

# PSYCHOMETRICS IN PURSUIT OF EXISTENCE: A NEW VERSION OF THE TEST OF EXISTENTIAL MOTIVATIONS

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We present four studies aimed at the development and validation of a new Russian-language instrument measuring existential fulfillment and based on the hierarchical structure of the four existential fundamental motivations developed by A. Längle (2003; 2016). Based on phenomenological descriptions and focus groups, we created a set of 93 items. The first study used two online samples ( $N = 818$  and  $N = 215$ , respectively). Using hierarchical cluster analysis, expert-rating procedure and confirmatory factor analysis with cross-validation we generated a hierarchically structured set of 36 items grouped into 4 fundamental motivation scales forming a general index of existential fulfillment, each comprised by 3 subscales corresponding to the prerequisites of respective fundamental motivation. The scales demonstrated acceptable reliability: Cronbach's  $\alpha$  was in the .79-.88 range for the fundamental motivation scales and .93 for the general existential fulfillment score. In the same study we explored evidence for the convergent and discriminant validity of the new TEM by examining its associations with measures of subjective well-being, basic psychological need satisfaction, and self-esteem. TEM showed moderate to strong associations with other measures of positive functioning. The second study using a large online sample ( $N = 3766$ ) found weak associations of TEM scores with gender and age and moderate positive associations with measures of self-control and systemic reflection. The third study ( $N = 658$ ) explored the associations of TEM scores with the Big Five and measures of anxiety and depression. Existential fulfillment was positively associated with extraversion and emotional stability and showed incremental validity over the Big Five traits in predicting state anxiety and depression. The fourth study found significant differences in existential fulfillment between females with symptoms of binge eating disorder ( $N = 188$ ) and those from general population. The results indicate the new TEM is a reliable instrument with a theoretically predicted structure and provide preliminary evidence of its validity in research settings. We discuss the challenges and possibilities of development of psychometric tools based on existential-analytic theory.

**KEYWORDS:** existential analysis, existential fulfillment, fundamental existential motivations, psychometrics, confirmatory factor analysis, psychological well-being, eudaimonia

PSYCHOMETRIE, DER EXISTENZ AUF DER SPUR: EINE NEUE VERSION DES TESTS ZUR EXISTENZIELLEN MOTIVATION

Wir stellen vier Studien vor, welche auf die Entwicklung und die Validierung eines neuen russischsprachigen Instruments zur Messung der existenziellen Erfüllung abzielen und sich auf die hierarchische Struktur der vier existenziellen Grundmotivationen nach A. Längle (2003; 2016) stützen. Anhand phänomenologischer Beschreibungen und Schwerpunktgruppen erstellten wir einen Katalog von 93 Items. Die erste Studie verwendete zwei online Stichproben ( $N = 818$  und  $N = 215$ , jeweils). Mit Verwendung der Hierarchischen Clusteranalyse, dem Experten-Rating Verfahren und der Konfirmatorischen Faktorenanalyse mit Kreuzvalidierung entwickelten wir ein hierarchisch strukturiertes Set von 36 Items welche, in 4 Grundmotivationskalen eingeteilt, einen allgemeinen Index existenzieller Erfüllung bildeten, jedes davon drei Subskalen beinhaltend, entsprechend den Bedingungen der jeweiligen Grundmotivation. Die Skalen wiesen akzeptable Reliabilität auf: Cronbach's  $\alpha$  war im Bereich von .79-.88 für die Grundmotivationskalen und .93 für die Werte der allgemeinen existenziellen Erfüllung. In derselben Studie erkundeten wir Hinweise für die konvergente und diskriminante Validität des neuen TEM, indem wir Zusammenhänge mit Messungen des subjektiven Wohlbefindens, der grundlegenden psychischen Bedürfnisbefriedigung und dem Selbstwertgefühl untersuchten. Der TEM wies moderate bis starke Zusammenhänge mit anderen Werten des positiven Funktionierens auf. Die zweite Studie, welche eine größere online Stichprobe verwendete ( $N = 3766$ ), ortete schwache Zusammenhänge von TEM-Werten mit Geschlecht und Alter und moderat positive Zusammenhänge mit Werten der Selbstkontrolle und systemischen Reflexion. Die dritte Studie ( $N = 658$ ) untersuchte die Zusammenhänge von TEM-Werten mit den Big Five und Werten der Angst und Depression. Existenzielle Erfüllung wurde positiv assoziiert mit Extroversion und emotionaler Stabilität und wies erhöhte prognostische Validität bei den Big Five Merkmalen Angstneigung und Depression auf. Die vierte Studie stellte zwischen Frauen mit Symptomen der Binge Eating Disorder ( $N = 188$ ) und jenen der Allgemeinbevölkerung signifikante Unterschiede in existenzieller Erfüllung fest. Das Ergebnis belegt, dass der neue TEM ein zuverlässiges Instrument mit einer theoretisch festgelegten Struktur ist und vorläufige Nachweise ihrer Validität im Forschungsumfeld erbringt. Die Herausforderungen und Möglichkeiten der Entwicklung psychometrischer, auf existenzanalytischer Theorie basierende Instrumentarien werden diskutiert.

**SCHLÜSSELWÖRTER:** Existenzanalyse, existenzielle Erfüllung, existenzielle Grundmotivationen, Psychometrie, Konfirmatorische Faktorenanalyse, psychisches Wohlbefinden, Eudaimonie

## Introduction

One of the principal challenges faced by psychometricians working in the field of existential psychology is the highly abstract level of the constructs borrowed from

philosophy. Notions like existence or existential fulfillment are hard to operationalize without reverting to philosophical language.

The philosophical concept of existence denotes a specific reality of something – an actual being – which is neither

a thing itself nor any of its properties. As claimed by Heidegger (1985, 110), existence is “an entity *whose what is precisely to be and nothing but to be*”. In application to a human being, existence can be defined in the following way: “Of everything which in the naturally lived experience belongs to life by contents, of everything that a person manages and of what he/she could say that he/she ‘has’ it in some respect, he/she may eventually find out that it does not essentially belong to him/her and that it could be taken away without any causing any harm to his/her last, innermost core. ... This last, innermost core of a human being that lies ‘outside’ of all given contents and can only be experienced by means of every content definable in any way falling away from it as superficial, this [core] is called existence in a strict existential-philosophical sense” (Bollnow, 2009, 155).

According to Frankl, it was only during his time in the concentration camp that he experienced himself as “naked existence”, whose only external attributes were a body deprived of clothes and a prisoner’s number (Frankl, 1992, 28). At the level of individual experience, existence is some kind of an “indestructible remainder”, which is hard to verbalize, operationalize or measure. Acknowledging this fact, Boss (1979) expressed his doubt that existential psychology could be developed within a natural science paradigm and saw the goal of existential philosophy in teaching researchers to keep close to their immediate experiences of phenomena, allowing the latter to reveal their meanings and relations.

This is why phenomenology remains a primary method of existential philosophy and psychology that aims to transcend the notions and linguistic constructs and explicate the basic preverbal human experience with its invariant ontological foundations (Merleau-Ponty 1962; Heidegger 1985). These ontological foundations constitute a reality that lies beyond words, can be experienced, rather than logically construed, and precedes language, in which it can be objectified. Heidegger’s (1962) contribution to philosophy was a set of concepts (i.e., *existentials*) that describe this extra-cultural reality; however, Heidegger’s language is rather hard to grasp, which makes it difficult to apply in empirical studies.

In Längle’s (2003; 2016) Existential Analysis (EA) framework, this “last, innermost core of a human being” (Bollnow 2009,155) is described using words of everyday language that can be understood by individuals from different cultures (e.g., support, space, protection, time, relationships, attention, justice, etc.). Längle’s theory presents existence in a structured way, as comprised of four existential fundamental motivations with their respective prerequisites, types of personal activity, conse-

quences of deficit, coping strategies and deep emotional experiences. Because of its clear structure and use of non-philosophical language, the EA theory opens up possibilities to develop psychometric instruments for quantitative measurement of human existence by means of self-report questionnaires tapping into subjective phenomena.

In the present paper, we discuss some of the psychometric challenges posed by existential concepts and describe the development of a new measure to showcase some possible approaches that can be used to cope with these challenges.

