ANNALS OF PSYCHOLOGY/ROCZNIKI PSYCHOLOGICZNE
2023, XXVI, 3, 261–289
DOI: https://doi.org/10.18290/rpsych2023.0015

# FACING FEAR WITH COURAGE: PSYCHOMETRIC AND BEHAVIORAL EVIDENCE OF THE COURAGE MEASURE (CM) IN POLAND

Grzegorz Pajestka

Opole University, Institute of Psychology

The Courage Measure (CM), developed by Norton and Weiss (2009) has proved to be a significant predictor of a behavioral approach in a fear-eliciting situation. The current research project aimed to replicate this result, using a shortened version of the scale, whose psychometric superiority over the full version has been supported by previous studies. For this purpose, in Study 1 the psychometric properties of the Polish version of the CM (CM-PL) were analyzed; the results supported its unidimensional structure and measurement invariance across gender groups, as well as good internal consistency. Study 1 also provided preliminary evidence of the convergent, concurrent and divergent validity of CM-PL, showing its relation to resilience, grit, risk-taking and the Big Five personality traits. In Study 2, 31 participants with an elevated fear of spiders completed a behavioral approach test in which they moved ever closer to a display of taxidermied spiders. The results showed that the CM-PL significantly moderated the relationship between anxiety/distress and the behavioral approach, confirming its relation to real behavior. Overall, the results confirmed that CM-PL is a valuable measure that can be useful in scientific research and psychological practice (i.e., counseling and psychotherapy).

**Keywords:** courage; anxiety; behavioral approach; psychometric evaluation.

Grzegorz Pajestka, https://orcid.org/0000-0002-5520-0347. Correspondence concerning this article should be addressed to Grzegorz Pajestka, Instytut Psychologii UO, Pl. Staszica 1, 45-052 Opole, Poland; e-mail: gpajestka@uni.opole.pl.

This work was supported by the Institute of Psychology, Opole University. The data supporting the findings of this study are freely available in the Open Science Framework at https://osf.io/vw7ud.

Handling editor: Monika Wróbel, University of Lodz. Received 3 Feb. 2023. Received in revised form 24 July 2023. Accepted 11 Aug. 2023. Published online 9 Oct. 2023.

Throughout the centuries, the question of courage has been primarily a philosophers' concern (e.g., Plato, Aristotle, Thomas Aquinas; Tillich, 2008). Recently, mainly because of the field of positive psychology (see Lopez, 2007), courage has come to the attention of psychologists. However, like philosophers before them, psychologists today find it difficult to define courage. In the current psychological literature there are at least several definitions of courage as a dispositional, trait-like characteristic (e.g., Greitemeyer et al., 2007; Norton & Weiss, 2009; Woodard, 2004), as well as concepts of courageous behaviors (Rate et al., 2007; Shepela et al., 1999). Among various types of courage described in the literature, *physical courage* (relating to physical risk; e.g., Howard & Reiley, 2020), *moral courage* (related to defending a moral good despite the risk; e.g., Osswald et al., 2010) and *psychological courage* (overcoming one's irrational fears and anxieties; e.g., Putman, 1997) are among those most frequently listed. The latter is the focus of the current paper.

Psychological courage is a unique form of courage. Unlike physical and moral courage, it is not about assuming risk for the benefit of others, but for one's own sake. The risks taken do not concern the loss of health or life but a deterioration in one's emotional well-being to pursue personal growth or wellness (Pury & Starkey, 2010). Finally, the threat is not so much external (at least not objectively), but is the result of one's excessive fears. This understanding of courage is consistent with Rachman's (2004) definition—the "persistence of approach behavior in the face of subjective and physical sensations of fear" (p. 152)—and Norton and Weiss's operational definition (2009): "persistence or perseverance despite having fear" (p. 213). Both definitions are rooted in philosophical thinking, reflecting Plato's differentiation of courage and fearlessness (ca. 380 BCE/1961) and Thomas Aquinas's concept of courage, namely, the ability to "stand immovable in the midst of dangers" (1485/1947, p. 3894).

The concept of psychological courage corresponds to the idea of courage as a process, which is to be distinguished from courage as an accolade (Pury & Starkey, 2010). The latter refers to extremely rare actions, often described as heroic, where the internal state of an actor is irrelevant (or not important). By contrast, courage as a process concerns the internal state of an actor who is struggling with a personally difficult situation, facing a risk to their psychological well-being. In other words, courage as an accolade refers to objectively courageous behavior (or, rather, behavior that observers agree is courageous). It is best manifested in traditional instances of physical (e.g., risking one's life for the sake of country or family) or moral courage (e.g., standing up for core societal values, such as democracy). The concept of courage as a process refers to less extreme situations in everyday life; it is hence sometimes referred to as personal or everyday courage (Pury & Starkey, 2010). Examples include overcoming one's fears in a school/university examination, a medical

examination or procedure, or when speaking in public. It can therefore be assumed that psychological courage, as a process of overcoming fear-inducing situations, is to some extent shared by all. If so, it may be recognized as an adaptive mechanism on par with fear. In a broader motivational context, courage, along with fear, may be seen as manifestations of the underlying behavioral tendencies of approach and avoidance, which "are part of our evolutionary heritage, and we certainly cannot survive, either physically or psychologically, without both types of motivation" (Elliot, 2006, p. 114).

Our ancestors, who feared and avoided venomous animals, certainly had a better chance of survival (e.g., Polák et al., 2020). If fear of these animals prevented them from finding shelter in a cave or gathering food in the forest, they also put their lives at risk. Thus, overcoming one's fears may have had tangible benefits in our evolutionary past, just as it does today when one faces both modern threats as well as those rooted in our evolutionary past (e.g., fear of spiders).

Although psychological courage can manifest itself in many situations, it has thus far been described primarily in a clinical context (Pury & Starkey, 2010). For example, in psychoanalytical therapy, facing unpleasant facts about oneself is regarded as essential in emotional healing, while at the same time being a source of intense anxiety (Bacha, 2001). The same applies to cognitive-behavioral therapy, where the patient may have to deal with threatening stimuli (Rachman, 2004). In both examples, confronting emotions of fear and anxiety is considered the prototypical form of psychological courage (Pury & Starkey, 2010). Norton and Weiss (2009) and Chockalingam and Norton (2019) have provided empirical support to this approach to courage.

The aim of Norton and Weiss's (2009) study was to explore the relationship between self-reported courage and a behavioral approach in a fear-eliciting situation. The study was conducted in two stages. In the first one, the participants' courage and fear of spiders were assessed. In the second stage, participants with an elevated fear of spiders ($N = 31$) were asked, in one-on-one experimental sessions, to outstretch a hand toward the threatening stimuli, four taxidermied tarantulas. Self-reported courage turned out to be a significant predictor of behavioral approach and accounted for its additional variance above and beyond that provided by a fear measure. Since Norton and Weiss's "spiders study," no other researcher has taken the behavioral approach to examine courage, until Chockalingam and Norton (2019) recently attempted to replicate and extend their results. In this study the authors applied the original study procedure, with some modifications, one of which was the manipulation of task importance, operationalized as a payment participants could obtain for completion, which was most relevant. Participants (spider-fearful individuals) were randomly assigned to one of two groups: low or high importance. Participants

in the low-importance group were informed that, after participation, they would be rewarded with $20, whereas in the high-importance group the payment, which ranged from $1 to $20, depended on task performance: The closer a participant approached the taxidermied spiders, the more money they earned. The results partially confirmed those of Norton and Weiss's original study: Self-reported courage predicted behavioral approach above and beyond spider fear. However, this was true only in the low-importance condition, confirming that, when predicting behavior, the power of situation is undeniable and, as Chockalingam and Norton noted, in addition to internal motivators (e.g., courage), external ones (e.g., task importance) may promote approach behavior.

Another difference between the original study and its replication refers to CM timing as a factor determining its predictive value. In Chockalingam and Norton's (2019) study, only courage measured during the first stage of the study (i.e., one week before the second stage) was a significant predictor of the behavioral approach test (BAT). In Norton and Weiss's (2009) study the results were reverse—only CM administered immediately before the BAT accounted significantly for its variance. Plausible reasons for this inconsistency noted by the authors are culture differences (the original study was conducted in the United States; its replication was conducted in Australia) and psychometric concerns regarding the CM, reported by Howard and Alipour (2014). Although these concerns applied mostly to the full, 12-item version of the CM, the 8-item version used by Chockalingam and Norton (2019) was also criticized because two of its items asked explicitly about one's courage, for example, "Other people describe me as courageous." This kind of wording may activate in the participants an implicit theory of the assessed construct, which can be different from the operating definition underlying the scale, resulting in assessment bias.

