Physical courage predicts relevant outcomes in associated contexts: The creation of a measure and empirical analysis into the construct

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ABSTRACT

The disregard of physical courage in modern research prevents a complete understanding of employee success in the many occupations that include physical dangers, such as military personnel, firefighters, nurses, police officers, athletes, performance artists, and blue-collar workers. To address this concern, the current article undergoes a four-study process to create the Physical Courage at Work Scale (PCWS) and provides evidence for its relationship with important employee behaviors and performance. Two empirical studies test whether the PCWS, while controlling for conscientiousness and social courage, relates to organizational citizenship behaviors, voice, counterproductive work behaviors, and performance. The empirical studies show that the PCWS does not relate to these outcomes in a general employee sample; however, it does relate to organizational citizenship behaviors, voice, and performance in a sample of United States Air Force Academy cadets. Physical courage does not predict all outcomes broadly, but it instead predicts relevant outcomes in associated contexts.

Recent years have seen a proliferation of academic and professional interest in employee courage, and authors have noted how employees regularly undergo circumstances that require courage to perform the appropriate behaviors (Koerner, 2014; Pury & Lopez, 2010; Schilpzand, Hekman, & Mitchell, 2014). Authors in this area have also suggested that courage is multidimensional, and people may readily perform certain types of courageous behaviors but retreat from others (Howard, Farr, Grandey, & Gutworth, 2017; Snyder, 2010; Woodard & Pury, 2007). While the number and nature of these proposed dimensions differ, the dimension of physical courage appears in almost all discussions. Physical courage is a deliberate and voluntary act that endangers the actor's physical well-being for the potential benefit of others. In agreement with prior courage research, those more frequently performing physical courage behaviors are believed to possess the trait of physical courage (Pury & Starkey, 2010; Rate, 2010; Rate, Clarke, Lindsay, & Sternberg, 2007; Sekerka, Bagozzi, & Charnigo, 2009).

Despite its popularity, the empirical study of physical courage has not seen widespread attention in academic journals. Two primary issues may have led to this dearth of research. First, no supported measure of employee physical courage exists, leaving researchers unable to gauge the construct. Second, some authors consider physical courage to be less important to the modern workforce compared to prior generations (Clancy, 2003; Kidder, 2003; Lachman, 2007). These authors claim that

prior occupations were more physically dangerous, but improvements to occupational safety and global shifts from manufacturing to service economies have caused employees in most occupations to no longer consider their physical well-being to be a concern.

In the current article, we argue that the dismissal of physical courage prevents a complete understanding of employee success in the many occupations that still include physical dangers. For example, many blue-collar employees must risk performing hazardous duties with physical consequences and potentially life-threatening accidents on a daily basis, and they must also consider the long-term health implications of their work (Biron, Bamberger, & Noyman, 2011; Harrell, 1990; Rose, 2009). Likewise, employees in dangerous occupations such as military personnel, firefighters, nurses, police officers, athletes, performance artists, and blue-collar workers must endure daily risks to their physical well-being (Klockars, Ivković, & Haberfeld, 2007; Obama, 2009; Pury, Kowalski, & Spearman, 2007). In these occupations, employees may be required to set-aside their physical well-being to perform required job activities and extra-role behaviors – often at a cost to themselves for the benefit of their organization. While physical courage may not be important to *all* occupations, it may be extremely important to many critical occupations.

Given these considerations, the goal of the current article is to prompt a more widespread study of employee physical courage. To do

so, we first discuss courage, the dimensionality of courage, and the implications of physical courage to the modern work environment. Then, we review the measurement of courage and its dimensions, followed by a multi-study process to create a scale that is psychometrically sound and valid for gauging employee physical courage across any occupation. This process is followed by two studies to determine the relationships between employee physical courage and work outcomes. We show that, when accounting for conscientiousness and social courage, physical courage is related to certain work outcomes in a sample of United States Air Force cadets but is not related to these same and other similar outcomes in a sample of general employees. Lastly, we integrate these results with modern research and practice on courage to inform and inspire future investigations.

Through these efforts, the current article contributes to the literature by providing empirical support—perhaps for the first time—for the existence of physical courage, developing a satisfactory scale to allow future research and practice regarding physical courage to progress more easily, and offering evidence to highlight the importance of physical courage and promote its future study. From these contributions, physical courage can now be incorporated into broader research and theory regarding the multidimensional construct of courage as well as the study of dangerous occupations. It is possible, if not probable, that physical courage is a primary determinant of effective employees in these occupations; unfortunately, it is currently missing from relevant conceptual discussions and empirical research. Relatedly, calls have been made for research about the influence of positive organizational behavior concepts on employee performance (Luthans, 2002; Luthans & Youssef, 2007; Magnano, Santisi, Zammitti, Zarbo, & Di Nuovo, 2019). We provide inferences regarding the manner in which one of these concepts may influence performance, highlighting the predictive ability of such concepts and providing a deeper understanding of performance itself. Thus, not only does the current article further research on courage, but it also provides important implications for organizational behavior scholarship and beyond.

1. Background

The importance of courage has been discussed for centuries, but authors have only recently begun to agree on a common definition for the construct (Pury & Lopez, 2010; Snyder & Lopez, 2009). Initially, authors defined courage as a personal characteristic to identify people who are different from the rest, but these definitions were typically based on vague qualities that could not be clearly ascribed to anyone. In modern research, definitions that treat courage as a process are more prevalent (Pury & Starkey, 2010; Rate, 2010; Rate et al., 2007). These definitions identify aspects of behaviors that separate courageous from non-courageous acts, and these definitions are based on observable characteristics that provide clear guidelines for inclusive behaviors. People who repeatedly perform these behaviors are considered courageous, which provides a basis for identifying the trait of courage (Howard et al., 2017; Pury & Starkey, 2010; Rate, 2010; Rate et al., 2007; Sekerka et al., 2009). Thus, process definitions describe observable behaviors that can more easily be labeled as courageous, and they allow researchers and practitioners to attribute the trait of courage to people who perform these behaviors.

Of these process definitions, Rate et al.'s (2007) conceptualization is among the most popular and empirically supported (Hannah, Avolio, & May, 2011; Howard & Alipour, 2014; Howard et al., 2017; Rate, 2010; Sekerka et al., 2009). They define courage as, "(a) A willful, intentional act, (b) executed after mindful deliberation, (c) involving objective substantial risk to the actor, (d) primarily motivated to bring about a noble good or worthy end" (Rate et al., 2007, p. 95). In studies that have applied this definition, "noble good or worthy end" has often been considered synonymous with prosocial, and the primary motivator of a courageous behavior must be the benefit of others (Howard et al., 2017; Sekerka et al., 2009). Thus, courage is an (a) intentional, (b) deliberate,

and (c) risky behavior that is (d) primarily motivated for prosocial reasons.

Using this definition and similar others, authors have identified many important personal and organizational outcomes that appear to be habitually achieved by courageous employees. Koerner (2014) provided qualitative evidence that employees' work identity is influenced by performing courageous behaviors, indicating that employees alter their perceptions of themselves through their courage. These self-perceptions subsequently influence the outcomes these employees choose to achieve, often promoting the attainment of difficult goals (Koerner, 2014). Likewise, Howard et al. (2017) showed a particular dimension of courage, social courage, is related to organizational citizenship behaviors (OCBs) and prosocial rule breaking (PSRB), even when controlling for conscientiousness. Several others have suggested that courage is predictive of specific workplace behaviors, such as whistleblowing (Berry, 2004; Faunce, Bolsin, & Chan, 2004), as well as more general outcomes, such as performance (Hannah et al., 2011; Snyder & Lopez, 2009). In short, courage is believed to produce positive work outcomes.

Further, courageous employees are believed to engage in these behaviors due to systematic differences in their decision making (Pury et al., 2007; Pury & Starkey, 2010; Van Eerde & Thierry, 1996). Many psychological theories assert, or assume, that people are rational actors who weigh the risks relative to the benefits when deciding to perform an intentional and deliberate behavior (e.g., expectancy theory; Vroom & Jago, 2007; Vroom & Yetton, 1973). If the risks are greater than the benefits, then people refrain from performing the behavior. For a courageous behavior, the risks are primarily to oneself and the benefits are primarily for others. People would often refrain from performing such behaviors, as the personal risks are greater than the personal benefits. Courageous people, however, are more likely to perform these behaviors because they see the benefits to others as greater than the risks to themselves. Thus, courage may emerge due to differences in beliefs regarding personal risks and benefits for others.

Despite the tendency of courageous people to consistently approach certain prosocial and risky goals, these people may not approach *all* prosocial and risky goals in a similar manner. For this reason, it is important to consider the dimensionality of courage.

1.1. Physical courage

Authors have suggested that people may perform certain courageous behaviors while retreating from others and certain types of courageous behaviors may have larger organizational influences than others (Howard et al., 2017; May, 1994; Magnano et al., 2019; Schilpzand, 2008; Woodard & Pury, 2007). Both of these suggestions indicate that courage is not a unidimensional construct. Instead, courage may contain multiple distinct dimensions that can be studied separately or aggregated together to create the construct of general courage. Further, several authors (May, 1994; Schilpzand, 2008; Woodard & Pury, 2007) have argued that the dimensions of courage are defined by the risks involved, but these prior discussions differ by the number and nature of these dimensions. For instance, Woodard and Pury (2007) proposed courage may be defined by physical, emotional, or social risks; Schilpzand (2008) suggested courage can be defined by physical, entrepreneurial, or social risks; and May (1994) considered courage to be defined by physical, moral, or social risks. Regardless of the other dimensions, physical and social courage repeatedly appear across these discussions of courage (Howard et al., 2017; Rate, 2010; Rate et al., 2007), providing support for their possible existence as unique dimensions.

