

This is a provisional PDF only. Copyedited and fully formatted version will be made available soon.



**ISSN:** 1732-9841

**e-ISSN:** 1733-4594

## **Using fantasizing to feel more positive emotions may lead to adverse effects: Preliminary psychometric properties of the Polish version of the Emotion Regulation Questionnaire-Fantasizing**

**Authors:** Paweł Larionow, Natalia Pilarska, Karolina Mudło-Głagolska

**DOI:** 10.5603/PSYCH.a2023.0010

**Article type:** Research paper

**Submitted:** 2023-05-08

**Accepted:** 2023-06-07

**Published online:** 2023-06-15

This article has been peer reviewed and published immediately upon acceptance. It is an open access article, which means that it can be downloaded, printed, and distributed freely, provided the work is properly cited.

## ORIGINAL PAPER

Paweł Larionow, Natalia Pilarska, Karolina Mudło-Głagolska

Faculty of Psychology, Kazimierz Wielki University, Bydgoszcz, Poland

### Using fantasizing to feel more positive emotions may lead to adverse effects: Preliminary psychometric properties of the Polish version of the Emotion Regulation Questionnaire-Fantasizing

**Short title:** The Polish version of the ERQ-F

**Address for correspondence:**

Paweł Larionow

Faculty of Psychology, Kazimierz Wielki University

1 Leopold Staff St., 85–867 Bydgoszcz, Poland

e-mail: [pavel@ukw.edu.pl](mailto:pavel@ukw.edu.pl)

#### **ABSTRACT**

**Introduction:** *This study aims to (1) examine the factorial structure, validity, and internal consistency reliability of a 6-item Polish version of the Emotion Regulation Questionnaire-Fantasizing (ERQ-F) for measuring an extent to which people habitually use daydreaming or fantasizing as a strategy to regulate their emotions; (2) examine the role of fantasizing for a mental health status in a Polish community sample.*

**Material and methods:** *Our sample consisted of 918 Polish adults (660 females and 258 males) aged 18–77 ( $M = 26.23$ ,  $SD = 11.73$ ). The ERQ-F factor structure was assessed with exploratory and confirmatory factor analyses. Cronbach's alpha coefficients were calculated for assessing internal consistency reliability. The ERQ-F score correlations with negative and positive emotional reactivity as well as with anxiety and depressive symptoms were calculated.*

**Results:** *Our results indicated a strong factorial validity, conforming to the intended original 1-factor model. We also proposed a theoretically sound and empirically valid 2-factor model, which was the best factor solution in our data set. This model consists of two 3-item subscales, reflecting the use of fantasizing to feel less negative emotions (negative-fantasizing) and the use of fantasizing to feel more positive emotions (positive-fantasizing). Internal consistency reliability was good for two ERQ-F*

*subscales and the total score. It was shown that positive-fantasizing is positively related to negative reactivity as well as to other mental health symptoms, whereas negative-fantasizing was not related to negative or positive emotional reactivity, or to these symptoms.*

**Conclusions:** *Overall, the Polish version of the 2-factor ERQ–F has good preliminary psychometric properties, reinforcing the clinical relevance of distinguishing fantasizing for feeling less negative emotions and fantasizing for feeling more positive emotions. It seems that using fantasizing to feel more positive emotions may lead to adverse effects (opposite of expected), i.e., to more easily activated and more prolonged negative emotions as well as to higher levels of mental health symptoms.*

**Keywords:** *emotion regulation, fantasizing, negative emotions, positive emotions, psychometric properties*

## **Introduction**

This work is devoted to fantasizing as a strategy to regulate emotions. In general, this is a novel and somewhat niche topic. In spite of this, fantasizing as a mental process is considered to be a component of many psychological conditions. For example, a reduction in fantasizing or incapacity to do it was regarded as one of the alexithymic traits [1, 2]. However, recent studies have shown that difficulty fantasizing (i.e., daydreaming frequency, vividness, content, or use of daydreams to regulate emotions) is not a component of the latent alexithymia construct [3].

Fantasizing is used in some psychological assessment techniques, e.g., the Thematic Apperception Test or Rorschach Inkblot Technique [4, 5]. Guided fantasy may be used as a psychotherapeutic intervention [6]. For example, Guided Affective Imagery psychotherapy is based on the use of mental imagery [7]. Psychosynthesis psychotherapy by Assagioli includes fantasizing techniques (e.g., a technique for training and using imagination, a technique of visualization, a technique of ideal models or a technique for imaginative evocation of other sensations) [8]. In general, using fantasizing as a method of psychological help, one should take into account restrictions and contraindications as well as take some precautions [7, 8].

Many areas of psychology and psychiatry considered the role of fantasy in mental health. For example, fantasy as a personality trait is considered to be one of the openness facets in the Five-Factor Model of personality, and it is related to lower levels of anhedonia [9]. In sexology, the role of sexual fantasizing is described, especially high-risk sexual fantasies as a clinical phenomenon [10]. Topical research in current psychology is devoted to maladaptive daydreaming, which refers to a mental condition characterized by excessive involvement in fantasy (uncontrollable absorption in fantasy) significantly interfering with an individual's daily functioning and health [11, 12]. It was shown that maladaptive

daydreaming was positively related to higher levels of psychopathology symptoms (i.e., anxiety, depression or obsessive-compulsive symptoms, somatization, and interpersonal sensitivity), and obsessive-compulsive symptoms may play a critical role in this mental condition [11]. The intensity of maladaptive daydreaming was especially increased during the COVID-19 pandemic, and this resulted in the exacerbation of psychological distress and dysfunction rather than in beneficial regulation of the COVID-19 pandemic [13].