### Rationale for the Current Studies

Given the growth of courage research in recent years (Howard & Alipour, 2014), it seems that this construct has great research potential as well as a considerable potential for practical application. In particular, courage measured with the CM, hereafter called *psychological courage* (PC). As noted by Chockalingam & Norton (2019), using CM in the context of behavioral therapy and procedures based on exposure to threatening stimuli, could lead to treatment optimization. Furthermore, CM could be a useful tool in educational contexts (e.g., in career counseling), as well as in work and organizational environments, in particular during employee selection in certain professions (e.g., law enforcement, emergency medical services). In regard to research context, despite courage being a quite popular topic, data showing the

relationship between self-reported courage and real behavior are scarce. The aim of the current research project was to provide such data by replicating Norton and Weiss's (2009) study as well as adapting their scale to the Polish language in a six-item version of the CM proposed by Howard and Alipour (2014). Ethical approval for the current research project was obtained from the institutional review board at the author's university.

## STUDY 1

### Aims

The aim of Study 1 was twofold: first, to establish the psychometric properties of the Polish version of the CM (CM-PL); and secondly, to provide preliminary evidence for its convergent, concurrent, and divergent validity.

To the best of my knowledge, at present no psychological measure of courage is available in the Polish language, and hence, to examine the CM-PL's convergent validity another, theoretically similar construct was used. Because courage measured by the CM-PL denotes "persistence or perseverance despite having fear" (Norton & Weiss, 2009, p. 213), its similarity to resiliency, defined as "the ability to overcome adversity and be successful in spite of exposure to high risk" (Greene et al., 2004, p. 77), is particularly conspicuous. Furthermore, the conceptual similarities between PC and resiliency may be derived through resiliency components such as determination and persistence in actions, coping competency, tolerance of negative emotions, and the ability to mobilize in difficult situations (Ogińska-Bulik & Juczyński, 2008). Taken together, these conceptual similarities seem to be sufficient justification for a hypothesis about a positive, moderate to high correlation (> .50) between PC and resiliency. Ginevra et al. (2018) provided supporting evidence for this hypothesis; their findings showed that PC and resilience were fairly highly correlated ($r$ = .54).

The construct relating to PC reported by Howard and Alipour (2014) was risk-taking ($r$ = .48). When facing fear, people take a risk by exposing themselves to certain losses, either psychological (e.g., emotional distress, drop in self-esteem), social (e.g., loss of face), or even physical (e.g., when the source of fear poses a real threat to one's health or life). Hence, a positive relationship between PC and a propensity for risky behaviors was expected as an indicator of concurrent validity.

Another variable relevant to the CM-PL's concurrent validity is grit, defined as "perseverance and passion for long-term goals" (Duckworth & Quinn, 2009, p. 166). Because both constructs—PC and grit—share perseverance in their definitions,

a positive correlation between them was expected. However, despite this similarity, by definition grit seems to adhere mainly to perseverance despite obstacles in achieving "passionate" goals, where fear is not inherent, whereas PC refers to persistence in the face of obstacles inducing fear or anxiety. Hence, it was expected that those two constructs would be at most moderately correlated (< .50), as per previous studies (Howard & Crayne, 2019).

To assess divergent validity, the relationship between the CM-PL and the Big Five personality traits was tested. On the basis of previous findings (Howard & Alipour, 2014), and in regard to the theoretical assumptions of PC as a distinct personality trait (Norton & Weiss, 2009), it was expected that the correlations between the CM-PL and Big Five traits were low ($r < .30$), with one exception: Neuroticism. The relationship between Neuroticism and PC is hypothesized to be greater than the relationship between PC and other personality traits, because in concepts of both constructs fear and anxiety are relevant emotions.

## Method

### *Participants and Procedure*

A power analysis was performed with the a priori sample size calculator for structural equation models (Soper, 2022) based on Westland's (2010) formula. The minimum sample size for the model structure, with an assumed minimum anticipated effect size of .1 and a minimum statistical power of .8, was 200 participants. The sample size for correlation analysis was computed using G*power 3.1 (Faul et al., 2009). Taking a statistical power of .8, a two-tailed alpha of .05, and an anticipated medium effect size of .3, the minimum sample size was 79 participants.

**Sample 1.** Sample 1 consisted of 220 participants who ranged in age from 20 to 65 ($M_{age}$ = 40.91, $SD_{age}$ = 13.26; 54% female), recruited from the Ariadna Research Panel database, which comprised a representative sample of internet users in Poland. Participation in the research was voluntary and was rewarded with points, which could be later exchanged for gifts, in the Ariadna panel's loyalty program. In accordance with the recommendations for ensuring data quality for online surveys (Berinsky et al., 2014), two attention checks were used (i.e., "Please select three for this item"), and all reported statistics, including the sample size, reflect the sample after removal of those who failed any attention check (nine participants). This sample was used in the psychometric analyses and for validation purposes.

**Sample 2.** Sample 2 consisted of 82 student participants ($M_{age}$ = 22.95, $SD_{age}$ = 6.10; 83% female) recruited using convenience sampling. The majority of

participants were psychology (63%) or pedagogy (27%) students at a university in southwestern Poland. No reward for participation was provided. This sample was used for validation purposes only.

### *Measures*

**Psychological Courage.** The Polish version of the shortened Courage Measure (Howard & Alipour, 2014) was administered. The tool consists of six items, rated on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The translation process followed standardized steps: After obtaining consent from the first author of the scale to create a Polish adaptation of the CM, it was translated into Polish by two fluent English speakers. On the basis of the two received versions of the translation, two psychology researchers (one of which was the author) established one version, which was subject to back-translation, completed by a professional English translator. The compatibility of the original and back-translated versions was assessed by a native speaker of American English, who found both versions consistent. The original and translated items are presented in Supplemental Material.

**Resiliency.** The Resiliency Assessment Scale (Ogińska-Bulik & Juczyński, 2008) was administered to measure resilience as a personality trait, that promotes coping with stress. It is a 25-item questionnaire that measures the respondent's general level of resilience as well as five factors that describe particular facets of resilience: "perseverance and proactive approach," "openness to new experiences and a sense of humour," "personal coping skills and tolerance of negative emotions," "tolerance of failure and viewing life as a challenge," and "an optimistic attitude to life and the ability to mobilize in difficult situations." It uses a 5-point Likert-type scale (from 0 = *definitively not* to 4 = *definitively yes*). In the current study, the total score was used.

**Grit.** The Short Grit Scale (Grit-S; Duckworth & Quinn, 2009), Polish adaptation (Wyszyńska et al., 2017), was administered to measure grit. The Grit-S is an eight-item questionnaire that includes two scales: Consistency of Interest and Perseverance of Effort. Items are rated on a 5-point Likert scale (from 1 = *not like me at all* to 5 = *very much like me*). The recent analysis provided by Jachimowicz et al. (2019) revealed that the Grit-S has a unidimensional structure and may gauge only perseverance, but not the passion facet of grit. In consideration of this, and in accordance with recent recommendations by Duckworth et al. (2021), the sum of the two subscales was used as the relevant measure of grit/perseverance.

**Personality.** The Big Five traits—Extraversion, Agreeableness, Conscientiousness, Emotional Stability (Neuroticism), and Intellect (Openness to Experience)—were measured using the Polish adaptation (Topolewska et al., 2014) of Donnellan

et al.'s (2006) Mini-IPIP scales (IPIP-BFM-20). The questionnaire consists of 20 items rated on a 5-point scale (from 1 = *very inaccurate* to 5 = *very accurate*), with four items measuring each construct.

**Risk Taking.** The Test of Risky Behaviors (Studenski, 2004) was administered to measure the propensity to engage in risky behaviors. It is a 25-item self-assessment questionnaire, and items are rated on a 5-point Likert-type scale (from 4 = *very often* to 0 = *almost never or never*). It has been used in previous studies on risk and risk-related behaviors (e.g., Kolemba & Maciuszek, 2013).

### *Data Analysis*

In Study 1, the internal consistency and factor structure (using confirmatory factor analysis [CFA]) and the convergent, concurrent, and discriminant validity (using Pearson correlation coefficients) of the CM-PL were evaluated. In addition, measurement invariance (using multi-group confirmatory factor analysis [MGCFA]) across gender groups was examined. All analyses were performed using SPSS (Version 28) and SPSS Amos (Version 26).

**Structural Validity.** To confirm the unidimensional structure of CM-PL, CFA was performed using maximum-likelihood estimation. Goodness of fit was determined using the following fit indices: normed chi-square ($\chi^2/df$), comparative fit index (CFI), Tucker–Lewis index (TLI), standardized root-mean-square residual (SRMR) and root-mean-square error of approximation (RMSEA). Conventional cutoff criteria for satisfactory model fit were applied: $\chi^2/df \leq 3{:}1$, CFI $\geq .95$, TLI $\geq .95$, SRMR $\leq .08$, RMSEA $\leq .08$ (Hair et al., 2014; Hooper et al., 2008). Because of the violation of multivariate normality, the bootstrap technique was applied, with 1,000 bootstrap samples at a confidence interval of 95% (Brown, 2015).

