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ORIGINAL ARTICLE

Revisiting and Expanding Psychological Capital: Implications for Counterproductive Work Behaviour

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Abstract

The present research aims to (i) assess the suitability of psychological capital (PsyCap) in a non-Western world, i.e. Indian context, and (ii) to expand the PsyCap domain by testing suitability of flow as the next construct of PsyCap. Two independent quantitative studies were conducted to meet the above-stated aims. There were 906 and 302 participants in Studies 1 and 2, respectively. Standardized scales were used in both studies. Confirmatory factor analysis, confirmatory bifactor analysis, correlation, and hierarchical regression analysis were used. Study 1 results showed that PCQ-24 is valid in the Indian context only after the deletion of three negative items. PsyCap has been established as a second-order construct. PsyCap and flow were found to be closely associated with each other in Study 2. They were related to CWB as well. Flow predicted CWB over and above PsyCap. To the best of our knowledge, this is the first study to empirically establish that PsyCap is valid in India on a relatively larger sample, and it is indeed a second-order construct. Theoretical and empirical evidence was provided to support flow as the new PsyCap construct.

Keywords PsyCap · PCQ-24 · Flow · CWB · Confirmatory Bifactor analysis · Hierarchical regression analysis

Psychological capital (or PsyCap) has emerged as an influential contribution of the positive psychology movement to the field of organizational behaviour. Ever since it was introduced by Luthans and Youssef (2004), the construct has spawned numerous researches over the last decade and a half and has consistently shown its impact on performance and several other desirable employee outcomes (e.g. Luthans &

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Youssef-Morgan, 2017; Nolzen, 2018). However, most of these studies have been conducted in the Western world which led one of the major influencers of the PsyCap movement, Luthans and Youssef-Morgan (2017) to advocate its investigation in a non-Western context to make it more universal. They further argued that "positive psychology has been seriously scrutinized for its applicability and transferability across cultures" (p,355). Thus, the first aim of the present study is to assess the suitability of PsyCap in a non-Western context and specifically in the Indian context.

PsyCap encompasses the four core constructs of hope, self-efficacy, resilience, and optimism (HERO in brief) which have been explored and developed well by many researchers (e.g. Luthans and Youssef, 2007) . However, Luthans et al. (2015) have stated that these four constructs are not exhaustive and had identified nine potential PsyCap constructs such as *flow, creativity, mindfulness, gratitude, forgiveness, emotional intelligence, spirituality, authenticity, and courage* that could be included to expand the domain of PsyCap. To the best of our knowledge, there have been only three studies that have looked into the expansion of the construct of PsyCap (Roche et al., 2014; Bockorny, 2015; Oja et al., 2019) . Thus, the present study also aims to expand the PsyCap domain by testing the suitability of flow as the next construct of PsyCap.

Revisiting Psychological Capital

PsyCap is a higher-order construct comprising four resources hope, self-efficacy, resilience, and optimism (Luthans et al., 2004; Luthans and Youssef, 2004; Luthans et al., 2015) as mentioned above. There are at least five meta-analyses/review papers (Avey *et. al.,*2011; Dawkins et al., 2013; Newman et al., 2014; Luthans and Youssef-Morgan, 2017 & Wu & Nguyen, 2019) on PsyCap already published, and careful scrutiny of these reviews reveal that most of the quoted papers were of Western origin. There is evidence that the meaning and manifestations of positivity may be different or even contradictory (Fineman, 2006) in different cultures. Personal agency is at the core of all the four PsyCap constructs: efficacy hope, resilience, and optimism. However, the notion of an agency being a personal capability is a debatable one (Ratner, 2000) as the concept of self is not the same across cultures (Markus & Kitayama, 1991). Thus, there is a need to understand how positivity in general and PsyCap constructs in particular manifests and can be leveraged in different parts of the world (Luthans & Youssef-Morgan, 2017).