### **Psychometric challenges of existential concepts**

Psychometrics has dealt with highly abstract concepts for a very long time. After all, notions like extraversion or neuroticism can only be operationalized as sets of self-report indicators, whose composition is theoretically based and empirically validated. The contemporary standards of validation suggest to collect evidence from various sources in order to make an argument for the validity of a measure for a specific purpose and context, including substantive validity, structural validity and external validity (Flake, Pek & Hehman 2017). However, if constructs that are easily defined in terms of specific phenomenological or behavioral manifestations (e.g., specific emotions or attitudes) can be accessed via direct self-report approach (Paulhus & Vazire 2007) which largely rests on face validity, more abstract constructs require more rigorous validation approaches.

The first challenge posed by existential constructs is associated with their nature. Existential concepts are based on rich phenomenological descriptions (Spinelli 2005), rather than precise scientific definitions. Individual perceptions by different people may accentuate different aspects of invariant phenomena and may even only partially overlap. To achieve high content validity, the creation of existential instruments needs to be a collective effort. The other feature of phenomenological descriptions is that they are expressed in narratives drawing heavily on linguistic meanings and cultural contexts. A literal translation from one language to another may fail to convey some important aspects of the meaning or result in formulations that are perceived as somewhat artificial in the target culture. As a result, a simple translation and back-translation procedure used in many cases is not likely to work well with existential-themed instruments which need a committee of experts who should be familiar both with the EA theory and the phenomena it describes, as well as with both cultures.

The second challenge associated with existential constructs is that they are hard to discover using exploratory methods. Existential concepts typically describe

*modes* of relating to the world which cannot be easily defined in an abstract way (except in philosophical treatises), without reference to some thematic content or specific life situations. For instance, items related to other people may tap into different existential fundamental motivations if they refer to getting support from other people (1<sup>st</sup> FM), having warm and close relationships (2<sup>nd</sup> FM), getting respect and attention from others (3<sup>rd</sup> FM) or pursuing a common vision of the future (4<sup>th</sup> FM). Apart from thematic content, additional sources of variance contributing to the associations of items include item direction (forward-scored vs. reverse-scored items), accidental similarity of item wording, and item position and order effects, among others. As a result, the target existential concept is not the only source of shared variance of items, and may not even be the strongest one. In such situations, exploratory factor analyses (EFA) often yield unstable factor structures with factors describing more superficial item characteristics (such as thematic content or item direction) instead of the existential variables.

The third challenge faced by researchers working in the EA field involves preserving the complex phenomenological construct content when using newer analytic methods to demonstrate structural validity. Researchers often aim to apply confirmatory factor analysis (CFA), where the default model imposes very stringent assumptions on item sets (i.e., that all the shared variance of items can be explained by theoretically expected factors and that each item only loads on one factor). However, it is notoriously difficult to create a longer set of items that would meet these assumptions. As a result, CFA favors short and homogeneous scales that can only cover conceptually narrow constructs, whereas some older well-established scales developed theoretically or by means of exploratory methods, such as the Big Five, may often fail to demonstrate a good fit (see Marsh et al. 2010). The possible answers to this challenge include creating hierarchical models for broad constructs to account for item heterogeneity (Reise, Waller, Comrey 2000) and using exploratory structural equation modelling to account for imperfect indicator items that may reflect more than one factor (Marsh et al. 2010; 2014).

Thus, when developing a new EA measure, researchers would do well by using some expert procedure in order to ensure that the candidate items are relevant indicators of the target construct, and that they provide a good coverage of the full scope of content of the target construct (i.e., they form a representative sample of the population of its possible indicators). Constructs, such as existential fundamental motivations that may be expressed in a range of different behaviors and experiences, typically require a larger number of items to ensure that the construct is not

reduced to one of its facets. The researchers need to be aware of this possibility both at the stages of item generation and of item analysis, because trying to attain a short *and* reliable scale almost inevitably leads to a sacrifice of content validity.

In order to cope with this complexity, development of EA measures needs, first, to combine theory-driven approaches (expert procedures) with data-driven procedures (exploratory analyses) for item selection and, second, to use more robust and flexible statistical tools that can incorporate theory into model building. These methodological principles were applied earlier to the development of TEMIR, a Russian-language measure of existential fulfilment in relationships (Ukolova, Shumskiy & Osin 2014; 2016). In the present paper we aim to present a new Russian version of Test of Existential Motivations (TEM) based on the same principles.

### A new Russian version of TEM

The first German version of TEM developed by Eckhardt (2001) included 56 items selected using an expert procedure, item-scale correlations and reliability analysis. A Russian translation of the TEM based on the German version was validated by Koryakina (2010; 2015), who used several general population samples and found good internal consistency of the primary scales ( $\alpha$  in the .80 to .89 range) and of the general index ( $\alpha = .95$  to .96). TEM showed expected positive associations with meaning in life and negative associations with anxiety, depression, and neuroticism indicators.

Despite its important role as a clinical tool in existential analysis, TEM has not undergone structural validation studies using EFA and CFA and only limited data is available about its convergent and discriminant validity, which may explain why TEM has enjoyed relatively little use in research. Also, the existing Russian version of TEM was translated from German and included some items perceived as unnaturally-sounding or difficult by Russian-speaking respondents. To overcome these limitations, we aimed to develop a new Russian version of TEM to evaluate the fulfilment of the four fundamental motivations (4 FMs).

In contrast to the past version of TEM, we relied on a more differentiated theoretical model incorporating the prerequisites of the 4 FMs (presented in Table 1). This model provides a well-structured theoretical framework to guide item development and selection, which could result in better content validity of the items, while keeping the questionnaire relatively concise.

FM (Content)	Prerequisites		
1 FM (Possibility of being in the world)	Space	Protection	Support
2 FM (Value of life)	Relationships	Time	Closeness
3 FM (Value of self)	Justice	Attention	Appreciation
4 FM (Meaning)	Structural context	Field of activity	Value in the future

Table 1: Theoretical structure of the existential fundamental motivations and their prerequisites

Below we present four studies aimed at the development and validation of a new version of the Test of Existential Motivations in Russian-language samples.

## Study 1<sup>1</sup>

The aim of Study 1 was to develop an item pool, investigate the structure, and examine preliminary evidence of the reliability and validity of the TEM.

## Methods

### Sample and procedure

We used two online samples of volunteers who were invited to participate in an anonymous study of well-being in social networks. Sample 1 ( $N = 818$ ) included 68.9% females and 31.1% males aged 18 to 75 (age 20 or below: 15.2%, 21–30: 62.3%, 31–40: 14.9%, 41–50: 4.4%, over 50: 3.2%). The respondents were invited using mailing lists and announcements in online groups. Sample 2 ( $N = 215$ ) included 62.8% females and 37.2% males aged 16 to 69 (age 20 or below: 9.8%, 21–30: 55.4%, 31–40: 22.8%, 41–50: 9.8%, over 50: 2.3%). Sample 1 was used for the initial development of the measure (calibration sample), sample 2 was used to cross-validate the resulting structure (validation sample).

### Instruments

*Test of Existential Motivations (TEM)*. Based on the descriptions created by A. Längle (2003; 2016), we developed a list of statements reflecting the phenomenal content of the 12 prerequisites of the 4 fundamental motivations. At this stage, we aimed to balance the number of forward-scored and reverse-scored items. The initial set of items was revised by the authors during group discussions and using focus groups with graduate students studying existential analysis resulting in 93 items (of those, 37 forward-scored and 56 reverse-scored items, with 7 to 9 items per prerequisite). The respondents were asked to rate the extent

to which each item corresponds to their life using a 4-point scale (from 1 – “Disagree completely” to 4 – “Agree completely”). Respondents in both samples filled out the pool of 93 items administered in random order to eliminate the effects of item order and position on item selection.

To obtain preliminary evidence of discriminant and convergent validity of TEM, we used a number of well-being scales. A group of respondents in the calibration sample ( $N=105$ ) filled out three additional questionnaires:

1. *Mental Health Continuum – Short Form* (Keyes 2009; Russian version by Osin: see Zemojtel-Piotrowska et al., under review). The 14-item questionnaire with a 6-point response scale includes 3 subscales tapping into emotional well-being (frequency of positive emotions), social well-being (connectedness and integration within the society), and psychological well-being (items tapping into the 6 components of psychological well-being described by Ryff & Keyes 1995).
2. *Basic Psychological Needs Satisfaction Scale* (Gagné 2003; Russian version by Gordeeva & Osin: see Yagiyaev, Osin & Gordeeva 2015) with 21 items rated on a 7-point scale measures the satisfaction of basic needs for autonomy, competence, and relatedness described in Self-Determination Theory (Deci & Ryan 2002).
3. *Rosenberg Self-Esteem Scale* (Rosenberg 1979; Russian version by Bodalev & Stolin 2002), a 10-item instrument with 4-point response scale.