**Measurement Invariance.** Using a MGCFA, three different levels of measurement invariance were tested: configural (which refers to equal factor structures across the groups), metric (which refers to equal factor loadings between groups), and scalar (which refers to equality of indicator intercepts across the groups). As recommended by Chen (2007), all three levels of invariance were evaluated by deterioration in CFI and RMSEA, with cutoff criteria for small sample sizes ($N \leq 300$; $\Delta$CFI $\geq .005$; $\Delta$RMSEA $\geq .010$). $\Delta\chi^2$ is reported for complement only (Putnick & Bornstein, 2016), and its significance is not considered conclusive.

**Convergent, Concurrent, and Discriminant Validity.** The Pearson correlation analysis was used to assess CM-PL convergent, concurrent and divergent validity. Following previous authors' suggestions (see Z. S. Byrne et al., 2016), in the current study constructs were considered related when $r > .30$ (but $< .80$, which indicates construct redundancy), whereas $r < .30$, even if statistically significant, is considered

an indicator of unrelated constructs. Although somewhat arbitrary, this approach is adapted to avoid convergent/divergent confirmation bias.

## Results and Discussion

### *Psychometric Properties of CM-PL*

The fit statistics for the model met their specified cutoffs for satisfactory: $\chi^2/df$ = 2.200, RMSEA = .074, 90% confidence interval (CI) [.028, .119], SRMR = .032, CFI = .977, TLI = .962. Standardized item loadings ranged from .52 to .79, indicating that items loaded onto the single latent factor well. Means, standard deviations, standardized factor loadings and corrected item-total correlations are included in Table 1. The CM-PL also showed good internal consistency (Cronbach's α = .84). Thus, the unidimensional structure of the CM-PL was supported.

**Table 1**

*Item Means, SD, Standardized Factor Loadings and Corrected Item–Total Correlations of the Courage Measure—Polish Version*

| Item no. | *M* | *SD* | Standardized loading | Corrected item–total correlation |
|---|---|---|---|---|
| 1 | 5.19 | 1.03 | .64 | .57 |
| 2 | 4.89 | 1.02 | .68 | .64 |
| 3 | 4.46 | 1.17 | .52 | .47 |
| 4 | 4.90 | .92 | .79 | .70 |
| 5 | 4.98 | .91 | .77 | .66 |
| 6 | 4.67 | 1.02 | .76 | .68 |

The next step in the analysis was a MGCFA across the gender groups. Table 2 shows a comparison of all tested models. The changes in RMSEA and CFI were less than the specified cutoffs, supporting the configural and metric invariance. However, for scalar invariance both fit indexes exceeded the specified cutoffs. Thus, in the next step, partial scalar invariance was tested. On the basis of inspection of the modification indices, the constraints for two out of six items (Items 3 and 6) were relaxed, resulting in a significant model fit improvement. According to B. M. Byrne et al. (1989) and Steenkamp and Baumgartner (1998), partial invariance is supported when only a subset of parameters (at least two) are invariant across the compared groups. On the basis of this assumption, four items with equal intercepts account-

ed for partial scalar invariance of the CM-PL, enabling latent mean comparisons (although with caution, because of two relaxed intercepts). Welsh's *t* test indicated no significant differences between men and women in the CM-PL latent mean scores ($t_{214.491} = –.031$, $p = .579$; $M_{female} = –.02$, $SD = .63$; $M_{male} = .03$, $SD = .59$).

**Table 2**

*Fit Statistics for Measurement Invariance Across Gender*

| Model (M) | $\chi^2(df)$ | RMSEA | CFI | MODEL COMP | $\Delta\chi^2(\Delta df)$ | ΔRMSEA | ΔCFI |
|---|---|---|---|---|---|---|---|
| M1 configural | 37.434(18) | .071 | .960 | – | – | – | – |
| M2 metric | 41.475(23) | .061 | .962 | M2–M1 | 4.041(5) | .01 | .002 |
| M3 scalar | 57.756(29) | .068 | .941 | M3–M2 | 16.281(6)* | .003 | .021 |
| M4 partial scalar | 45.588(27) | .056 | .962 | M4–M2 | 4.113(2) | .005 | .000 |

*Note.* $N = 220$ (male $n = 100$, female $n = 119$). CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

$p \leq .01$.

### *Convergent, Concurrent and Divergent Validity of CM-PL*

The correlations between the CM-PL and similar and dissimilar variables are presented in Table 3. Data collected from Samples 1 and 2 were analyzed separately because each sample completed distinct measures. As predicted, the highest correlation was with resiliency, supporting the CM-PL's convergent validity. Moderate correlations between CM-PL and risk taking, grit, and emotional stability support its concurrent validity. The correlations with Extraversion, Openness to Experience, and Agreeableness support its divergent validity, whereas the correlation with Conscientiousness was higher than expected.

Taking into account that Conscientiousness relates to self-control and goal-oriented behavior (Hampson et al., 2016), the perseverance facet of both constructs may strongly account for their shared variance. The partial correlation between CM-PL and Conscientiousness supports this assumption: When perseverance (grit) is controlled, the relation between these two variables decreases ($r = .26$, $p < .001$) compared with a zero-order correlation. Taken together, the obtained results provide evidence for the CM-PL's convergent, concurrent, and divergent validity and support its theoretical status as a distinct personality trait.

**Table 3**

*Zero-Order Correlations Testing the Convergent, Concurrent, and Discriminant Validity of the CM-PL and the Reliability of All Variables*

| Sample 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1. CM-PL | .84 | | | | | | | |
| 2. Extrav | .20** | .85 | | | | | | |
| 3. Agree | .14* | .23** | .67 | | | | | |
| 4. Consc | .37** | .06 | .20** | .67 | | | | |
| 5. Emo | .31** | .29** | .13 | .20** | .74 | | | |
| 6. Intel | .24** | .24** | .40** | .15* | .27** | .66 | | |
| 7. Resi | .65** | .38** | .33** | .34** | .45** | .46** | .94 | |
| 8. Grit | .37** | .28** | .25** | .44** | .27** | .34** | .54** | .78 |
| Sample 2 | 1 | 2 | | | | | | |
| 1. CM-PL | .88 | | | | | | | |
| 2. Risk | .31*** | .97 | | | | | | |

*Note.* Reliabilities (Cronbach's α) are on the diagonal; Sample 1, $N = 220$, Sample 2, $N = 82$. CM-PL—Courage Measure Polish version, Extra = Extraversion, Agree = Agreeableness, Consc = Conscientiousness, Emo = Emotional Stability, Intel = Intellect/Imagination, Risk = risk taking, Resi = resiliency.

*$p < .05$, **$p < .01$, ***$p < .001$.

## STUDY 2

### Aims

The purpose of Study 2 was to replicate Norton and Weiss's (2009) study. As their original study, it was conducted in two stages. The aim of the first stage was to select the participants for the second stage (i.e., individuals with an elevated fear of spiders). In the second stage, two hypotheses were tested: (a) Hypothesis 1, that PC is a significant (after anxiety/distress) predictor of behavioral approach, and (b) Hypothesis 2, that PC is a moderator in the relationship between anxiety/distress and behavioral approach.

Considering the results of the original study, only PC measured immediately before a fear-inducing situation is supposed to be a significant predictor of behavioral approach. One possible explanation is that in a neutral condition (i.e., with-

out threatening stimuli one has to face), self-reported PC is highly susceptible to social desirability bias. In the current study, this issue was addressed by including social desirability as a control variable. In addition, the test–retest reliability of the CM-PL was examined. For this purpose, 40 participants from Sample 3 (not engaged in Stage 2) were tested across a 2-week interval.

## Method

### *Participants*

**Sample 3.** Sample 3 consisted of 102 student participants ($M_{age}$ = 20.35, $SD_{age}$ = 1.09; 84% female) recruited using convenience sampling. All participants attended psychology classes at a university in southwestern Poland. No reward for participation was provided.

**Sample 3'.** The second part of the study involved 31 participants ($M_{age}$ = 19.94, $SD_{age}$ = 1.00; 93.5% female) selected from Sample 3. The selection procedure is described below (see Procedure, *Stage 1*).

### *Measures*

**Psychological Courage.** The shortened, six-item version of the CM-PL, as described in Study 1, was administered.

**Approach.** A Behavioral Approach Test (BAT), called also a Behavioral Avoidance Task (Olatunji et al., 2009), was used to measure physical approach to a threatened stimulus. Distance traveled was measured in centimeters (range: 0–500, with higher values indicating a closer approach), and two taxidermied tarantulas were used as the stimuli.