Physical courage is a courageous behavior in which the risks involved are to the actor's physical well-being (Hannah et al., 2011; Harbour & Kisfalvi, 2014; Lachman, 2007), and it is expressed in an array of behaviors. Blue-collar employees often work physically taxing jobs to provide for their family, and they must consider the physical ramifications of their occupations (Biron et al., 2011; Harrell, 1990;

Rose, 2009). For instance, they may endure repetitive strain injuries from performing similar physical activities daily. While these physical risks are not immediate, many of these employees perform intentional, deliberate, and physically risky behaviors motivated by prosocial reasons. Further, several authors have investigated the influence of coworkers in addressing employee aggression (Glomb & Liao, 2003; Greenberg & Barling, 1999; Hershcovis et al., 2007). Coworker influences may even involve intervening to prevent an immediate threat, such as disarming a shooter. In addressing aggression to protect others, the coworkers must perform intentional, deliberate, and physically risky behaviors that are motivated by prosocial reasons. Lastly, physical courage has always been associated with certain dangerous occupations. Employee success in these occupations is assumed to require physical courage, because members must put their well-being aside to perform the basic duties of their job. Thus, physical courage appears to be important to an array of outcomes across many occupations.

Further, while courage dimensions are most often defined by the risks, some authors have speculated that these dimensions may also have sub-dimensions, and these sub-dimensions have been further differentiated by the more specific risks, type of behavior, or benefiter (Pury & Lopez, 2010; Snyder & Lopez, 2009; Woodard & Pury, 2007). For instance, physical courage may include the sub-dimensions of physical courage to benefit one's family, to benefit one's friends, and/or to benefit society. Despite these suggestions, the sub-dimensions of any courage dimension have yet to be empirically supported, and none appear regularly across discussions of physical courage. For this reason, we do not hypothesize sub-dimensions of physical courage, but note it is possible that any physical courage measure may include multiple sub-dimensions.

Before physical courage can be empirically studied, a measure is needed. We review current courage measures to determine whether it is necessary to develop a new physical courage measure, as well as to identify the best approaches to developing a courage measure.

1.2. Courage measurement

Several researchers have created scales to gauge courage and/or particular courage dimensions, but some of these scales have notable concerns and have seen little application. Particularly, these scales are single-item measures, irrelevant to work settings, and/or have poor psychometric properties (Kilmann, O'Hara, & Strauss, 2010; Schmidt & Koselka, 2000). Only three scales gauge courage at the individual-level, are applicable to work settings, and have prior empirical support (Howard et al., 2017; Norton & Weiss, 2009; Woodard & Pury, 2007).

The first is the Courage Measure (CM; Norton & Weiss, 2009), which is a 12-item scale to gauge general courage. An example item is, "I will do things even if they seem to be dangerous." In creating their scale, Norton and Weiss (2009) showed that the CM significantly correlated with participants' willingness to approach a spider. A follow-up analysis, however, showed the CM does not gauge courage but instead gauges risk-taking or trait-persistence (Howard & Alipour, 2014). This likely occurred due to the operational definition applied during the creation of the scale, "persistence or perseverance despite having fear" (Norton & Weiss, 2009, p. 214). Items gauging "persistence or perseverance despite having fear" may not necessarily measure courage, as this definition does not include any prosocial elements. Subsequent authors appear to agree with this assessment of the CM (Detert & Bruno, 2017; Howard & Crayne, 2019; Koerner, 2014; Magnano, Paolillo, Platania, & Santisi, 2017; Schilpzand et al., 2014).

The second is the Woodard-Pury Courage Scale 23 (WPCS-23; Woodard & Pury, 2007), which is a 23-item scale to gauge multiple dimensions of courage. In the initial investigation into the scale's psychometric properties, many of the items loaded onto multiple factors, and the creators could not provide clear labels to each factor. The item cross-loadings and unclear factor structure poses large concerns, as authors cannot draw clear inferences regarding courage or its

dimensions when applying the measure. These concerns likely arose from the authors' attempt to create a scale to gauge multiple broad courage dimensions (e.g., physical, social, moral), and they suggested future research should create scales that solely gauge a single dimension.

The third is the Workplace Social Courage Scale (WSCS; Howard et al., 2017), which is an 11-item scale to gauge social courage at work. Social courage is defined as, "a courageous behavior in which the risks involved could damage the actor's esteem in the eyes of others" (Howard et al., 2017, p. 676) A multiple-study process showed that the WSCS has a clear unidimensional factor structure as well as satisfactory convergent, discriminant, and concurrent validity. Further, two follow-up empirical studies demonstrated that the WSCS was significantly related to important employee and organizational outcomes. While several causes may have contributed to the successful creation of the WSCS, Howard et al. (2017) suggest the primary causes were creating a scale to gauge a single courage dimension and a close adherence to prior scale development suggestions (Clark & Watson, 1995; Hinkin, 1995, 1998). Thus, focusing on a single dimension, such as physical courage, may be the most fruitful approach to creating a courage scale (Howard et al., 2017; Norton & Weiss, 2009; Woodard & Pury, 2007).

With these prior scale development efforts taken into consideration, it is clear that no measure currently exists to gauge employee physical courage. Due to the potential importance of physical courage for employee success in many occupations, the current article undergoes a multiple study process to develop an employee physical courage scale. To do so, we follow the suggestions of prior authors (Clark & Watson, 1995; Hinkin, 1995, 1998; Worthington & Whittaker, 2006), such as developing a scale to only gauge a single dimension of courage (Woodard & Pury, 2007). We also use prior scale development efforts as a guide (Ferris, Brown, Berry, & Lian, 2008; Howard et al., 2017). We then apply the scale to understand the importance of physical courage for an array of employee and organizational outcomes in both a general employee sample as well as a sample with particular relevance to physical courage.

2. Scale development

The current scale development effort consists of four phases, as suggested by prior authors (Hinkin, 1995, 1998). In the first phase (Item Generation), an over-representative list of items is created to ensure the entire content domain of employee physical courage is measured. In the second phase (Study 1), this over-representative item list is reduced through exploratory factor analysis (EFA), and an initial factor structure is identified. In the third phase (Study 2), the factor structure of the reduced item list is confirmed through confirmatory factor analysis (CFA), and the finalized employee physical courage scale is created. In the fourth phase (Study 3), the relationship of the newly created scale with theoretically-related measures is tested.

2.1. Item generation

To develop the initial over-representative item list, the current authors created items modeled after prior discussions and qualitative investigations into courage and physical courage. For instance, Koerner (2014) provided a narrative in which a firefighter risked their life to save a fellow firefighter, which prompted the creation of an item that read, "If I thought others' lives were at risk at work, I would risk my life to protect them." Further, these items were created with particular scale instructions in mind, which read, "…some of these behaviors refer to being currently employed. You should NOT answer these questions with your current job or workgroup in mind. Instead, respond based on how you would act in a workplace after working there for five years." This decision was based on the instructions of Howard et al. (2017) scale, as they noted various environmental factors could affect whether an employee performs a courageous behavior. By asking participants to

consider a more general workplace environment, a self-reflective and more accurate assessment of trait courage can be obtained. Likewise, the scale does not inquire regarding prior courage behaviors because certain workplaces may provide few opportunities to perform courageous behaviors, and thereby individual's responses to the scale would again be dictated by their workplaces.

Further, these items were also created with a particular structure in mind. Howard et al. (2017) also noted that a courage scale should include items emphasizing a personal risk and a prosocial or noble outcome, and they did so by including two parts (behavior and qualifier) to each WSCS item. These authors showed that an alternative version of the WSCS did not produce a theoretically-supported factor structure or expected relationships when these two distinct parts were not included in each item. The same approach is taken for developing the current over-representative item list, and each item includes a part that describes a behavior (and the associated prosocial or noble outcome) and a qualifier (and the associated risk).

After developing this initial list, emails were sent to eight subject matter experts. These emails provided a definition of physical courage and asked participants to judge the content validity of the item list. These experts were chosen due to their current or prior experience in occupations believed to require physical courage, including military solider, firefighter, nurse, investigative journalist, service employee, blue-collar employee, and white-collar employee in a self-described extreme toxic work environment[2]. Most of these expert participants indicated that the item-list was sufficient, but some provided example behaviors and/or items not included in the initial item list. These examples were then used to develop further items, resulting in a final over-representative item list of 55 items to be tested in the subsequent series of studies.

2.2. Scale development study 1 – exploratory factor analysis

An EFA was chosen to reduce the item list. EFA is used to identify the underlying factor structure of a measure as well as the relation of each item to these underlying factors (Brown, 2015; Hinkin, 1995, 1998; Howard, 2016). Items weakly related to the emergent factors or strongly related to several factors should be removed from the over-representative item list.

2.2.1. Participants

Participants ($N = 362$, $M_{age} = 34.79$, $SD_{age} = 11.45$, 40% female, 93% American; 88% currently working) were recruited from Mechanical Turk (MTurk) and provided monetary compensation. MTurk is an online platform connecting individuals willing to perform small tasks on their computer, such as taking a survey, with those who need these tasks performed. Studies have shown results using MTurk to be valid (Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014; Shapiro, Chandler, & Mueller, 2013). Participants who failed an attention check were removed (e.g., "Mark agree to show that you are paying attention"). All statistics, including sample size, reflect the sample after removing these participants.

2.2.2. Procedure

Participants signed-up for the study via MTurk. They provided their digital informed consent and completed the survey online. Then, they were debriefed about the project.

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[2] Regarding the latter of these, the white-collar employee claimed that their work environment included multiple coworkers that could react with physical aggression when crossed – often towards someone sticking up for others. Many behaviors in their work environment, especially those performed for prosocial reasons, were met with physical risks. Therefore, the white-collar employee was ideal for identifying physical courage behaviors.

2.2.3. Measures

Employee Physical Courage. The 55 created physical courage items were administered.

2.2.4. Results and discussion

Following the suggestions of prior authors (Hinkin, 1995, 1998; Howard, 2016), principal axis factoring with direct oblimin rotation was applied, and a visual scree plot analysis was used to determine the number of emergent factors. The initial eigenvalues suggested the item-list contained either three or five factors, as an "elbow" occurred after both the third and fifth factor (*Eigenvalues* = 29.082, 5.600, 2.327, 1.609, 1.314, 1.055, 0.891…). When analyzing the two solutions, each factor could be clearly interpreted in both solutions. Also, the fourth and fifth factors were well above the Keiser criterion. Although this criterion has been criticized, these results indicate the eigenvalues for the fourth and fifth factors were large enough to be considered meaningful. For this reason, we chose to interpret the five-factor solution.

