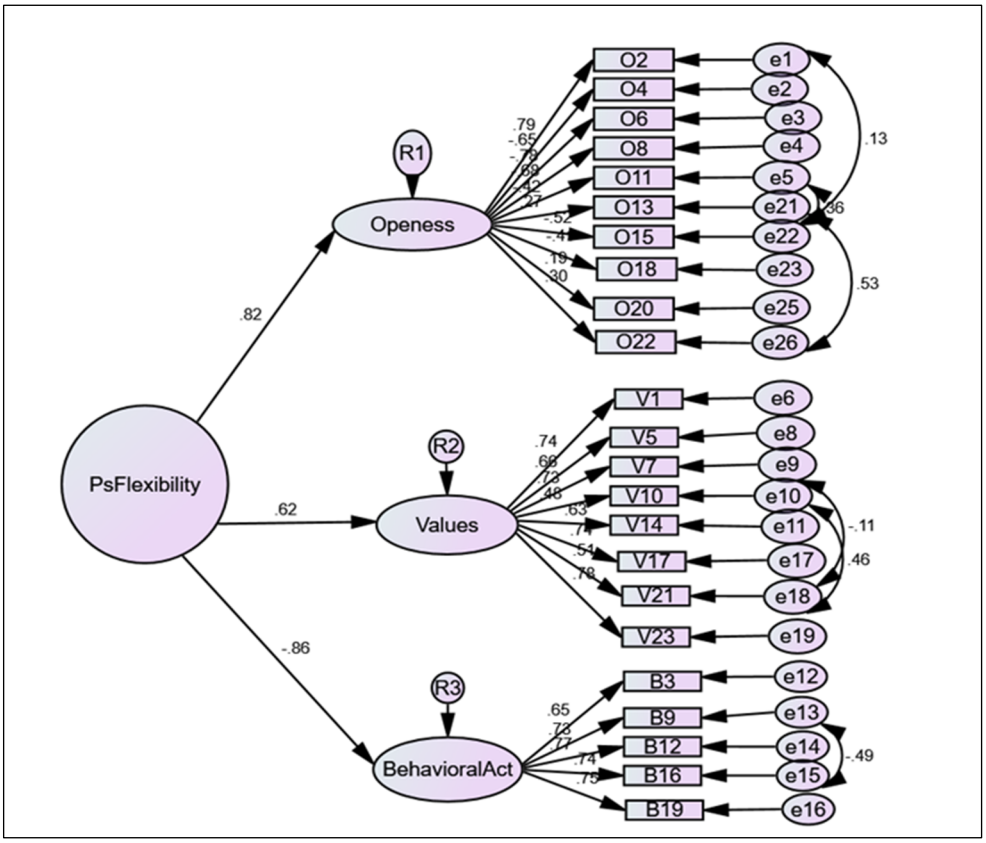

Figure 1. Confirmatory Factor Analysis CompACT

The model showed a rather modest fit, minimum was achieved, χ^2= 401.119, degrees of freedom = 221, probability level = .000, TLI .90, CFI. 903 and RMSEA .070.

There were two choices to continue the study, to cross-validate the scale's structure in a new sample, hoping for better results or to propose a shorter form of the questionnaire, with the best loading items, relevant for theoretical model.

A short form for CompACT, with12 items, was proposed. Items are highly relevant for the conceptual definition of each factor and have very good factorial loadings, according to statistical analyses performed on second sample. The selected items are marked with bold letters in Table 5:

Table 5. Regression Weights: Standardised and unstandardized loading coefficients – CompACT