Fantasizing can be considered a coping strategy or emotion regulation strategy [14]; however, there are few studies on this issue. Although currently fantasizing represents a niche topic, we predict that studies on fantasizing as an emotion regulation strategy are needed for (1) examining the adaptive or maladaptive role of fantasizing in mental health problems or psychiatric diagnoses, (2) clarification of the maladaptive daydreaming mental condition, (3) investigating the role of fantasizing (its reduced or increased levels) in psychotherapy effectiveness. Therefore, in this study, we aim to present the first newly developed questionnaire for measuring fantasizing as an emotion regulation strategy and investigate its role in mental health conditions.

The Emotion Regulation Questionnaire-Fantasizing (ERQ-F) is designed for assessing the extent to which people habitually use fantasizing to feel less negative emotions and more positive emotions. The original English version of the ERQ-F has been recently presented by Preece et al. [3], who have showed that the questionnaire has good psychometric properties. Preece et al. have indicated that the ERQ-F has three items for measuring the extent to which people habitually use fantasizing to feel less negative emotions (e.g., “When I want to feel less negative emotion (such as sadness or anger), I daydream or imagine myself in a better time and place”), as well as three items for measuring the extent to which people habitually use fantasizing to feel more positive emotions (e.g., “When I want to feel more positive emotion (such as joy or amusement), I fantasize about fantastic or unreal things (e.g., winning a million dollars or being famous)”) [3]. In our opinion, these items may constitute two highly correlated, but distinct strategies for regulating emotions, i.e., fantasizing to feel less negative emotions and fantasizing to feel more positive emotions. However, Preece et al. [3] did not examine the factor structure by exploratory factor analysis but tested the 1-factor model by confirmatory factor analysis, which supported a 1-factor model, conforming to the intended 1-factor structure. The ERQ-F convergent validity was also supported by a correlation with an established daydreaming scale. Preece et al. indicated that the ERQ-F had high levels of internal consistency reliability [3].

The ERQ-F has promising psychometric properties; however, there is presently no Polish version of the questionnaire. This paper aims to introduce and examine the factorial validity and internal consistency reliability of the Polish version of the ERQ-F, and we were also interested in examining

the role of fantasizing in mental health status. Based on the theory, we predicted that the ERQ-F will negatively correlate with negative emotional reactivity (i.e., more easily activated, more intense, and more prolonged negative emotions) and anxiety or depressive symptoms, whereas it will positively correlate with positive emotional reactivity. This study may provide the first evidence of fantasizing role as a strategy to regulate emotions in emotional functioning and mental health status. We were also interested in presenting current group norms to help facilitate the interpretation of ERQ-F scores.

Based on the theory and previous works [3], we have predicted that (1) the 1-factor structure will be a good factor structure for the ERQ-F, but the questionnaire may be better characterized by a 2-factor solution, (2) the ERQ-F scores will have high levels of internal consistency reliability, (3) the ERQ-F will negatively correlate with negative emotional reactivity and mental health symptoms, whereas it will positively correlate with positive emotional reactivity.

## **Material and methods**

### **Participants**

The sample included 918 Polish adults (660 females and 258 males) aged 18–77 ( $M = 26.23$ ,  $SD = 11.73$ ). People with higher education made up 24.62% of respondents, and 75.38% had lower educational levels. Large cities (above 100,000 inhabitants) were home to 37.15% of the respondents, medium-sized towns (from 20,000 to 100,000) — to 20.59%, small towns (up to 20000) — to 13.62% and villages — to 28.65%. Among the participants, 52.07% were single, whereas 47.93% were married or living common-law.

The study was conducted from February to November 2022 *via* social networks where there was a link to an online anonymous survey. The study was conducted in accordance with the Declaration of Helsinki Ethical Principles. The Kazimierz Wielki University Ethics Committee approved the study (No. 1/13.06.2022). All the respondents provided their informed consent digitally before they answered the questions.

The original English version of the ERQ-F was translated into Polish by three independent translators, and a common Polish translation was developed. Then it was translated back into English, and this back translation was compared with the original version. The necessary minor corrections were made resulting in the final Polish version of the ERQ-F (see Appendix).

### **Measures**

1. The original ERQ-F is a 6-item monofactorial questionnaire for measuring fantasizing as a strategy to regulate emotions [3]. The ERQ-F has three items for measuring the extent to which people

habitually use fantasizing to feel less negative emotions (e.g., “When I want to feel less negative emotion (such as sadness or anger), I daydream or imagine myself in a better time and place”), as well as three items for measuring the extent to which people habitually use fantasizing to feel more positive emotions (e.g., “When I want to feel more positive emotion (such as joy or amusement), I fantasize about fantastic or unreal things (e.g., winning a million dollars or being famous)”). The ERQ–F uses a 7-point Likert scale from 0 (*strongly disagree*) to 7 (*strongly agree*) [3].

2. The Perth Emotional Reactivity Scale-Short Form (PERS-S) is an 18-item self-report questionnaire designed to measure three characteristics of emotional reactivity, i.e., activation, intensity, and duration of positive and negative emotions separately [15]. The PERS–S consists of six subscales and two composite scores. Positive-activation (e.g., “I tend to get happy very easily”), positive-intensity (e.g., “When I’m joyful, I tend to feel it very deeply”) and positive-duration (e.g., “When I’m happy, the feeling stays with me for quite a while”) are three subscales that form the composite score of the general positive reactivity scale. In turn, negative-activation (e.g., “I tend to get upset very easily”), negative-intensity (e.g., “If I’m upset, I feel it more intensely than everyone else”) and negative-duration (e.g., “Once in a negative mood, it’s hard to snap out of it”) are the three subscales that form the composite score of the general negative reactivity scale. The statements are scored on a 5-point scale ranging from 1 (*very unlike me*) to 5 (*very like me*) [15]. The Polish version of the PERS-S developed by Larionow and Mudło-Głagolska was applied [16].