**Spider fear.** The Spider Phobia Questionnaire (SPQ-15) is a 15-item true/false self-report scale used to determine fear and avoidance of spiders (Olatunji et al., 2009). It is an abbreviated version of the 31-item Spider Phobia Questionnaire (Klorman et al., 1974). The SPQ-15 has been shown to predict avoidance behavior toward spiders in both nonclinical and clinical samples (Olatunji et al., 2009). In the current study, the Polish adaptation of the SPQ-15 was used (Łuczyńska, 2021).

**Anxiety.** The State–Trait Anxiety Inventory, state version (STAI-S; Spielberger et al., 1983) in the Polish adaptation (Wrześniewski et al., 2002) was administered to determine anxiety levels. STAI-S is a 20-item questionnaire, well validated and commonly used to measure anxiety as its actual emotional state. Each item is scored between 1 (*almost never*) and 4 (*almost always*).

**Distress.** The Subjective Units of Distress Scale (SUDS; Wolpe, 1968) was used as a measure of subjective emotional distress (uncomfortable or painful emotions). The SUDS is a commonly used technique in therapy and assessments as a simple tool for establishing current levels of distress (e.g., during exposure sessions; Benjamin et al., 2010). In the current study, participants rated and verbally reported their subjective distress using a scale ranging from 0 (*no distress*) to 100 (*highest distress ever experienced*) in a peak moment of BAT.

**Social Desirability.** The Questionnaire of Social Desirability (KAS; Drwal & Wilczyńska, 1980) was administered to gauge social desirability. It is a 29-item true/false self-report measure that correlates positively with similar measures of social desirability: the Edwards Social Desirability Scale and the Marlowe–Crowne Social Desirability Scale (Drwal, 1995).

### *Procedure*

**Stage 1.** In the Stage 1 (S1), participants completed a battery of questionnaires (CM-PL, SPQ-15, KAS), administered online, although in classroom settings. After completing this task, participants received information indicating that some of them might be invited to the second stage (Stage 2 [S2]) of the study. They were not told what it would consist of.

Participation in S2 was based on SPQ-15 results (it was administered only once, in S1). For the purposes of the current study, and in accordance with previous authors (Dyrdal & Sanner, 2022), the cutoff score for the SPQ-15 was obtained with a procedure proposed by Jacobson and Truax (1991). Using data from phobic (provided by Olatunji et al., 2009) and nonphobic samples (in the current study, Sample 3), the calculation yielded a value of 8 for a fear-of-spiders cutoff score. On the basis of this criterion, 42 eligible participants were contacted and invited to S2; 31 (29 females) of them agreed and participated in a planned experimental session.[1]

**Stage 2.** S2 was a one-on-one session conducted 10 days after S1. At the beginning, each participant was informed about the purpose and procedure of the study and told they could withdraw from it at any time. At this point, they were told that they would be shown spiders. Once informed consent had been obtained, paper-and-pencil versions of the CM-PL and STAI-S were administered, immediately followed by the BAT procedure.

[1] Eleven individuals did not respond to the message inviting them to participate in S2; one individual did not provide an email address and was not contacted. Welch's $t$ test indicated that they did not differ from those who did in terms of S1 PC ($t_{19.928} = 3.713$, $p = .07$) or fear of spiders ($t_{22.661} = .229$, $p = .637$).

The BAT was conducted in a separate room, where participants were informed that their task was to approach the spider as far as they considered safe. The spiders, two taxidermied tarantulas, were placed in an open container at the end of a 5-metre-long table, on which a tape measure was stretched. Participants were asked to reach out and slide their hand across the table while approaching the spider. The distance from which the examined participant approached the spider was read on the basis of hand position. Directly after the participants stopped, signaling (also verbally, e.g., "Enough") the end of their approach, they reported the peak subjective discomfort they felt during the BAT procedure.

### *Data Analysis*

To verify Hypotheses 1 and 2, a series of hierarchical regression analyses were performed. Considering measurement invariance analysis results—in particular, full metric invariance across gender groups—data from all participants (women and men) was used. The distance each participant moved toward the spiders comprised the dependent variable.

Because of the small number of observations, for more credibility of the results, up to three predictors were entered into the tested models (following the general rule of thumb of 10 observations per predictor variable, i.e., VanVoorhis & Morgan, 2007): anxiety or distress, PC, and the interaction term. The exceptions were two models, where in the last step social desirability was included as a control variable (Models 1 and 2). The sensitivity power analysis was performed using G*Power 3.1 (Faul et al., 2009). This determined the strength of the effects that could be reliably detected from the regression models. With a sample size of 31 individuals, a power of .80, three or four predictors, and $\alpha = .05$, the present sample size was adequate to detect a minimum effect of $f^2 = .27$, which is considered a medium effect (Cohen, 1988).

Because fear of spiders (as measured by the SPQ) was not a significant predictor of behavioral approach in the original study, it was plausible that the relationship between the SPQ-15 scores and the dependent variable would be marginal in the present instance. This assumption proved accurate, as confirmed by subsequent analysis, which is available at https://osf.io/vw7ud/.[2] In contrast with the original

[2] A possible explanation for this was a decrease in the variance of SPQ-15 in Sample 3' ($\sigma^2_{Sample3'} = 4.69$, compared with $\sigma^2_{Sample3} = 21.24$). Because X with low variance is insufficient to explain a large portion of the variance in Y (see the definition of covariance), the usefulness of SPQ-15 as a predictor of the behavioral approach was limited; this was a consequence of the procedure used to select participants.

study, the STAI-S scores (Models 1 and 1a) and SUDS scores (Models 2 and 2a) were used to gauge the participants' fear of spiders. The procedure described above indicates that these measures were appropriate to capture the participants' fear of spiders in S2.

To control for the variability in the dependent variable predicted by anxiety/distress, STAI-S scores or SUDS were the first predictors entered into each analysis, followed by CM-PL scores (Step 2) and the interaction term (CM-PL × STAI-S or CM-PL × SUDS; Step 3). Simple slope analyses and the Johnson-Neyman (J–N) technique (Hayes & Matthes, 2009) were used to decompose significant interactions. Both were conducted using the PROCESS macro for SPSS (Model 1; Hayes, 2013). The CAHOST tool was used to create the J-N plots (Carden et al., 2017). All predictor variables were transformed into z scores. Following the procedure of the original study, the analyses were conducted for the CM-PL administered in S1 (Model 1 and Model 2) as well as for the CM-PL administered in S2 (Model 1a and Model 2a).

## Results

Table 4 shows the descriptive statistics and zero-order correlations for study variables in S1 and S2. All variables but BAT were normally distributed; hence, the Spearman rank correlation was used when computing correlations for this variable. The CM-PL administered in S1 and S2 were only moderately correlated, indicating its situational variance, but data collected from participants not engaged in S2 supported satisfactory test–retest reliability ($N = 40$, $r = .77$). Despite the minor violation of univariate normality of the BAT, all assumptions for multiple regression were met, providing justification for the analysis (Williams et al., 2013). Tables 5 and 6 report the results of multiple hierarchical regressions. Entry of the STAI-S in Model 1/Model 1a, as well as the SUDS in Model 2/Model 2a, in Step 1 of the analysis significantly and negatively predicted approach distance. In Step 2, entry of the CM-PL(S1) or CM-PL(S2) did not improve the prediction of approach distance in any of the tested models. Thus, Hypothesis 1 was not supported. However, the inclusion of the interaction terms in Step 3 did significantly improve the prediction of the dependent variable in Model 1a and Model 2a, which is consistent with Hypothesis 2. The CM-PL(S2) moderated the negative effect of anxiety as well as distress on approach distance, whereas the CM-PL(S1) did not, even when controlling for social desirability in Step 4 of Model 1 and Model 2.

**Table 4**

*Descriptive Statistics, Internal Consistency, and Zero-Order Correlations Between CM-PL and Study Variables*

| Measure | *M* | *SD* | *Min* | *Max* | *S* | *K* | *r* with CM-PL(S1) | *r* with CM-PL(S2) | α |
|---|---|---|---|---|---|---|---|---|---|
| CM-PL(S1) | 26.96 | 4.90 | 17.00 | 38.00 | 0.26 | –0.31 | – | .536** | .79 |
| CM-PL(S2) | 27.13 | 4.43 | 19.00 | 35.00 | –.17 | –.77 | .536** | – | .73 |
| STAI-S (S2) | 46.10 | 9.04 | 32.00 | 66.00 | .20 | –.93 | –.188 | –.090 | .83 |
| SUDS (S2) | 51.06 | 23.70 | 5.00 | 90.00 | –.36 | –.86 | –.251 | –.065 | – |
| BAT (cm; S2) | 400.81 | 108.77 | 40.00 | 500.00 | –1.51 | 2.60 | .195 | .219 | – |
| SPQ-15 (S1) | 10.68 | 2.17 | 8.00 | 15.00 | .40 | .95 | –.299 | –.173 | .91 |
| KAS (S1) | 11.61 | 4.07 | 3.00 | 18.00 | –.26 | –.67 | .233 | .151 | .73 |

*Note.* Spearman's rank correlations are shown in italics. S1 = Stage 1, S2 = Stage 2, CM-PL = Courage Measure, STAI-S = State-Trait Anxiety Inventory, State Form; SUDS = Subjective Units of Distress Scale, BAT = Behavioral Approach Test. SPQ-15 = Spider Phobia Questionnaire, KAS = Questionnaire of Social Desirability. $^{**}p < .01$.