			Std. Estimate	Unstd. Estimate	S.E.	C.R.	P
F2	<-	F4	0.62	1.00			
F3	<-	F4	-0.86	-2.02	0.41	-4.99	***
F1	<-	F4	0.82	2.73	0.50	5.49	***
OE2	<-	F1	0.79	1.00			
OE4	<-	F1	-0.65	-0.76	0.09	-8.28	***
OE6	<-	F1	-0.78	-0.82	0.08	-10.14	***
OE8	<-	F1	-0.69	-0.94	0.11	-8.80	***
OE15	<-	F1	-0.52	-0.59	0.10	-6.15	***
VA1	<-	F2	0.74	1.00			
VA7	<-	F2	0.73	1.33	0.15	9.01	***
VA14	<-	F2	0.63	1.05	0.14	7.81	***
VA17	<-	F2	0.74	1.31	0.14	9.12	***
VA23	<-	F2	0.78	0.95	0.10	9.68	***
BA3	<-	F3	0.75	1.00			
BA12	<-	F3	0.77	1.10	0.13	8.40	***
BA16	<-	F3	0.74	1.21	0.15	7.92	***
BA19	<-	F3	0.75	0.97	0.12	8.26	***
BA9	<-	F3	0.73	1.27	0.16	7.82	***
VA5	<-	F2	0.66	1.18	0.15	8.11	***
VA10	<-	F2	0.48	0.71	0.12	5.84	***
VA21	<-	F2	0.51	0.84	0.14	6.16	***
OE11	<-	F1	-0.42	-0.48	0.09	-5.18	***
OE13	<-	F1	0.27	0.32	0.10	3.32	***
OE18	<-	F1	-0.41	-0.46	0.09	-5.01	***
OE20	<-	F1	0.29	0.24	0.10	2.27	***
OE22	<-	F1	0.30	0.31	0.08	3.62	***

F1 – Openness to experience, F2 = Valued action, F3 =Behavioural awareness, F4 = Psychological Flexibility, OE – Openness to experience item, BA=Behavioural awareness item, VA= Valued action item, *** p<.001

The correlations of the Romanian version CompACT short form (CompACT –R12) with original scale is very strong and highly significant (r =.93, p<.001). Correlations between correspondent sub-scales are strong and highly significant also, for OE (Openness to experience) r = .88, for BA (Behavioural awareness) r =.97 and for VA (Valued action) r = .92, p<.001. Correlations of CompACT–R12 with the other two administered tests are in line with the original's ones, with AAQ II r = -.69, p<.001 and with SWLS r= .48, p<.001.

CompACT-R12 was administered in a new large sample, to assess construct validity and to gather more evidence for concurrent (with DASS-21) and discriminant validity (with MCSDS).

In this sample, the short version of CompACT has good internal consistency, slightly lower than for the 23 items Romanian version (α is varying between .78-.82 for sub-scales and .88 for total scale). The correlations with DASS 21 and MCSDS are in line with the one presented by authors for the original scale – between CompACT –R12 and DASS-21 the correlations is r = .57, p<.001 and for CompACT-R12 and MCSDS the correlation is not statistically significant, as expected. The Table 6 presents the result in terms of mean, standard deviation, Cronbach's Alpha and correlations.

Table 6. Descriptive statistics and Pearson correlations between CompACT-R12, DASS 21 and MCSDS

	Mean (SD)	**Alpha Cronbach**	**OE12**	**BA12**	**VA12**	**CompACT-R12**	**DASS Total**
OE12	11.25(5.73)	0.79	1				
BA12	13.91(5.13)	0.80	.49**	1			
VA12	17.25(4.58)	0.78	.25**	.32**	1		
CompACT-R12	42.41(11.74)	0.88	.80**	.81**	.66**	1	
DASSD	9.32(5.67)	0.87	-.62**	-.37**	-.37**	-.61**	
DASSA	9.8(5.41)	0.84	-.48**	-.25**	-0.13	-.40**	
DASSS	10.27(5.18)	0.87	-.59**	-.37**	-.23**	-.54**	
DASS Total	29.39(14.72)	0.94	-.62**	-.37**	-.27**	-.57**	1
MCSDS	5.18(2.84)	0.81(.71)	-0.09	-0.04	0.05	-0.04	0.03

OE12 – Openness to experience, BA12 – Behavioural awareness, VA12 – Valued Action, DASSD – Depression, DASSA – Anxiety, DASSS – Stress, MCSDS – Desirability Scale
** Correlation is significant at the 0.01 level (2-tailed).

