Myths of Clinical Psychology and Psychotherapy: Development and Testing of a Questionnaire for Standardized Assessment

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Keywords

Myths · False assumptions · Intolerance of uncertainty · Absorption

Abstract

Background: Myths in the sense of scientifically untenable statements are widespread in the field of clinical psychology and psychotherapy and can have considerable consequences (e.g., stigmatization, ineffective/potentially harmful treatments). In German-speaking countries, myths have so far been little investigated, and there is no validated questionnaire specifically for the assessment of myths in clinical psychology/psychotherapy. The aim of the study was to develop a questionnaire on myths in clinical psychology/psychotherapy (FMKPP) and to conduct a first psychometric test on two samples (general population, students). In addition, correlations with personality traits, absorption, and intolerance of uncertainty were examined. **Methods:** In a sample of the German general population ($n = 286$) as well as in college students ($n = 368$), the factor structure and item characteristics were examined, and correlations with dispositional characteristics were calculated. **Results:** The FMKPP consists of three factors: “myths about the effectiveness of psychotherapy,” “myths about mental disorders/processes in psychotherapy,” and “myths concerning the functioning of memory.” Reliabilities (McDonald’s ω) were between 0.50 and 0.75. As expected, the FMKPP showed significant positive correlations with absorption and uncertainty intolerance. **Conclu-**

sion: The reliability and validity of individual items should be investigated in future studies. The association with intolerance of uncertainty could indicate a function of myths in terms of increasing safety and predictability.

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Mythen der klinischen Psychologie und Psychotherapie: Entwicklung und Erprobung eines Fragebogens zur standardisierten Erfassung

Schlüsselwörter

Mythen · Fehlanahmen · Unsicherheitsintoleranz · Absorption

Zusammenfassung

Hintergrund: Mythen im Sinne von wissenschaftlich nicht haltbaren Aussagen sind im Bereich der klinischen Psychologie und Psychotherapie weitverbreitet und können erhebliche Auswirkungen haben (z.B. Stigmatisierung, unwirksame/potenziell schädliche Behandlungen). Im deutschsprachigen Raum sind Mythen bislang wenig erforscht, und es existiert kein validierter Fragebogen spezifisch zur Erfassung von Mythen der klinischen Psychologie/Psychotherapie. Die Studie verfolgte das Ziel, einen Fragebogen zu Mythen der klinischen Psychologie und Psychotherapie (FMKPP) zu entwickeln und an zwei Stichproben (Allgemeinbevölkerung, Studierende) einer ers-

ten psychometrischen Prüfung zu unterziehen. Zudem wurden Zusammenhänge mit Persönlichkeitsmerkmalen, Absorption und Unsicherheitsintoleranz geprüft. **Methode:** An einer Stichprobe der Allgemeinbevölkerung ($n = 286$) sowie Studierenden ($n = 368$) wurden mittels einer Hauptkomponentenanalyse die Faktorstruktur untersucht, eine Itemanalyse durchgeführt sowie Korrelationen mit Fragebögen zu dispositionellen Merkmalen berechnet. **Ergebnisse:** Der FMKPP zeigte die folgenden drei Faktoren: "Mythen zur Wirksamkeit von Psychotherapie", "Mythen zu psychischen Störungen/Prozessen in der Psychotherapie" und "Mythen bezüglich der Funktionsweise des Gedächtnisses". Die Reliabilitäten (McDonalds ω) lagen zwischen 0,50 und 0,75. Erwartungskonform zeigte der FMKPP signifikant positive Zusammenhänge mit Absorption und Unsicherheitsintoleranz. **Schlussfolgerung:** Vor dem Hintergrund einer ersten psychometrischen Prüfung sollten die Reliabilität sowie die Validität einzelner Items in zukünftigen Studien untersucht werden. Die Assoziation mit Unsicherheitsintoleranz könnte eine Funktion von Mythen im Sinne der Erhöhung von Sicherheit und Vorhersagbarkeit indizieren.

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Introduction

Topics of clinical psychology and psychotherapy are of great interest to the general public and have a strong presence in the media. In addition to positive developments such as increased recognition and destigmatization of mental disorders, this process also brings to light a growing number of assumptions and beliefs that are overgeneralized, distorted, or not tenable according to current scientific findings [Lilienfeld et al., 2010]. Presumed knowledge and misconceptions in the field of clinical psychology and psychotherapy can have adverse effects at various levels, such as stigmatizing people, delaying/avoiding a psychotherapeutic diagnosis and/or treatment, or using ineffective or potentially harmful therapeutic interventions [Crisp et al., 2000; Lilienfeld et al., 2003, 2013].