Respondents in the validation sample ( $N=215$ ) also filled additional measures:

1. *Satisfaction With Life Scale* (Diener et al. 1984; Russian version by Leontiev: Osin & Leontiev 2008) includes 5 items rated on a 7-point response scale tapping into a general cognitive evaluation of life.
2. *Subjective Happiness Scale* (Lyubomirsky & Lepper 1999; Russian version by Leontiev: Osin & Leontiev 2008), a 4-item measure of general subjective experience of happiness with a 7-point response scale.
3. *Subjective Alienation Questionnaire* (Osin 2009), based on Maddi’s alienation test (Maddi, Kobasa & Hoover 1979) operationalizing the theory of existenti-

<sup>1</sup> Study 1 was previously published in Russian as part of: Shumsky, V. B., Ukolova, E. M., Osin, E. N., & Lupandina, Y. D. (2016). Measuring existential fulfillment: An original Russian version of Test of Existential Motivations. *Psychology Journal of the Higher School of Economics*, 13(4), 763–788.



al neurosis (Maddi 1967). It measures 4 forms of alienation (vegetativeness, powerlessness, nihilism, adventurousness) across 5 life domains (work, society, relationships, family, and self) and includes 60 items rated on a 100-point scale.

We expected that the general index of existential fulfilment and all four FM scales would be positively correlated with indicators of positive functioning (happiness, life satisfaction, basic psychological needs satisfaction, self-esteem) and negatively correlated with alienation. Because some of these indicators are theoretically related to the contents of specific fundamental motivations, we also aimed to investigate the differences in the patterns of association of individual TEM scales.

## Results

### Structural validity

To validate the theoretical classification of the items into 12 prerequisites, we recruited 13 experts with at least 4 years of experience studying existential-analytic counseling and therapy. For each item, the experts were asked to choose one of the 12 prerequisites that it reflects. We used Krippendorff's alpha (Hayes & Krippendorff 2007) to evaluate the overall reliability of expert ratings. As an index of expert agreement for each item, we calculated the proportion of experts with a prevalent opinion. The mean proportion of experts who agreed with item classification across 93 items was .70 ( $SD = .17$ ). Only 15 items showed mean expert agreement of .50 or below. However, for the whole pool of 93 items, Krippendorff's alpha was .50 at the level of prerequisites and .71 at the level of motivations, indicating that unambiguous classification of items, particularly at the level of prerequisites, was a rather difficult task for the experts.

To select the items for the final version of the questionnaire, we used data from Sample 1. Because the associations between the items were expected to have a hierarchical structure (with 12 prerequisites at level 1, 4 motivations at level 2, and 1 general fulfilment factor at level 3), we started by looking for groups of items with homogeneous content using hierarchical cluster analysis. We used Ward's method with squared Euclidean metric based on standardized item scores to control for the differences in the means and variance of individual items (Revelle 1979; Milligan & Hirtle 2003).

The resulting structure included 4 large clusters which generally corresponded to the 4 FM, and 23 smaller groups of items, 3 to 6 items in each, capturing more specific themes related to prerequisites of the FM. For the final questionnaire we aimed to pick three indicator items for each of the 12 prerequisites, ensuring that 3 criteria would be met: a) sufficiently high content validity (based on expert ratings), b) absence of item pairs with similar formulations, c) high internal consistency of scales at the level of the 4 FM (more important) and at the level of specific prerequisites (less important).

The structural validity of the resulting item set was tested using confirmatory factor analysis in Mplus 7.4. Because the 4-point response scale was used, we modelled variables as ordered categorical and used the robust WLSMV estimator to address the possible non-normality (Finney & DiStefano, 2006). At the first stage, we aimed to achieve a simple structure of 12 first-order factors (model 1). To increase the discriminant validity of the subscales, we used modification indices to select out and replace items with strong cross-loadings (one item at each step), after which the model was re-evaluated. We used the values of CFI close to .95 or above and those of RMSEA close to .06 or below as evidence of good model fit (Hu & Bentler 1999). Once the first-order structure of the item set

Model	Fit indices				Comparison with previous model	
	$\chi^2$	df	CFI	RMSEA (90% CI)	$\Delta\chi^2$	$\Delta df$
Calibration sample (N=818)						
1. 12 first-order factors	1686.11*	528	.947	.052 (.049-.055)	--	--
2. 4 second-order factors	2302.49*	576	.921	.061 (.058-.063)	548.29*	48
3. 1 third-order factor	2273.50*	578	.922	.060 (.057-.062)	.98	2
Cross-validation sample (N=215)						
1. 12 first-order factors	904.47*	528	.952	.058 (.051-.064)	--	--
2'. 4 second-order factors	1148.47*	577	.928	.068 (.062-.074)	256.19*	49
3'. 1 third-order factor	1142.70*	579	.929	.067 (.062-.073)	.81	2

Note: \*  $p < 0.001$ .

Table 2: Fit indices of the structural models

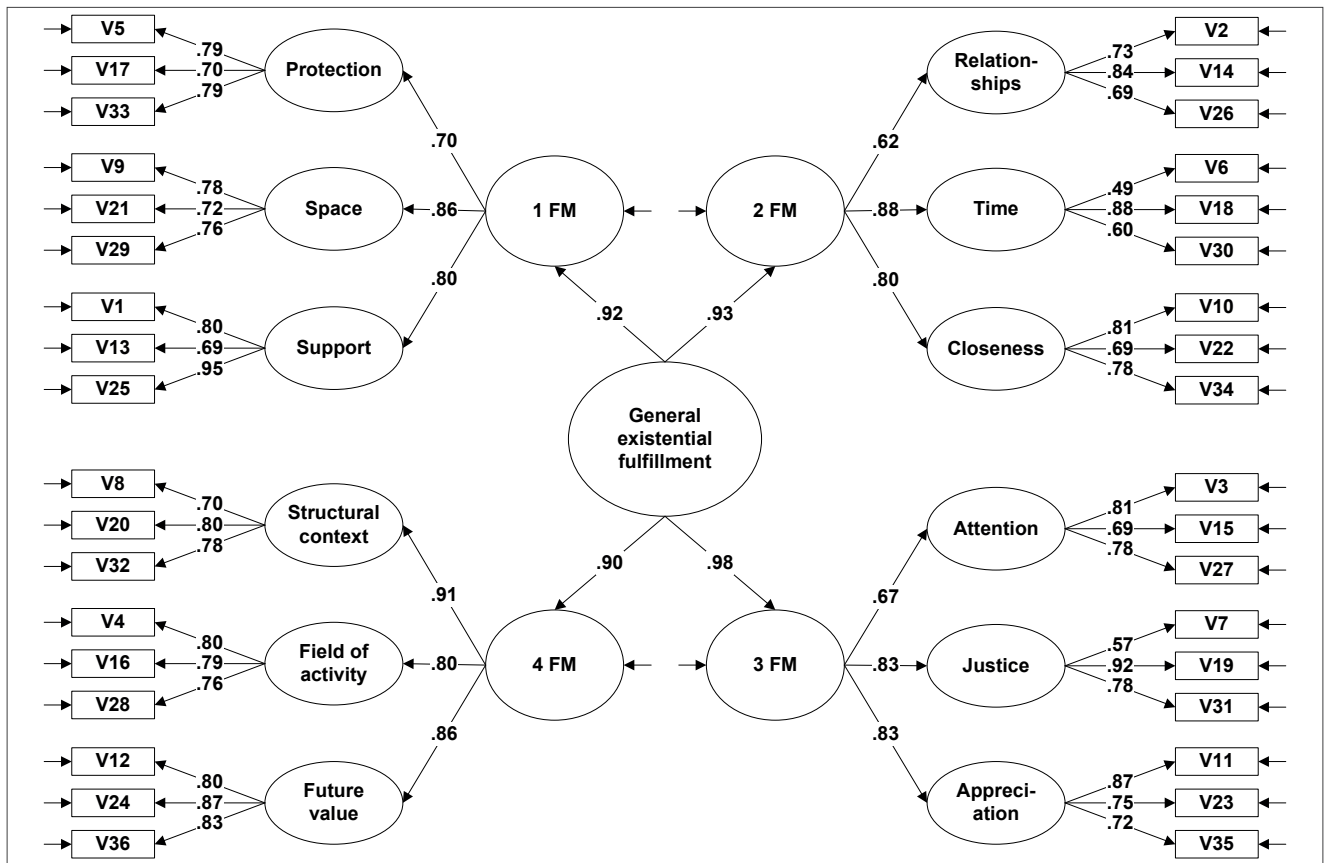


Figure 1: Parameters of the Model 3 (calibration sample)

Note. The formulations of the items comprising the new Russian version of TEM are given in the Appendix. Reverse-scored items are inverted.

showed a good fit, we tested a hierarchical model with 4 second-order factors (model 2), and a model with a single third-order factor (model 3). To compare nested models, we used the DIFFTEST function.