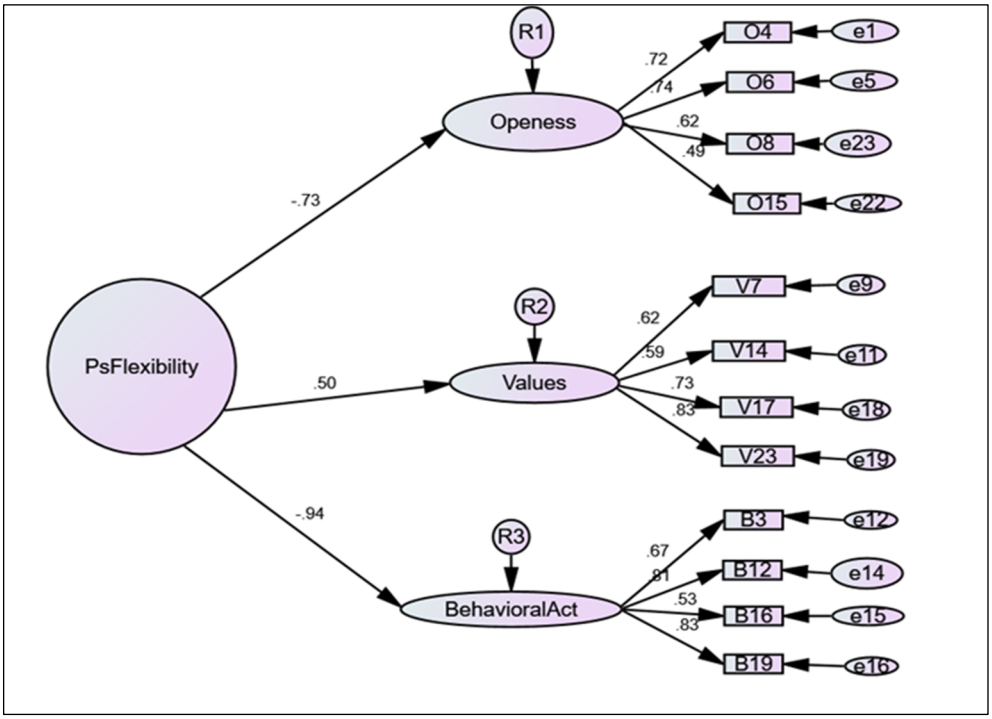

Figure 2. Confirmatory Factor Analysis CompACT – R12

Confirmatory Factor Analysis (CFA) tests the construct validity of CompACT – R12. Data appear to be approximately normal distributed, for males and females, skewness and kurtosis z-values are within [-1.96, 1.96] interval and the Shapiro-Wilk test was not significant.

Hypothesized model showed acceptable to good model fit for CompACT – R12: $\chi 2$= 102.884 (df=147), p < .001, TLI = 0.921, CFI= 0.939, RMSEA= 0.069 (items standardised loading coefficients are above .49, p >.001, see Figure 2).

Discussion

Both versions of Romanian CompACT instrument, the 23 items and the 12 items, have promising psychometric properties: Cronbach's alpha ranges from .8 to .9, test retest correlation is r = .89, p<.001, the correlations with other instruments are in line with the ones reported by the authors for original instrument (with AAQ II r = -.71 (r = -.69 for CompACT short form), p<.001; Correlation with SWLS is r = .45 (r = .48 for short form), p<.001, with DASS-21 r = -57, p<.001 for short form. The correlation between original form and short form is r = .89, p<.001.

The model fit of the original version is acceptable (CFA results are TLI .90, CFI .903, RAMSEA .070) and there is no option to compare the results with the author's – in their first study, in 2016, they present a three dimensions structure only with theoretical support and exploratory factor analysis. In their next studies they report acceptable model fit assessed via CFA (Dawson, Moghaddam & Francis, 2017; Bayliss, 2018). Later, one of the main authors of CompACT coordinates a study to propose a shorter version, with better model fit indices (Morris, 2019).