Items were removed in a stepwise manner using Howard (2016) 0.40-0.30-0.20 criterion. This criterion suggests items should only be retained if they load greater than 0.40 onto their intended factor, less than 0.30 on all other factors, and the difference between the primary loading and all cross-loadings is greater than 0.20. Fifteen items were removed during this process. In the reduced item list, fourteen items represented the first factor, four items represented the second factor, seven items represented the third factor, six items represented the fourth factor, and nine items represented the fifth factor. Four additional items were removed from the first factor due to their conceptual overlap with other retained items and strong inter-item correlations, resulting in ten items representing the first factor. This process produced a reduced item list of 36 items.

The reduced item list had a clear five-factor solution (Eigenvalues = 18.880, 3.769, 1.968, 1.454, 1.257, 0.714, 0.616…), and each item loaded strongly with minimal cross-loadings (Table 1). Before interpreting these factors, we further reduce and confirm the item list.

2.3. Scale development study 2 – confirmatory factor analysis

After finding initial support for the factor structure, it is necessary to confirm the result through CFA (Brown, 2015; Hinkin, 1995, 1998; Hu & Bentler, 1999; Jackson, Gillaspy, & Purc-Stephenson, 2009).

2.3.1. Participants

Sample A. Participants (N = 351, $M_{age} = 35.54$, $SD_{age} = 11.42$, 43% female, 86% American; 93% working) were recruited from MTurk and provided monetary compensation. Those that failed an attention check and/or reported participating in Study 1 were removed. All statistics, including sample size, reflect the sample after removing these participants.

Sample B. Participants (N = 325, $M_{age} = 33.84$, $SD_{age} = 10.33$, 39% female, 80% American; 93% working) were recruited from MTurk and provided monetary compensation. Participants who failed an attention check and/or reported participating in Study 1 or Sample A were removed. All statistics reflect the sample after removing these participants.

2.3.2. Procedure

Participants signed-up for the study via MTurk. They provided their digital informed consent and completed the survey online. Then, they were debriefed about the project.

2.3.3. Measures

Employee Physical Courage. The 36 items from Study 1 were administered in Study 2.

Table 1
Exploratory factor analysis results of Study 1.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Item 1	0.909				
Item 2	0.858				
Item 3	0.792				
Item 4	0.785				
Item 5	0.763				
Item 6	0.762				
Item 7	0.740				
Item 8	0.732				
Item 9	0.723				
Item 10	0.667				
Item 11		0.836			
Item 12		0.779			
Item 13		0.775			
Item 14		0.755			
Item 15			0.929		
Item 16			0.818		
Item 17			0.813		
Item 18			0.803		
Item 19			0.721		
Item 20			0.666		
Item 21	0.293		0.657		
Item 22				0.839	
Item 23				0.805	
Item 24				0.743	
Item 25				0.735	
Item 26	0.228			0.578	
Item 27	0.290			0.569	
Item 28					0.878
Item 29					0.804
Item 30					0.785
Item 31					0.749
Item 32					0.724
Item 33					0.723
Item 34					0.723
Item 35					0.715
Item 36					0.552

Note - Item loadings below 0.20 not shown.

2.3.4. Results and discussion

A multiple-imputation method using a maximum likelihood function was used to address all missing data. To perform the CFA, five first-order factors and one second-order factor were modeled, and each item loaded onto its respective factor identified in Study 1. Model fit cutoffs were based suggestions of prior authors (CFI > 0.95, TLI > 0.95, RMSEA < 0.08; SRMR < 0.05; χ^2/df < 3; Brown, 2015; Hinkin, 1995, 1998; Hu & Bentler, 1999; Jackson et al., 2009).

Using Sample A, overall model fit fell short of the cutoffs (CFI = 0.91, TLI = 0.91, RMSEA = 0.08; SRMR = 0.07; χ^2/df = 3.23). Because all items loaded strongly onto their respective factors (> 0.78), those with extreme modification indices (> 20) were removed in a stepwise manner until none remained. This resulted in the removal of three items from the first factor, one item from the third factor, and two items from the fifth factor. The final model fit indices met or closely approached all cutoffs (CFI = 0.95, TLI = 0.94, RMSEA = 0.07; SRMR = 0.07; χ^2/df = 2.54), and each item loaded strongly onto its respective factor (> 0.78).

These results were replicated with Sample B[3]. Again, the overall model fit indices met or closely approached all cutoffs (CFI = 0.94, TLI = 0.93, RMSEA = 0.07; SRMR = 0.07; χ^2/df = 2.58), and each item loaded strongly onto its respective factor (> 0.77). Seven items represent the first factor, four items represent the second factor, six items represent the third factor, six items represent the fourth factor, and seven items represent the fifth factor (30 total; Appendix A). Each

[3] Due to a technical error, an item from the second factor was not included in the survey to Sample A. This item was included in the survey to Sample B, and was retained in the final scale administered in subsequent studies.

of these first-order factors strongly related to the second-order factor (> 0.39). Each of these item and factor loadings are reported in Supplemental Material A.

When interpreting these factors, it appears the first factor includes physical courage behaviors that help society in general. Each of these items reference performing physical courage behaviors with a general intended benefiter, such as "society", "others", and "my community". The second factor includes physical courage behaviors to report the violations of coworkers, such as "drinking on the job", "doing drugs on the job", and "committing fraud". The third factor includes physical courage behaviors to provide for one's family. Each of these items specify performing dangerous acts to help "my family" or "those that I care about". The fourth factor includes physical courage behaviors counteracting an immediate danger, and these items are characterized by the words "protect" and "save". The fifth factor includes physical courage behaviors to address aggression from coworkers or customers. Each of these items describe "calming", "confronting", "addressing", or "reprimanding" an aggressive, angry, or rude person. In respective order, we label these factors as: Helping Society, Reporting Violations, Providing for Family, Immediate Danger, and Other's Aggression.

These results indicate the dimensionality of physical courage is nuanced. Prior authors have suggested sub-dimensions of particular courage dimensions (e.g., physical courage) may be defined by the type of behavior, the risks involved, the benefiter, or a combination of these (May, 1994; Schilpzand, 2008; Woodard & Pury, 2007). These results suggest the dimensions of physical courage may be defined by all three. The Reporting Violations dimension represents a type of behavior; the Immediate Danger and Other's Aggression dimension represents types of risks; and the Helping Society and Providing for Family dimensions represent types of benefiters. Alternatively, these dimensions may also be defined by the goal of the actor – whether ending violations, stopping danger, addressing aggression, helping society, or providing for family. Defining courage by associated goals is relatively uncommon in prior research (Howard et al., 2017; Magnano et al., 2019), but it may represent a fruitful future direction in discovering and labeling courage dimensions. While these dimensions can be labeled and matched with aspects of courage, it should be questioned why these specific dimensions arose.

We suggest that, in the context of physical courage, these are the aspects of behaviors that may be most salient to actors, and therefore they have the greatest influence on whether a person performs a courageous behavior. For instance, some people may perform a courageous behavior if they believe it will result in a positive outcome for their family, whereas these same people may not perform the same behavior if it only results in a positive outcome for people outside their family. For this reason, the factor of Providing for Family emerged as a clear dimension. Similarly, these emergent factors also illustrated the aspects of items that do not impact the dimensionality of physical courage. Some items specified the risk involved was long-term in nature, such as repetitive injury. These items did not result in their own factor, suggesting whether the risk is long-term does not significantly alter people's decision to perform a physically courageous behavior. Thus, these emergent dimensions are able to be labeled appropriately and appear to be theoretically supported by prior research on courage, suggesting that the created item list may be an adequate measure for physical courage at work. Henceforth, this item list is entitled the Physical Courage at Work Scale (PCWS).

2.4. Scale development study 3 – Convergent and discriminant validity

With the psychometric properties of the PCWS supported, we investigate the convergent and discriminant validity of the PCWS in Study 3.

2.4.1. Participants

Participants (N = 79, M_{age} = 33.71, SD_{age} = 9.67, 39% female,

99% American; 91% currently working) were recruited from MTurk and provided monetary compensation. Participants who failed an attention check and/or reported participating in any prior study were removed. All statistics reflect the sample after removing these participants.

2.4.2. Procedure

Participants signed-up for the study via MTurk. They provided their digital informed consent, and completed the survey online. Then, they were debriefed about the project.

2.4.3. Measures

Physical Courage at Work Scale. The 30-item PCWS was administered.

Workplace Social Courage Scale. The 11-item Workplace Social Courage Scale (WSCS) was administered (Howard et al., 2017). An example item is, "Although it makes me look incompetent, I would tell my coworkers when I've made a mistake."

The Courage Measure. While the validity of the CM has concerns (Howard & Alipour, 2014), it likely gauges aspects of courage and/or closely-related constructs. For this reason, we administered Norton and Weiss's (2009) CM. An example item is, "I would describe myself as chicken" (reverse coded).

Risk Taking. The Risk-Behavior Scale (Weber, Blais, & Betz, 2002) was administered, which gauges several dimensions of risk-taking tendencies. These dimensions include: ethical, financial, health/safety, recreational, and social risk taking. An example item is, "Going whitewater rafting during rapid water flows in the spring."

Prosocial Motivation. Grant's (2008) four item measure was used to measure prosocial motivation at work. An example item is, "Because I want to help others through my work."

2.4.4. Results and discussion

Correlations and Cronbach's alphas are provided in Table 2. Because the dimensions of the PCWS contained a different number of items,

overall physical courage was calculated by averaging the dimension scores rather than the individual items. Overall physical courage and each dimension had moderate to strong correlations with the CM ($r = 0.32 – 0.51$, $p < 0.01$). While the CM may not measure courage, this result still supports the convergent and discriminant validity of the PCWS. Overall physical courage and four-of-five dimensions had moderate to strong correlations with the WSCS ($r = 0.33 – 0.47$, $p < 0.01$). Again, this result supports the convergent and discriminant validity of the PCWS.

Of the risk-taking dimensions, physical courage has the closest theoretical relationship with recreational risk taking and health/safety risk tasking. Recreational risk taking involves risks to physical well-being for entertainment reasons, such as bungee jumping, piloting a small plane, or going whitewater rafting. Health/safety risk tasking involves risks to physical well-being for a variety of reasons, such as not wearing a seatbelt, not using sunscreen, or consuming excessive alcohol. Overall physical courage and four-of-five dimensions had moderate to strong correlations with recreational risk taking ($r = 0.23–0.57$, $p < 0.05–0.01$), and the dimension of reporting violations had a marginally significant relationship ($r = 0.22$, $p < 0.10$). Overall physical courage and three-of-five dimensions had moderate to strong correlations with health/safety risk taking ($r = 0.29–0.52$, $p < 0.05–0.01$), and the dimension of other's aggression had a marginally significant relationship ($r = 0.22$, $p < 0.10$). These results support the PCWS's concurrent validity.