3. The Patient Health Questionnaire-4 (PHQ-4) is a 4-item questionnaire for measuring anxiety and depressive symptoms in the previous two weeks [17, 18]. The PHQ-4 has the total score of anxiety-depressive symptoms. Two subscale scores, namely anxiety (two items; “Feeling nervous, anxious, or on edge”; “Not being able to stop or control worrying”) and depression (two items; “Little interest or pleasure in doing things”; “Feeling down, depressed, or hopeless”) can also be calculated. The questionnaire uses a 4-point Likert scale from 0 (*not at all*) to 3 (*nearly every day*). The Polish version of the PHQ-4 developed by Larionow and Mudło-Głagolska was applied [19].

### **Statistical analysis**

Parallel analysis was used to determine the appropriate number of factors to retain [20]. The exploratory factor analysis for the ERQ–F items was conducted using the principal axis factoring with a promax rotation. Factor models of the ERQ–F were tested by confirmatory factor analysis using a weighted least square mean and variance adjusted (WLSMV) estimator. The fit was assessed based on the following fit index values: root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), comparative fit index (CFI), and Tucker–Lewis index (TLI). RMSEA

and SRMR values below 0.08, as well as CFI and TLI values greater than 0.90 indicate an acceptable fit [21]. Cronbach’s alpha ( $\alpha$ ) coefficients were calculated for assessing internal consistency reliability. There was no missing data. The data were screened for accuracy (min. and max. range of each variable). Statistical analysis was carried out using Statistica (version 13.3) and R (version 4.2.1). In R the following packages were used: *EFAtools* (for exploratory factor analysis), *lavaan* (for confirmatory factor analysis), and *psych* (for reliability analysis).

## Results and discussion

### Exploratory factor analysis

Parallel analysis, which was performed using 1000 simulated random data sets, revealed that from 1 to 3 factors should be retained. We evaluated a 3-factor and a 2-factor solution with the exploratory factor analysis using the principal axis factoring extraction method with promax rotation. The 3-factor solution was just-identified. The 2-factor solution, which explained 67,9% of the total variance, was theoretically more consistent with the content of the ERQ–F statements (see Table 1). This 2-factor solution supported the presence of two characteristics of fantasizing, i.e., fantasizing to feel less negative emotions (factor 1 comprised of items 1, 3, and 5) and fantasizing to feel more positive emotions (factor 2 comprised of items 2, 4, and 6). We called these factors *negative-fantasizing* and *positive-fantasizing*.

**Table 1.** Results of exploratory factor analysis with the fixed two factors by principal axis factoring extraction method with Promax rotation (N = 918)

ERQ–F items	Rotated factor loadings	
	Factor 1 (“fantasizing to feel less negative emotions”)	Factor 2 (“fantasizing to feel more positive emotions”)
1. When I want to feel less <i>negative</i> emotion (such as sadness or anger), I daydream or imagine myself in a better time and place.	<b>0.829</b>	–0.060
2. When I want to feel more <i>positive</i> emotion (such as	0.139	<b>0.672</b>

joy or amusement), I fantasize about fantastic or unreal things (e.g., winning a million dollars or being famous).		
3. When I want to feel less <i>negative</i> emotion, I think about a daydream or “fantasy world” where my problems are gone.	<b>0.667</b>	0.210
4. When I want to feel more <i>positive</i> emotion, I daydream about the perfect future.	-0.047	<b>0.848</b>
5. When I want to feel less <i>negative</i> emotion, I focus on a daydream or fantasy in my head.	<b>0.695</b>	0.206
6. When I want to feel more <i>positive</i> emotion, I try to ‘get lost’ in a daydream or fantasy.	0.253	<b>0.621</b>
The proportion of total variance (%)	64.2	3.7

Note: Factor loadings > 0.60 are shown in bold

### Confirmatory factor analysis

For testing the 1-factor and 2-factor models, confirmatory factor analysis with a WLSMV estimator was applied. The 1-factor and 2-factor models were an excellent fit to the data, but the 2-factor model had the best fit index values overall (see Table 2). All item factor loadings were strong and loaded on intended subscales in the 2-factor model (loadings  $\geq 0.741$ , all  $p$ s < 0.001; refer to Tab. 3). The estimated correlation between the two factors was 0.91 ( $p < 0.001$ ), thus strongly supporting the possibility of calculating the ERQ–F total score. The results have indicated that negative-fantasizing and positive-fantasizing subscales are highly correlated, but there is theoretical and statistical value in separating them. Thus, we have selected the 2-factor model as the best solution in our data set, reflecting the theoretically sound factor structure of the questionnaire.

