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DOES THE COURAGE MEASURE (CM) MEASURE PERSISTENCE DESPITE FEAR?

MATT C. HOWARD
UNIVERSITY OF SOUTH ALABAMA

ALLONA S. MURRY
UNIVERSITY OF SOUTHERN MISSISSIPPI

The Courage Measure (CM) was created to measure the individual difference of courage, but recent research has suggested that the CM may instead gauge persistence despite fear (PDF). If true, then prior research using the CM would need to be reevaluated. The current article performs two studies. The first study confirms the factor structure of the reduced CM. The second study calculates the heterotrait-monotrait (HTMT) ratio of correlations of the CM with the PDF dimension of the Multidimensional Persistence Scale (MPS). The results exceed typical cutoffs for HTMT ratios, and the average item intercorrelations of the CM were less than the item cross-correlations of the CM with the PDF dimension. These two results support that the CM and PDF dimension measure the same construct. Future research should integrate prior findings using the CM with PDF, which provides a new and substantial theoretical basis to understand the recently developed construct.

Keywords: Courage; Persistence despite fear; Persistence; Individual differences; Validity.

Correspondence concerning this article should be addressed to Matt C. Howard, Mitchell College of Business, University of South Alabama, 5811 USA Drive South, Mobile, AL 36688. Email: mhoward@southalabama.edu

Fear is a poignant emotion. It occurs due to a perception of danger, resulting in an urge to retract from the fear-inducing stimulus (Reiss, 1991; Ruiter, Kessels, Peters, & Kok, 2014). Fear can be overt, often when the fear-inducing stimulus is tangible (Davey, 1994; Rinck & Becker, 2007). For instance, a person may feel immediate fear if they see a snake, and they may subsequently experience an immediate need to retreat from the snake. Fear can also be subtle, often when the fear-inducing stimulus is intangible (Bartels & Magun-Jackson, 2009; Marsh, Ambady, & Kleck, 2005; Newhagen, 1998). For instance, a person may have a general fear of failure, and they may thereby experience a general need to withdraw from their work.

Despite the power of fear, some people show a habitual tendency to persist through fear, which many consider to be a distinct individual difference (Pury, Kowalski, & Spearman, 2007; Rachman, 1990). Early research often labeled this individual difference as courage, and the Courage Measure (CM) was created using this conceptualization (Norton & Weiss, 2009). More recent research has disputed this label, however, and courage is more frequently associated Rate's definition (Rate, Clarke, Lindsay, & Sternberg, 2007; Rate, 2010). This definition mandates that courage is an intentional, deliberate, and risky action performed for prosocial purposes. Howard and Alipour (2014) further explored this notion, and they empirically supported that the CM likely does not measure this modern conceptualization of courage. Instead, they suggested that the CM gauges the unique construct of persistence despite fear (PDF), defined as the tendency to remain goal-directed when experiencing fear. Howard and Crayne (2019) incorporated these findings in their multidimensional conceptualization of persistence, which includes PDF, persistence despite difficulties (PDD), and inappropriate persistence (IP). These authors also underwent a six-study process to develop the Multidimensional Persistence Scale (MPS), supporting the existence of PDF as a distinct individual difference.

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From this work, PDF has been suggested play an integral role in interpersonal as well as self-regulatory dynamics. Many social interactions may be fear-inducing. For example, public speaking is a common fear of many people, but employees are regularly expected to give presentations at work (Jordan, Ferris, Hochwarter, & Wright, 2019). Employees high in PDF may be more successful in overcoming these challenges. Alternatively, managing emotions and well-being often requires people to face uncomfortable truths. For instance, it is often scary to admit to problematic behaviors, but people are expected to do so when undergoing therapy (Howard & Alipour, 2014; Howard & Crayne, 2019). Those high in PDF may be more likely to admit and subsequently curb these problematic behaviors. Thus, PDF may play an important role and practical and personal outcomes.

Because the construct was recently conceptualized, little empirical research has supported such inferences regarding PDF. On the other hand, many studies have applied the CM. The psychometric properties of the full CM as well as a reduced version of the CM have been supported via exploratory factor analysis (EFA; Howard & Alipour, 2014), and the scale has been shown to predict relevant outcomes, such as positive affect and grit (Howard & Crayne, 2019). Several prior articles have supported the relation of the CM with emotional well-being (Ginevra et al., 2018; Muris, 2009; Muris, Mayer, & Schubert, 2010), and others have provided initial evidence that the CM mediates the relationship of personality and coping (Magnano, Paolillo, Platania, & Santisi, 2017). While the scale may not measure courage, Howard and Alipour (2014) may be correct, and the CM may instead gauge PDF. In the current article, we test the validity of this claim.