The resulting fit indices for all models are given in Table 2. Model 1 showed a good fit to the data. The fit of the nested Model 2 with 4 second-order factors was significantly worse, according to the chi-squared difference test, but the practical fit indices were still within the acceptable fit ranges (see Table 2). The introduction of a single third-order factor in model 3 did not significantly affect the fit of the model.

To cross-validate the resulting structure we tested the 3 models in the second sample. The model with 12 first-order factors fit the data quite well. Model 2 had convergence difficulties, because of non-identified loading of the second prerequisite of the second FM. To identify the model, we fixed these parameters to the same value as observed in Sample 1. The resulting model (2') again showed a significantly worse, but acceptable fit (see Table 2), and the introduction of a single third-order factor did again not impact the fit.

All the standardized item loadings were statistically significant and sufficiently high, both in the calibration sample ( $.49 < \lambda < .95$ ) and in the cross-validation sample ( $.36 < \lambda < .94$ ). The parameters of the resulting model (3) in the calibration sample are shown in Figure 1.

**Internal consistency**

To evaluate the internal consistency of the resulting scales, we calculated Cronbach's alpha in both samples. The

Scale (subscale)	Calibration sample	Validation sample
General Existential Fulfilment	.93	.94
<b>1 FM</b>	<b>.84</b>	<b>.85</b>
Protection	.73	.75
Space	.74	.76
Support	.77	.80
<b>2 FM</b>	<b>.79</b>	<b>.82</b>
Relationships	.73	.78
Time	.63	.61
Closeness	.72	.72
<b>3 FM</b>	<b>.79</b>	<b>.79</b>
Attention	.64	.62
Justice	.71	.70
Appreciation	.75	.75
<b>4 FM</b>	<b>.87</b>	<b>.88</b>
Structural context	.76	.75
Field of activity	.75	.79
Value in the future	.82	.87

Table 3: Internal consistency of the scales and subscales

resulting values (shown in Table 3) are sufficiently high to use the general existential fulfilment index and the 4 FM scores for individual feedback. The subscales show acceptable reliability for research purposes.

The distributions of the observed scores of the 4 FM scales and the general existential fulfilment index were close to normal in both samples (the absolute values of skewness and kurtosis did not exceed .60).

### Convergent and discriminant validity evidence

To evaluate the convergent validity of the TEM, we used the Pearson correlations of the 4 FM and the general existential fulfilment index with measures of psychological well-being in both samples. The results are presented in Table 4. All 4 FM and the general well-being index showed moderate to strong associations with well-being indices (.42 to .77 range). The associations of existential fulfilment with subjective

well-being and alienation in the cross-validation sample are presented in Table 5. Again, all the associations of TEM scales with well-being and alienation were moderate to strong (.33 to .76 range)

To evaluate the viability of TEM subscales, we used multiple regression to investigate the differences in the shared variance of individual fundamental motivation scales with other instruments. The 4 FM scaled were entered simultaneously as predictors of each criterion variable. Despite the 4 FM being intercorrelated, the multicollinearity check showed that their tolerance values did not exceed .40 and the Variance Inflation Factor did not exceed 2.5 for any of the 4 scales, which makes them acceptable to use as predictors in a multiple regression (Tabachnick & Fidell 2007). The results are given in Table 6.

All the regression models were statistically significant, with the share of criteria variance explained by the 4 TEM

	1	2	3	4	5	6	7	8	9	10	11	12
1. General Exist. Fulfilment												
2. 1 FM	.82											
3. 2 FM	.85	.61										
4. 3 FM	.87	.64	.69									
5. 4 FM	.85	.59	.59	.64								
6. Emotional well-being	.70	.55	.62	.63	.56							
7. Social well-being	.55	.42	.44	.44	.55	.56						
8. Psychological well-being	.68	.46	.65	.57	.61	.69	.63					
9. Need for autonomy	.77	.73	.64	.72	.57	.54	.38	.48				
10. Need for competence	.73	.54	.64	.58	.70	.56	.38	.67	.51			
11. Need for relatedness	.71	.64	.68	.64	.49	.57	.46	.56	.66	.55		
12. Self-esteem	.77	.60	.63	.74	.64	.55	.33	.54	.61	.65	.54	
Cronbach's alpha	.93	.77	.78	.80	.87	.83	.82	.85	.70	.73	.78	.81

Table 4: Correlations of the TEM with well-being indices (N=105)  
Note. All the associations are significant at  $p < .001$ .

	$\alpha$	Gen. Ex. Ful.	1 FM	2 FM	3 FM	4 FM
Satisfaction with life	.87	.68	.67	.49	.58	.58
Subjective happiness	.87	.76	.67	.60	.67	.66
General alienation	.95	-.73	-.63	-.56	-.68	-.64
Alienation from work	.82	-.54	-.43	-.34	-.54	-.54
Alienation from society	.84	-.50	-.42	-.33	-.51	-.47
Alienation from relationships	.86	-.58	-.50	-.50	-.56	-.45
Alienation from family	.88	-.56	-.54	-.50	-.47	-.44
Alienation from self	.87	-.74	-.61	-.57	-.67	-.69
Vegetativeness	.85	-.76	-.63	-.60	-.70	-.69
Powerlessness	.88	-.71	-.61	-.51	-.69	-.64
Nihilism	.87	-.61	-.53	-.44	-.59	-.53
Adventurousness	.76	-.41	-.38	-.39	-.34	-.30

Table 5: Correlations of TEM with subjective well-being and alienation (N=215)  
Note: All the coefficients are significant at  $p < .001$ .

Dependent variable	N	R2	$\beta$ coefficients			
			1 FM	2 FM	3 FM	4 FM
Emotional well-being	105	.49***	.13	.27**	.25**	.17
Social well-being	105	.33***	.08	.12	.05	.40***
Psychological well-being	105	.51***	-.07	.41***	.11	.34***
Autonomy need satisfaction	105	.64***	.41***	.13	.35***	.02
Competence need satisfaction	105	.57***	.06	.31***	.04	.46***
Relatedness need satisfaction	105	.56***	.29**	.36***	.23**	-.04
Self-esteem	105	.61***	.12	.13	.43***	.22*
Satisfaction with life	215	.50***	.45***	.02	.13	.19*
Subjective happiness	215	.58***	.28***	.14*	.24***	.23**
General alienation	215	.55***	-.19**	-.10	-.34***	-.22**
Alienation from work	215	.35***	-.05	.10	-.33***	-.34***
Alienation from society	215	.29***	-.09	.07	-.35***	-.21*
Alienation from relationships	215	.36***	-.16	-.21**	-.34***	.02
Alienation from family	215	.34***	-.31***	-.23**	-.10	-.02
Alienation from self	215	.56***	-.14*	-.11	-.28***	-.34***

Table 6: Regression of criterion variables on the 4 TEM scales  
Note: \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ .

scales ranging from 29% to 64%. The variables sharing 50% or more variance with existential fulfilment included basic psychological need satisfaction, self-esteem, subjective well-being (happiness and satisfaction with life), psychological well-being, as well as general alienation and alienation from self.

Unlike the R-squared, which captures all the variance of the 4 FM scales, the beta coefficients reflect only the unique variance of each FM scale (excluding the variance shared by all 4 scales, which only contributes to the R-squared). We found that most variables, with the exception of subjective happiness, were only associated with some existential motivations.

## Discussion

Based on the expert classification of items and on their empirical structure, we selected a subset of indicator items for the 12 prerequisites of FM and tested its structural validity, given the theoretical model. The results of confirmatory factor analyses provided strong support for the 12-factor model and the model with 4 factors fit the data acceptably. The worse fit of the 4-factor model is associated with unexplained covariances of prerequisite factors, because indicator items for prerequisites belonging to different FM may overlap in terms of thematic content (e.g., they may refer to people, oneself, one's daily activities, etc.). However, controlling for these systematic effects would require a much larger number of items. Overall, the findings indicate that the resulting empirical structure of the questionnaire shows a relatively

good correspondence with the theoretical model, which was confirmed in an independent sample.

The internal consistency coefficients for the FM scales and the total existential fulfilment score are sufficiently high to interpret individual scores in low-stakes settings. The reliability coefficients for prerequisites are, predictably, lower, due to a smaller number of items, which restricts the use of prerequisite subscale scores to research purposes.