**Table 5**

*Summary of Multiple Regressions of Anxiety, Psychological Courage, and Their Interaction on Behavioral Approach*

| Model 1 | Variable | $R^2$ | $\Delta R^2$ | Sig. Δ | β | *t* | *p* |
|---|---|---|---|---|---|---|---|
| Step 1 | STAI-S | .195 | .195 | .013 | –.442 | –2.654 | .013 |
| Step 2 | STAI-S | .215 | .020 | .411 | –.415 | –2.436 | .021 |
| | CM-PL(S1) | | | | .142 | .835 | .411 |
| Step 3 | STAI-S | .293 | .078 | .095 | –.415 | –2.522 | .018 |
| | CM-PL(S1) | | | | .135 | .821 | .419 |
| | STAI × CM-PL(S1) | | | | .280 | 1.730 | .095 |
| Step 4 | STAI-S | .295 | .002 | .795 | –.426 | –2.467 | .021 |
| | CM-PL(S1) | | | | .144 | .842 | .408 |
| | STAI-S × CM-PL(S1) | | | | .277 | 1.677 | .106 |
| | KAS | | | | –.046 | –.262 | .795 |
| Model 1a | | | | | | | |
| Step 1 | STAI-S | .195 | .195 | .013 | –.442 | –2.654 | .013 |
| Step 2 | STAI-S | .255 | .060 | .145 | –.420 | –2.564 | .016 |
| | CM-PL(S2) | | | | .245 | 1.498 | .145 |
| Step 3 | STAI-S | .378 | .123 | .029 | –.362 | –2.342 | .027 |
| | CM-PL(S2) | | | | .301 | 1.952 | .061 |
| | STAI-S × CM-PL(S2) | | | | .358 | 2.306 | .029 |

*Note.* CM-PL = Courage Measure, Polish version. S1 = Stage 1, S2 = Stage 2, STAI-S: State–Trait Anxiety Inventory, State Form; KAS: Questionnaire of Social Desirability.

**Table 6**

*Summary of Multiple Regressions of Distress, Psychological Courage, and Their Interaction on Behavioral Approach*

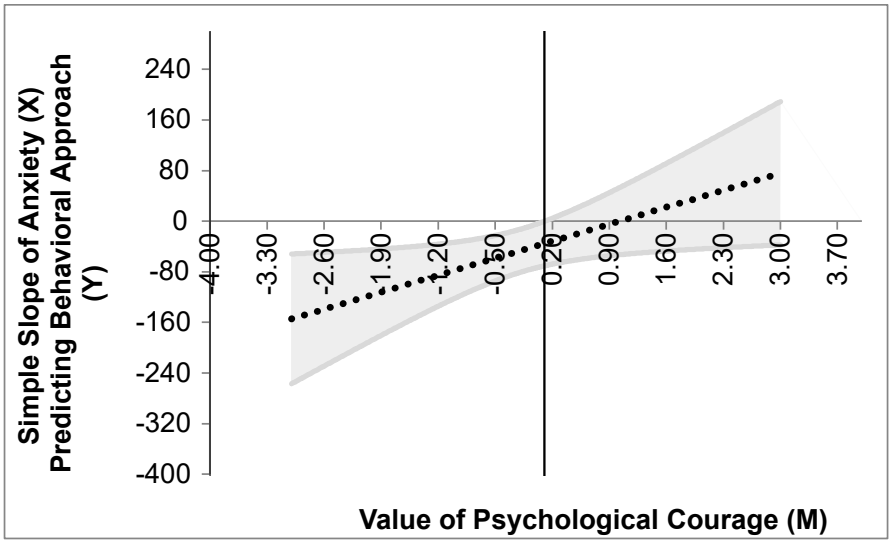
| Model 2 | Variable | $R^2$ | $\Delta R^2$ | Sig. Δ | β | *t* | *p* |
|---|---|---|---|---|---|---|---|
| Step 1 | SUDS | .266 | .266 | .003 | –.516 | –3.242 | .003 |
| Step 2 | SUDS | .275 | .009 | .563 | –.491 | –2.956 | .006 |
| | CM-PL(S1) | | | | .097 | .585 | .563 |
| Step 3 | SUDS | .287 | .012 | .507 | –.466 | –2.713 | .011 |
| | CM-PL(S1) | | | | .098 | .583 | .565 |
| | SUDS × CM-PL(S1) | | | | .112 | .672 | .507 |
| Step 4 | SUDS | .287 | .012 | .943 | –.470 | –2.600 | .015 |
| | CM-PL(S1) | | | | .100 | .575 | .570 |
| | SUDS × CM-PL(S1) | | | | .108 | .605 | .550 |
| | KAS | | | | –.013 | –.072 | .943 |
| Model 2a | | | | | | | |
| Step 1 | SUDS | .266 | .266 | .003 | –.516 | –3.242 | .003 |
| Step 2 | SUDS | .329 | .281 | .063 | –.499 | –3.219 | .003 |
| | CM-PL(S2) | | | | .251 | 1.617 | .117 |
| Step 3 | SUDS | .475 | .146 | .011 | –.556 | –3.934 | <.001 |
| | CM-PL(S2) | | | | .271 | 1.939 | .063 |
| | SUDS × CM-PL(S2) | | | | .387 | 2.738 | .011 |

*Note.* CM-PL = Courage Measure, Polish version. S1 = Stage 1, S2 = Stage 2, SUDS = Subjective Units of Distress Scale, KAS = Questionnaire of Social Desirability.

J–N technique and simple slopes analysis at high, medium and low (+1 *SD*, *M*, −1 *SD*) values of PC were used to probe significant interaction effects. The results showed that anxiety was associated with behavioral approach at low (β = –.71; *SE* = 0.20; *t* = –3.59, *p* < .001) and medium (β = –.36; *SE* = .15; *t* = –2.34, *p* = .027) levels of PC but not at high levels (β = –.01; S*E* = .23; *t* = –.04, *p* = .969).

**Figure 1**

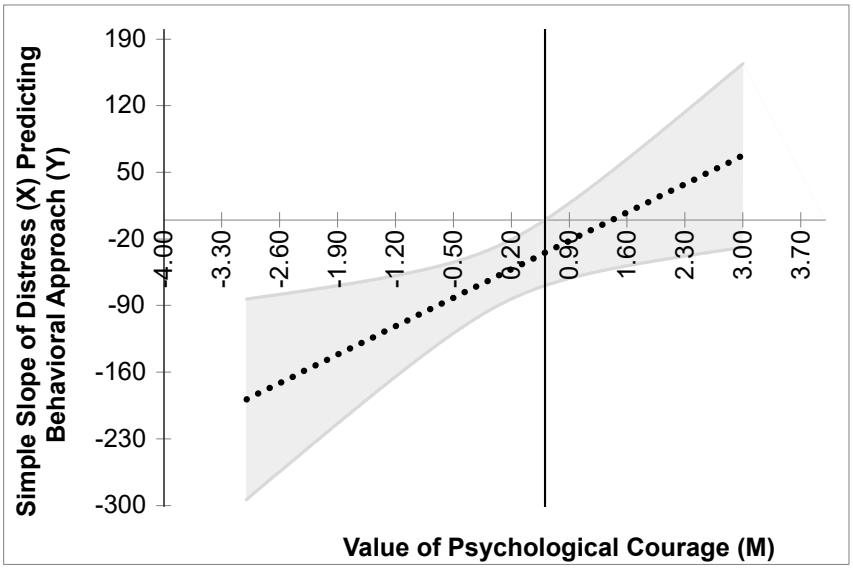
*Johnson–Neyman Plot Showing the Conditional Relationship Between Anxiety and Behavioral Approach as a Function of Psychological Courage*




*Note.* The dotted line indicates the simple slope of anxiety on behavioral approach. Shaded areas indicate the 95% confidence interval. At a 95% confidence level, the effect of X on Y is significant when $M \leq 0.11$ (the value marked by the vertical line).