CompACT was translated and adapted into Chinese language (Chen, Luo, Wang, Bai & Zhu, 2020), Portuguese language (Trindade, Ferreira, Mendes, Ferreira, Dawson & Golijani-Moghaddam, 2021) and Iranian language (Soleimani, Shairi, Gholami Fesharaki & Ghomian 2021). Authors of Chinese and Portuguese versions also proposed shorter forms of the instrument (18 items) in order to increase ease of use and the stability of the instrument. The results reported by the researchers who translated and adapted CompACT are in line with the ones reported by the authors of the instrument and add empirical evidence for the stability of the instrument across languages and cultures.

Conclusion

Romanian version of CompACT correlates in expected ways with relevant psychological instruments: with AAQ II (convergent reliability), with DASS2 21 and with SWLS, showing good concurrent validity.

CompACT-R12, the short version of instrument has very strong correlation with original one. According to present data, the short form has a slight decrease of the internal consistency, but a better model fit for the factorial structure proposed by authors.

The properties of instrument – reliability (internal consistency and test retest) and validity (construct, convergent, concurrent, discriminant validity) recommend the use of Romanian version of CompACT and CompACT-R12 in Romanian non-clinical samples of adults.

The possible limitations of present study are related to sample characteristics (relatively small sample, with volunteer subjects, only non-clinical population), we hope that future studies will add more evidence for the psychometrical properties of both instruments, the Romanian full-length version of CompACT and the short one, CompACT -R12.

The effort to translate and validate a multidimensional measure for psychological flexibility is in line with the efforts of the authors to develop and translate instruments to evaluate the outcomes of interventions for emotion regulation, mindfulness and wellbeing (Calinici, Călinici, Balazsi & Miclea, 2020; Calinici, Unk & Calinici, 2020). Translating and adapting an instrument for ACT processes ads a valuable instrument for Romanian future studies on psychological

flexibility, very important due to the lack of investigation for processes of psychological flexibility like behavioural activation or committed action, existing international studies focusing only on acceptance or cognitive defusing (Stockton et al., 2019, Coto-Lesmes et al., 2020).

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References

A-Tjak, J. G. L., Davis, M. L., Morina, N., Powers, M. B., Smits, J. A. J., & Emmelkamp, P. M. G. (2015). A Meta-Analysis of the Efficacy of Acceptance and Commitment Therapy for Clinically Relevant Mental and Physical Health Problems. *Psychotherapy and Psychosomatics*, *84*(1), 30–36. https://doi.org/10.1159/000365764.

Bai, Z., Luo, S., Zhang, L., Wu, S., & Chi, I. (2020). Acceptance and commitment therapy (ACT) to reduce depression: A systematic review and meta-analysis. *Journal of Affective Disorders*, *260*, 728-737.

Barrett, K., O'Connor, M., & McHugh, L. (2019). A systematic review of values-based psychometric tools within acceptance and commitment therapy (ACT). *The Psychological Record*, *69*(4), 457-485.

Bayliss, K. (2018). *Confirmatory Factor Analysis and further validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT)* (Doctoral dissertation, University of Nottingham).

Batink, T., Jansen, G., & Peeters, F. P. M. L. (2015). [New generation behaviour therapy; new generation assessment measures; a review of currently available assessment measures]. *Tijdschrift Voor Psychiatrie*, *57*(10), 739-748.

Blackledge, J. T., & Hayes, S. C. (2001). Emotion regulation in acceptance and commitment therapy. *Journal of clinical psychology*, 57(2), 243-255.

Biglan, A., Hayes, S. C., & Pistorello, J. (2008). Acceptance and commitment: Implications for prevention science. *Prevention Science*, *9*(3), 139–152. https://doi.org/10.1007/s11121-008-0099-4.

Bohlmeijer, E. T., Fledderus, M., Rokx, T. A. J. J., & Pieterse, M. E. (2011). Efficacy of an early intervention based on acceptance and commitment therapy for adults with depressive symptomatology: Evaluation in a randomized controlled trial. *Behaviour Research and Therapy*, *49*(1), 62–67. https://doi.org/10.1016/j.brat.2010.10.003.