Overall physical courage and the providing for family dimension had moderate correlations with prosocial motivation ($r = 0.27–0.32$, $p < 0.05–01$). The immediate danger and other's aggression had marginally significant relationships with prosocial motivation ($r = 0.20–0.21$, $p < 0.10$). While these results are smaller than expected, they are comparable to the relationship of the WSCS with prosocial motivation ($r = 0.35$, $p < 0.01$). Also, the prosocial motivation measure was in regards to motivation for working in general. Many of the PCWS items refer to behaviors that occur at work but are not necessarily the primary purpose for one's work. For instance, an

Table 2
Correlations and Cronbach's alphas of Study 3.

	1	1a	1b	1c	1d	1e	2	3	4	5	6	7	8	9	10
1.) Overall Physical Courage	.96														
1a.) Helping Society	.74**	.96													
1b.) Reporting Violations	.66**	.31**	.82												
1c.) Providing for Family	.78**	.61**	.36**	.93											
1d.) Immediate Danger	.85**	.61**	.42**	.54**	.92										
1e.) Other's Aggression	.75**	.30**	.42**	.45**	.63**	.97									
2.) Ethical Risk Taking	.20†	.44**	-.07	.20†	.15	.02	.89								
3.) Investment Risk Taking	.15	.17	.08	.15	.12	.05	.23*	.78							
4.) Gambling Risk Taking	.27*	.41**	.04	.23*	.23*	.13	.59**	.40**	.95						
5.) Health/Safety Risk Taking	.41**	.52**	.08	.44**	.29*	.22†	.67**	.15	.51**	.77					
6.) Recreational Risk Taking	.51**	.57**	.22†	.45**	.46**	.23*	.45**	.15	.32**	.59**	.85				
7.) Social Risk Taking	.27*	.05	.22†	.27*	.15	.33**	.13	.33**	.17	.23*	.33**	.78			
8.) Prosocial Motivation	.27*	.14	.13	.32**	.20†	.21†	-.12	.13	-.00	-.07	.05	.35**	.98		
9.) The Courage Measure	.51**	.32**	.37**	.41**	.51**	.33**	-.16	.06	-.02	.04	.34**	.14	.28*	.90	
10.) Social Courage	.45**	.09	.47**	.33**	.37**	.45**	-.23*	.18	-.05	-.07	.12	.53**	.35**	.49**	.89

†p < .10 *p < .05 **p < .01

employee with physical courage may report other's violations, but this would likely not be a primary motivating factor for their work. With these factors taken into consideration, these results support the concurrent validity of the PCWS.

Lastly, while many of these relationships were strong, none were strong enough to suggest that the PCWS was repetitive with prior measures. Thus, the discriminant validity of these PCWS was supported, and the scale is suitable for gauging workplace physical courage.

3. Empirical studies – criterion-related validity and utility

After supporting the psychometric properties and validity of the PCWS, the current article analyses the relationship of physical courage with certain employee behaviors related to performance, including voice, organizational citizenship behaviors (OCBs), prosocial rule breaking (PSRB), and counterproductive work behaviors (CWBs). These variables were chosen due to prior research on courage (Howard et al., 2017; Koerner, 2014; Schilpzand et al., 2014). Specifically, these authors have suggested that going above-and-beyond at work (e.g. voice, OCBs, & PSRB) often requires courage to strive through personal risks and resisting the temptation to perform detrimental behaviors at work (e.g. CWBs) may likewise require courage.

In the first empirical study, these relationships are analyzed in a general sample to understand the influence of physical courage on general employees. These relationships are also analyzed while controlling for social courage and conscientiousness to identify the unique influence of physical courage beyond established constructs. Because prior authors have dismissed the importance of physical courage to the modern workforce (e.g., Clancy, 2003; Kidder, 2003; Lachman, 2007), these relationships are not expected to be statistically significant.

In the second empirical study, we again analyze these relationships but use a sample that may particularly benefit from physical courage: military cadets at the U.S. Air Force Academy. Because military members encounter situations that may require setting aside their physical well-being for others, these relationships are expected to be statistically significant. Further, in the cadet sample, we analyze the relationship between physical courage and supervisor-rated performance. This relationship was also derived from prior research on courage, and we predict a positive and statistically significant relationship between physical courage and performance.

Hypothesis 1:. *In a general employee sample, physical courage does not have a significant relationship with (a) voice, (b) OCBs, (c) PSRB, or (d) CWBs when controlling for social courage and conscientiousness.*

Hypothesis 2:. *In a sample of U.S. Air Force Academy cadets, physical courage has a positive and significant relationship with (a) voice, (b) OCBs, (c) PSRB, (d) CWBs, and (e) performance when controlling for social courage and conscientiousness.*

3.1. Empirical study 1 – general employees

3.1.1. Participants

Participants (N = 170, M_{age} = 35.47, SD_{age} = 11.10, 41% female, 81% American; 100% currently working) were recruited from MTurk and provided monetary compensation. Participants who failed any attention checks and/or reported participating in any prior study were removed. All statistics reflect the sample after removing these participants.

3.1.2. Procedure

Participants signed-up for the study via MTurk. They provided their digital informed consent and completed the survey online. Then, they were debriefed about the project.

3.1.3. Measures

Physical Courage at Work Scale. The 30-item PCWS was administered.

Workplace Social Courage Scale. The 11-item WSCS was used (Howard et al., 2017).

Conscientiousness. The eight conscientiousness items from Saucier (1994) Minmarkers were administered. This scale asks participants how well certain adjectives describe themselves, and example adjectives are, "organized", "efficient", and "systematic".

OCBs. The 13-item scale created by Williams and Anderson (1991) was administered. This scale asks participants about their frequency of performing certain behaviors. An example item is, "Helps others who have heavy workloads".

CWBs. The 19-item scale created by Bennett and Robinson (2000) was administered. This scale also asks participants about their frequency of performing certain behaviors. An example item is, "Made fun of someone at work".

Voice. The 6-item scale created by Van Dyne and LePine (1998) was administered. An example item is, "I get involved in issues that affect the quality of work-life here in this group".

PSRB. The 13-item scale created by Dahling, Chau, Mayer, and Gregory (2012) was administered. An example item is, "I break rules that stand in the way of good customer service".

3.1.4. Results and discussion

Correlations and Cronbach's alphas are provided in Table 3. Any participant's scale scores more than four standard deviations away from the sample mean were removed from analyses. This was not done in the previous studies because no participant's scale scores were four standard deviations away from the sample mean. Overall physical courage had significant and small-to-moderate relationships to OCBs ($r = 0.19$, $p < 0.05$) and voice ($r = 0.21$, $p < 0.01$), and it was not significantly related to CWBs ($r = 0.12$, $p > 0.05$) or PSRB ($r = 0.11$, $p > 0.05$). Regression results of overall physical courage, social courage, and conscientiousness predicting outcomes are provided in Table 4. When accounting for these other two variables, overall physical courage was not significantly related to OCBs ($\beta = 0.086$, $p > 0.05$), CWBs ($\beta = 0.147$, $p > 0.05$), voice ($\beta = 0.071$, $p > 0.05$), or PSRB ($\beta = 0.060$, $p > 0.05$). These results suggest physical courage is largely unrelated to important employee behaviors in general work environments. All relationships of physical courage were no longer significant when controlling for social courage and conscientiousness, whereas these other two predictors had significant relationships with outcomes when analyzed together. Thus, in a sample of general employees, physical courage did not show consistent and theoretically-supported relationships with any outcome.

3.2. Empirical study 2 – U.S. Air Force Academy cadets

3.2.1. Participants

The second empirical study examined a sample of 368 cadets at the U.S. Air Force Academy (hereafter referred to as the Academy). The Academy is a four-year college and military training institution; upon graduation, students (cadets) commission as officers in the U.S. Armed Forces. In addition to their academic course requirements, cadets also serve in formal job positions that provide a structure for military training and administrative duties in a traditional top-down, military hierarchy. Although the Academy is an academic institution, these functional job duties and formal structures differentiate this organizational field sample from that of a traditional-college-based sample of undergraduate students and provide a context for assessing organizational behaviors and performance. The Academy was deemed to be a relevant occupational environment for physical courage because members are selected based on pertinent traits and attributes and routinely challenged to develop knowledge, skills, abilities, and other competencies required to be effective military officers. For example,

Table 3
Correlations and Cronbach's alphas of empirical Study 1.

	1	1a	1b	1c	1d	1e	2	3	4	5	6	7
1.) Overall Physical Courage	.95											
1a.) Helping Society	.75**	.95										
1b.) Reporting Violations	.56**	.17**	.90									
1c.) Providing for Family	.71**	.46**	.21**	.94								
1d.) Immediate Danger	.82**	.72**	.23**	.44**	.96							
1e.) Other's Aggression	.76**	.34**	.42**	.44**	.56**	.95						
2.) Social Courage	.32**	.03	.39**	.20*	.16*	.38**	.90					
3.) Conscientiousness	-.02	-.08	.25**	-.12	-.12	.00	.19*	.91				
4.) OCBs	.19*	.06	.21**	.09	.13	.19*	.38**	.20**	.76			
5.) CWBs	.12	.23**	-.03	.05	.14†	.06	-.14†	-.42**	-.28**	.96		
6.) Voice	.21**	.03	.23**	.12	.17*	.20*	.50**	.25**	.55**	-.24**	.94	
7.) PSRB	.11	.08	-.10	.14†	.13†	.12	.08	-.30**	-.16*	.53**	.05	.96

†p < .10 *p < .05 **p < .01

cadets' experiences include components relevant to physical risk and courage such as piloting aircraft, skydiving, physical competitions, survival in extreme and stressful environments, and armed- and un-armed-combat.

Among the 368 cadets in this sample, 240 were male (65%) and 127 were female (35%). The sample's racial composition was 288 White (78%), 22 Black/African American (6%), 35 Asian (10%), and 23 respondents reported "other" (6%). The mean age for the sample was 19.62 years (*SD* = 1.36). Finally, 252 of these cadets were freshmen (69%), 0 were sophomores (0%), 113 were juniors (31%), and 0 were seniors (0%). Because the subject pool was comprised of cadets in freshmen- and junior-level academic courses, this distribution was

expected. Those that failed any attention checks were removed to avoid potentially careless data, and all statistics reflect the sample after removing these participants.