The strong associations of TEM scales with a range of subjective and psychological well-being measures are in line with the theoretical understanding of existential fulfilment as a well-being construct. The specific associations of individual FM scales are generally in line with theoretical expectations based on descriptions of existential FM.

The first FM was specifically associated with the satisfaction of the need for autonomy (where part of the items reflect the possibilities for independent action offered by life) and satisfaction with life, which reflects the conditions of life. The connection of the 1<sup>st</sup> FM to the alienation from family and satisfaction of the need for relatedness is explained by the theme of support coming from significant others.

The second FM was specifically associated with psychological well-being, need for relatedness, need for competence, emotional well-being, alienation from family and alienation from relationships. With the exception of the need for competence, these associations are in line with the theoretical content of the 2<sup>nd</sup> FM.

The third FM was specifically associated with self-esteem and the need for autonomy, as well as alienation from work, society, relationships, and self, reflecting the



contexts where a person can feel unappreciated. The additional associations with emotional well-being and the need for relatedness are explained by the theme of lack of interest and attention to oneself and other people.

The fourth FM was specifically associated with the need for competence, social well-being, psychological well-being, as well as alienation from work, self, and society. These domains are united by the theme of engagement in meaningful activity which links a person to larger social contexts.

These findings provide preliminary evidence of convergent validity of existential fulfilment index and individual FM scales, supporting the viability of individual scales in research contexts. However, given the strong associations of the FM scales, in practical situations they may provide relatively little additional information to the total score, which should be preferable, because of its higher precision.

## Study 2

The aim of Study 2 was to replicate the structure of the TEM in a larger sample, and to investigate its associations with other psychological variables, as well as age and gender.

## Methods

### Sample and procedure

Participants ( $N = 3766$ ) were invited via an entertainment website to participate in an anonymous online research survey of well-being and adult development. The sample included 51.9% males and 48.1% females aged 16 to 60 ( $M = 25.87$ ,  $SD = 5.91$ , median = 25).

### Instruments

*Test of Existential Motivations (TEM)*. The respondents completed a 36-item version developed within Study 1. *Brief Self-Control Scale (BSCS)*: Tangney, Baumeister & Boone 2004; Russian version by Gordeeva et al. 2015) This 13-item instrument with a 5-point response scale measures self-reported ability to control one's behaviour, emotions, and impulses. We expected that self-control would be positively associated with existential fulfilment. *Differential Test of Reflection (DTR)*: Leontiev & Osin 2014), a 30-item questionnaire using a 4-point response scale, operationalizing Leontiev's 3-component model of reflexive processes. According to the model, systemic reflection (a tendency to look at oneself within the context of situations and life in general) is a productive form of reflection conducive to dialogue with the world. The other two forms, introspection (rumination, inability to

self-distance from one's immediate emotional responses to situations) and quasi-reflection (fantasizing, avoidance of reflection) are non-productive. DTR includes three scales, systemic reflection, introspection, and quasi-reflection. We expected systemic reflection to be positively associated with existential fulfilment, in contrast to the other two forms of reflection.

## Results

We tested the same set of models as in Study 1 using WLS (ADF) estimator to take advantage of the large sample size (Finney & DiStefano, 2006). The model with 12 first-order factors showed acceptable fit to the data ( $\chi^2 = 6683.82$ ,  $df = 528$ ; CFI = .927, RMSEA = .056 (90% CI: .054-.057)), the fit of the model with 4 factors was similar ( $\chi^2 = 7581.26$ ,  $df = 576$ ; CFI = .917, RMSEA = .057 (90% CI: .056-.058)). The introduction of a third-order factor did not make any statistically significant difference to the model fit. The factor loadings were statistically significant and high for all items ( $.52 < \lambda < .96$ ), with the exception of item 3 ( $\lambda = .19$ ). The alpha reliability coefficients were .93 for the general fulfilment index and .81, .79, .71, and .86 for the 4 FM scales.

The correlations of TEM with other constructs are given in Table 7. All the TEM scales were moderately positively associated with self-control. The two maladaptive types of reflective processes were moderately negatively associated with TEM scores. Systemic reflection was positively associated with TEM, particularly with the 3<sup>rd</sup> FM and 4<sup>th</sup> FM.

	A	Gen. Ex. Ful.	1 FM	2 FM	3 FM	4 FM
Self-Control	.75	.47	.36	.39	.41	.44
Systemic Reflection	.84	.26	.10	.19	.30	.30
Introspection	.87	-.59	-.56	-.49	-.51	-.48
Quasi-reflection	.83	-.32	-.31	-.27	-.26	-.26

Table 7: Pearson correlations of TEM scores with self-control and reflection

Note: all the coefficients are significant at  $p < .001$ .

Table 8 presents the associations of TEM scores with age and gender. The associations with age in the 16-40 range were nearly monotonous and weakly positive, indicating higher fulfilment in adulthood, compared to adolescence and emerging adulthood. The associations with gender were less uniform. Compared to females, males reported lower attention to their inward world and that of others, lower closeness and support, but higher protection and space. However, these effects were confined to specific prerequisites. The gender differences in the FM scores and general fulfilment were extremely weak.

Scale (subscales)	Association with gender, $\rho$ (F=1, M=2)	Association with age, $\rho$
General Existential Fulfilment	-.05**	.10***
<b>1 FM</b>	<b>.03</b>	<b>.04*</b>
Support	-.12***	.09***
Protection	.14***	.01
Space	.06***	.00
<b>2 FM</b>	<b>-.08***</b>	<b>.10***</b>
Relationships	.00	.07***
Time	-.05**	.10***
Closeness	-.13***	.07***
<b>3 FM</b>	<b>-.10***</b>	<b>.13***</b>
Attention	-.25***	.00
Justice	.00	.09***
Appreciation	.00	.18***
<b>4 FM</b>	<b>-.03*</b>	<b>.09***</b>
Structural context	-.05**	.17***
Field of activity	.02	-.04*
Value in the future	-.04**	.09***

Table 8: Associations of TEM scores with age and gender

Note: \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ ; the significance of the 2-tailed Student t test is given for Cohen's d.

## Discussion

The structure of the TEM was successfully replicated in the larger sample, providing support for the 4 FM scales and the general fulfilment score. Positive correlations with self-control indicate that individuals who are better able to control their impulses and to delay gratification are more likely to achieve existential fulfilment. Within existential-analytic theory, capacity for self-control can be viewed as a result of self-distancing, which is described as an important prerequisite for existential fulfilment (Längle, 2016). The associations of reflexive trait with existential fulfilment suggest that rumination, which implies difficulties in self-distancing from one's feelings, and quasi-reflection, which implies ignoring the real situation, can make it more difficult for a person to achieve existential fulfilment. In contrast, systemic reflection, a tendency to look at oneself in the context of the current situation, is associated with higher existential fulfilment (in particular, 3 FM and 4 FM). In the context of existential-analytic theory, systemic reflection corresponds to the notion of existential dialogue, which involves considering oneself and the world in their relationship.

The weak positive associations with age suggest that young adults may find more existential fulfilment with time, as they advance towards psychological maturity. Unfortunately, we are unable to make any reliable con-

clusions about individuals aged over 40, because their percentage in the online sample was quite small and this subgroup may not be representative. Clearly, more research in diverse populations is needed. Similarly, the gender differences we found for the FM scales were rather weak and were only pronounced for specific prerequisites. Because the sample was balanced with respect to gender, these findings can be seen as more reliable, indicating that males are more apt in achieving protection and space, whereas females more readily experience support, closeness, and attention. Future research could find out whether these minor differences are related to differences in gender role standards or in the social opportunities available for males and females.

## Study 3

The aim of Study 3 was to investigate the associations of TEM with conventional personality variables, including the Big Five personality traits, social desirability, anxiety, and depression in order to obtain additional evidence of convergent and discriminant validity. More specifically, we sought evidence of incremental validity of TEM over neuroticism (emotional stability) in predicting emotional ill-being.

## Methods

### Sample and procedure

Participants ( $N = 658$ ) were recruited using snowball approach in social networks to complete an anonymous online research survey of personality traits. The sample included 26.0% males and 74.0% females aged 17 to 51 ( $M = 22.72$ ,  $SD = 5.85$ , median = 21).

### Instruments

*Test of Existential Motivations (TEM)*, the 36-item version developed in Study 1.