The term "myth" is not consistently defined and used. The definitions differ especially in their scientific foundation. In their general form, these include a story or narrative that has been handed down over the years [Brockhaus Enzyklopädie, 2019], assumptions that may or may not be correct according to the scientific evidence [Frankfurt, 2005], or misconceptions that contradict science [Armstrong, 2007]. Following Lilienfeld et al. [2010], we understand myths in the present work as popular assumptions or beliefs that are not tenable according to current scientific findings. Due to their strong connection to everyday life, intuition, experiences, and attitudes are as-

sumed to be valid sources of explanations and beliefs, especially in psychology [Lilienfeld et al., 2010]. Like heuristics, myths can help to organize the world, rendering situations and human experience and behavior explicable and predictable. Further explanations for the propagation and popularity of psychological myths are the frequent media reports that greatly simplify, distort, or misrepresent a situation, as well as the wide range of nonscientific approaches in the fields of counseling and psychotherapy [Lilienfeld et al., 2003; Kanning et al., 2014].

Up to now, only a few studies have examined the propagation of psychological myths in the general population, among psychology students, and among psychologists. In Germany, Kanning et al. [2013] conducted an online survey of the general population ($n = 1,688$) and of psychology students and psychologists ($n = 142$) on 16 psychological myths (e.g., "On average, women talk more per day than men" or "Most autistic people have special intellectual abilities"), asking whether they considered the statements to be true or false (13 of the statements are incorrect, 3 are correct). On average, 34% of the general population (3–67% depending on the myth) assessed as correct the statements considered incorrect based on present-day scientific knowledge, and 4 of the 13 myths were wrongly classified as correct by over half of the respondents. On average, a quarter of the psychologists (students and graduates) wrongly assessed the incorrect statements as correct (1–58% depending on the myth). In a subsequent study, Kanning et al. [2014] examined 11 more myths in the German-speaking general population ($n = 1,533$). The statements on the subject of clinical psychology (schizophrenia as a split/multiple personality) and psychotherapy (intensive work on one's childhood is required) were among the 4 myths that were most often wrongly considered to be correct (45.3 and 37.1%, respectively).

Several surveys of psychology students and the general population in the USA and Canada specifically examined myths in the area of clinical psychology and psychotherapy. They found agreement rates of between 43 and 80% for scientifically untenable statements [Vaughan, 1977; Wahl, 1987; Hubbard and McIntosh, 1992; Ganguli, 2000; Stuart and Arboleda-Flórez, 2001]. Myths related to memory processes and traumatic memories appear to be particularly widespread. For example, 63% of the general population assume that memory stores experiences by analogy to a camera, and up to 88% agree with the statement that hypnosis enables the accurate recall of forgotten or repressed memories [Johnson and Hauck, 1999; Simons and Chabris, 2011].

Previous studies have identified some correlations between a person's myth acceptance and their attitudes as well as personality traits. Superstitious thinking, trust in

one's own intuition, and negative attitudes towards science (e.g., that the aim of science is to irritate people) showed positive correlations with myth acceptance [Swami et al., 2012; Bensley et al., 2014; Swami et al., 2016]. Absorption (the tendency to be more receptive to sensory and imaginative experiences and perceptions [Tellegen and Atkinson, 1974]) is a personality trait that is associated with increased suggestibility [Eisen and Carlson, 1998] and hypnotizability [Kihlstrom and Register, 1984; Hoyt et al., 1989; Roche and McConkey, 1990] and therefore is assumed to be closely related to myth acceptance [Patihis et al., 2014]. In the study by Patihis et al. [2014], absorption was positively associated with acceptance of myths about memory. As for additional personality traits, the Big Five personality factors have so far been the most frequently studied. Swami et al. [2016] found that by controlling other Big Five factors, only greater "Openness" predicted less acceptance of myths about a scientific topic (discovery of a giant skeleton in India) ($\beta = -0.18$, $p = 0.001$). This specific correlation is explained by the fact that people with greater "Openness" have shown higher intellectual abilities in previous studies and thus presumably question concepts and ideas more critically [Moutafi et al., 2006; Fleischhauer et al., 2010; Swami et al., 2016].

As mentioned above, myths can perform the function of organizing, explaining, or predicting situations and events and could thus increase perceived safety and control. From a philosophical perspective, it has been assumed that one function of myths could be the reduction of (existential) fears [Blumenberg, 1979]. Although this function might be central to the explanation and propagation of myths, there has as yet been no direct empirical evidence for the presumed association between myth acceptance and uncertainty or anxiety.

There are some standardized questionnaires for assessment of psychological myths in general (e.g., "People only use about 10% of their brain's capacity"), but these are mostly in English-speaking countries [Standing and Huber, 2003; Gardner and Brown, 2013; Bensley et al., 2014]. The Science-Related Myths Scale [Swami et al., 2012], with 20 items on everyday myths (e.g., "Natural blondes are likely to be extinct within 200 years"), was validated in the German-speaking general population and showed good reliability ($\alpha = 0.82$ – 0.88) and validity (e.g., positive correlations between myth acceptance and negative attitudes towards science). Psychological myths have mainly been much better researched in the English-speaking world, and so far there is no validated German-language questionnaire for the standardized assessment of myths in the field of clinical psychology and psychotherapy. Such a questionnaire could contribute to systematically assessing the propagation of misconceptions in general, in different samples and over time. In university teaching of clinical psychology and psychotherapy, as

well as in postgraduate psychotherapeutic training and continuing education, such an instrument seems to us suitable to systematically assess and critically reflect on the propagation of potential misconceptions. This could be accompanied by the study of the functions of myths as well as their starting points and results, to explain the myths and diminish their spread.