3.2.2. Procedure

A research subject pool coordinator, who was not involved directly with the study, e-mailed participation requests to 1,576 cadets enrolled in one of three core courses in psychology or leadership required for all academic majors at the Academy. Participants received extra credit in exchange for voluntarily completing the online survey. We received 427 survey responses and excluded 59 participants who failed any attention check. This adjustment garnered the final sample of 368

Table 4
Regression results of empirical Study 1.

	OCBs				CWBs			
	Step 1		Step 2		Step 1		Step 2	
	β	t	β	t	β	t	β	t
Constant		6.178**		5.473**		8.644**		7.595**
1.) Social Courage	.359	4.937**	.330	4.258**	-.053	-.737	-.104	-1.371
2.) Conscientiousness	.128	1.755	.135	1.853	-.406	-5.617**	-.393	-5.461**
3.) Physical Courage			.086	1.130			.147	1.966
ΔR²		.16		.01		.18		.02
	Voice				PSRB			
	Step 1		Step 2		Step 1		Step 2	
	β	t	β	t	β	t	β	t
Constant		2.254*		1.797		6.247**		5.643**
1.) Social Courage	.534	6.872**	.433	6.088**	.139	1.854	.118	1.478
2.) Conscientiousness	.211	2.209*	.225	2.299*	-.328	-4.368**	-.323	-4.273**
3.) Physical Courage			.071	1.038			.060	.769
ΔR²		.27		.01		.11		.00

†p < .10 *p < .05 **p < .01

participants and represented a final response rate of 23 percent. All participants provided informed consent and were debriefed about the project.

3.2.3. Measures

In addition to the measures detailed below, the same scales from Empirical Study 1 were applied in Empirical Study 2; however, due to the sensitive nature of certain items in a military environment, some items had to be removed from the scales. One item had to be removed from the PCWS, and three items had to be removed from the CWB scale.

Job Performance. In-role job performance was measured using each cadet's Grade Point Average (GPA) and Military Performance Average (MPA). A cadet's GPA is equivalent to those in traditional colleges and derived from academic course grades evaluated by the cadet's academic faculty (scaled from 0.00 to 4.00). A cadet's MPA is similar to, but determined independently from, academic GPA and is composed of objective and subjective evaluations of military job performance from multiple raters (scaled from 0.00 to 4.00). For example, subjective components are comprised of qualitative and behaviorally-anchored ratings from the cadet's active-duty commanding military officer, the cadet's immediate cadet supervisor, a senior cadet rater in the cadet's chain of command, and academic instructors' evaluations of the cadet's professional military conduct in the classroom. Objective rating components consist of elements such as the cadet's military knowledge test scores, room inspections, and personal appearance inspections. GPA and MPA demonstrated a correlation of 0.39.

Physical Education Average. Physical fitness was included as a performance dimension because of its commensurate importance with GPA and MPA for this military cadet population when determining Academy cadets' overall performance rankings among their peers. All Academy cadets are required to participate in core physical education courses, intramural sports, athletic clubs, and/or intercollegiate athletics in each of their eight academic semesters. Proficiency is also required in both the physical fitness test (PFT) and aerobic fitness test (AFT). The PFT includes pull-ups, push-ups, crunches, a long jump, and a 600-yard run. The AFT is a separate 1.5-mile run. Cadets are required to take the PFT and AFT each semester and remain proficient to graduate. Athletic proficiency for graduation is demonstrated by meeting the minimum standard of a 2.0 cumulative Physical Education Average (PEA). PEA is weighted on a 4.0 grading scale (50% PFT + 35% Physical Education courses + 15% AFT).

3.2.4. Results and discussion

A CFA was first conducted to confirm the factor structure of the PCWS in the Academy sample. A multiple imputation method was used to address missing data. To perform the CFA, five first-order factors and one second-order factor were modeled, and each item loaded onto its respective factor identified in Study 1. The same model fit cutoffs from Study 2 were applied in the current study. The overall model fit indices met or approached all cutoffs (CFI = 0.91, TLI = 0.91, RMSEA = 0.08; SRMR = 0.08; χ^2/df = 3.18), and each item loaded strongly onto its respective factor (> 0.72). One modification indicator was very large (80). The two respective error terms were associated with items loading onto the same first-order factor, and prior authors have suggested that allowing such error terms to covary is appropriate (Brown, 2015; Kline, 2015). Once covaried, the model fit improved (CFI = 0.93, TLI = 0.92, RMSEA = 0.07; SRMR = 0.08; χ^2/df = 2.91). Together, the factor structure was again supported.

Correlations and Cronbach's alphas are provided in Table 5. Any participant's scale scores more than four standard deviations away from the sample mean were removed from analyses. Overall physical courage had significant and moderate relationships to OCBs ($r = 0.26$, $p < 0.01$) and voice ($r = 0.29$, $p < 0.01$), and had a marginally significant and small relationship to MPA ($r = 0.10$, $p < 0.10$). Physical courage was not significantly related to CWBs ($r = 0.00$, $p > 0.05$), PSRB ($r = 0.01$, $p > 0.05$), GPA ($r = 0.04$, $p > 0.05$), or

PEA ($r = 0.04$, $p > 0.05$). Regression results of overall physical courage, social courage, and conscientiousness predicting outcomes are provided in Table 6. When accounting for these other two variables, overall physical courage was significantly related to OCBs ($\beta = 0.145$, $p < 0.01$), MPA ($\beta = 0.125$, $p < 0.05$), and CWBs ($\beta = 0.160$, $p < 0.01$). Physical courage was not significant with voice ($\beta = 0.089$, $p > 0.05$), PSRB ($\beta = 0.085$, $p > 0.05$), GPA ($\beta = 0.076$, $p < 0.10$), or PEA ($\beta = 0.043$, $p > 0.05$).

Lastly, our analyses tested whether the cadet sample had greater physical courage than the general employee sample. A two-sample t-test revealed that the two groups significantly differed in their PCWS scores ($t = -14.981$, $p < 0.01$), with the cadet sample (*mean* = 5.45, *SD* = 0.85) having greater scores than the general employee sample (*mean* = 4.05, *SD* = 1.10).

These results provide evidence to suggest physical courage is indeed related to important outcomes in a relevant context, as it was related to OCBs and performance (MPA) even when accounting for social courage and conscientiousness. The non-significant results also suggest, however, physical courage is significantly related to only relevant outcomes in these relevant contexts. Physical courage was not significantly related to voice, PSRB, or physical fitness (PEA); these outcomes were shown to be more relevant to social courage and/or consciousness. Therefore, physical courage is not a panacea for prediction in these contexts—nor was it claimed to be—but is instead a suitable predictor of relevant outcomes in these relevant contexts.

It should also be highlighted that physical courage is significantly and positively related to CWBs when controlling for social courage and conscientiousness. It is difficult to ascertain a clear justification for this finding, but suggestions can be provided. Risk-taking or impulsivity may relate more strongly to physical courage than social courage and consciousness. If so, then the relationship between physical courage and CWBs may be due to their common association to risk-taking or impulsivity, which both relate to CWBs. The relationships of physical courage may also reflect one's tendency to perform risky behaviors, rather than doing so for prosocial or duty-driven reasons, when controlling for social courage and conscientiousness. Physical courage may not necessarily relate to negative outcomes, although this possibility cannot be ruled out with the present data. Further considerations regarding this effect are provided below.

4. General discussion

We argued that physical courage is an understudied construct that could pose important implications for specific occupations. Although physical courage has been denounced by some as useless to the modern workplace, we recognize many occupations still pose physical risks to their employees, including, military personnel, firefighters, nurses, athletes, performance artists, police officers, and blue-collar workers. Therefore, it is important to study physical courage to fully detail the nature of performance across a broader range of occupations. We set many goals to contribute to our understanding of physical courage, which included the provision of a satisfactory measurement tool, an informed investigation into the previously unexplored dimension of physical courage, and results regarding the relationships of physical courage to workplace outcomes in different contexts.

Each of these goals were achieved. The background section discussed courage, the dimensionality of courage, the measurement of courage, and the implications of physical courage to the modern workforce. A four-phase process resulted in a scale that is psychometrically sound and valid for gauging employee physical courage across any occupation. Two final studies determined the relationship of employee physical courage with work outcomes, and these studies showed, when accounting for conscientiousness and social courage, physical courage is related to certain work outcomes in a context relevant to physical courage (a sample of United States Air Force Academy cadets) but not related to these outcomes in a sample of

Table 5
Correlations and Cronbach's alphas of empirical Study 2.

	1	1a	1b	1c	1d	1e	2	3	4	5	6	7	8	9
1.) Overall Physical Courage	.77													
1a.) Helping Society	.76**	.92												
1b.) Reporting Violations	.66**	.27**	.90											
1c.) Providing for Family	.49**	.53**	.21**	.92										
1d.) Immediate Danger	.76**	.58**	.33**	.49**	.94									
1e.) Other's Aggression	.72**	.35**	.54**	.39**	.44**	.95								
2.) Social Courage	.52**	.30**	.44**	.30**	.36**	.56**	.85							
3.) Conscientiousness	.08	.01	.09	.05	.09†	.14**	.23**	.82						
4.) OCBs	.26**	.19**	.17**	.18**	.29**	.16**	.32**	.35**	.73					
5.) CWBs	.00	.14**	-.22**	.06	-.01	-.04	-.25**	-.31**	-.24**	.83				
6.) Voice	.29**	.19**	.23**	.17**	.27**	.23**	.44**	.23**	.52**	-.17**	.87			
7.) PSRB	.01	.04	-.17**	.08	.04	.04	-.11*	-.22**	-.17**	.43**	-.10*	.96		
8.) MPA	.10†	.19**	-.01	.10†	.14**	-.07	-.04	.13*	.16**	-.06	.06	-.16**	N/A	
9.) GPA	.04	.10†	-.02	.06	.08	-.04	.00	.22**	.12*	-.09†	-.07	.02	.37**	N/A
10.) PEA	.04	.09†	.01	.01	-.01	.01	.02	.14**	.03	-.01	-.01	-.02	.17**	.17**

†p < .10   *p < .05   **p < .01

Table 6
Regression results of empirical Study 2.