First, Howard and Alipour (2014) suggested that the reduced CM better gauges PDF than the full version, and we confirm the factor structure of this reduced version via confirmatory factor analysis (CFA). Supporting the psychometric properties of the reduced CM could likewise support the subsequent application of the scale, perhaps to measure PDF rather than courage. Second, we analyze the convergent validity of both the full and reduced CM with the PDF dimension of the MPS via the heterotrait-monotrait (HTMT) ratio of correlations (Henseler, Ringle, & Sarstedt, 2015) to provide direct support for whether the CM gauges PDF. At the same time, we test the discriminant validity of the CM with the other dimensions of the PDF to provide further support for its validity in gauging PDF. The HTMT ratio is currently the most supported approach to achieve these two goals, as simulations have shown it is more accurate than the Fornell-Larcker criterion and CFA-based approaches (Henseler et al., 2015).

By achieving these goals, we connect prior findings utilizing the CM to modern research on PDF. In doing so, new theoretical bases could be discovered to understand the construct. For instance, Muris (2009; Muris et al., 2010) found that the CM has a negative relationship with anxiety, and thereby PDF may serve as a personal buffer to negative external stimuli. If the CM can be supported to measure PDF, then future research can apply these findings to link PDF to self-regulation and emotional well-being. The same would be true regarding all prior research using the CM, and therefore the current article may open many avenues for future research.

Lastly, it should be recognized that the current article is in no way critical of Norton and Weiss (2009). These authors created a scale modeled after the operational definition of "persistence or perseverance despite having fear" (Norton & Weiss, 2009, p. 213). If the CM is shown to gauge PDF, then the current article will have supported that Norton and Weiss were successful in their endeavors — although this definition was later shown not to represent courage.

Study 1 – Factor Structure of the Reduced CM

Method

Participants

Study 1 included 254 participants (M_{age} = 36.08, SD_{age} = 11.42; 48% female; 87% U.S. population, 9% Indian, 4% Other) recruited from Amazon's Mechanical Turk (MTurk) in return for monetary compensation. This website is a platform that connects people willing to perform tasks on their computer, such as taking a survey, with those who need these tasks performed. Previous studies have supported the validity of results obtained using MTurk (Paolacci & Chandler, 2014; Shapiro, Chandler, & Mueller, 2013). To ensure sufficient data quality, we included an attention check ("Mark strongly agree to show that you are paying attention") and removed those that failed the attention check. All statistics, including sample size, reflect the sample after removing these participants. Prior authors have supported this sample size to provide accurate CFA results when models are relatively simple (Brown, 2014; Hair, Black, Babin, Anderson, & Tatham, 2010), as seen in the current study. Regression imputation was used to address missing data.

Procedure

Participants signed-up for the study via MTurk. They provided their digital informed consent, completed the survey, and were disclosed about the purpose of the study.

Measures

The Courage Measure. The 6-item reduced version of the CM was administered. An example item is "I tend to face my fears."

Analysis

Using AMOS 24, a CFA was performed with each item loading onto a single latent factor. We applied prior recommendations (Brown, 2014; Hair et al., 2010) for satisfactory model fit cutoffs (SRMR ≤ .05; RMSEA ≤ .05; CFI ≥ .95; NFI ≥ .95; GFI ≥ .95; $\chi^2/df \leq 2{:}1$).

Results and Discussion

All model fit indices met their respective cutoffs for satisfactory fit (SRMR = .02; RMSEA = .04; CFI = 1.00; NFI = .99; GFI = .98; χ^2 = 13.374, df = 9). Each standardized item loading was strong (Table 1). The Cronbach's alpha of the reduced CM was .90. These results confirm the factor structure of the reduced CM and shows that no problematic items need to be removed.

Table 1
Standardized item loadings in Study 1

Variable	Standardized loading
Item 1	.812
Item 2	.869
Item 3	.605
Item 4	.813
Item 5	.764
Item 6	.872

Study 2 – The Convergent and Discriminant Validity of the CM

Study 1 supported the psychometric properties of the reduced CM and suggests that future research using the scale may be appropriate. In Study 2, we test the convergent validity of both the full and reduced CM with the PDF dimension of the MPS. In doing so, we aim to support that the CM indeed measures PDF. We test both versions of the CM because prior research has predominantly applied the full CM, and thereby prior research using the full CM may generalize to PDF studies; however, future research may prefer to apply the abbreviated version that has previously correlated .92 with the full version (Howard & Alipour, 2014), and supporting the reduced CM may benefit future research and practice.

Method

Participants

Study 2 included 229 participants (M_{age} = 37.60, SD_{age} = 11.03; 51% female; 93% U.S. population, 5% Indian, 2% Other) recruited from MTurk in return for a small amount of monetary compensation. We removed those that participated in Study 1, failed either attention check, and/or did not complete both surveys (described below). All statistics, including sample size, reflect the sample after removing these participants. This sample size has been shown to provide accurate results of HTMT ratio of correlations (Henseler et al., 2015).

Procedure

Participants signed-up for the study via MTurk. They provided their digital informed consent and completed a survey with demographic information alone. One day later, they were sent a second survey that included the measures below. Upon completion, they were disclosed about the purpose of the study.