The aim of the present work was the development and first psychometric test of a Questionnaire on Myths of Clinical Psychology and Psychotherapy (Fragebogen zu Mythen der klinischen Psychologie und Psychotherapie, FMKPP) for the general population as well as psychology students. We also wanted to study whether the results from previous studies of the personality traits absorption and "Openness" are replicable. Based on earlier findings, we expected a negative correlation between myth acceptance and "Openness" [Swami et al., 2016] and a positive correlation with absorption as an affinity for imaginative and sensory experiences [Patihis et al., 2014]. Given that the assumed function of myths – to make situations and facts more explicable and predictable – has been the subject of little empirical study up to now, we examined correlations with the construct of intolerance of uncertainty, expecting that there would be a positive correlation between myth acceptance and intolerance of uncertainty.

Method

Development of the FMKPP

We developed a total of 27 items based on the previous literature [Standing and Huber, 2003; Lilienfeld et al., 2010; Patihis et al., 2014] and the authors' experience in treatment, teaching, and postgraduate training (e.g., the preconceptions held by patients, students, and psychologists undergoing psychotherapeutic training). One item (the significance of habituation in exposure therapy) appeared to be of little relevance due to the differentiated evidence [Craske et al., 2008] and complexity of the topic, especially for the general population, so that this was not included in the final questionnaire. The 26-item comprehensive FMKPP consists of 20 statements that are scientifically untenable (e.g., "Older and more experienced psychotherapists usually have greater success in treatment than younger psychotherapists who are at the beginning of their professional careers"), 5 statements that are compatible with or relevant to scientific findings and were used as distractors (e.g., "Memories might be unreliable"), and one question assessing the plausibility of a short scenario. The statements were called myths if, based on current scientific evidence, they are not tenable. The statements were evaluated according to the specific wording (although the sentence might be correct if worded differently), and an assessment was made independently of, for example, theories presented in different psychotherapy procedures. The statements are answered with a 6-point Likert scale (1 = "strongly disagree" to 6 = "strongly agree"), with the exception of the question assessing plausibility (1 = "very implausible" to 4 = "very plausible"). The statistical analyses were performed using the 20 statements that represent myths. All items and the instructions for the FMKPP are presented in the online supplement material (see www.karger.com/doi/10.1159/000507767).

Samples

The FMKPP was validated on two samples. Sample 1 (S1) was recruited from the general population via social media and psychology students (their friends, acquaintances, family members) who supported the project ("convenience sample," $n = 286$, link to online survey). Sample 2 (S2) comprises psychology students ($n = 368$, with 298 paper-and-pencil surveys and 70 online surveys), who worked on the FMKPP as part of the course on clinical psychology in the summer semesters from 2016 to 2019. The participants in both samples were recruited with the study title "Study on attitudes and perspectives in the context of clinical psychology and psychotherapy."

In S1 ($n = 286$) 65.4% were female and 33.6% male (1% diverse); the average age was 29.4 years ($SD = 13.1$). With regard to educational attainment, 0.3% did not have a school-leaving certificate, 1.4% had a primary/secondary school-leaving certificate, 4.9% had an intermediate secondary school-leaving certificate, 43.0% had a (vocational) baccalaureate diploma, and 46.2% had a university degree (4.2% other). Of the study participants, 9.4% stated that they were currently studying psychology or had done so in the past, and 10.5% said they were currently working in the fields of medicine, psychology, or education.

S2 ($n = 368$) comprised 80.2% female and 19.8% male students; the average age was 23.14 years ($SD = 4.32$). Almost all participants (97.3%) studied psychology as their major subject, 86.5% were in the bachelor's program and 13.5% in the master's, with an average of 3.6 semesters ($SD = 2.2$).

Other Measuring Instruments

The 10-item Big Five Inventory (BFI-10 [Rammstedt and John, 2007; Rammstedt et al., 2013]) is a validated short version of the BFI [John et al., 1991]. The five dimensions of personality are assessed with two items each: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. In earlier studies, the BFI-10 showed good reliability ($r_{\text{retest}} = 0.48\text{--}0.73$) and validity [Rammstedt and John, 2007; Rammstedt et al., 2013].

The 18-item version of the Unsicherheitsintoleranz-Skala (UIS) (Intolerance of Uncertainty Scale, IUS [Gerlach et al., 2008]) uses three subscales to measure "restricted ability to act because of intolerance of uncertainty," "stress because of intolerance of uncertainty," and "vigilance because of intolerance of uncertainty." The total scales and subscales were found to be reliable (Cronbach's $\alpha = 0.80\text{--}0.90$) and valid (e.g., correlations with the frequency of worries).