**Table 2.** Goodness-of-fit indices for the ERQ–F models in a total sample (N = 918)

Models	$\chi^2/df$	CFI	TLI	RMSEA (90% confidence interval)	SRMR
1-factor model	77.678/9	0.998	0.996	0.053 (0.042; 0.064)	0.034
2-factor model	40.880/8	1.000	0.999	0.035 (0.025; 0.045)	0.022

CFI — comparative fit index; RMSEA — root mean square error of approximation; SRMR —



standardized root mean square residual; TLI — Tucker–Lewis index

**Table 3.** Descriptive statistics of the ERQ–F statements and standardized item factor loadings from the confirmatory factor analysis (N = 918)

ERQ–F statements	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Standardized item factor loadings (all <i>ps</i> < 0.001)	
					1-factor model	2-factor model
1. When I want to feel less <i>negative</i> emotion (such as sadness or anger), I daydream or imagine myself in a better time and place.	3.77	2.19	0.14	-1.41	0.725	0.741
2. When I want to feel more <i>positive</i> emotion (such as joy or amusement), I fantasize about fantastic or unreal things (e.g., winning a million dollars or being famous).	4.00	2.28	-0.04	-1.52	0.772	0.794
3. When I want to feel less <i>negative</i> emotion, I think about a daydream or 'fantasy world' where my problems are gone	3.72	2.29	0.15	-1.50	0.837	0.860
4. When I want to feel more <i>positive</i> emotion, I daydream about the perfect future	4.33	2.20	-0.28	-1.36	0.750	0.770
5. When I want to feel less <i>negative</i> emotion, I focus on a daydream or fantasy in my head	4.00	2.22	-0.04	-1.46	0.860	0.883
6. When I want to feel more <i>positive</i> emotion, I try to 'get lost' in a daydream or fantasy	3.86	2.27	0.06	-1.50	0.835	0.862

ERQ–F — the Emotion Regulation Questionnaire-Fantasizing; *M* — mean; *SD* — standard deviation

### Descriptive statistics and internal consistency reliability

Descriptive statistics for the ERQ-F, the PERS-S, and the PHQ-4 scores in different gender groups are presented in Table 4. All analyzed variables were reasonably normally distributed (skewness values from -0.89 to 0.16, kurtosis values from -1.27 to -0.13). All questionnaires showed high internal reliability ( $\alpha \geq 0.78$ ), except the PHQ-4 Anxiety subscale, which had satisfactory reliability ( $\alpha = 0.66$ ). The ERQ-F subscale scores and the total score had good internal consistency reliability ( $\alpha \geq 0.85$ ).

A *t*-test indicated that there were no differences between females and males in the ERQ-F subscale scores and the total score ( $p > 0.05$ ). We conducted a paired *t*-test to compare negative-fantasizing and positive-fantasizing scores in order to examine whether these two strategies were used to varying degrees. The participants reported significantly higher usage of positive-fantasizing compared to negative-fantasizing,  $t(917) = -5.371$ ,  $p < 0.001$ , Cohen's  $d = -0.177$ , indicating a small effect size.

**Table 4.** Descriptive statistics for the ERQ-F, the PERS-S, and the PHQ-4 scores

Scales	Total sample				Females			Males		
	N	$\alpha$	M	SD	N	M	SD	N	M	SD
ERQ-F Negative-fantasizing	918	0.87	11.49	5.95	660	11.61	5.98	258	11.18	5.87
ERQ-F Positive-fantasizing	918	0.85	12.19	5.92	660	12.26	5.87	258	12.01	6.06
ERQ-F Total score	918	0.91	23.68	11.20	660	23.86	11.14	258	23.19	11.37
PERS-S General negative reactivity	157	0.92	34.44	8.76	143	34.53	8.80	14	33.50	8.63
PERS-S Negative-activation	157	0.78	11.57	3.11	143	11.59	3.18	14	11.36	2.37
PERS-S Negative-intensity	157	0.87	11.64	3.45	143	11.71	3.43	14	10.86	3.74
PERS-S Negative-duration	157	0.81	11.23	3.15	143	11.22	3.15	14	11.29	3.29
PERS-S General positive reactivity	157	0.90	27.30	8.34	143	27.43	8.52	14	26.00	6.30
PERS-S Positive-activation	157	0.78	9.68	2.94	143	9.69	2.99	14	9.50	2.41
PERS-S Positive-intensity	157	0.90	9.54	3.55	143	9.62	3.59	14	8.71	3.20
PERS-S Positive-duration	157	0.82	8.09	3.18	143	8.12	3.28	14	7.79	1.97
PHQ-4 Total score	313	0.82	7.30	3.38	282	7.30	3.35	31	7.29	3.71

PHQ-4 Anxiety subscale	313	0.66	3.85	1.75	282	3.87	1.73	31	3.65	1.92
PHQ-4 Depression subscale	313	0.80	3.45	1.98	282	3.43	1.97	31	3.65	2.07

$\alpha$  — Cronbach's alpha; M — mean; ERQ-F — the Emotion Regulation Questionnaire-Fantasizing; PERS-S — the Perth Emotional Reactivity Scale-Short Form; PHQ-4 — the Patient Health Questionnaire-4; SD — standard deviation

### Concurrent validity

Pearson correlations between the ERQ-F, the PERS-S, and the PHQ-4 scores are presented in Table 5. Among the ERQ-F subscales, the positive-fantasizing was positively correlated with general negative reactivity ( $r = 0.19$ ,  $p < 0.05$ ), negative-activation ( $r = 0.23$ ,  $p < 0.01$ ), negative-duration ( $r = 0.18$ ,  $p < 0.05$ ) as well as with the total score of anxiety-depressive symptoms ( $r = 0.11$ ,  $p < 0.05$ ). There were no statistically significant correlations between the negative-fantasizing subscale and emotional reactivity or mental health symptoms. The ERQ-F total score was significantly positively correlated only with negative-activation ( $r = 0.18$ ,  $p < 0.05$ ).