The results of the J–N analysis (Figure 1) confirmed that anxiety predicted the behavioral approach when the PC score ≤ .11 (27.60 for a raw score). This corresponded to approximately 52% of the present sample. Similar results were obtained for a second significant interaction: subjective distress was associated with behavioral approach at low (β = –.95; *SE* = .22; *t* = –4.40, *p* < .001) and medium (β = –.56; *SE* = .14; *t* = –3.93, *p* < .001) levels of PC but not at high levels (β = –.16; *SE* = .19; *t* = –.88, *p* = .387). The J–N analysis showed that the effects of subjective distress on behavioral approach transitioned at a PC score of .61 (29.80 for a raw score; Figure 2). Approximately 65% of the sample scored .61 or less.

**Figure 2**
*Johnson–Neyman Plot Showing the Conditional Relationship Between Distress and Behavioral Approach as a Function of Psychological Courage*




*Note*. The dotted line indicates the simple slope of distress on behavioral approach. Shaded areas indicate the 95% confidence interval. At a 95% confidence level, the effect of X on Y is significant when $M \leq 0.61$ (the value marked by the vertical line).

## Discussion

The results of Study 2 did not confirm the main effect of PC on behavioral approach that Norton and Weiss (2009) observed. However, contrary to the original study findings, the interaction effect of PC and anxiety/distress was revealed, providing support for Hypothesis 2. According to the current study's findings, the behavioral approach in a fear-eliciting situation is a complex phenomenon, regulated in substantial part by two distinct variables. The negative effect of anxiety/distress turned out to be moderated by the positive effects of PC, resulting in diminishing effects of negative emotion on task completion. In other words, as Norton and Weiss hypothesized, "When courage increases, the relationship between fear and behavioral approach becomes less negative" (p. 213).

The Study 2 findings account for both adapted measure validity as well as replication of the study in a new cultural context. This replication was conducted with some minor procedural modifications (e.g., distance participants were asked to traverse was 500 cm instead of 91.4 cm in the original study). The present study

was therefore a conceptual replication rather than a direct one (e.g., Schmidt, 2009). The modifications, along with the new cultural context, made the findings regarding the effects of courage in both studies more plausible.

However, as in the original study, the observed effect is limited to PC measured immediately before the fear-eliciting situation (CM-PLS2) as opposed to results obtained 10 days earlier (CM-PLS1). Two possible explanations for this discrepancy did not receive support in the current study. One explanation, formulated by Norton and Weiss, concerned the questionable psychometric properties of the original 12-item measure. As Howard and Alipour (2014) showed, and as the current study data confirmed, this concern does not apply to the shortened, six-item version of the CM.

The second possible explanation, proposed in the current study, was the susceptibility of self-reported PC to social desirability bias, in particular when no real threat is present and, as one can easily predict, actual courage will not be tested in a given situation. As the present results show, despite controlling for social desirability in the regression equation, the CM-PLS1 still did not account for variability in the BAT, neither as a main effect nor as part of the interaction term. Another possible explanation formulated by Norton and Weiss (2009) seems particularly convincing: Courage may be difficult to accurately self-report in the absence of an actual fear-eliciting situation. This may mean that PC is a trait that manifests itself mostly in a trait-relevant situation (Tett & Guterman, 2000). The term "trait-relevant situation" refers to the situation providing cues (e.g., threat stimuli) for which a certain behavior (e.g., courage) is required. As a result, greater variance in measured trait is observed, which elsewhere is masked (in non-relevant situations, e.g., self-report in neutral conditions). The aroused PC effect would manifest itself in both actual behavior (which may account for current study results in S2) as well as greater variance in self-reported PC. Although this assumption seems plausible, it requires verification in an independent study that directly assesses the CM's predictive value in the context of Norton and Weiss's (2009) and the current study's consistent results, as well as Chockalingam and Norton's (2019) reverse findings.

## GENERAL DISCUSSION

The current research included two separate studies across three samples and was carried out to accomplish three different research goals: (a) create a Polish adaptation of the CM, (b) test its criterion related-validity by replicating Norton and Weiss's (2009) original study, and (c) provide information about an adapted scale

nomological network by testing its relationships with similar and dissimilar variables. Given the concerns about the original, 12-item CM, the shortened, six-item version of the scale proposed by Howard and Alipour (2014) was used. The results of Study 1 confirmed the unidimensional structure of CM-PL, and MGCFA supported its configural and metric measurement invariance across the gender groups. Scalar measurement invariance was established only partially, with four invariant items across the gender groups. An analysis also revealed satisfactory internal consistency (Study 1) and test–retest stability (Study 2).

In Study 1, initial evidence for the CM-PL's divergent and convergent validity, as well as additional information about its concurrent validity, were provided. Courage, as hypothesized, was strongly correlated with resiliency, which accounts for its convergent validity. Both constructs relate to persistence during an emotionally challenging situation. Although those constructs are very similar and share over 40% of common variance, there are also substantial differences between them. Foremost, resiliency relates mostly to a stressful situation and one's potential to overcome adversity. It is also seen as a protective factor, facilitating reintegration after disruptions (Richardson, 2002). In PC, by its operational definition adapted in the current study, the accent is shifted from one's ability to "bounce back" to one's propensity to face the danger that may be simply avoided by withdrawing from the situation or, figuratively speaking, from defense to offense. While facing danger, a courageous individual is obviously taking a risk but, as shown in current and previous studies (Howard & Alipour, 2014), a propensity to engage in risky behaviors is at most moderately correlated with PC.

As hypothesized in Study 1, this correlation accounts for the CM-PL's criterion-related validity, next to grit. The ability to persevere or persist despite being exposed to threatened stimuli is similar to the ability to persevere despite experiencing difficulties, although, as discussed in Study 1, the latter is more goal oriented, in the sense of achievements, whereas the former refers to situations that inherently induce fear, anxiety, or distress. Last, the correlations with the Big Five traits provide both convergent and divergent evidence, with some traits relating to PC more (Emotional Stability and Conscientiousness) than the others (Intellect, Agreeableness, and Extraversion). Although the correlation with Conscientiousness was higher than expected, after considering its relation to perseverance—a feature related to courage—the obtained results were not surprising. On the other hand, this result contradicts previous research findings (Howard & Alipour, 2014) in which the CM's correlations with Conscientiousness, as well as Neuroticism, were low and nonsignificant. Because drawing the conclusion about this inconsistency from only two studies, using different questionnaires for gauging the Big Five traits would be incorrect, this question should be addressed in future studies, which may reveal whether courage relates to personality differently depending on cultural context.

The most valuable data on the CM-PL as a courage measure comes from Study 2, in which its concurrent validity was examined. Consistent with Norton and Weiss's (2009) findings, the CM-PL turned out to be a unique predictor, accounting for additional variance of behavioral approach, above and beyond that provided by fear. In the current study, a courage effect was observed only as an interaction term, moderating the impact of anxiety/distress on behavioral approach. The plausible psychological mechanisms responsible for this effect are three basic motivational systems underlying human emotions and behavior: the flight-fight-freeze system (FFFS), the behavioral inhibition system (BIS), and the behavioral activation system (BAS), as postulated in Gray's revised reinforcement sensitivity theory (RST; Gray & McNaughton, 2003).

According to RST, FFFS is responsible for avoidance behavior in the presence of threatening stimuli (unconditioned and conditioned) and relates to disorders such as phobias and panic. The behavioral activation system is involved in all appetitive reactions; hence, it is responsible for reward-oriented behaviors (including risk-taking). The behavioral inhibition system is responsible for conflict resolution between FFFS and BAS (i.e., avoidance vs approach behavior): "BIS generates the 'watch out for danger' emotion of anxiety which entails the inhibition of prepotent conflicting behaviors, the engagement of risk assessment processes, and the scanning of memory and the environment to help resolve concurrent goal conflict" (Corr, 2008, p. 11). By contrast, FFFS "mediates the 'get me out of this place' emotion of fear, not anxiety" (p. 10).

Both BIS and FFFS may be activated during acts of courage, with (perhaps) BIS being more prevalent when the individual is anticipating/expecting danger and FFFS when the individual is facing danger. However, courageous behavior would, to some degree, require the inhibition of BIS and FFFS (or, in other words, the constraint of negative emotions mediated by these systems) along with the activation of BAS. Wang et al. (2022) provided initial evidence supporting this line of reasoning. In their study, BIS (operationalized as a punishment-sensitive system, as per the original RST) mediated the association between courage (operationalized as per the present study) and stress among high-risk employees. Courage may therefore reduce stress by inhibiting BIS, playing a buffering role against the damaging effects of stress on task performance. Furthermore, the study showed that courage was correlated with responsiveness, drive, and fun-seeking—three dimensions of BAS (Carver & White, 1994). In short, both BIS and BAS may have been related to courage, though the relationship between BAS and courage was less conclusive than that between BIS and courage.