The Tellegen Absorption Scale [Tellegen and Atkinson, 1974; Ritz and Dahme, 1995] assesses the disposition to have a greater affinity for sensory and/or imaginative experiences. The 16-item short version used here had shown good internal consistency ($\alpha = 0.89$) in a previous study [Görger et al., 2016].

Data Analysis

The statistical analyses were performed with SPSS Statistics 23 [IBM Corp., 2015] and JASP 0.11.1 [JASP Team, 2019]. A principal component analysis (Promax rotation, Kaiser normalization) was used to extract relevant factors of the FMKPP. The number of factors was determined using a parallel analysis [Horn, 1965]. Skewness, kurtosis, difficulty, and discriminative power were calculated as part of the item analysis. Reliability (total scale and subscales) was determined using McDonald's ω [JASP Team, 2019]. Pearson product-moment correlations were calculated to check the correlations with personality traits, absorption, and intolerance of uncertainty.

Table 1. Factor loadings (for each pattern matrix) of the FMKPP in S1 ($n = 286$) and S2 ($n = 368$)

Item No.	Factor 1 S1/S2	Factor 2 S1/S2	Factor 3 S1/S2
1	0.60/0.65	0.15/0.03	−0.18/−0.27
2	0.75/0.74	0.09/−0.01	−0.16/0.03
3	0.67/0.68	−0.05/−0.09	0.27/0.21
4	0.71/0.66	−0.17/−0.09	0.17/0.18
5	0.62/0.52	0.15/0.03	−0.03/0.01
6	0.06/0.35	0.37/−0.05	0.04/−0.15
7	0.03/0.22	0.74/0.55	−0.06/−0.16
8	0.12/0.18	0.63/0.41	−0.15/0.09
10	0.15/−0.02	0.26/0.47	0.16/0.19
11	0.05/0.23	0.15/0.16	0.38/0.29
13	−0.01/0.23	0.51/0.14	0.03/0.15
14	0.07/−0.10	0.44/0.73	0.24/−0.01
15	−0.11/−0.15	0.61/0.72	0.11/−0.05
17	0.21/0.39	−0.12/0.19	0.19/−0.12
19	0.07/0.08	−0.07/0.03	0.58/0.53
20	0.02/−0.14	−0.08/0.06	0.71/0.77
22	−0.14/−0.04	0.12/0.09	0.67/0.68
24	0.06/0.04	−0.05/0.03	0.62/0.39
25	0.06/−0.09	<0.01/−0.13	0.46/0.53
26	−0.19/−0.04	0.23/−0.11	0.53/0.49

Items 9, 12, 16, 21, and 23 distractors, and item 18 with a different answer format (the plausibility item) were not included in the analyses. Italics indicate maximum loadings. FMKPP, Fragebogen zu Mythen der klinischen Psychologie und Psychotherapie (Questionnaire on Myths of Clinical Psychology and Psychotherapy); S1, sample 1 (general population); S2, sample 2 (students).

Results

Factor Structure

The Kaiser-Meyer-Olkin indices were 0.73 (S1) and 0.71 (S2). The parallel analyses for both samples revealed three empirical eigenvalues above the 95th percentile of randomly generated eigenvalues. Table 1 shows the factor loadings of the three-factor solution for both samples. For almost all items, the maximum loadings on the corresponding factor were the same in both samples (items 6 and 13 were exceptions; classification by factor loading and content fit). The three factors can be described in terms of content: "myths about the effectiveness of psychotherapy" (1st factor: 1, 2, 3, 4, 5, 17), "myths about mental disorders/processes in psychotherapy" (2nd factor: 6, 7, 8, 10, 13, 14, 15), and "myths concerning the functioning of memory" (3rd factor: 11, 19, 20, 22, 24, 25, 26).

Descriptive Statistics, Item Analysis, and Reliability

Table 2 shows the descriptive statistics for item analysis. Skewness and kurtosis were between −1.23 and 1.81, the item difficulties (P_i) between $P_i = 0.30$ and $P_i = 0.79$.

Table 2. Item analyses of the FMKPP for S1 ($n = 286$) and S2 ($n = 368$): mean (M), standard deviation (SD), skewness, kurtosis, difficulty (P_i), and selectivity (r_{it})