**Table 5.** Pearson correlations between the ERQ-F, the PERS-S, and the PHQ-4 scores

Variables	ERQ-F Negative-fantasizing	ERQ-F Positive-fantasizing	ERQ-F Total score
PERS-S General negative reactivity (N = 157)	0.05	<b>0.19*</b>	0.13
PERS-S Negative-activation (N = 157)	0.10	<b>0.23**</b>	<b>0.18*</b>
PERS-S Negative-intensity (N = 157)	-0.02	0.12	0.05
PERS-S Negative-duration (N = 157)	0.05	<b>0.18*</b>	0.13
PERS-S General positive reactivity (N = 157)	0.07	0.02	0.05
PERS-S Positive-activation (N = 157)	0.07	0.03	0.05
PERS-S Positive-intensity (N = 157)	0.09	0.08	0.09
PERS-S Positive-duration (N = 157)	0.03	-0.07	-0.02
PHQ-4 Total score (N = 313)	-0.05	<b>0.11*</b>	0.04
PHQ-4 Anxiety subscale (N = 313)	-0.05	0.09	0.02
PHQ-4 Depression subscale (N = 313)	-0.03	0.11	0.04

\*  $p \leq 0.05$ ; \*\*  $p < 0.01$ . Significant correlations are shown in bold

ERQ-F — the Emotion Regulation Questionnaire-Fantasizing; PERS-S — the Perth Emotional Reactivity Scale-Short Form; PHQ-4 — the Patient Health Questionnaire-4

***Predictive role of negative-fantasizing and positive-fantasizing in anxiety and depression levels***

We conducted a set of multiple regression analyses to examine whether negative-fantasizing and positive-fantasizing could predict significant variance in anxiety and depression symptoms (controlling for age and gender). Age, gender, and the two ERQ–F subscales were input as predictors, whereas anxiety and depression scores as well as the total PHQ-4 score were the dependent variables across three separate multiple regression analyses.

**Table 6.** Regression models for predicting psychopathology symptoms (N = 313)

Predictors	PHQ-4 Anxiety symptoms	PHQ-4 Depressive symptoms	PHQ-4 Total score
	Beta	Beta	Beta
Age	<b>-0.18**</b>	<b>-0.17**</b>	<b>-0.19***</b>
Gender (females = 1, males = 2)	-0.03	0.04	0.01
ERQ–F Negative-fantasizing	<b>-0.25**</b>	<b>-0.24**</b>	<b>-0.27**</b>
ERQ–F Positive-fantasizing	<b>0.26**</b>	<b>0.27**</b>	<b>0.29***</b>
Model parameters	F(4, 308) = 6.29, p < 0.001	F(4, 308) = 6.03, p < 0.001	F(4, 308) = 7.46, p < 0.001
The proportion of variance explained (adjusted R <sup>2</sup> , %)	6.35	6.06	7.64

\*\* p < 0.01; \*\*\* p < 0.001

PHQ-4 — the Patient Health Questionnaire-4

Our multiple regression analyses (forced entry method) reinforced that the ERQ–F scores were significant predictors of anxiety and depression symptoms, as well as the total PHQ-4 scores (see Table 6). All regression models were statistically significant ( $p < 0.001$ ) and explained 6.35 to 7.64% of the variance in the assessed psychopathology symptoms. In particular, age and negative-fantasizing were significant negative predictors of anxiety and depression, as well as the total PHQ-4 scores, whereas positive-fantasizing was a significant positive predictor of these symptoms. As a matter of fact, these

data provided good support for the clinical relevance of the ERQ–F scores across the two strategies, i.e., negative-fantasizing and positive-fantasizing.

**Discriminant validity**

Discriminant validity was assessed by conducting a second-order exploratory factor analysis (principal axis factoring with Direct Oblimin rotation) of the two ERQ–F subscales, three negative reactivity PERS-S subscales, three positive reactivity PERS-S subscales and the anxiety and depression PHQ-4 subscales. It was expected that the ERQ–F subscales would load on the “fantasizing” factor, whereas other measures would constitute separate “negative reactivity” and “positive reactivity” factors as well as an “anxiety-depressive symptoms” factor.

**Table 7.** Factor loadings from the second-order exploratory factor analysis of the ERQ–F, the PERS-S, and the PHQ-4 subscales (N = 147)

Variables	Factor 1 “negative reactivity”	Factor 2 “positive reactivity”	Factor 3 “fantasizing”	Factor 4 “anxiety-depressive symptoms”
PHQ-4 Anxiety	–0.021	0.036	0.026	<b>0.848</b>
PHQ-4 Depression	0.012	–0.046	–0.040	<b>0.740</b>
ERQ–F Negative-fantasizing	–0.035	0.006	<b>0.853</b>	–0.069
ERQ–F Positive-fantasizing	0.027	0.004	<b>0.841</b>	0.061
PERS-S Positive-activation	–0.001	<b>0.859</b>	–0.005	–0.035
PERS-S Positive-intensity	0.126	<b>0.837</b>	0.039	0.049
PERS-S Positive-duration	–0.288	<b>0.633</b>	–0.040	–0.104
PERS-S Negative-activation	<b>0.769</b>	–0.049	0.066	0.002
PERS-S Negative-intensity	<b>0.921</b>	0.039	–0.069	–0.031
PERS-S Negative-duration	<b>0.814</b>	0.025	0.020	0.086
The proportion of total variance (%)	34.6	18.4	12.3	4.4

Factor loadings ≥ 0.4 are shown in bold

PHQ-4 — the Patient Health Questionnaire-4; ERQ–F — the Emotion Regulation Questionnaire-Fantasizing; PERS-S — the Perth Emotional Reactivity Scale-Short Form

As expected, the second-order exploratory factor analysis extracted four factors (Tab. 7). The two ERQ–F subscales loaded precisely on the “fantasizing” factor and did not load on the “negative reactivity”, “positive reactivity” or “anxiety-depressive symptoms” factors. In general, the “fantasizing” construct, as measured by the ERQ–F, was statistically separable from one’s current level of emotional reactivity and mental health symptoms. Thus, the ERQ–F showed empirically good discriminant validity.