In the context of the revised RST, courageous behavior may arise where FFFS and BAS are activated concurrently, which is, in turn, the easiest way to activate

BIS (Gray & McNaughton, 2003). Since the function of BIS is to resolve motivational conflict, courage appears to emerge when behavioral resolution takes place in favor of approach rather than avoidance. Hence, suppressing FFFS activity, for instance, through emotion regulation strategies (Hartley & Phelps, 2010), might be one way to facilitate courage. If so, being courageous means one can regulate one's emotions—primarily fear and anxiety—in pursuit of a risky and (from the actor's point of view) important task.

Another hypothetical way to enhance courage is by increasing BAS activation; for instance, learning that taking action in the face of fear is highly rewarding, not only objectively but also as a self-enhancement mechanism. Howard's (2019) findings supported this reasoning, though within a different theoretical framework. The relationships between social courage (i.e., taking a social risk for a noble purpose), workplace and well-being outcomes were mediated by approach motivation, defined as a regulatory process to strive toward positive stimuli (objects, events or possibilities) (Elliot, 2006). Howard found that these included lower depression and higher life satisfaction in courageous individuals, one of the reasons being that taking action involving risk may provide a sense of fulfillment.

Howard's (2019) study supported Elliot's (2006) statement that "avoidance motivation is designed to facilitate surviving, whereas approach motivation is designed to facilitate thriving" (p. 115). Although more research on the subject is needed, the literature (including the present study) suggests that courage, especially PC, is a psychological resource that allows people not only to survive but also to thrive.

## CONCLUSION

The current article provides evidence that the CM-PL is a valid research tool to gauge the construct of PC, which is defined as perseverance or persistence despite fear. The CM-PL's psychometric values correspond to the original version of the scale, and enables its use as a notable research measure. The successful replication of Norton and Weiss's (2009) "spider study" confirms its relationship to real behavior, supporting its applicative usefulness. Furthermore, as a measure of PC, which accounts for behavioral approach variance above and beyond fear or anxiety, it is a distinct variable worthy of study. This distinctiveness is strengthened by data showing its dissimilarities as well as similarities with other variables. Although the meaning of some of them, such as resiliency, may seem to overlap with the meaning of PC, data from the current study indicate these two variables are far from being redundant.

### Limitations

The results of the studies described in this article have some limitations. First, although the sample used in Study 1 to establish the CM-PL's factor structure was of adequate size to ensure adequate statistical power, when performing MGCFA, a larger sample would be more appropriate, especially considering data multivariate nonnormality (Hair et al., 2014). Secondly, in the replication study, the sample included only two men. Although the prevalence of women in the current study reflects the composition of the original study sample, the generalization of the obtained results for men remains vague. Third, replication of the "spider study" required adaptation of the original study's procedure. Although this adaptation was justified, the current results should be extended in future research to different situations eliciting fear and anxiety in both clinically relevant situations (i.e., regarding fears of things other than spiders), as well as in nonclinical contexts (e.g., in an organizational environment, regarding employees' voice). Another limitation of the present study is that only medium to large effects were detected. Future research should make an effort to provide a sufficiently large sample size to more robustly examine the effect of PC on behavioral approach.

## REFERENCES

Aquinas, T. (1947). *Summa Theologica.* (Fathers of the English Dominican Province, Trans.) Benziger Brothers. https://www.ccel.org/ccel/aquinas/summa.html (Original work published in 1485.)

Bacha, C. S. (2001). The courage to stay in the moment. *Psychodynamic Counselling*, *7*(3), 279–295. https://doi.org/10.1080/13533330110067978

Benjamin, C. L., O'Neil, K. A., Crawley, S. A., Beidas, R. S., Coles, M., & Kendall, P. C. (2010). Patterns and predictors of subjective units of distress in anxious youth. *Behavioural and Cognitive Psychotherapy*, *38*(4), 497–504. https://doi.org/10.1017%2FS1352465810000287

Berinsky, A. J., Margolis, M. F., & Sances, M. W. (2014). Separating the shirkers from the workers? Making sure respondents pay attention on self-administered surveys. *American Journal of Political Science*, *58*(3), 739–753. https://doi.org/10.1111/ajps.12081

Brown, T. A. (2015). *Confirmatory factor analysis for applied research.* Guilford.

Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance. *Psychological Bulletin*, *105*(3), 456–466. https://psycnet.apa.org/doi/10.1037/0033-2909.105.3.456

Byrne, Z. S., Peters, J. M., & Weston, J. W. (2016). The struggle with employee engagement: Measures and construct clarification using five samples. *Journal of Applied Psychology*, *101*(9), 1201–1227. https://psycnet.apa.org/doi/10.1037/apl0000124

Carden, S. W., Holtzman, N. S., & Strube, M. J. (2017). CAHOST: An Excel workbook for facilitating the Johnson-Neyman technique for two-way interactions in multiple regression. *Frontiers in Psychology*, *8*, Article 1293. https://doi.org/10.3389/fpsyg.2017.01293

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, *67*(2), 319–333. https://psycnet.apa.org/doi/10.1037/0022-3514.67.2.319

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Chockalingam, M., & Norton, P. J. (2019). Facing fear-provoking stimuli: The role of courage and influence of task-importance. *The Journal of Positive Psychology*, *14*(5), 603–613. https://doi.org/10.1080/17439760.2018.1497685

Cohen, J. (1988). Multiple Regression and Correlation Analysis. In *Statistical Power Analysis for the Behavioral Sciences* (2nd ed., pp. 407–465). Lawrence Erlbaum Associates.

Corr, P. J. (2008). Reinforcement Sensitivity Theory (RST): Introduction. In *The Reinforcement Sensitivity Theory of Personality* (pp. 1–43). Cambridge University Press. https://doi.org/10.1017/CBO9780511819384.002

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, *18*(2), 192–203. https://doi.org/10.1037/1040-3590.18.2.192

Drwal, R. (1995). *Adaptacja kwestionariuszy osobowości* [Adaptation of personality questionnaires]. Wydawnictwo Naukowe PWN.

Drwal, R., & Wilczyńska, J. T. (1980). Opracowanie kwestionariusza aprobaty społecznej [Elaboration of the social desirability questionnaire]. *Przegląd Psychologiczny*, *23*(3), 569–583.

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (GRIT-S). *Journal of Personality Assessment*, *91*(2), 166–174. https://doi.org/10.1080/00223890802634290

Duckworth, A. L., Quinn, P. D., & Tsukayama, E. (2021). Revisiting the factor structure of grit: A commentary on Duckworth and Quinn (2009). *Journal of Personality Assessment*, *103*(5), 573–575. https://doi.org/10.1080/00223891.2021.1942022

Dyrdal, O., & Sanner, K. (2022). *Virtual Reality Exposure Therapy (VRET) for fear of spiders: A randomized study*. NTNU.

Elliot, A. J. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion*, *30*(2), 111–116. https://doi.org/10.1007/s11031-006-9028-7

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Gray, J. A., & McNaughton, N. (2003). *The neuropsychology of anxiety.* Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198522713.001.0001

Greene, R. R., Galambos, C., & Lee, Y. (2004). Resilience theory: Theoretical and professional conceptualizations. *Journal of Human Behavior in the Social Environment*, *8*(4), 75–91. https://doi.org/10.1300/J137v08n04_05

Greitemeyer, T., Osswald, S., Fischer, P., & Frey, D. (2007). Civil courage: Implicit theories, related concepts, and measurement. *The Journal of Positive Psychology*, *2*(2), 115–119. https://doi.org/10.1080/17439760701228789

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2014). *Multivariate data analysis* (7th ed.). Pearson.

Hampson, S. E., Edmonds, G. W., Barckley, M., Goldberg, L. R., Dubanoski, J. P., & Hillier, T. A. (2016). A Big Five approach to self-regulation: Personality traits and health trajectories in the Hawaii longitudinal study of personality and health. *Psychology, Health & Medicine*, *21*(2), 152–162. https://doi.org/10.1080/13548506.2015.1061676

Hartley, C. A., & Phelps, E. A. (2010). Changing fear: The neurocircuitry of emotion regulation. *Neuropsychopharmacology*, *35*(1), 136–146. https://doi.org/10.1038/npp.2009.121

Hayes, A. F. (2013). Fundamentals of Moderation Analysis. In *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (pp. 219–266). Guilford Press.

Hayes, A. F., & Matthes, J. (2009). Computational procedures for probing interactions in OLS and logistic regression: SPSS and SAS implementations. *Behavior Research Methods*, *41*(3), 924–936. https://doi.org/10.3758/BRM.41.3.924

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, *6*(1), 53–60.