	OCBs					CWBs			
	Step 1		Step 2			Step 1		Step 2	
	β	t	β	t		β	t	β	t
Constant		7.965**		6.316**			14.704**		12.492**
1.) Social Courage	.253	5.215**	.177	3.144**		-.179	-3.560**	-.263	-4.529**
2.) Conscientiousness	.292	6.013**	.298	6.173**		-.270	-5.368**	-.264	-5.285**
3.) Physical Courage			.145	2.624**				.160	2.811**
ΔR²				.02**					.01**

	Voice					PSRB			
	Step 1		Step 2			Step 1		Step 2	
	β	t	β	t		β	t	β	t
Constant		4.428**		3.444**			9.228**		7.904**
1.) Social Courage	.409	8.548**	.361	6.435**		-.062	-1.185	-.107	-1.754†
2.) Conscientiousness	.138	2.891**	.141	2.963**		-.199	-3.804**	-.196	-3.742**
3.) Physical Courage			.089	1.627				.085	1.427
ΔR²				.01					.01

	MPA					GPA			
	Step 1		Step 2			Step 1		Step 2	
	β	t	β	t		β	t	β	t
Constant		26.773**		23.684**			10.188**		8.850**
1.) Social Courage	.006	.118	-.061	-.952		-.055	-1.034	-.096	-1.540
2.) Conscientiousness	.124	2.266*	.130	2.389*		.229	4.311**	.232	4.369**
3.) Physical Courage			.125	2.002*				.076	1.250
ΔR²				.01*					.01

	PEA			
	Step 1		Step 2	
	β	t	β	t
Constant		11.596**		10.274**
1.) Social Courage	-.009	-.170	-.032	-.507
2.) Conscientiousness	.147	2.711**	.149	2.742**
3.) Physical Courage			.043	.682
ΔR²				.00

†p < .10   *p < .05   **p < .01

general employees. The creation of the PCWS allows future research to empirically study physical courage. Similarly, identifying physical courage as a possible predictor of employee performance and OCBs in relevant occupations emphasizes the importance of the construct for future research. These achievements produce many implications and future research directions that should be discussed.

4.1. Implications and future directions for research

While physical courage has repeatedly been included in courage typologies, the current article is perhaps the first to provide empirical evidence for the existence of a clearly defined and differentiated physical courage construct. Prior proposals about physical courage can now be empirically investigated. Koerner (2014) qualitatively supported that courageous actions shift people's identities, but this work focused on social courage in white-collar environments. Future research should test whether similar shifts to identities occur after physical courage behaviors in other work contexts, such as a blue-collar environment. For instance, a firefighter may view themselves as a "true" firefighter only after fighting their first fire. Likewise, several authors have proposed that courage may have several mediators between the trait and important organizational outcomes (Detert & Bruno, 2017; Magnano et al., 2019; Schilpzand et al., 2014), and the most important effects of courage may be its influence on others. That is, while courageous behaviors may directly improve the immediate environment, they may also encourage others to likewise improve their environments to produce broader social change. This notion has been especially suggested with physical courage, such as a soldier's courage inspiring others to fight harder (Sekerka et al., 2009). Now that a physical courage measure exists, these notions can be quantitatively investigated.

In the present article, physical courage was identified as a predictor of important employee outcomes in a relevant occupation. This finding indicates physical courage may serve as an important and understudied predictor, which should be incorporated into relevant theoretical frameworks regarding performance in these occupations. Of perhaps most relevance, many prior authors have asserted members of the military and police force must possess certain characteristics uncommon in the general population, such as the ability to handle stress under pressure and unsafe conditions (Gordon & Leighty, 1988; Turnbull, 1992). The PCWS may prove to be a useful measure to predict these aspects of the criterion space.

Furthermore, it should be highlighted that behavioral expressions of certain PCWS dimensions may be a part of assigned job duties in some occupations, whereas other dimensions may be observed as extra-role behaviors in most any occupation. For instance, helping society and providing for family despite physical risks may be inherent in some prescribed job duties, but reporting violations can appear in most any workplace environment. Future researchers should investigate the differing emergence of the PCWS dimensions across occupations – as either an inherent duty or an extra-role behavior. Doing so could develop sophisticated models wherein the dimensions of physical courage may include differing antecedents and outcomes, whether conceptualized as a behavior or a trait (discussed further below). Specifically, physical courage may more strongly relate to core performance in compulsory environments, whereas it may more strongly relate to OCBs in other workplaces.[4]

The current article also demonstrated a significant difference in the physical courage of general employees and Academy cadets. This suggests that physical courage may influence a person's occupational choice and perhaps even perceived fit. Further research is needed to confirm this proposal, but, if true, the PCWS could be applied to better understand employees' attractions (or avoidance) to certain dangerous occupations. Such investigations should incorporate the recent work of

Magnano et al. (2019), who provided support that general courage is associated with both perceived employability and meaningful work. Physical courage may strongly relate to variables associated with employment and career navigation outcomes in relevant contexts – such as dangerous occupations or industries.

It should be emphasized that all future research, whether regarding physical courage or otherwise, should place a greater focus on employees in these occupations. Gloss, Carr, Reichman, Abdul-Nasiru, and Oestereich (2017) demonstrated the majority of current empirical research in management and applied psychology focuses on "professionals who hold official jobs in a formal economy and who enjoy relatively safety from discrimination while also living in high-income countries" (p. 1). Lower-paying and/or blue-collar occupations are much less represented in management and applied psychology research. Physical courage, due to its integral importance to many of these occupations, could highlight how these occupations are unique and research should not assume their dynamics are identical to those occupations described by Gloss et al. (2017). Thus, physical courage could be an important spark to ignite the wider study of these occupations.

The current article also supported that physical courage is a multidimensional construct, in which different aspects determine its dimensionality. This forces future theoretical discussions of courage and, specifically, physical courage to be more nuanced, because not all dimensions of physical courage may have the same relationships with various outcomes. This was observed across the multiple studies within the current article, and the correlations of the dimensions were shown to differ as much as 0.36 for the same outcome in Empirical Studies 1 and 2. Furthermore, some of these dimensions appear to relate to more intense instances of courage (e.g., immediate danger), whereas other dimensions relate to less intense instances (e.g., helping society). The intensity of the courage behavior may be a primary source of these observed differences, but further research is needed to support this notion. Even yet, these dimensions may be defined by their common goals. Future research should test whether the dimensions of courage are indeed defined by their goals, which would be a relatively novel perspective in modern courage research (May, 1994; Schilpzand, 2008; Woodard & Pury, 2007), and whether these common goals determine the differential relationships of the dimensions. Therefore, future discussions and empirical research should consider differential predictions for these individual dimensions, in addition to approaches treating physical courage as a whole.

Similarly, the current article investigated the relationships of physical courage beyond social courage and conscientiousness. These analyses demonstrated that physical courage is distinct from social courage, and physical courage predicted important outcomes beyond social courage. This coincides with prior theoretical discussions of courage that suggest the construct is multidimensional and composed of social courage, physical courage, and additional courage dimensions (May, 1994; Schilpzand, 2008; Woodard & Pury, 2007). Further research should continue exploring these distinct dimensions of courage in a similar manner to the current article, testing their effects beyond the presently identified dimensions of courage. These studies should also assess the similarities and differences of these courage dimensions more in depth. Our applied conceptualization argues that courage dimensions are similar in their underlying prosocial motivation, whereas they differ by their associated risks. Employees who confront deviant coworkers despite the risk of assault are likely, to some extent, to also confront deviant coworkers despite risking their interpersonal relationships. Future research should test whether prosocial motivations explain any observed relationships between multiple types of courage as well as whether sensitivities to certain types of risk may explain their observed differences. Such studies can empirically confirm the presently- and frequently-applied conceptualization of courage (Rate, 2010; Rate et al., 2007).

Furthermore, investigating these dimensions can provide insights

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[4] We thank the reviewer for raising this possibility.

into Pury, Britt, Zinzow, and Raymond (2014) notion of blended courage. Pury and colleagues argued and qualitatively supported that certain behaviors simultaneously involve multiple types of courage and focusing on one type of courage may undermine the importance and situational influence of the others. We suggest that future investigations into physical courage should likewise involve social courage to assess the frequency and dynamics of a specific type of blended courage, which could produce differing antecedents and outcomes than one of these dimensions alone. Such assessments could also take an event-based approach, such that specific instances of physical, social, and other dimensions of courage could be closely examined, similar to the design applied by Pury and colleagues. Doing so could also satisfy the many calls on event-based research in management, applied psychology, and beyond (Morgeson, Mitchell, & Liu, 2015; McWilliams & Siegel, 1997; Schecter, Pilny, Leung, Poole, & Contractor, 2018).

Prior discussions of physical courage, particularly regarding foolhardiness, have also insinuated the construct may produce negative personal outcomes more often than other dimensions of courage. Foolhardiness involves behaviors that are unjustifiable because the risks so clearly outweigh the benefits (Lopez, O'Byrne, & Petersen, 2003). For example, a soldier running into battle to defend their unit or loved ones demonstrates physical courage, but a soldier running towards the opposing army alone may demonstrate foolhardiness. It is unclear why physical courage may be prone to foolhardy behaviors, but a possibility is the risks of physical courage being so large. That is, many physical courage behaviors may result in severe physical injury and/or death, and a behavior would thereby require the possibility of an extremely large benefit for it to be justifiable. Alternatively, other types of courage rarely result in such large outcomes. Social courage, while very important, may only result in the loss of friendships and/or social esteem, and thereby the benefits of social courage do not need to be large to justify these behaviors. Future research is needed, however, to determine whether physical courage does indeed result more often in negative outcomes and/or foolhardiness.

In addition, the current article solely discussed and investigated physical courage as a trait, but physical courage can also be treated as a behavior. Understanding behavioral physical courage may be an important endeavor within itself, as physical courage behaviors provide an overall good to the organization and/or society. Likewise, behavioral physical courage may be predicted by measurable antecedents in a similar manner to behavioral social courage (Howard & Cogswell, 2018), and behavioral physical courage could thereby be encouraged in organizational settings. Fortunately, the current article developed a scale with identical instructions to the WSCS, which can be easily modified to measure behavioral courage (Howard & Cogswell, 2018), and thereby future research can progress on this topic relatively easily.