### Group norms

We provide the current (November 2022) group norms by the sten scale for the ERQ–F subscale scores and a total score for the whole sample to help facilitate the interpretation of the ERQ–F scores (Tab. 8). The Sten scores were calculated from Z-scores using the formula:  $Sten = (Z\text{-score} \times 2) + 5.5$  [22].

**Table 8.** The current (November 2022) group norms for the ERQ–F (N = 918)

Interpretation	Sten	Negative-fantasizing	Positive-fantasizing	Total score
Low	1	–	–	–
	2	–	3	6
	3	3–5	4–6	7–12
Below average	4	6–8	7–9	13–18
Average	5	9–11	10–12	19–23
	6	12–14	13–15	24–29
Above average	7	15–17	16–18	30–34
High	8	18–20	19–21	35–40
	9	21	–	41–42
	10	–	–	–

The study aimed to explore the preliminary psychometric properties of the Polish version of the ERQ–F. Overall, the analyses empirically supported the factorial structure and internal consistency reliability of the questionnaire as a measure of fantasizing. Based on the exploratory factor analysis results, we proposed a 2-factor solution (i.e., fantasizing to feel less negative emotions and fantasizing to feel more positive emotions), which seems to be theoretically more consistent with the content of the ERQ–F statements. The confirmatory factor analysis showed that both the original 1-factor and our 2-factor solutions had an excellent fit to the data, with the 2-factor model being superior in fit statistics. The

internal consistency reliability of the two subscales and the total score were very good. Thus, the factorial validity and internal consistency reliability were supported empirically. Thus, the obtained results are in line with the conclusions presented in the original validation study on the ERQ-F 1-factor solution [3]. We believe that our 2-factor solution has predominance over the original 1-factor one, as it highlights the clinical relevance of assessing fantasizing for positive and negative emotions separately, as shown below.

We revealed no statistically significant gender differences in the ERQ-F subscale scores and the total score. However, it was shown that people use more positive-fantasizing compared to negative-fantasizing to regulate their emotions with a small effect size of these differences. It means that fantasizing is more frequently used to feel more positive emotions than to feel less negative ones. This highlights the relevance of distinguishing between these two strategies. Moreover, we indicated that these strategies had different links with emotional reactivity traits and psychopathology symptoms.

Paradoxically, our results suggest that using fantasizing to feel more positive emotions was positively related to more easily activated and more prolonged negative emotions as well as to other mental health symptoms. It seems that using fantasizing to feel more positive emotions may lead to adverse effects (opposite of expected), whereas using fantasizing to feel less negative emotions was not correlated with emotional reactivity and mental health symptoms. Our multiple regression analyses revealed (controlling for age and gender) that age and negative-fantasizing were significantly associated with lower levels of anxiety and depression symptoms, whereas positive-fantasizing was significantly associated with higher levels of these symptoms. These findings support the clinical relevance of assessing fantasizing across positive and negative emotions.

Our key explanation of these differences lies in the motivation to use these two strategies. We believe that the motivation to use fantasizing for decreasing negative emotions (negative-fantasizing) is a coping motivation which in general is constructive or adaptive, whereas the motivation to use fantasizing for increasing positive emotions (positive-fantasizing) is an enhancing motivation that seems to be less constructive or maladaptive. Our results correspond with Sjödin et al.'s [23] study on drinking motives and their associations with alcohol use among adolescents in Sweden. It was shown that enhancement motives to drink alcohol (e.g., for feeling good, fun, or excited) had the strongest association with both drinking frequency and heavy drinking frequency, but coping-depression motives were slightly positively associated with drinking, whereas coping-anxiety motives were not [23]. We believe that the use of positive-fantasizing is related to a higher risk of mental health problem development, especially in people experiencing problems with self-regulating behavior. For example, a study case of compulsive masturbation in a patient with an obsessional personality is presented by

Kamasz and Pilarska [24], who noted the frequent use of positive-fantasizing on sexual activity in this patient. It is possible that the reduction of this strategy could lead to relieving the psychopathology symptoms development through a decrease in stimulation or psychological triggers leading to compulsive masturbation. In general, our explanations are preliminary and need to be examined empirically. However, we believe that our results on the two distinct fantasizing-focused strategies are strongly supported empirically.

We cannot compare our results on the role of fantasizing (as a strategy to regulate emotions) in emotion processing and mental health issues, because this is the first study on this topic. However, some experimental studies evidenced that positive fantasies about the future relate to lower concurrent depressive symptoms, but longitudinally they predict more symptoms [25]. It was also shown that students with positive fantasies invested low effort in studying, which predicted low academic success and increased levels of depressive symptoms [25]. In a sample of soccer fans, Sevincer et al. showed that positive fantasies about their favorite team winning an upcoming match predicted stronger negative emotions after losses [26]. Moreover, positive fantasies did not generate energy to pursue the desired future as indicated by Kappes and Oettingen [27].