Howard, M. C. (2019). Applying the approach/avoidance framework to understand the relationships between social courage, workplace outcomes, and well-being outcomes. *The Journal of Positive Psychology*, *14*(6), 734–748. https://doi.org/10.1080/17439760.2018.1545043

Howard, M. C., & Alipour, K. K. (2014). Does the courage measure really measure courage? A theoretical and empirical evaluation. *The Journal of Positive Psychology*, *9*(5), 449–459. https://doi.org/10.1080/17439760.2014.910828

Howard, M. C., & Crayne, M. P. (2019). Persistence: Defining the multidimensional construct and creating a measure. *Personality and Individual Differences*, *139*, 77–89. https://doi.org/10.1016/j.paid.2018.11.005

Howard, M. C., & Reiley, P. J. (2020). Physical courage predicts relevant outcomes in associated contexts: The creation of a measure and empirical analysis into the construct. *Journal of Business Research*, *110*, 80–94. https://doi.org/10.1016/j.jbusres.2019.12.015

Jachimowicz, J. M., Wihler, A., Bailey, E. R., & Galinsky, A. D. (2019). Reply to Guo et al. and Credé: Grit-S scale measures only perseverance, not passion, and its supposed subfactors are merely artifactors. *Proceedings of the National Academy of Sciences*, *116*(10), 3942–3944.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12–19. https://doi.org/10.1037/0022-006X.59.1.12

Klorman, R., Weerts, T. C., Hastings, J. E., Melamed, B. G., & Lang, P. J. (1974). Psychometric description of some specific-fear questionnaires. *Behavior Therapy*, *5*(3), 401–409. https://doi.org/10.1016/S0005-7894(74)80008-0

Kolemba, M., & Maciuszek, J. (2013). Perception of risk and risk-taking among the lucky and the luckless. *Polish Psychological Bulletin*, *44*(3), 358–370. https://doi.org/10.2478/ppb-2013-0039

Lopez, S. J. (2007). Profiling courage: Introduction to the special issue on courage. *The Journal of Positive Psychology*, *2*(2), 79–79. https://doi.org/10.1080/17439760701228722

Łuczyńska, A. (2021). *Polska adaptacja kwestionariusza Spider Phobia Questionnaire-15* [Unpublished Master's thesis]. Jagiellonian University.

Norton, P. J., & Weiss, B. J. (2009). The role of courage on behavioral approach in a fear-eliciting situation: A proof-of-concept pilot study. *Journal of Anxiety Disorders*, *23*(2), 212–217. https://doi.org/10.1016/j.janxdis.2008.07.002

Ogińska-Bulik, N., & Juczyński, Z. (2008). Skala pomiaru prężności – SPP-25. *Nowiny Psychologiczne*, *3*, 39–56.

Olatunji, B. O., Woods, C. M., de Jong, P. J., Teachman, B. A., Sawchuk, C. N., & David, B. (2009). Development and initial validation of an abbreviated Spider Phobia Questionnaire using item response theory. *Behavior Therapy*, *40*(2), 114–130. https://doi.org/10.1016/j.beth.2008.04.002

Osswald, S., Greitemeyer, T., Fischer, P., & Frey, D. (2010). What is moral courage? Definition, explication, and classification of a complex construct. In C. L. S. Pury & S. J. Lopez (Eds.), *The psychology of courage: Modern research on an ancient virtue* (pp. 149–164). American Psychological Association. https://doi.org/10.1037/12168-008

Polák, J., Rádlová, S., Janovcová, M., Flegr, J., Landová, E., & Frynta, D. (2020). Scary and nasty beasts: Self-reported fear and disgust of common phobic animals. *British Journal of Psychology*, *111*(2), 297–321. https://doi.org/10.1111/bjop.12409

Pury, C. L. S., & Starkey, C. B. (2010). Is courage an accolade or a process? A fundamental question for courage research. In C. L. S. Pury & S. J. Lopez (Eds.), *The psychology of courage: Modern research on an ancient virtue* (pp. 67–87). American Psychological Association. https://doi.org/10.1037/12168-004

Putman, D. (1997). Psychological courage. *Philosophy, Psychiatry, & Psychology*, *4*(1), 1–11. https://doi.org/10.1353/ppp.1997.0008

Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, *41*, 71–90. https://doi.org/10.1016/j.dr.2016.06.004

Rachman, S. J. (2004). Fear and courage: A psychological perspective. *Social Research*, *71*(1), 149–176.

Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology*, *58*(3), 307–321. https://doi.org/10.1002/jclp.10020

Schmidt, S. (2009). Shall we really do it again? The powerful concept of replication is neglected in the social sciences. *Review of General Psychology*, *13*(2), 90–100. https://doi.org/10.1037/a0015108

Shepela, S. T., Cook, J., Horlitz, E., Leal, R., Luciano, S., Lutfy, E., Miller, C., Mitchell, G., & Worden, E. (1999). Courageous resistance: A special case of altruism. *Theory & Psychology*, *9*(6), 787–805. https://doi.org/10.1177/0959354399096004

Soper, D. S. (2022). A-priori Sample Size Calculator for Structural Equation Models [Software]. Available from https://www.danielsoper.com/statcalc

Steenkamp, J.-B. E., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, *25*(1), 78–90. https://doi.org/10.1086/209528

Studenski, R. (2004). *Ryzyko i ryzykowanie: Prace naukowe Uniwersytetu Śląskiego w Katowicach*. Wydawnictwo Uniwersytetu Śląskiego.

Tett, R. P., & Guterman, H. A. (2000). Situation trait relevance, trait expression, and cross-situational consistency: Testing a principle of trait activation. *Journal of Research in Personality*, *34*(4), 397–423. https://doi.org/10.1006/jrpe.2000.2292

Tillich, P. (2008). *The courage to be*. Yale University Press.

Topolewska, E., Skimina, E., Strus, W., Cieciuch, J., & Rowiński, T. (2014). The short IPIP-BFM-20 questionnaire for measuring the Big Five. *Roczniki Psychologiczne*, *17*(2), 385–402.

VanVoorhis, C. W., & Morgan, B. L. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in Quantitative Methods for Psychology*, *3*(2), 43–50. https://doi.org/10.20982tqmp.03.2.p043

Westland, J. C. (2010). Lower bounds on sample size in structural equation modeling. *Electronic Commerce Research and Applications*, *9*(6), 476–487. https://doi.org/10.1016/j.elerap.2010.07.003

Williams, M. N., Grajales, C. A. G., & Kurkiewicz, D. (2013). Assumptions of multiple regression: Correcting two misconceptions. *Practical Assessment, Research, and Evaluation*, *18*(1), Article 11. https://doi.org/10.7275/55hn-wk47

Wolpe, J. (1968). Psychotherapy by reciprocal inhibition. *Conditional Reflex: A Pavlovian Journal of Research & Therapy*, *3*(4), 234–240. https://doi.org/10.1007/BF03000093

Woodard, C. R. (2004). Hardiness and the concept of courage. *Consulting Psychology Journal: Practice and Research*, *56*(3), 173–185. https://doi.org/10.1037/1065-9293.56.3.173

Wrześniewski, K., Sosnowski, T., Jaworowska, A., & Fecenec, D. (2002). Inwentarz stanu i cechy lęku. Polska adaptacja STAI. Podręcznik [State-Trait Anxiety Inventory: Polish adaptation STAI. A handbook]. Psychological Tests Laboratory, Polish Psychological Association.

Wyszyńska, P., Ponikiewska, K., Karaś, D., Najderska, M., & Rogoza, R. (2017). Psychometric properties of the Polish version of the Short Grit Scale. *Polish Psychological Bulletin*, *48*(2), 229–236. https://doi.org/10.1515/ppb-2017-0026

## SUPPLEMENTAL MATERIAL

**Table S1**

*Original and Polish Shortened Version of Norton and Weiss's (2009) Courage Measure*

| English | Polish |
|---|---|
| I tend to face my fears. | Staram się stawiać czoła moim lękom. |
| Even if I feel terrified, I will stay in the situation until I have done what I need to do. | Będę robił(a) to co trzeba, nawet jeśli znajdę się w sytuacji, która mnie przeraża. |
| I will do things even though they seem to be dangerous. | Podejmę się zadań, nawet gdy wydają się one niebezpieczne. |
| If I am worried or anxious about something, I will do or face it anyway. | Jeśli czymś się martwię lub niepokoję, to i tak stawię temu czoła. |
| If there is an important reason to face something that scares me, I will face it. | Jeśli jest jakiś ważny powód, by zmierzyć się z czymś co mnie przeraża, zrobię to. |
| Even if something scares me, I will not back down. | Nawet jeżeli coś mnie przeraża, to nie odpuszczę tego co robię. |