While certain theoretical perspectives of courage were mentioned, the current article did not test the implications of a specific theory for our understanding of physical courage. No theory is currently dominant in courage research. Future research should explore the theoretical perspectives that may explain the dynamics of courage. Among these, the approach/avoidance framework may be particularly fruitful, as courage may represent a person's systematic tendency to value the benefits and/or devalue the detriments in their actions (Elliot, 2006; Elliot & Harackiewicz, 1996). Expectancy theory may also be apt for studying physical courage, as it has long been used to understand the occurrence of deliberate action (Van Eerde & Thierry, 1996; Vroom & Jago, 2007; Vroom & Yetton, 1973), and courage may just be systematic differences in people's perceptions regarding behaviors' valence, instrumentality, and expectancies. Of course, many other possibilities exist, and future authors should consider many other avenues.

4.2. Implications for practice

The current findings have several practical applications for the workforce. First, this article helps close the gap between scientists'

perceptions and practitioners' needs by helping researchers and organizational leaders better understand the relevance of physical courage in modern work environments. While scholars have neglected the importance of this construct, a recent study showed employee fatalities from work-related injuries in the United States have risen to their highest point since 2008 (Bureau of Labor Statistics, 2017). The modern workplace may be safer than in past generations, but many relevant occupations still carry tremendous physical risks beyond the general work environment. Empirical findings from the current article demonstrate the relevance of physical courage, which vary significantly across organizations.

Second, leaders who account for the unique challenges in their organizations may better predict outcomes associated with physical courage. Companies whose employees engage in hazardous duties or work under high-risk conditions may leverage the positive relationships between physical courage and desirable performance outcomes beyond those explained by social courage or conscientiousness. The relationship between physical courage and socially supportive contextual behaviors demonstrated in the present article will also appeal to leaders interested in increasing organizational citizenship behaviors in their relevant work environments.

Third, having a satisfactory measure of physical courage allows organizations to assess these traits among current and potential employees in a reliable and meaningful way. This quantitative measure offers many practical applications for employers engaging in recruitment activities, employment selection, team composition decisions, task design, mentoring, performance and developmental evaluations, or job analyses aimed at identifying and evaluating competencies and valuable incumbent traits. For instance, career counselors could use the PCWS to identify those that may be open to dangerous occupations (e.g., police and military).

These combined practical contributions extend beyond organizations seeking or integrating personnel into roles carrying occasional or moderate physical risks and challenges. Many modern vocations deal with physical danger as a core component of their daily activities. For example, Kolditz (2010) described *in extremis* settings where leaders and employees routinely and willingly work in dangerous situations involving tangible threats to life, limb, and psychological well-being. Of course, occupations such as law enforcement, firefighting, nursing, and the military come to mind, but these settings also include positions such as mountain guides, emergency first responders, parachute demonstration teams, dangerous industrial settings such as mining, and traditional blue-collar positions in factories and construction. By opening the scientific aperture to examine the modern workforce beyond white-collar organizations, investigations of physical courage can inform and enhance critical and challenging work environments to improve performance and potentially save lives.

4.3. Limitations and conclusion

The largest limitation of the current article is the use of single-source, cross-sectional designs, but certain aspects of the studies help alleviate some of these concerns. In Empirical Study 1, no significant effects of psychical courage were observed, and therefore the typical concern of single-source, cross-sectional designs (inflation due to common method bias) did not influence any interpretations. In Empirical Study 2, performance (i.e., MPA, GPA, and PEA) were measured via objective performance measures and/or subjective evaluations of others. In other words, Empirical Study 2 did not rely on the single-source, cross-sectional design. Further, self-reports of the studied employee behaviors have been *meta*-analytically shown to adequately converge with supervisor reports of these behaviors (Berry, Carpenter, & Barratt, 2012; Carpenter, Berry, & Houston, 2014), suggesting that the results of Empirical Studies 1 and 2 would not notably differ if supervisor ratings of these behaviors were obtained. Lastly, the predictors in each study (physical courage, social courage, and

conscientiousness) are all traits, and the outcomes were all behaviors. It is assumed that traits have a larger influence on behaviors than behaviors have on traits. While we cannot provide firm support for causality in the current studies, the theoretical rationale surrounding the investigated constructs can support some inferences.

Also, physical courage was observed to be a predictor of MPA, but not GPA and PEA. Because each of these were considered aspects of performance, it should be considered why physical courage only predicted one of the three measures. MPA is a combination of subjective supervisor ratings as well as objective ratings of their general performance, which includes assessments of their performance on military-focused evaluations or field activities that may be physically dangerous. MPA may be more relevant to physical courage due to its association with military-related activities, some of which involve dangerous components. On the other hand, GPA purely represents a cadet's performance in college courses, which largely reflects academic motivation and abilities. PEA purely represents a cadet's physical abilities. Academic and physical outcomes, even in a relevant context, may not require employees to perform physically risky behaviors for others, whereas their broader job duties, subjectively assessed by their supervisors, may indeed require such behaviors. In other words, both of these performance outcomes are not as relevant to physical courage as MPA. Thus, as repeatedly emphasized, physical courage is only a predictor of relevant employee outcomes – not all outcomes entirely.

Some researchers may desire a shorter measure of physical courage. Using Sample B from Study 2, we created reduced measures by selecting the five and three strongest-loading items from each factor. We then tested the correlation between the reduced and full measures (Supplemental Material B). The resulting correlations were each 0.97 or above, indicating that the reduced measures are almost statistically identical to the full measures. Therefore, authors can accurately study physical courage using either the 30-item full measure, the 25-item reduced measure, or the 15-item reduced measure (all provided in Appendix A).

We applied Rate (2010, Rate et al., 2007) definition of courage and considered "noble or worthy end" to be synonymous with prosocial. We recognize that some authors have used the term courage to describe behaviors that are not prosocial. For instance, these authors have considered mountain climbing and other extreme sports to be demonstrations of physical courage, although these behaviors are not prosocial (Lester & Pury, 2011; Whittington & Mack, 2010). Our current results may therefore not generalize to these studies using alternative conceptualizations of physical courage, and investigations to determine the generalizability of results derived from the PCWS may be an important avenue for future research.

To conclude, by discussing the nature of physical courage, creating a measure of physical courage, and showing that physical courage relates to certain outcomes in a relevant sample, future research can now progress more sophisticatedly, easily, and accurately. Ultimately, this allows both scholars and practitioners to understand and explore physical courage as an important and unique construct for predicting outcomes across modern work environments.

Appendix A

There are many risks that could be involved in workplace interactions. These risks could range from minor to severe, depending on the behavior. For the following, please rate your agreement that you would perform the following behaviors despite the risks involved.

Also, some of these behaviors refer to being currently employed. You should NOT answer these questions with your current job or workgroup in mind. Instead, respond based on how you would act in a workplace after working there for five years.

Helping society

1. Even if I thought a job had a high risk of injury, I would work it to contribute to society.[a]
2. I would work a job with a high chance of health problems to help my community.[a,b]
3. To contribute to society, I would work a job with a high rate of major injury.[a,b]
4. If I thought it was the best for my company, I would do a dangerous work assignment.
5. Even if it would cause severe long-term health problems, I would take a job to help others.[a,b]
6. Even if it would put me in physical distress, I would take a job to help my community.[a]
7. To help others, I would work a job with a risk of death.

Reporting violations

1. I would tell my company if I saw a coworker drinking on the job, even if I thought they would assault me.[a,b]
2. I would tell my company if I saw a coworker doing drugs on the job, even if I thought they would physically attack me.[a,b]
3. I would report a coworker committing fraud, even if I thought they might try to hurt me.[a,b]
4. I would report a coworker for stealing, even if I thought they would try to fight me.[a]

Providing for family

1. Even if I felt it was dangerous, I would work a job to provide for my family.[a]
2. I would work a physically taxing job to provide for my family, even if I knew it could cause health problems.
3. I would work an unsafe job to provide for my family.[a,b]
4. Even if a job would cause a repetitive injury, I would work it to provide for those I care about.[a,b]
5. Even if I knew a job would cause long-term injury, I would work a job to provide for my family.[a,b]
6. I would take a job in a dangerous location to provide for those that I care about.[a]

Immediate danger

1. I would take a physical risk at work in order to protect others.
2. If I thought others' lives were at risk at work, I would risk my life to protect them.[a]
3. I would put myself in harm's way to protect my coworkers.[a,b]
4. If I thought someone was about to be greatly injured at my workplace, I would throw myself in the line of danger to save them.[a,b]
5. I would risk my life at work to protect others.[a,b]
6. If an immediate danger arose at my job, I would sacrifice my life to save someone else.[a]

Other's aggression

1. I would address an upset customer, even if they may physically hurt me.
2. I would reprimand a rude employee, even if I thought it might put me at physical risk.
3. I would try to calm an angry employee, even if I thought they would physically fight me for it.[a]
4. Even if I had large concerns about my physical safety, I would address a customer that was causing a disruption.[a]
5. I would confront an aggressive employee, even if they might attack me.[a,b]
6. I would try to calm an angry customer, even if they might attack

me.[a,b]

7. I would confront a problem employee, even if it would put me in harm's way. [a,b]

[a]Item Included in five-item version of scale; [b]Item included in three-item version of scale.

Appendix B. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jbusres.2019.12.015.

References

Bennett, R., & Robinson, S. (2000). Development of a measure of workplace deviance. *Journal of Applied Psychology, 85*(3), 349.

Berry, B. (2004). Organizational culture: A framework and strategies for facilitating employee whistleblowing. *Employee Responsibilities and Rights Journal, 16*(1), 1–11.

Berry, C., Carpenter, N., & Barratt, C. (2012). Do other-reports of counterproductive work behavior provide an incremental contribution over self-reports? A meta-analytic comparison. *Journal of Applied Psychology, 97*(3), 613.

Biron, M., Bamberger, P., & Noyman, T. (2011). Work-related risk factors and employee substance use: Insights from a sample of Israeli blue-collar workers. *Journal of Occupational Health Psychology, 16*(2), 247.

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

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*(1), 3–5.

Bureau of Labor Statistics. (2017). Census of fatal occupational injuries summary, 2016. Retrieved from https://www.bls.gov/iif/.