Item No.	M		SD		Skewness		Kurtosis		P_i		r_{it}	
	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
1	3.98	3.33	1.18	1.12	-0.58	0.27	-0.33	-0.50	0.66	0.56	0.39	0.31
2	3.73	3.35	1.17	1.18	-0.33	0.13	-0.39	-0.59	0.62	0.56	0.45	0.53
3	3.64	3.50	1.21	1.20	-0.20	-0.04	-0.43	-0.38	0.61	0.58	0.59	0.55
4	3.86	3.74	1.21	1.21	-0.48	-0.37	-0.07	-0.37	0.64	0.62	0.48	0.51
5	3.37	2.91	1.30	1.06	0.12	0.06	-0.60	-0.34	0.56	0.49	0.49	0.39
6	2.70	2.55	1.06	1.02	0.33	0.42	-0.14	-0.02	0.45	0.43	0.32	0.21
7	2.83	2.54	1.44	1.19	0.57	0.61	-0.64	-0.11	0.47	0.42	0.45	0.35
8	3.20	2.97	1.39	1.25	0.13	0.22	-0.86	-0.68	0.53	0.50	0.40	0.41
10	3.04	3.03	1.31	1.18	0.23	0.26	-0.81	-0.55	0.51	0.51	0.39	0.37
11	4.44	3.80	1.03	1.15	-0.66	-0.46	0.88	-0.09	0.74	0.63	0.40	0.42
13	3.28	3.09	1.07	1.09	<0.01	0.08	-0.68	-0.50	0.55	0.52	0.34	0.34
14	3.63	3.58	1.12	1.19	-0.31	-0.13	-0.35	-0.45	0.61	0.60	0.46	0.30
15	2.81	3.10	1.01	1.22	0.16	0.30	-0.02	-0.46	0.47	0.52	0.37	0.25
17	3.44	3.08	1.29	1.19	-0.18	-0.12	-0.62	-0.72	0.57	0.51	0.27	0.33
19	4.38	4.28	1.00	1.00	-0.61	-0.50	0.43	0.59	0.73	0.71	0.42	0.43
20	4.09	4.01	0.99	1.01	-0.64	-0.40	0.71	0.53	0.68	0.67	0.44	0.45
22	3.14	3.51	1.22	1.05	-0.08	-0.24	-0.61	-0.04	0.52	0.59	0.44	0.49
24	3.98	3.84	1.30	1.29	-0.38	-0.35	-0.59	-0.51	0.66	0.64	0.44	0.37
25	4.72	4.53	1.14	1.13	-1.23	-0.85	1.81	0.65	0.79	0.76	0.38	0.31
26	2.22	1.81	1.11	0.96	0.95	1.21	0.82	1.38	0.37	0.30	0.39	0.32

Answers to the FMKPP 1–6. FMKPP, Fragebogen zu Mythen der klinischen Psychologie und Psychotherapie (Questionnaire on Myths of Clinical Psychology and Psychotherapy); S1, sample 1 (general population); S2, sample 2 (students).

Three items showed discriminative power (r_{it}) < 0.30 (S1: item 17 $r_{it} = 0.27$; S2: items 6/15 $r_{it} = 0.21/0.25$). For S1 and S2 the mean values of the FMKPP for the total scale were 3.52/3.33 (SD = 0.49/0.43); for the subscale “myths about the effectiveness of psychotherapy” the mean was 3.67/3.31 (SD = 0.76/0.73); for the subscale “myths about mental disorders/processes in psychotherapy” it was 3.07/2.98 (SD = 0.66/0.57), and for the subscale “myths concerning the functioning of memory” the mean was 3.85/3.68 (SD = 0.65/0.59). In both samples, the mean values of the three subscales differed significantly from each other ($t_{285} \geq |3.59|$, $p < 0.001$, $d \geq 0.20$), with “myths concerning the functioning of memory” reaching the highest rate of acceptance. S1 (general population) showed significantly higher acceptance scores on the total scale as well as on the subscales “myths about the effectiveness of psychotherapy” and “myths concerning the functioning of memory,” compared to the students in S2 ($t_{652} \geq |3.47|$, $p \leq 0.001$, $d \geq 0.27$).

The reliabilities for the total scale of the FMKPP were (S1/S2) $\omega = 0.75/0.70$; for the subscale “myths about the effectiveness of psychotherapy” $\omega = 0.70/0.71$; for the subscale “myths about mental disorders/processes in psychotherapy” $\omega = 0.61/0.50$, and for the subscale “myths concerning the functioning of memory” $\omega = 0.69/0.63$.

Correlations with Personality Traits, Absorption, and Intolerance of Uncertainty

Table 3 shows the Pearson product-moment correlations. No significant correlations with the Big Five dimension of “Openness” were found for the FMKPP ($r \leq |0.11|$, $p \geq 0.063$). With regard to the other Big Five dimensions, only a weak correlation was identified in S1 between the subscale “myths concerning the functioning of memory” and “Agreeableness” ($r = 0.14$, $p = 0.018$). With regard to absorption, weak to moderately positive correlations were found in both samples with the total FMKPP scale ($r \geq 0.18$, $p \leq 0.003$) and the subscale “myths concerning the functioning of memory” ($r \geq 0.21$, $p < 0.001$). As expected, the UIS correlated positively with myth acceptance, in particular with the total scale of the FMKPP ($r = 0.19$ – 0.21 , $p \leq 0.025$).

Discussion

The aim of the present work was to develop a questionnaire specifically for assessing myths in clinical psychology and psychotherapy and to test its factor structure, psychometric quality, as well as correlations with personality traits on two independent samples (general population, psychology students).