Bohlmeijer, E., ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of Bohlmeijer, E., ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the five facet

mindfulness questionnaire in depressed adults and development of a short form. Assessment, 18(3), 308–2. *Assessment*, *18*(3), 308–320. https://doi.org/10.1177/1073191111408231.

Bohlmeijer, E. T., Lamers, S. M., & Fledderus, M. (2015). Flourishing in people with depressive symptomatology increases with acceptance and commitment therapy. Post-hoc analyses of a randomized controlled trial. *Behaviour research and therapy,* 65, 101-106.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary Psychometric Properties of the Acceptance and Action Questionnaire-II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Behavior Therapy*, *42*(4), 676–688. https://doi.org/10.1016/j.beth.2011.03.007.

Brown, M., Glendenning, A. C., Hoon, A. E., & John, A. (2016). Effectiveness of web-delivered acceptance and commitment therapy in relation to mental health and well-being: a systematic review and meta-analysis. *Journal of medical Internet research*, *18*(8), e221.

Călinici, M. S., Călinici, T., Balazsi, R., & Miclea, M. (2020). Development and validation of a new ability-based measure of emotional intelligence: Cluj Emotional Intelligence Scale CEIS. *Cognition, Brain, Behavior*, *24*(4).

Călinici, M. S., Unk, I. & Călinici, T. (2020). Impact Of Regulatory Emotional Self-Efficacy On Depression, Anxiety, Stress And Well-Being. *EpSBS – Volume 85 – ERD 2019,* p. 432. doi:10.15405/epsbs.2020.06.43.

Chen, Y., Luo, H., Wang, S., Bai, X., & Zhu, Z. (2020). Preliminary Validation of a Chinese Version of the Comprehensive Assessment of Acceptance and Commitment Therapy Processes.

Coto-Lesmes, R., Fernández-Rodríguez, C., & González-Fernández, S. (2020). Acceptance and Commitment Therapy in group format for anxiety and depression. A systematic review. In *Journal of Affective Disorders* (Vol. 263, pp. 107–120). Elsevier B.V. https://doi.org/10.1016/j.jad.2019.11.154.

Christie, A. M., Atkins, P. W., & Donald, J. N. (2017). The meaning and doing of mindfulness: The role of values in the link between mindfulness and well-being. *Mindfulness*, *8*(2), 368-378.

Crowne, D. P., & Marlowe, D. (1964). The approval motive: Studies in evaluative dependence. New York: Wiley.

Diener, E., Emmons, R. A., Larsem, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13.

Dawson, Dave, Moghaddam, Nima & Francis, Ashley (2017) *Development and continuing validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT).* In: Association for Contextual Behavioral Science World Conference 15, 20-25 June 2017, Seville, Spain.

Fang, S., & Ding, D. (2020). A meta-analysis of the efficacy of acceptance and commitment therapy for children. *Journal of Contextual Behavioral Science*, *15*, 225–234. https://doi.org/10.1016/j.jcbs.2020.01.007.

Faustino, B. (2021). Transdiagnostic perspective on psychological inflexibility and emotional dysregulation. *Behavioural and Cognitive Psychotherapy, 49*(2), 233-246. doi:10.1017/S1352465820000600.

Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT). *Journal of Contextual Behavioral Science*, *5*(3), 134–145. https://doi.org/10.1016/j.jcbs.2016.05.003.

Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E., Campbell, L., Kerr, S., Tansey, L., Noel, P., Ferenbach, C., Masley, S., Roach, L., Lloyd, J., May, L., Clarke, S., & Remington, B. (2014). The Development and Initial Validation of the Cognitive Fusion Questionnaire. *Behavior Therapy*, *45*(1), 83–101. https://doi.org/10.1016/j.beth.2013.09.001.

Gloster, A. T., Walder, N., Levin, M., Twohig, M., & Karekla, M. (2020). The empirical status of acceptance and commitment therapy: A review of meta-analyses. *Journal of Contextual Behavioral Science*.