Measures

The Courage Measure. The full 12-item version of the CM was administered (α = .93), which also contains the 6 items of the reduced version (α = .88).

Multidimensional Persistence Scale. The 15-item MPS was administered, which includes the dimensions of PDF (α = .93), PDD (α = .83), and IP (α = .79). An example item for the PDF dimension is, "If something is scary, I will do it anyways." An example item for the PDD dimension is, "Even if something is hard, I will keep trying at it." An example item for the IP dimension is, "I will keep trying at something, even if I know my actions are worthless."

Analysis

HTMT ratios were calculated in SPSS 24 using the guidelines of Henseler and colleagues (2015). To calculate HTMT ratios, the average item cross-correlations are divided by the average item intercorrelations for two measures. If the resultant ratio is greater than .85, then the discriminant validity of the two measures is not supported. In other words, two scales can be considered to gauge the same construct (Henseler et al., 2015).

Results and Discussion

Correlations and Cronbach's alphas are provided in Table 2. The average item intercorrelations of the full CM was .52, the average item intercorrelations for the PDF dimension of the MPS was .73, and the average item cross-correlations of the two was .62. This resulted in a HTMT ratio of .98, supporting that the

full CM and the PDF dimension measure the same construct. The average intercorrelations of the reduced CM was .55, and its average cross-correlations with the PDF dimension was .66. This resulted in a HTMT ratio of 1.03, again supporting that the reduced CM and the PDF dimension measure the same construct. It should be highlighted that the average cross-correlations of the two measures were greater than the average intercorrelations of the CM (both full and reduced), providing more substantial support that they gauge the same construct. Lastly, the HTMT ratios of both the full CM (PDD = .73; IP = .10) and the reduced CM (PDD = .75; IP = .14) with the PDD and IP dimensions supported the discriminant validity of the measures.

TABLE 2
Correlations and Cronbach's alphas of Study 2

	1	2	3	4	5
1. Full CM	.93				
2. Reduced CM	.96**	.88			
3. PDF	.92**	.94**	.93		
4. PDD	.64**	.64**	.65**	.83	
5. IP	.08	.12	.11	.15*	.79

Note. CM = Courage Measure; PDF = Persistence Despite Fear; PDD = Persistence Despite Difficulty; IP = Inappropriate Persistence.
*p < .05. **p < .01.

GENERAL DISCUSSION

The current article accomplished two primary goals. It provided appropriate psychometric evidence for the factor structure of the reduced CM, which supports future applications of the scale. The current article also showed that both the full and reduced CM converges with the PDF dimension of the MPS, suggesting that the CM indeed measures PDF. At the same time, the CM was shown to *not* converge with the other dimensions of the MPS, providing evidence for the discriminant validity of the full and reduced CM. Together, the CM was supported to be a suitable measure of PDF, and several implications should be considered given these findings.

Most importantly, prior research using the CM should be integrated with current research on persistence and PDF. First, several prior studies have linked the CM to emotional well-being, coping, and other positive outcomes (Ginevra et al., 2018; Howard & Alipour, 2014; Magnano et al., 2017). These studies suggest that the construct measured by the CM enables people to be more resilient to negative external stimuli, which is now supported to be PDF. Therefore, PDF may be an important individual difference that enables positive well-being and the ability to cope with negative stimuli, but further research is needed to support this notion.

Second, future research should investigate the relationship of PDF in well-being in specialized populations. Wetterneck and colleagues (Wetterneck, Lee, Smith, & Hart, 2013) observed a negative relationship between the CM and obsessive-compulsive disorder (OCD). The authors suggested that the construct measured by the CM may not prevent OCD, per se, but it may instead reduce the symptoms of OCD. Further research can identify whether this is true through the lens of PDF.

Third, modern conceptualizations of courage have been linked to work outcomes (Detert & Bruno, 2017; Howard, Farr, Grandey, & Gutworth, 2017; Magnano, Santisi, Zammitti, Zarbo, & Di Nuovo, 2019),

but some research has linked the CM to career adaptability (Ginevra et al., 2018). This finding suggests that PDF may enable employees to better navigate their careers, which has been shown to result in better occupational outcomes and even life satisfaction (Ginevra et al., 2018). PDF should be linked to career outcomes in future research.

Lastly, the current study has limitations that provide future research opportunities. While self-report data is often utilized, this method of data collection is not without flaws. Self-reported PDF and the behavioral expression of persisting despite fear are not the same. Future research should be conducted to collect data from multiple sources via multiple methods (e.g., observations) to see if the results are consistent across research designs.

Conclusion

While courage was once considered persistence despite fear, recent studies have disputed this definition and provided empirical support for other conceptualizations (e.g., Rate et al. 2007). The current article demonstrated that the CM, based on this prior definition, measures the construct of PDF. Future research can integrate prior findings using the CM into the future study of persistence and PDF, therefore opening many avenues for future research.

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