*Big Five – 2 Questionnaire (BFQ-2: Caprara, et al. 2007; Russian version by Osin: Osin et al. 2015)* includes 80 items with a 5-point response scale and measures 5 dimensions of the Big Five model (extraversion, stability, agreeableness, conscientiousness, and openness). It also includes a social desirability or "lie" scale (comprised by egoistic and moralistic bias subscales).

*State-Trait Anxiety Inventory* (Spielberger 1983; Russian version by Hanin 1976), a 40-item measure of state anxiety and trait anxiety using a 4-point response scale.

*Beck Depression Inventory* (Beck et al. 1961; Russian version by Balashova: Karelin, 2007) includes 21 items and uses a 4-point response scale.

	Alpha	Gen. Ex. Ful.	1 FM	2 FM	3 FM	4 FM	State Anx.	Traite Anx.	Depr.
Extraversion	.84	.48***	.31***	.48***	.43***	.47***	-.27***	-.35***	-.25***
Agreeableness	.87	.34***	.22***	.41***	.31***	.28***	-.20***	-.11**	-.10*
Conscientiousness	.85	.29***	.23***	.19***	.24***	.35***	-.16***	-.25***	-.18***
Stability	.91	.45***	.49***	.31***	.40***	.38***	-.57***	-.74***	-.44***
Openness	.85	.24***	.12***	.17***	.26***	.30***	-.19***	-.26***	-.05
Lie Scale	.76	.29***	.25***	.23***	.25***	.28***	-.38***	-.46***	-.20***
State Anxiety	.93	-.66***	-.68***	-.56***	-.55***	-.54***		.77***	.63***
Trait Anxiety	.90	-.65***	-.64***	-.51***	-.58***	-.56***	.77***		.59***
Depression	.88	-.68***	-.68***	-.54***	-.60***	-.55***	.63***	.59***	

Table 9: Correlations of TEM with Big Five scales, anxiety and depression indices

Note: all correlation coefficients are significant at  $p < .01$ .

	Dependent variables				
	Gen. Ex. Ful.	1 FM	2 FM	3 FM	4 FM
R-squared	.44***	.33***	.38***	.33***	.37***
$\beta$ , Extraversion	.39***	.26***	.41***	.33***	.36***
$\beta$ , Agreeableness	.20***	.13***	.31***	.17***	.10**
$\beta$ , Conscientiousness	.10**	.08*	.03	.06	.18***
$\beta$ , Stability	.40***	.48***	.27***	.35***	.29***
$\beta$ , Openness	-.05	-.11**	-.12***	.02	.04
$\beta$ , Lie	-.05	-.06	-.03	-.05	-.02

Table 10: Results of multiple regression analysis

Note: \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

## Results

First, we investigated the associations of TEM scales with other variables (see Table 9). Existential fulfilment showed predictable and strong negative associations with anxiety and depression, indicating convergent validity of TEM. Existential fulfilment was positively associated with extraversion, agreeableness, conscientiousness, stability, and openness, but the magnitude of these associations was moderate, suggesting discriminant validity of TEM. The associations with the lie scale were only marginal. When the effect of lie scale was controlled for using partial correlations, all the associations of TEM with other constructs remained significant, except for the correlation of the 1st FM with Openness, indicating that these associations can not be explained by social desirability.

To investigate the shared variance of specific TEM scales with the Big Five traits, we performed a series of simultaneous multiple regression analyses entering the Big Five scales as predictors of each TEM scale. The results are shown in Table 10.

The proportion of variance shared by individual TEM scales with the Big Five traits ranged from 33% to 38% (and was 44% for the total score, due to its higher reliability). Extraversion and emotional stability emerged as the strongest predictors, suggesting that these traits are associated with experiencing higher existential fulfilment. The lie scale did not reveal any significant effects when other traits were controlled for, suggesting that the contribution of social desirability to TEM in anonymous research conditions is quite small.

To rule out the possibility that associations of TEM with anxiety and depression can be explained by basic personality traits, we performed a hierarchical regression analysis. We aimed to find out if TEM (entered at Step 2) would exhibit incremental validity over the Big Five traits (entered at Step 1). Because some of the tolerance values for TEM scales were below .30, we only used the total TEM score in this analysis to avoid multicollinearity. The results are presented in Table 11.

The findings support the incremental validity of existential fulfilment over the basic personality traits when predicting state anxiety and depression. For trait anxiety, the incremental effect was weaker but still statistically significant.

	Dependent variable		
	State Anxiety	Trait Anxiety	Depression
Step 1, $\Delta R$ -squared	.38***	.62***	.25***
$\beta$ , Extraversion	-.20***	-.28***	-.24***
$\beta$ , Agreeableness	-.09**	.06*	-.02
$\beta$ , Conscientiousness	.03	-.01	-.05
$\beta$ , Stability	-.55***	-.71***	-.43***
$\beta$ , Openness	.01	-.04	.14***
Step 2, $\Delta R$ -squared	.16***	.08***	.26***
$\beta$ , Extraversion	.01	-.13***	.02
$\beta$ , Agreeableness	.01	.14***	.11***
$\beta$ , Conscientiousness	.09**	.02	.02
$\beta$ , Stability	-.35***	-.57***	-.17***
$\beta$ , Openness	-.02	-.06*	.10**
$\beta$ , TEM: Gen. Ex. Ful.	-.53***	-.37***	-.67***

Table 11: Hierarchical multiple regression of anxiety and depression measures on Big Five and TEM  
 Note: \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

## Discussion

The analyses in this study help to establish the place of existential fulfilment within the nomological network of more conventional personality constructs. The associations of TEM with the Big Five traits were only moderate, suggesting that existential fulfilment does not reduce to basic personality dispositions. The associations with extraversion and neuroticism were the most pronounced. This is to be expected, because existential fulfilment is largely an emotional phenomenon, whereas extraversion and neuroticism are associated with proneness to experiencing positive and negative emotions, respectively. Multiple regression analyses generally confirmed this finding and revealed some meaningful differences in the overlapping variance of individual TEM scales with the Big Five dimensions. Thus, emotional stability was a particularly strong predictor of the 1<sup>st</sup> FM, suggesting that experiences of support, protection, and space are stronger in individuals with better control of their emotions and impulses. The 2<sup>nd</sup> FM was mostly predicted by extraversion and agreeableness, both relevant for interpersonal relationships. Conscientiousness, which is relevant for goal-directed activity, only emerged as a pronounced positive predictor of the 4<sup>th</sup> FM. The weak negative effects of openness do not fit well with theoretical expectations

and need to be replicated using other measures of the Big Five and in other samples before they can be interpreted with confidence. Finally, social desirability (lie) was found to make only a minor contribution to existential fulfilment in the anonymous setting of the present study. The pronounced negative correlations of existential fulfilment with anxiety and depression are in line with its interpretation as a well-being construct. We also found that existential fulfilment is more strongly associated with state anxiety and depression than is neuroticism. Hierarchical regression analyses confirmed that neuroticism (emotional stability) does not fully explain the associations of ill-being and existential fulfilment, providing evidence of incremental validity of the latter. This finding is in line with the theoretical view of existential fulfilment as a construct tapping into the higher-level dimension of human being and may also explain the negative symptoms of “noogenic neuroses” that cannot be explained by basic personality traits.

## Study 4

The aim of Study 4 was to investigate the criterion validity of TEM using a group of individuals suffering from a pre-clinical form of a psychological disorder. We used a sample of females with symptoms of binge eating disorder.

## Methods

### Sample and procedure

Participants ( $N = 204$ ) were female volunteers invited using social network communities related to eating disorders to participate in an anonymous online study of eating disorders and well-being. The age of the respondents was 16 to 56 ( $M = 23.98$ ,  $SD = 7.69$ , median = 22).

### Instruments

*Test of Existential Motivations (TEM)*, a 36-item version developed in Study 1.

*Binge Eating Disorder Questionnaire* included 6 items describing the symptoms of Binge Eating Disorder (*American Psychiatric Association*, 2013): eating much more rapidly than normal, eating until feeling uncomfortably full, eating large amounts of food when not feeling physically hungry, eating alone because of being embarrassed by how much one is eating, feeling disgusted with oneself, depressed, or very guilty after overeating and a sense of loss of control over eating. The respondents were asked to indicate the presence or absence of each symptom in the past 3 months.

Scale	Study 2, M (SD) N=1811	Study 4, M (SD) N=188	Student t (688)	Effect size, Cohen's d
General Ex. Ful.	97.41 (19.38)	89.78 (16.84)	5.20***	.40
1 FM	23.67 (5.67)	20.76 (4.83)	6.79***	.52
2 FM	23.32 (5.61)	21.74 (5.07)	3.71***	.28
3 FM	27.31 (4.77)	24.89 (4.43)	6.66***	.51
4 FM	23.11 (6.39)	22.39 (5.69)	1.48	.11

Table 12: Comparison of the means between a neutral sample and an eating disorder group  
Note: \*\*\*  $p < .001$ .