González-Fernández, S., & Fernández-Rodríguez, C. (2019). Acceptance and commitment therapy in cancer: Review of applications and findings. *Behavioral Medicine*, *45*(3), 255-269.

Graham, C. D., Gouick, J., Krahe, C., & Gillanders, D. (2016). A systematic review of the use of Acceptance and Commitment Therapy (ACT) in chronic disease and long-term conditions. *Clinical psychology review*, *46*, 46-58.

Hayes, S. C., & Gifford, E. V. (1997). The Trouble with Language: Experiential Avoidance, Rules, and the Nature of Verbal Events. *Psychological Science*, *8*(3), 170–173. https://doi.org/10.1111/j.1467-9280.1997.tb00405.x.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and Commitment Therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*(1), 1–25. https://doi.org/10.1016/j.brat.2005.06.006.

Hayes, S. C., Villatte, M., Levin, M., & Hildebrandt, M. (2011). Open, Aware, and Active: Contextual Approaches as an Emerging Trend in the Behavioral and Cognitive Therapies. *Annual Review of Clinical Psychology*, *7*(1), 141–168. https://doi.org/10.1146/annurev-clinpsy-032210-104449.

Hayes, S. C. (2019). Acceptance and commitment therapy: towards a unified model of behavior change. *World Psychiatry*, *18*(2), 226.

Hambleton, R. K. (2001). The next generation of the ITC Test Translation and Adaptation Guidelines. *European journal of psychological assessment*, 17(3), 164.

Hambleton, R. K., & Zenisky, A. L. (2011). Translating and adapting tests for cross-cultural assessments.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression anxiety stress scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227–239. https://doi.org/10.1348/014466505X29657.

Hofmann, S. G., & Hayes, S. C. (2019). The future of intervention science: Process-based therapy. *Clinical Psychological Science*, *7*(1), 37-50.

Levin, M. E., Hildebrandt, M. J., Lillis, J., & Hayes, S. C. (2012). The impact of treatment components suggested by the psychological flexibility model: A meta-analysis of laboratory-based component studies. *Behavior therapy*, 43(4), 741-756.

Levin, M. E., MacLane, C., Daflos, S., Seeley, J. R., Hayes, S. C., Biglan, A., & Pistorello, J. (2014). Examining psychological inflexibility as a transdiagnostic process across psychological disorders. *Journal of Contextual Behavioral Science*, 3(3), 155-163.

Lloyd, J., Bond, F. W., & Flaxman, P. E. (2013). The value of psychological flexibility: Examining psychological mechanisms underpinning a cognitive behavioural therapy intervention for burnout. *Work and Stress*, *27*(2), 181–199. https://doi.org/10.1080/02678373.2013.782157.

Lucas, J. J., & Moore, K. A. (2020). Psychological flexibility: positive implications for mental health and life satisfaction. *Health promotion international*, 35(2), 312-320.

Marsh, H. W., Hau, K. T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. In *Structural Equation Modeling* (Vol. 11, Issue 3, pp. 320–341). Routledge. https://doi.org/10.1207/s15328007sem1103_2.

McCracken, L. M., Sato, A., & Taylor, G. J. (2013). A trial of a brief group-based form of acceptance and commitment therapy (ACT) for chronic pain in general practice: pilot outcome and process results. *The Journal of Pain*, *14*(11), 1398-1406.

Morin, L., Grégoire, S., & Lachance, L. (2020). Processes of change within acceptance and commitment therapy for university students: Preliminary evidence from a randomized controlled trial. *Journal of American College Health*, 1-10.

Morris, Jessica (2019). *Development and validation of a short form of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT-SF).* DClinPsy thesis, University of Nottingham.

Rogge, R. D., Daks, J. S., Dubler, B. A., & Saint, K. J. (2019). It's all about the process: Examining the convergent validity, conceptual coverage, unique predictive validity, and clinical utility of ACT process measures. *Journal of Contextual Behavioral Science*, *14*, 90-102.