Table 3. Pearson correlations between the FMKPP (total and three factors) and the Big Five personality traits (BFI; S1/S2), TABS (S1/S2), and UIS (S2)¹

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. FMKPP total	1													
2. FMKPP Effectiveness PT	0.72***/0.68***	1												
3. FMKPP Mental Disorders	0.72***/0.65***	0.28***/0.14*	1											
4. FMKPP Memory	0.71***/0.72***	0.26***/0.25***	0.25**/0.25***	1										
5. BFI Extraversion	0.04/-0.02	-0.02/-0.97	0.01/-0.03	0.08/0.07	1									
6. BFI Agreeableness	0.05/0.09	-0.05/0.07	0.02/0.07	0.14*/0.03	0.15**/0.17**	1								
7. BFI Conscientiousness	0.06/-0.04	0.07/-0.10	0.01/0.01	0.05/<0.01	0.10/0.17**	-0.03/<0.01	1							
8. BFI Neuroticism	0.09/0.08	0.10/0.08	0.07/0.09	0.01/-0.03	-0.19**/-0.37***	-0.06/-0.11	-0.06/-0.03	1						
9. BFI Openness	-0.05/-0.05	-0.03/0.03	-0.11/-0.07	0.03/-0.06	0.10/0.16*	0.05/0.07	-0.02/0.01	-0.01/-0.13	1					
10. TABS	0.18**/0.30*	0.11/0.04	0.06/0.05	0.21***/0.45***	-0.02/0.04	0.04/0.03	-0.06/-0.21	0.03/-0.12	0.34***/0.44***	1				
11. UIS total	0.20*	0.16	0.16	0.12	2	2	2	2	2	2	1			
12. UIS Action	0.21*	0.16	0.21*	0.08	2	2	2	2	2	2	0.91***	1		
13. UIS Stress	0.21*	0.19*	0.11	0.14	2	2	2	2	2	2	0.90***	0.77***	1	
14. UIS Vigilance	0.12	0.07	0.10	0.10	2	2	2	2	2	2	0.84***	0.66***	0.58***	1

BFI, Big Five Inventory; FMKPP, Fragebogen zu Mythen der klinischen Psychologie und Psychotherapie (Questionnaire on Myths of Clinical Psychology and Psychotherapy); S1, sample 1 (general population); S2, sample 2 (students); TABS, Tallegen Absorption Scale; UIS, Unsicherheitstoleranz-Skala (Intolerance of Uncertainty Scale). Within S2: BFI $n = 232$, TABS $n = 69$, and UIS $n = 136$. * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$. ¹ UIS was only used in S2. ² No common data collection by UIS and BFI/TABS.

According to the principal component analysis, the FMKPP comprises three factors that can be described in terms of content with the subscales “myths about the effectiveness of psychotherapy,” “myths about mental disorders/processes in psychotherapy,” and “myths concerning the functioning of memory.” This structure shows a clear overlap with the differentiation of myths in the American context of psychotherapy discussed in the review article by Lilienfeld et al. [2013], with regard to “myths about effective interventions,” “myths about memory,” and “myths about the meaning of early experiences.” The two samples were mostly the same with respect to the maximum loadings on the respective factors. The subscales correlated weakly to moderately ($r = 0.14$ – 0.28 , $p \leq 0.007$; Table 3). As with previous studies [Swami et al., 2012; Kanning et al., 2013, 2014; Swami et al., 2016], this finding may indicate that there are differences in myth acceptance depending on the subject area. Since the development and testing of the questionnaire were performed on the same sample, it is also possible that these correlations were overestimated and are in the low range.

Out of all 20 misconceptions, the myth “Some people have a real photographic memory” (item 25) was most consistently accepted in both samples (mean = 4.72/4.53, SD = 1.14/1.13). Like a study in the USA [Patihis et al., 2014], which found 87.7% agreement with this misconception about the functioning of memory, the present study showed agreement rates (at least “somewhat agree”) of 89.2% (S1) or 83.7% (S2). The sociodemographic data of the student sample examined here (S2) is most comparable to the sample of Patihis et al. [2014] (students, 75% female, mean = 20 years). A high level of myth acceptance, as well as varying levels depending on the myth, can be explained in different ways, e.g., by the person’s experiences and attitudes, the type of studies or professional activity, or the myth’s popularity and media coverage [Lewandowsky et al., 2012; Lilienfeld et al., 2013; Appel and Schreiner, 2014]. The fact that “myths concerning the functioning of memory” are particularly widespread could be explained by the immediate concern and everyday relevance of memory processes, but also by the constant high media presence and controversy about the connection between memory and psychopathological processes [Crews, 1995; Appel and Schreiner, 2014]. Although misconceptions were found to be persistent [Lilienfeld et al., 2013; Otgaar et al., 2019], the present study found, consistent with previous research, that the mediation of relevant expertise – e.g., for those studying psychology – is associated with significantly lower myth acceptance [Standing and Huber, 2003; Taylor and Kowalski, 2004; Furnham and Hughes, 2014].