## Results

We excluded the data of respondents who reported fewer than 3 symptoms of eating disorders ( $N = 16$ ) and compared the mean scores in the resulting sample ( $N = 188$ ) with the mean scores for TEM obtained in Study 2 for female respondents..

The results of mean comparison are given in Table 12. The binge eating disorder group showed significantly lower scores on all the TEM scales, except for the 4 FM. The differences on the 1<sup>st</sup> FM scale and the 3<sup>rd</sup> FM scale were the most pronounced.

## Discussion

The results suggest that binge eating disorder in females is associated with a deficit of the 1<sup>st</sup> and the 3<sup>rd</sup> fundamental motivations. Binge eating disorder can be considered as a less severe form of bulimia. According to A. Längle and colleagues (Längle et al., 2012), the basis of bulimia is lack of turning towards oneself (2 FM) and of being able to access the self (3 FM). We believe that the deficit of the 3 FM may be a common basis for binge eating disorder and bulimia, whereas deficit of the 1 FM may arise as a consequence, reflecting the experience of inability to cope with the problem. The findings indicate that TEM can differentiate female respondents with binge eating disorder from general population, providing preliminary evidence of criterion validity of the measure. Comparative studies in various clinical groups using more representative general population samples are needed in order to validate the TEM as a quick assessment instrument for screening individuals with various disorders.

## General discussion and conclusions

The active development of existential-analytic practice in counselling and therapy calls for new psychometric instruments operationalizing existential concepts. Unfortunately, the use of these instruments in scientific research remains very limited, potentially due to scarcity of empiri-

cal data showing their structural and construct validity. We believe that the complexity of existential constructs requires extra effort on behalf of researchers aspiring to operationalize them, both at the item development stage and the statistical analysis stage.

We present a new version of the Test of Existential Motivations (TEM), aiming to improve the psychometric properties of this measure and to look for evidence of its validity. The new TEM is based on a hierarchical structure of prerequisites of the 4 fundamental motivations. Questionnaires based on this approach do not tap into the personal activities or basic experiences (fundamental trust, fundamental value, etc.) associated with the fundamental motivations and may not fully cover the phenomenal reality of the four FM, but tap into the basis for fulfilment of each FM. Future studies, using a wide range of EA-based instruments, could confirm psychometrically the links between different aspects of the FM described using phenomenological approach.

In this work, we have developed a new set of items within the context of the Russian language and used expert procedures to ensure that these items are sufficiently clear and related to their respective target phenomena. The theoretically expected structure of the new measure was confirmed in two studies using CFA in three different samples. The scales of the TEM show strong associations with other measures of psychological well-being and ill-being (anxiety and depression), weak to moderate associations with the Big Five personality traits and other psychological variables conducive to existential fulfilment (self-control, systemic reflection), weak associations with social desirability in anonymous online samples, and, finally, predictable differences between respondents from a pre-clinical group and general population. These results constitute preliminary evidence of convergent, discriminant, and criterion validity of the new measure. The 4 FM scales are strongly correlated, suggesting that the prerequisites of different fundamental motivations are interconnected and existential fulfilment can be treated as a general construct or as a combination of its components, depending on the research purpose.



Clearly, more research using various clinical groups and more representative general population samples in realistic settings, such as counselling, is needed to investigate the validity of TEM for diagnostic purposes. We hope that the EA-based instruments of a newer generation, such as TEM and TEMIR, because of their theoretically-based and empirically confirmed structure, could be more readily recognized as scientific research tools, bridging the gap between existential psychology and mainstream psychological science. To help ensure this, we suggest to use similar approaches for the development of new English and German-language instruments operationalizing the existential motivations.

Another way to bridge this gap is to establish relationships between the constructs described in EA and in other theories. Within a broader context of psychology, the model of existential fulfilment can be viewed as a eudaimonic well-being theory (Waterman 2013). Empirically, this construct converges quite well with well-being measures based on other theories, such as Keyes' (2009) model of psychological well-being and Self-Determination Theory (Deci & Ryan 2002). The prerequisites, or components, of well-being described in different theories show a good convergence (Huta & Waterman 2014) and some of their prevalent themes (e.g., meaning and perspective, connectedness and relationships, autonomy and authenticity, effort and achievement) are also key themes of the fundamental motivations described in EA. Careful theoretical analysis is needed to analyze the parallels and the differences between EA and these eudaimonic well-being theories.

The principal limitations of this study include non-representative samples (all the samples we used were anonymous online volunteers); the findings concerning associations with demographic variables can only be treated as preliminary. The evidence of criterion validity is also very limited: data from various clinical groups are needed to find out the TEM profiles associated with different types of psychopathology and to compare the sensitivity of TEM to that of well-established clinical measures (such as the STAI, BDI, MMPI, etc.). However, we believe that the accumulated evidence regarding the reliability and validity of TEM allows to use it as a research and screening tool in non-clinical populations. We hope that this work carried out in a Russian context can serve as an inspiration and incentive for researchers working in the existential-analytical paradigm to develop new psychometric instruments in other languages.

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### References

- American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders (DSM-5). American Psychiatric Pub.
- Beck AT, Ward CH, Mendelson M, Mock J & Erbaugh J (1961) An inventory for measuring depression. *Archives of General Psychiatry* 4(6), 561–571
- Bodalev AA & Stolin VV (2002) *Obshechaya psikhodiagnostika* [General psychodiagnosics]. Saint Petersburg: Rech
- Bollnow OF (2009) *Das Wesen der Stimmungen* [The Nature of Moods]. Würzburg: Königshausen & Neumann
- Boss M (1979) *Existential foundations of medicine and psychology*. New York: Jason Aronson
- Caprara GV, Barbaranelli C, Borgogni L & Vecchione M (2007) *BFQ-2: Manuale*. Firenze, Italy: OS
- Deci EL & Ryan RM (2002) Overview of self-determination theory: An organismic dialectical perspective. *Handbook of self-determination research*, 3–33
- Eckhardt P (2001) Skalen zur Erfassung existentieller Motivation, Selbstwert und Sinnerleben. *Existenzanalyse* 18(1), 35–39
- Finney SJ & DiStefano C (2006) Nonnormal and categorical data in structural equation modeling. In GR Hancock & RO Mueller (Eds.), *Structural Equation Modeling: A Second Course* (pp. 269–312). Greenwich, CT: Information Age Publishing.
- Flake JK, Pek J & Hehman E (2017) Construct validation in social and personality research: current practice and recommendations. *Social Psychological and Personality Science* 8(4), 370–378
- Frankl VE (1992) *Man's Search for Meaning. An Introduction to Logotherapy*. Boston: Beacon Press
- Gagné M (2003) The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion* 27, 199–223
- Gordeeva TO, Osin EN, Suchkov DD, Ivanova TY, Sychev OA & Bobrov VV (2016) Fenomen samokontrolya lichnosti: Diagnostika i svyazi s uspešnost'yu i blagopoluchiem [Personality self-control: measurement and associations with achievement and well-being]. *Kul'turno-Istoricheskaya Psikhologiya* [Cultural-Historical Psychology] 12(2), 46–58 doi: 10.17759/chp.2016120205
- Hanin Yu L (1976) *Kratkoe rukovodstvo po primeneniyu shkaly reaktivnoi i lichnostnoi trevožnosti Ch.D. Spilberga* [A brief manual on application of the State-Trait Anxiety Inventory by Ch.D. Spielberger]. Leningrad: LNII FK
- Hayes AF & Krippendorff K (2007) Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures* 1, 77–89
- Heidegger M (1962) *Being and Time*. N.Y.: Harper & Row
- Heidegger M (1985) *History of the Concept of Time: Prolegomena*. Bloomington: Indiana University Press
- Hu L & Bentler P (1999) Cutoff criteria for fit indices in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling* 6, 1–55
- Huta V & Waterman AS (2014) Eudaimonia and its distinction from hedonia: developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies* 15(6), 1425–1456
- Karelin AA (2007) *Bolshaya enciklopediya psikhologicheskikh testov* [Encyclopedia of psychological tests]. Moscow: Eksmo, 34–35
- Keyes CLM (2009) *Atlanta: Brief description of the mental health continuum short form (MHC-SF)*. Retrieved from <http://www.sociology.emory.edu/ckeyes/>
- Koryakina UM (2010) *Adaptaciya oprosnika ekzistencial'nykh motivacii "TEM" (Test ekzistencial'nykh motivacii) A. Längle, P. Eckhard* [Adaptation of the questionnaire of existential motivations "TEM" (The Test of Existential Motivations) of A. Längle, P. Eckhard] // *Eksistencialnyi analiz* 2, 139–148