Considering the cross-sectional nature of our study, the correlations between fantasizing and mental health symptoms are bi-directional. Thus, it is possible that an increase in these symptoms may lead to more intensive use of positive-fantasizing in order to feel good by running away from the real world and its experience. Based on Oettingen et al.'s [25] narration, positive-fantasizing can be considered an avoidant coping strategy, which relates not only to a short-term positive effect on mental health but also to a long-term negative one. Therefore, some precautions should be taken into account when using fantasizing to increase positive emotions. Constructive use of positive-fantasizing is based on mentally contrasting positive fantasies with reality and using them actively to achieve goals in the real world. In other words, fantasies should be used creatively.

As our results indicated that females and males did not differ in using fantasizing to regulate their emotions, we provided the current group norms for the ERQ-F subscale scores and the total score for the whole sample; this can be helpful for preliminary assessment of fantasizing in people with or without different mental health conditions. In a Polish context, this questionnaire can be used in maladaptive daydreaming research (e.g., for assessing the discriminant validity of maladaptive daydreaming questionnaires), which is currently being developed.

We present evidence of the ERQ-F concurrent validity; however, future studies are recommended to examine the convergent and divergent validity of the 2-factor ERQ-F more deeply. We also should note that this study took place in a broad general sample with a wide range of ages; however, young people



predominated. This is cross-sectional research; thus, no conclusion can be drawn regarding the temporal order of fantasizing and its correlates.

## Conclusions

The study showed that the Polish version of the ERQ–F seems to have strong psychometric properties. The questionnaire appears to be a useful tool for measuring two emotion regulation strategies, i.e., fantasizing to feel more positive emotions and fantasizing to feel less negative emotions, which can be combined into the total ERQ–F score, indicating the general tendency of using fantasizing. Our results suggested that using fantasizing to feel more positive emotions may lead to more easily activated and more prolonged negative emotions as well as psychopathology symptoms, whereas using fantasizing to feel less negative emotions did not. This evidence is preliminary; therefore, in order to explore the role of fantasizing in mental health problems and different fantasizing-related conditions, we recommend investigating its role more comprehensively, including the clinical relevance of assessing fantasizing for positive and negative emotions separately.

## Conflict of interest

The authors state no conflict of interest.

## Funding

The authors state no external sources of funding.

## References

1. Goerlich KS. The multifaceted nature of alexithymia - a neuroscientific perspective. *Front Psychol.* 2018; 9: 1614, doi: [10.3389/fpsyg.2018.01614](https://doi.org/10.3389/fpsyg.2018.01614), indexed in Pubmed: [30210420](https://pubmed.ncbi.nlm.nih.gov/30210420/).
2. Vorst H, Bermond B. Validity and reliability of the Bermond–Vorst Alexithymia Questionnaire. *Personality and Individual Differences.* 2001; 30(3): 413–434, doi: [10.1016/s0191-8869\(00\)00033-7](https://doi.org/10.1016/s0191-8869(00)00033-7).
3. Preece DA, Becerra R, Robinson K, et al. What is alexithymia? Using factor analysis to establish its latent structure and relationship with fantasizing and emotional reactivity. *J Pers.* 2020; 88(6): 1162–1176, doi: [10.1111/jopy.12563](https://doi.org/10.1111/jopy.12563), indexed in Pubmed: [32463926](https://pubmed.ncbi.nlm.nih.gov/32463926/).

4. Conklin A, Westen D. Thematic Apperception Test. *Understanding Psychological Assessment*. 2001: 107–133, doi: [10.1007/978-1-4615-1185-4\\_6](https://doi.org/10.1007/978-1-4615-1185-4_6).
5. Schneider B. Rorschach Inkblot Technique. *Understanding Psychological Assessment*. 2001: 77–106, doi: [10.1007/978-1-4615-1185-4\\_5](https://doi.org/10.1007/978-1-4615-1185-4_5).
6. Blankman SM. Guided fantasy as a psychotherapeutic intervention: an experimental study. *Imagery*. 1980: 267–280, doi: [10.1007/978-1-4684-3731-7\\_20](https://doi.org/10.1007/978-1-4684-3731-7_20).
7. Leuner H. Guided affective imagery (GAI). A method of intensive psychotherapy. *Am J Psychother*. 1969; 23(1): 4–21, doi: [10.1176/appi.psychotherapy.1969.23.1.4](https://doi.org/10.1176/appi.psychotherapy.1969.23.1.4), indexed in Pubmed: [4180780](https://pubmed.ncbi.nlm.nih.gov/4180780/).
8. Assagioli R. *Psychosynthesis: A manual of principles and techniques*. Viking Press, New York 1965.
9. Khoo S, Simms LJ. Links between depression and openness and its facets. *Personal Ment Health*. 2018; 12(3): 203–215, doi: [10.1002/pmh.1417](https://doi.org/10.1002/pmh.1417), indexed in Pubmed: [29611346](https://pubmed.ncbi.nlm.nih.gov/29611346/).
10. Rossegger A, Bartels R, Endrass J, et al. High risk sexual fantasies and sexual offending: An overview of fundamentals and interventions. *Sexual Offending: Theory, Research, and Prevention*. 2021; 16, doi: [10.5964/sotrap.5291](https://doi.org/10.5964/sotrap.5291).
11. Chirico I, Volpato E, Landi G, et al. Maladaptive daydreaming and its relationship with psychopathological symptoms, emotion regulation, and problematic social networking sites use: a network analysis approach. *International Journal of Mental Health and Addiction*. 2022, doi: [10.1007/s11469-022-00938-3](https://doi.org/10.1007/s11469-022-00938-3).
12. Pietkiewicz IJ, Nęcki S, Bańbura A, et al. Maladaptive daydreaming as a new form of behavioral addiction. *J Behav Addict*. 2018; 7(3): 838–843, doi: [10.1556/2006.7.2018.95](https://doi.org/10.1556/2006.7.2018.95), indexed in Pubmed: [30238787](https://pubmed.ncbi.nlm.nih.gov/30238787/).
13. Somer E, Abu-Rayya HM, Schimmenti A, et al. Heightened Levels of Maladaptive Daydreaming Are Associated With COVID-19 Lockdown, Pre-existing Psychiatric Diagnoses, and Inten-