Carpenter, N., Berry, C., & Houston, L. (2014). A meta-analytic comparison of self-reported and other-reported organizational citizenship behavior. *Journal of Organizational Behavior, 35*(4), 547–574.

Clancy, T. (2003). Courage and today's nurse leader. *Nursing Administration Quarterly, 27*(2), 128–132.

Clark, L., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309.

Dahling, J., Chau, S., Mayer, D., & Gregory, J. (2012). Breaking rules for the right reasons? An investigation of pro-social rule breaking. *Journal of Organizational Behavior, 33*(1), 21–42.

Detert, J. R., & Bruno, E. A. (2017). Workplace courage: Review, synthesis, and future agenda for a complex construct. *Academy of Management Annals, 11*(2), 593–639.

Elliot, A. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion, 30*(2), 111–116.

Elliot, A., & Harackiewicz, J. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*(3), 461.

Faunce, T., Bolsin, S., & Chan, W. (2004). Supporting whistleblowers in academic medicine: Training and respecting the courage of professional conscience. *Journal of Medical Ethics, 30*(1), 40–43.

Ferris, D. L., Brown, D. J., Berry, J. W., & Lian, H. (2008). The development and validation of the workplace ostracism scale. *Journal of Applied Psychology, 93*(6), 1348.

Glomb, T. M., & Liao, H. (2003). Interpersonal aggression in work groups: Social influence, reciprocal, and individual effects. *Academy of Management Journal, 46*(4), 486–496.

Gloss, A., Carr, S. C., Reichman, W., Abdul-Nasiru, I., & Oestereich, W. T. (2017). From handmaidens to POSH humanitarians: The case for making human capabilities the business of IO psychology. *Industrial and Organizational Psychology, 10*(3), 329–369.

Gordon, H. W., & Leighty, R. (1988). Importance of specialized cognitive function in the selection of military pilots. *Journal of Applied Psychology, 73*(1), 38.

Greenberg, L., & Barling, J. (1999). Predicting employee aggression against coworkers, subordinates and supervisors: The roles of person behaviors and perceived workplace factors. *Journal of Organizational Behavior, 20*(6), 897–913.

Hannah, S., Avolio, B., & May, D. (2011). Moral maturation and moral conation: A capacity approach to explaining moral thought and action. *Academy of Management Review, 36*(4), 663–685.

Harbour, M., & Kisfalvi, V. (2014). In the eye of the beholder: An exploration of managerial courage. *Journal of Business Ethics, 119*(4), 493–515.

Harrell, W. (1990). Perceived risk of occupational injury: Control over pace of work and blue-collar versus white-collar work. *Perceptual and Motor Skills, 70*(3 suppl), 1351–1359.

Hershcovis, M., Turner, N., Barling, J., Arnold, K., Dupré, K., Inness, M., ... Sivanathan, N. (2007). Predicting workplace aggression: A meta-analysis. *Journal of Applied Psychology, 92*(1), 228.

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of management, 21*(5), 967–988.

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational research methods, 1*(1), 104–121.

Howard, M. (2016). A review of exploratory factor analysis decisions and overview of current practices: What we are doing and how can we improve? *International Journal of Human-Computer Interaction, 32*(1), 51–62.

Howard, M., & Alipour, K. (2014). Does the courage measure really measure courage? A

theoretical and empirical evaluation. *The Journal of Positive Psychology, 9*(5), 449–459.

Howard, M., & Cogswell, J. (2018). The left side of courage: Three exploratory studies on the antecedents of social courage. *The Journal of Positive Psychology,* 1–17.

Howard, M. C., & Crayne, M. P. (2019). Persistence: Defining the multidimensional construct and creating a measure. *Personality and Individual Differences, 139*, 77–89.

Howard, M., Farr, J., Grandey, A., & Gutworth, M. (2017). The creation of the workplace social courage scale (WSCS): An investigation of internal consistency, psychometric properties, validity, and utility. *Journal of Business and Psychology,* 1–18.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling a multidisciplinary journal, 6*(1), 1–55.

Jackson, D., Gillaspy, J., Jr, & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: An overview and recommendations. *Psychological Methods, 14*(1), 6.

Kidder, R. (2003). *Moral courage.* New York: William Morrow.

Kilmann, R., O'Hara, L., & Strauss, J. (2010). Developing and validating a quantitative measure of organizational courage. *Journal of Business and Psychology, 25*(1), 15–23.

Kline, R. (2015). *Principles and practice of structural equation modeling.* Guilford Press.

Klockars, C., Ivković, S., & Haberfeld, M. (2007). *Enhancing police integrity.* Springer.

Koerner, M. (2014). Courage as identity work: Accounts of workplace courage. *Academy of Management Journal, 57*(1), 63–93.

Kolditz, T. (2010). *In extremis leadership: Leading as if your life depended on it.* John Wiley & Sons.

Lachman, V. (2007). Moral courage: A virtue in need of development? *Medsurg Nursing, 16*(2), 131.

Lester, P. B., & Pury, C. (2011). What leaders should know about courage. In P. J. Sweeney, M. D. Matthews, & P. B. Lester (Eds.). *Leadership in dangerous situations: A handbook for the armed forces, emergency services, and first responders.* Annapolis: Naval Institute Press.

Lopez, S., O'Byrne, K., & Petersen, S. (2003). Profiling courage.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior, 23*(6), 695–706.

Luthans, F., & Youssef, C. (2007). Emerging positive organizational behavior. *Journal of Management, 33*(3), 321–349.

Magnano, P., Paolillo, A., Platania, S., & Santisi, G. (2017). Courage as a potential mediator between personality and coping. *Personality and Individual Differences, 111*, 13–18.

Magnano, P., Santisi, G., Zammitti, A., Zarbo, R., & Di Nuovo, S. (2019). Self-perceived employability and meaningful work: The mediating role of courage on quality of life. *Sustainability (Switzerland), 11*(3), 764–778. https://doi.org/10.3390/SU11030764.

May, R. (1994). *The courage to create.* WW Norton & Company.

McWilliams, A., & Siegel, D. (1997). Event studies in management research: Theoretical and empirical issues. *Academy of Management Journal, 40*(3), 626–657.

Morgeson, F. P., Mitchell, T. R., & Liu, D. (2015). Event system theory: An event-oriented approach to the organizational sciences. *Academy of Management Review, 40*(4), 515–537.

Obama, B. (2009). President Barack Obama's inaugural address. Retrieved January 23, 2009.

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.

Paolacci, G., & Chandler, J. (2014). Inside the Turk: Understanding mechanical Turk as a participant pool. *Current Directions in Psychological Science, 23*(3), 184–188.

Pury, C. L., Britt, T. W., Zinzow, H. M., & Raymond, M. A. (2014). Blended courage: Moral and psychological courage elements in mental health treatment seeking by active duty military personnel. *The Journal of Positive Psychology, 9*(1), 30–41.

Pury, C., Kowalski, R., & Spearman, J. (2007). Distinctions between general and personal courage. *The Journal of Positive Psychology, 2*(2), 99–114.

Pury, C., & Lopez, S. (2010). *The psychology of courage: Modern research on an ancient virtue.* American Psychological Association.

Pury, C., & Starkey, C. (2010). Is courage an accolade or a process? A fundamental question for courage research. *The Psychology of Courage: Modern Research on An Ancient Virtue.*

Rate, C. (2010). Defining the features of courage: A search for meaning. The psychology of courage: Modern research on an ancient virtue.

Rate, C., Clarke, J., Lindsay, D., & Sternberg, R. (2007). Implicit theories of courage. *The Journal of Positive Psychology, 2*(2), 80–98.

Rose, M. (2009). Blue-collar brilliance: Questioning assumptions about intelligence, work, and social class. *The American Scholar, 78*(3), 43–49.

Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar big-five markers. *Journal of Personality Assessment, 63*(3), 506–516.

Schecter, A., Pilny, A., Leung, A., Poole, M. S., & Contractor, N. (2018). Step by step: Capturing the dynamics of work team process through relational event sequences. *Journal of Organizational Behavior, 39*(9), 1163–1181.

Schilpzand, P. (2008). *Personal courage: A measure creation study.* University of Florida.

Schilpzand, P., Hekman, D., & Mitchell, T. (2014). An inductively generated typology and process model of workplace courage. *Organization Science, 26*(1), 52–77.

Schmidt, N. B., & Koselka, M. (2000). Gender differences in patients with panic disorder: Evaluating cognitive mediation of phobic avoidance. *Cognitive Therapy and Research, 24*(5), 533–550.

Sekerka, L., Bagozzi, R., & Charnigo, R. (2009). Facing ethical challenges in the workplace: Conceptualizing and measuring professional moral courage. *Journal of Business Ethics, 89*(4), 565–579.

Shapiro, D. N., Chandler, J., & Mueller, P. (2013). Using mechanical Turk to study clinical populations. *Clinical Psychological Science, 1*(2), 213–220.

Snyder, N. (2010). *Vision, values, and courage: Leadership for quality management.* Simon and Schuster.

Snyder, C., & Lopez, S. (2009). *Oxford handbook of positive psychology.* USA: Oxford Press.

Turnbull, G. (1992). A review of military pilot selection. Aviation, space, and environmental medicine.

Van Dyne, L., & LePine, J. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal, 41*(1), 108–119.

Van Eerde, W., & Thierry, H. (1996). Vroom's expectancy models and work-related criteria: A meta-analysis. *Journal of Applied Psychology, 81*(5), 575.

Vroom, V., & Jago, A. (2007). The role of the situation in leadership. *American Psychologist, 62*(1), 17.

Vroom, V., & Yetton, P. (1973). Leadership and decision-making.

Weber, E., Blais, A., & Betz, N. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making, 15*(4), 263–290.

Whittington, A., & Mack, E. N. (2010). Inspiring courage in girls: An evaluation of practices and outcomes. *Journal of Experiential Education, 33*(2), 166–180.

Williams, L., & Anderson, S. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management, 17*(3), 601–617.

Woodard, C., & Pury, C. (2007). The construct of courage: Categorization and measurement. *Consulting Psychology Journal: Practice and Research, 59*(2), 135.

Worthington, R., & Whittaker, T. (2006). Scale development research a content analysis and recommendations for best practices. *The Counseling Psychologist, 34*(6), 806–838.

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