- Koryakina UM (2015) Usloviya ispolnennoy zhizni: opisaniye i izmeryeniye ekzistentsial'nykh motivatsii [Conditions for fulfilled life: description and measurement of existential motivations] // Nacional'nyi psikhologicheskii zhurnal [National Psychological Journal] 4(20), 49–65
- Längle A (2003) The art of involving the person – fundamental existential motivations as the structure of the motivational process. *European Psychotherapy* 4(1), 25–36
- Längle A (2016) *Existenzanalyse – Existentielle Zugänge in der Psychotherapie*. Wien: Facultas.
- Längle A, Jöbstl B, Kathan-Windisch R, Klun C, Lopatka K, Probst C, Probst M, Trobisch D, Wyckoff P, Zeiringer H (2012) Bulimie – die Betrogene Verheissung: Phänomenologisches Verständnis und existentieller Zugang. *Existenzanalyse* 29(1), 46–56.
- Leontiev DA & Osin EN (2014) Refleksiya “horoshaya” i “durnaya”: Ot obyasnitel'noi modeli k differentsialnoy diagnostike [“Good” and “bad” reflection: from an explanatory model to differential assessment]. *Psikhologiya: Zhurnal Vysshei Shkoly Ekonomiki* [Psychology. Journal of the Higher School of Economics] 11(4), 110–135
- Lyubomirsky S & Lepper H (1999) A measure of subjective happiness: preliminary reliability and construct validation. *Social Indicators Research* 46, 137–155
- Maddi SR (1967) The existential neurosis. *Journal of Abnormal Psychology* 72(4), 311–325
- Maddi SR, Kobasa SC & Hoover M (1979) An alienation test. *Journal of Humanistic Psychology* 19(4), 73–76
- Maddi SR, Khoshaba DM, Harvey RH, Fazel M, & Resurreccion N (2011) The personality construct of hardness, V: relationships with the construction of existential meaning in life. *Journal of Humanistic Psychology* 51(3), 369–388
- Marsh HW, Lüdtke O, Muthén, B, Asparouhov T, Morin AJ, Trautwein U, & Nagengast B (2010) A new look at the big five factor structure through exploratory structural equation modeling. *Psychological Assessment* 22(3), 471–491
- Marsh HW, Morin AJ, Parker PD, & Kaur G (2014) Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology* 10, 85–110
- Merleau-Ponty M (1962) *Phenomenology of Perception*. London: Routledge and Kegan Paul
- Milligan GW & Hirtle SC (2003) Clustering and classification methods. In JA Schinka & WF Velicer (Eds.) *Handbook of Psychology*. Vol. 2. *Research Methods in Psychology* (pp. 165–188). Hoboken, NJ: John Wiley & Sons.
- Osin EN (2009) Subjective experience of alienation: measurement and correlates. *Existenzanalyse* 26(1), 4–11
- Osin EN & Leontiev DA (2008) Aprobatsiya russkoyazychnykh versii dvukh shkal ekspres-ocenki urovnya sub"ektivnogo blagopoluchiya [Validation of Russian-language versions of two short subjective well-being scales]. In: III Vserossiyskii sociologicheskii kongress, materialy dokladov. [3rd Russian Congress on Sociology: Proceedings CD] M: Institut sociologii RAN, Rossiiskoe obshchestvo sociologov (ISBN 978-6-89697-157-3)
- Osin EN, Rasskazova EI, Neyaskina YY, Dorfman LY, & Aleksandrova LA (2015) Operatsionalizatsiya pyatifaktornoi modeli lichnostnykh chert na rossiiskoi vyborke [Operationalization of the five-factor personality trait model in a Russian sample]. *Psikhologicheskaya diagnostika* [Psychological Assessment] 3, 80–104
- Paulhus DL, & Vazire S. (2007) The self-report method. In: R. W. Robins, R. C. Fraley, and R. Krueger (Eds.) *Handbook of Research Methods in Personality Psychology*. New York: Guilford Press, 224–239
- Revelle W (1979) Hierarchical cluster analysis and the internal structure of tests. *Multivariate Behavioral Research* 14, 57–74
- Reise SP, Waller NG, & Comrey AL (2000) Factor analysis and scale revision. *Psychological Assessment* 12(3), 287–297
- Reise SP (2012) The rediscovery of bifactor measurement models. *Multivariate Behavioral Research* 47(5), 667–696
- Rosenberg M (1979) *Conceiving the Self*. New York: Basic Books
- Ryff CD & Keyes CLM (1995) The structure of psychological well-being revisited. *Journal of Personality and Social Psychology* 69, 719–727
- Shumsky VB, Ukolova EM, Osin EN, & Lupandina YD (2016) Measuring existential fulfillment: An original Russian version of Test of Existential Motivations. *Psychology. Journal of the Higher School of Economics* 13(4), 763–788
- Spielberger CD (1983) *Manual for the State-Trait Anxiety Inventory STAI (form Y) (“self-evaluation questionnaire”)*. Palo Alto, CA: Consulting Psychology Press.
- Spinelli E (2005) *The interpreted world: An introduction to phenomenological psychology*. London, Thousand Oaks, New Delhi: Sage
- Tabachnick BL & Fidell LS (2007) *Using multivariate statistics* (5th ed.). Boston, MA: Pearson Education
- Tangney JP, Baumeister RF, & Boone AL (2004) High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality* 72(2), 271–324
- Ukolova EM, Shumskiy VB, & Osin EN (2014) TEMIR – A test to measure existential motivations in interpersonal relationships: factorial structure, reliability, and validity. *Existenzanalyse* 31(2), 5–13
- Ukolova EM, Shumskiy VB, & Osin EN (2016) What makes a good relationship? Predictors of existential fulfillment in heterosexual romantic relationships. *Existenzanalyse* 33(2), 102–108
- Waterman AS (2013) *The best within us: positive psychology perspectives on eudaimonia*. American Psychological Association.
- Yagiyayev II, Osin EM, & Gordeeva TO (2015) Rosiis'komovna adaptatsiya metodiki zadovolenosti bazovikh psikhologichnykh potreb na ukrains'kii ta rosiis'kii vybirti [Russian-language adaptation of basic psychological needs satisfaction scales in Ukrainian and Russian samples]. In: Visnik Kam'yanets'-Podil's'kogo natsional'nogo universitetu imeni Ivana Ogiienka: Psikhologichni nauki [Herald of the I. Ogiienko Kamyanyets-Podil'sky National University: Psychological Sciences] 7, 182–190. Kamianets-Podilskiy: Medobori-2006.
- Żemojtel-Piotrowska, M, Piotrowski, J, Osin, EN, Ciecuch, J, Adams, BG, et al. (in press). *Mental Health Continuum – Short Form: The structure and application for cross-cultural studies*. *Journal of Clinical Psychology*.

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**Appendix. Items of the Russian version of TEM  
(translated from Russian).**

1. I have a reliable support in life
2. I easily engage in contact with people
3. I am not very interested in my inward life
4. I have enough opportunities to choose the things to do
5. I often experience anxiety and fear
6. I always lack time for things I consider really important to me
7. I believe that life treats me fairly
8. I feel a part of something important
9. I feel that I do not have enough space in life
10. There is no one I am really close to
11. There is nothing I could respect myself for
12. I do not have any definite goals or plans in life
13. I do not feel support from close people
14. I find it hard to get close to people
15. I find the world pretty boring
16. I feel that I have few chances to show what I am capable of
17. I feel well protected against life troubles
18. I have a feeling that I am wasting the time of my life
19. Other people do not appreciate me
20. I feel that I am needed in the world
21. I have enough space for life and development
22. I feel discomfort when I get emotionally close to another person
23. I understand that I do not have enough self-respect (dignity)
24. I do not have any objectives that could guide my life
25. I have nothing to count on as a support in life
26. I prefer to keep a distance from others
27. I am not really interested by the inward life of other people
28. I see the world as a wide field of possibilities
29. I feel pressured by the circumstances of my life
30. I spend most of my time doing things I consider really important
31. I feel that other people treat me unfairly
32. I have found my place in life
33. I usually feel insecure
34. Engaging in close relationships results in difficulties and disappointments for me
35. I value myself for being the way I am
36. I do not know what I want from life