The item analysis indicated satisfactory to good psychometric properties. Three items showed low discriminative power in one sample each (S1: item 17; S2: items 6

and 15) ($r_{it} < 0.30$) [Lienert and Raatz, 1994]. Regarding item 17 (“A very high intelligence quotient raises the risk of mental disorders”), from a scientific point of view there are also isolated divergent findings. In a study with over 10,000 adolescents [Keyes et al., 2017], the presence of a mental disorder showed no correlation or a negative one with IQ (among the disorders were ADHD, substance use disorder, and various anxiety disorders; the exception was a positive correlation with depression). With regard to the psychopathological severity across all disorders, greater severity was associated with lower fluid intelligence [Keyes et al., 2017]. A recent study [Karpinski et al., 2018] found, however, that a very high IQ (above the 98th percentile) is associated with a higher rate of ADHD, autism spectrum disorders, and anxiety and depressive disorders; but interpretation of the result should take into consideration the study’s significant methodological limitations (e.g., self-reported diagnoses), and no direct (causal) connection (“intelligence increases the risk”) has been demonstrated. The fact that item 17 cannot currently be indisputably evaluated scientifically in the form of such a sweeping statement could also explain the low factor loadings and the low discriminative power of the item, which should be checked in further studies and might lead to exclusion of the item.

Item 6 (“Disclosing the diagnosis ... harms the therapeutic alliance”) showed the lowest agreement of all the statements, especially among psychology students, with comparably high variance. Furthermore, the explanation of item 6 might be more heavily corrected and internalized by those studying psychology, due to its practical relevance compared to the other statements. With regard to item 15 (“Patients with a mental disorder, e.g., schizophrenia, are often violent”), it was striking that, contrary to the other items (except item 22), the student sample on average agreed more often than did participants from the general population. In addition, there was an unexpected positive correlation between myth acceptance and the number of semesters of study ($r = 0.26, p < 0.001$), with a comparatively low average number of semesters overall (mean = 3.6, SD = 2.2), which could indicate that the students had acquired some knowledge of mental disorders, which, however, could also have led to assumptions that are incorrect from a scientific standpoint.

Reliabilities were within the acceptable range for the FMKPP total scale and for the “myths about the effectiveness of psychotherapy” subscale ($\omega = 0.70\text{--}0.75$). The subscales “myths about mental disorders/processes in psychotherapy” ($\omega = 0.61/0.50$) and “myths concerning the functioning of memory” ($\omega = 0.69/0.63$) yielded low values and should be checked in further studies. The low reliability of the subscale “myths about mental disorders/processes in psychotherapy” in S2 can be explained, among other things, by the fact that the two ambiguous

items (6 and 13) were assigned to the second factor, to the disadvantage of S2 (content fit and higher loadings in S1). This factor also appeared to be less consistent in content, since it covers myths about both characteristics of mental disorders and processes of psychotherapy (therapeutic alliance, side effects).

Regarding correlations with personality traits, our findings indicate a lack of connection with “Openness.” The association with personality traits may also be determined by the specific content of the myths. While Swami et al. [2016] identified a negative relationship between “Openness” and a scientific myth ($r = -0.21, p < 0.001$), Swami et al. [2012] found no relationship to everyday (psychological) myths. Moreover, the operationalization of the construct “Openness” could also explain the differences between our study’s findings and those of Swami et al. [2016]. While we used the BFI short version, which assesses the imaginative and aesthetic components of Openness, Swami et al. [2016] studied “Openness” with the BFI more comprehensively, including the intellectual curiosity component, which was also used to explain the negative relationship with acceptance of the myth. It should also be further investigated to what extent the content and/or, for example, the form of presentation is important (more detailed description of a scenario [Swami et al., 2016]).

Consistent with the findings of Patihis et al. [2014], this first psychometric test of the FMKPP presents positive correlations between absorption (the disposition to pay more attention to sensory/imaginative experiences) and the total score as well as the subscale “myths concerning the functioning of memory” of the FMKPP ($r = 0.18\text{--}0.45, p < 0.003$). In previous studies, absorption was related, for one thing, to suggestibility [Eisen and Carlson, 1998], which might explain an association with greater myth acceptance in general. On the other hand, people with a higher level of absorption had greater hypnotic responsiveness and more frequent reports of childhood abuse [Eisen and Carlson, 1998; Roche and McConkey, 1990]. Both areas are directly related to the factor “myths concerning the functioning of memory” of the FMKPP.

Also as expected, positive correlations were found between the FMKPP and the UIS (total FMKPP: $r = 0.20\text{--}0.21, p < 0.018$), which could indicate that people with higher myth acceptance have a greater need for safety and control over events and the future. Comparison of the subscales showed a differentiated picture. An inability to act associated with intolerance of uncertainty (e.g., “It paralyzes me to have to act,” low self-esteem) was, for example, positively correlated with “myths about mental disorders/processes of psychotherapy,” which could be explained by the overlapping content of the two subscales (self-esteem issues, causes of mental problems). Considering the study design (construction and validation for

the same sample in each case), the (already weak) correlations may have been overestimated so that the correlations must be interpreted carefully and should only be regarded as preliminary indications. To be able to derive more reliable statements, including on (different) functions of myths, it will be necessary to conduct further studies with more representative samples and investigation of additional variables (e.g., fearfulness or situational use of myths).