Runcan, P. L., & Iovu, M. B. (2013). Emotional intelligence and life satisfaction in Romanian university students: The mediating role of self-esteem and social support. *Revista de cercetare si interventie sociala,* 40, 137-148.

Rogge, R. D., Daks, J. S., Dubler, B. A., & Saint, K. J. (2019). It's all about the process: Examining the convergent validity, conceptual coverage, unique predictive validity, and clinical utility of ACT process measures. *Journal of Contextual Behavioral Science*, *14*, 90-102.

Rolffs, J. L., Rogge, R. D., & Wilson, K. G. (2018). Disentangling components of flexibility via the hexaflex model: Development and validation of the Multidimensional Psychological Flexibility Inventory (MPFI). *Assessment*, *25*(4), 458-482.

Sârbescu, P., Costea, I., & Rusu, S. (2012). Psychometric properties of the Marlowe-Crowne social desirability scale in a Romanian sample. *Procedia-Social and Behavioral Sciences,* 33, 707-711.

Rolffs, J. L., Rogge, R. D., & Wilson, K. G. (2018). Disentangling components of flexibility via the hexaflex model: Development and validation of the Multidimensional Psychological Flexibility Inventory (MPFI). *Assessment*, *25*(4), 458-482.

Soleimani, Z., Shairi, M., Gholami Fesharaki, M., & Ghomian, S. (2021). examination of validity and reliability of the Comprehensive Assessment of Acceptance and Commitment Therapy processes (COMPACT) in non-clinical iranian sampels. *Clinical Psychology and Personality*.

Stockton, D., Kellett, S., Berrios, R., Sirois, F., Wilkinson, N., & Miles, G. (2019). Identifying the underlying mechanisms of change during acceptance and commitment therapy (ACT): a systematic review of contemporary mediation studies. *Behavioural and cognitive psychotherapy*, *47*(3), 332-362.

Stevens, M. J., Lambru, I., Sandu, C. G., Constantinescu, P. M., Butucescu, A., & Uscatescu, L. (2012). Romanian adaptation of the Satisfaction with Life Scale. Journal of Psychological and Educational Research, 20(1), 17.

Szabó, K.-G., Vargha, J.-L., Balázsi, R., Bartalus, J., & Bogdan, V. (2011). Measuring psychological flexibility : preliminary data on the psychometric properties of the Romanian version of the Acceptance and Action Questionnaire (AAQ-II). *Journal of Cognitive and Behavioral Psychotherapies* (Vol. 11, Issue 1).

Trindade, I. A., Ferreira, N. B., Mendes, A. L., Ferreira, C., Dawson, D., & Golijani-Moghaddam, N. (2021). Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT): Measure refinement and study of measurement invariance across Portuguese and UK samples. *Journal of Contextual Behavioral Science*, *21*, 30-36.

Trompetter, H. R., Ten Klooster, P. M., Schreurs, K. M. G., Fledderus, M., Westerhof, G. J., & Bohlmeijer, E. T. (2013). Measuring values and committed action with the engaged living scale (ELS): Psychometric evaluation in a nonclinical sample and a chronic pain sample. *Psychological Assessment*, *25*(4), 1235–1246. https://doi.org/10.1037/a0033813.

Veehof, M. M., Oskam, M. J., Schreurs, K. M. G., & Bohlmeijer, E. T. (2011). Acceptance-based interventions for the treatment of chronic pain: A systematic review and meta-analysis. *Pain*, *152*(3), 533–542. https://doi.org/10.1016/j.pain.2010.11.002

Ware, J. E., Kosinski, M., Turner-Bowker, D., & Gandek, B. (2002). Version 2 of the SF-12 health survey. Boston, MA: *Quality Metric.*

Wynne, B., McHugh, L., Gao, W., Keegan, D., Byrne, K., Rowan, C., ... & Mulcahy, H. E. (2019). Acceptance and commitment therapy reduces psychological stress in patients with inflammatory bowel diseases. *Gastroenterology, 156*(4), 935-945.