- sified Psychological Dysfunctions: A Multi-country Study. *Front Psychiatry*. 2020; 11: 587455, doi: [10.3389/fpsyt.2020.587455](https://doi.org/10.3389/fpsyt.2020.587455), indexed in Pubmed: [33240135](https://pubmed.ncbi.nlm.nih.gov/33240135/).
14. Bacon AM, Charlesford J. Investigating the association between fantasy proneness and emotional distress: the mediating role of cognitive coping strategies. *Personality and Individual Differences*. 2018; 135: 157–165, doi: [10.1016/j.paid.2018.07.003](https://doi.org/10.1016/j.paid.2018.07.003).
  15. Preece D, Becerra R, Campitelli G. Assessing emotional reactivity: psychometric properties of the Perth Emotional Reactivity Scale and the development of a short form. *J Pers Assess*. 2019; 101(6): 589–597, doi: [10.1080/00223891.2018.1465430](https://doi.org/10.1080/00223891.2018.1465430), indexed in Pubmed: [29764211](https://pubmed.ncbi.nlm.nih.gov/29764211/).
  16. Larionow P, Mudło-Głagolska K. Assessment of activation, intensity and duration of positive and negative emotions: psychometric properties of the Polish version of the Perth Emotional Reactivity Scale – Short Form. *Current Issues in Personality Psychology*. 2022, doi: [10.5114/cipp/156146](https://doi.org/10.5114/cipp/156146).
  17. Kroenke K, Spitzer RL, Williams JBW, et al. An ultra-brief screening scale for anxiety and depression: the PHQ-4. *Psychosomatics*. 2009; 50(6): 613–621, doi: [10.1176/appi.psy.50.6.613](https://doi.org/10.1176/appi.psy.50.6.613), indexed in Pubmed: [19996233](https://pubmed.ncbi.nlm.nih.gov/19996233/).
  18. Löwe B, Wahl I, Rose M, et al. A 4-item measure of depression and anxiety: validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *J Affect Disord*. 2010; 122(1-2): 86–95, doi: [10.1016/j.jad.2009.06.019](https://doi.org/10.1016/j.jad.2009.06.019), indexed in Pubmed: [19616305](https://pubmed.ncbi.nlm.nih.gov/19616305/).
  19. Larionow P, Mudło-Głagolska K. The Patient Health Questionnaire-4: Factor structure, measurement invariance, latent profile analysis of anxiety and depressive symptoms and screening results in Polish adults. *Advances in Cognitive Psychology*. 2023; 19(2): 123–137, doi: [10.5709/acp-0384-9](https://doi.org/10.5709/acp-0384-9).
  20. Lim S, Jahng S. Determining the number of factors using parallel analysis and its recent variants. *Psychol Methods*. 2019; 24(4): 452–467, doi: [10.1037/met0000230](https://doi.org/10.1037/met0000230), indexed in Pubmed: [31180694](https://pubmed.ncbi.nlm.nih.gov/31180694/).

21. Hu L, Bentler P. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*. 1999; 6(1): 1–55, doi: [10.1080/10705519909540118](https://doi.org/10.1080/10705519909540118).
22. Eatwell J. Using Norms in the Interpretations of Test Results. In: Love H, Whittaker W. ed. *Practice Issues for Clinical and Applied Psychologists in New Zealand*. The New Zealand Psychological Society, Wellington 1997: 268–276.
23. Raninen J, Karlsson P, Svensson J, et al. Drinking motives and their associations with alcohol use among adolescents in Sweden. *Nordisk Alkohol Nark*. 2021; 38(3): 256–269, doi: [10.1177/1455072520985974](https://doi.org/10.1177/1455072520985974), indexed in Pubmed: [35310616](https://pubmed.ncbi.nlm.nih.gov/35310616/).
24. Kamasz E, Pilarska N. Psychoterapia w ujęciu psychodynamicznym. Przypadek kompulsywnej masturbacji u pacjenta z rysem osobowości obsesyjno-kompulsywnej. *Przegląd Psychologiczny*. 2022; 65(2): 55–69, doi: [10.31648/przegldpsychologiczny.8079](https://doi.org/10.31648/przegldpsychologiczny.8079).
25. Oettingen G, Mayer D, Portnow S. Pleasure Now, Pain Later: Positive Fantasies About the Future Predict Symptoms of Depression. *Psychol Sci*. 2016; 27(3): 345–353, doi: [10.1177/0956797615620783](https://doi.org/10.1177/0956797615620783), indexed in Pubmed: [26825106](https://pubmed.ncbi.nlm.nih.gov/26825106/).
26. Sevincer AT, Wagner G, Oettingen G. Positive fantasies and negative emotions in soccer fans. *Cogn Emot*. 2020; 34(5): 935–946, doi: [10.1080/02699931.2019.1703649](https://doi.org/10.1080/02699931.2019.1703649), indexed in Pubmed: [31842663](https://pubmed.ncbi.nlm.nih.gov/31842663/).
27. Kappes H, Oettingen G. Positive fantasies about idealized futures sap energy. *Journal of Experimental Social Psychology*. 2011; 47(4): 719–729, doi: [10.1016/j.jesp.2011.02.003](https://doi.org/10.1016/j.jesp.2011.02.003).