Limitations

This study should be interpreted as a presentation of the development and the first test of the FMKPP. An examination of the factor values and item analysis revealed some, although comparatively few, inconsistent findings between the two samples (maximum loadings, items 6 and 13), low discriminative power of items 6, 15, and 17 (<0.30) [Lienert and Raatz, 1994], and ambiguities of content (item 11, item 17 see discussion above). Item 11 (“... important... to vent one’s anger”) showed unambiguous factor values and was therefore assigned to the corresponding factor (“myths concerning the functioning of memory”), but its content is rather removed from the other myths about memory. One association with this factor could be that item 11 also addresses an underlying cause (comparable to traumatic experiences) and how it is dealt with (repression as inadequate) so that the classification was left in this form during the first trial. These limitations in factor structure and item analysis can probably also explain the low reliabilities of the two subscales “myths about mental disorders” and “myths about the functioning of memory” and should be studied in a more representative general population.

The construction and validation of the FMKPP used the same sample (although in parallel on two independent samples). In the development process, for example, there was no step-by-step selection of items, which, among other things, might explain the sometimes low item-scale correlations. This method might also lead to a tendency to overestimate the correlations found (Table 3). In light of the weak correlations with absorption and intolerance of uncertainty, as well as the possibility of alpha error inflation, the results should be interpreted very carefully and as preliminary indications.

The choice of the associated constructs was primarily based on prior English-language work. For future research, it would make sense to conduct a stringent convergent and discriminant validation of the FMKPP (e.g., the subject’s agreement with misconceptions from the field of psychology and other sciences, belief/orientation based on empirical findings).

Regarding the sample, it should also be mentioned that the general population studied here comprised a disproportionately high proportion of participants with an aca-

demic degree (46%), as well as participants who had studied psychology in the past or were studying it currently (9%). This can be explained by the method of recruitment (“convenience sample”), which occurred via social media among the friends, acquaintances, and family of psychology students, people who presumably have a comparably high school/academic education.

Research to date suggests that schooling in general [Kanning et al., 2013] and psychological training in particular [Gardner and Dalsing, 1986; Standing and Huber, 2003; Kanning et al., 2013] are associated with lower agreement with misconceptions. Since the sample of the general population studied here showed low variance with regard to education, no reliable statement can be made about the relationship between education and myth acceptance. The FMKPP should therefore be examined in future studies with more representative samples (especially with regard to education). Other studies have also shown that higher IQ scores and a critically reflective mindset are associated with lower myth acceptance [McCutcheon et al., 1992; Bensley et al., 2014; Patihis et al., 2014]. Since IQ scores and education are significantly correlated, the question posed for future research is to what extent both factors contribute to the acceptance or rejection of misconceptions.

The statements used in the FMKPP are excerpted from myths that are often studied in the English-speaking world, as well as the authors’ experiences, which can currently be divided into three areas. Additional misconceptions may be interesting to investigate, which could also result in alternative or additional factors. The FMKPP makes no claim as to the completeness of its list of misconceptions in the field of clinical psychology and psychotherapy; its goal is to comparatively efficiently assess misconceptions in the German-speaking countries that also frequently occur internationally and thus to make possible international comparisons.

Conclusion

With the FMKPP and its subscales “myths about the effectiveness of psychotherapy,” “myths about mental disorders/processes in psychotherapy,” and “myths concerning the functioning of memory,” a questionnaire for the German-speaking world was developed for the first time to assess myths about clinical psychology and psychotherapy. The first test on two independent samples (general population and psychology students) showed broad consistency in the factor structure and acceptable to good item parameters. The low reliability of two subscales and the validity of individual items should be examined in further studies. As expected, the FMKPP showed positive correlations with absorption and intoler-

ance of uncertainty; the latter in particular could provide an indication of the function of myths: to make events more predictable in the future. The present study suggests that the FMKPP is a suitable instrument to systematically assess the propagation of myths about clinical psychology and psychotherapy in the German-speaking world and to investigate the functions of myths, as well as starting points and findings to explain the myths and diminish their spread.

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Statement of Ethics

The authors affirm that the study was conducted according to the ethical standards of the Declaration of Helsinki (in its 1975 expanded form and its accessories of 1983, 1989, and 1996). An ethics vote from the local ethics committee of the Psychological Insti-

tute was not requested because there was no criterion for the requirement of an expert review (e.g., no sensitive groups of people or questions; no experimental manipulation of, for example, mood; no deception; no mental/physical stress, etc.). All participants gave their informed consent to participate.

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There are no conflicts of interest for either author.

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Author Contributions

S.M. Jungmann and M. Witthöft designed the study; S.M. Jungmann performed the statistical analyses in discussion with M. Witthöft; S.M. Jungmann formulated the first draft of the manuscript, which was revised and supplemented by M. Witthöft. Both authors discussed the article as a whole and agreed to the submitted version.

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