There is evidence that the most used measure of PsyCap which is PCQ-24 (2953 citations as per ResearchGate, 13 June 2022) had different factor structures than the original one proposed by Luthans et al. (2007), Luthans, Youssef, et al. (2007), Luthans Avolio, and Avey (2007)) in different parts of the world. Rego et al. (2010) found that instead of the four-factor model of PsyCap, a five-factor model showed higher validity. Du Plessis and Barkhuizen (2012) also found that the three-factor model of PsyCap is more suited in the South African context than a four-factor model. Sahoo and Sia (2015) found that the three-factor model was more apt than the single factor as well as the four-factor model. Antunes et al. (2017) reported a five-factor model solution for PCQ-24 in Portugal. However, the original four-factor

of PsyCap as measured by PCQ-24 was also found to be valid in many contexts (e.g. Cid et al., 2020). Imran and Shahnawaz (2020) found preliminary support for a four-factor structure model of PsyCap only when three of the negative items were removed but on a relatively small sample ($N=225$). Similar results were also found on the Lithuanian population (Dirzyte et al., 2021) and the Pakistani population (Abbasi et al., 2020) . It is evident from these studies that there is no consistency in the factor structure of the PsyCap measure in the different parts of the world (please check Appendix [Tables 7 and 8] for more information on these studies in both the Western and non-Western world respectively).

Moreover, PsyCap has been presented as a higher-order/second-order construct (Luthans Avolio, & Avey, 2007; Luthans et al., 2007; Luthans, Youssef, et al., 2007); however, there are some conflicting results as well (e.g. Upadhyay & Kumar, 2020) which led Dawkins et al. (2013) to conclude that, "more sophisticated analyses of the PCQ-24 are warranted to gain a better understanding of the interplay between the subcomponents of PsyCap and to further validate the use of a composite PCQ score" (p. 363). However, to the best of our knowledge, none of the published research so far used confirmatory bifactor analysis (CBA). It would be pertinent to report that CBA is the only way to test the clear-cut dimensionality of a construct as it allows items of a construct to be simultaneously loaded on a single construct (second-order) and also on the various dimensions of the construct (first-order) to get the insight as to how to conceptualize the construct (Hyland, 2015). Hence the present study aims to test the dimensionality of PCQ-24 in the Indian context by using sophisticated statistical analysis of CBA.

H1: PsyCap measure (PCQ-24) will be a valid tool in the Indian context.

Expansion of Psychological Capital

There have been calls made by the PsyCap core authorship team for the expansion of the PsyCap construct since 2007 (Luthans et. al., 2007, 2015). To the best of our knowledge, only three such attempts have successfully been made. Bockorny (2015) provided some evidence for the inclusion of courage in the PsyCap construct. Roche et al. (2014) investigated whether both PsyCap and mindfulness offered more to the psychological strength of the leader about their dysfunctional outcomes. Oja et al. (2019) proposed the inclusion of authenticity as another PsyCap (known as A-HERO) to improve sports employees' well-being. The authors, however, did not empirically test the inclusion of authenticity in PsyCap. Later on, it was empirically validated in a subsequent study by Kim et al. (2021) and the construct of A-HERO was found to increase the creativity of the sports employees. Thus, it is quite evident that research on the expansion of PsyCap is at a nascent stage. However, expanding PsyCap is a tricky idea as Dawkins et al. (2013) cautioned, "this needs to be undertaken carefully so to avoid pitfalls encountered by other paradigms, such as emotional intelligence" (p,352). Therefore, the present research also aims to expand the PsyCap construct by proposing to include flow as one of the new PsyCap in a very cautious manner. Presented below is a detailed analysis of how flow is meeting the

criteria to be included in PsyCap. Moreover, the conceptual overlap between flow and the other four constructs has also been discussed to justify the possibility of flow to be included in PsyCap. The inclusion of flow has also been tested empirically in the present research.

Meaning of Flow

Flow is one of the potential components of PsyCap as identified by Luthans et al. (2007), Luthans, Youssef, et al. (2007), Luthans Avolio, and Avey (2007), Luthans Youssef-Morgan, and Avolio (2015)). Flow is a state of consciousness where people become immersed in an activity and enjoy it intensely (Csikszentmihalyi, 1997). There are three essential components of flow; these are absorption, enjoyment, and intrinsic motivation. When applied to work, flow can be defined as a short-term peak experience that is characterized by absorption, work enjoyment, and intrinsic work motivation (Bakker, 2005). Flow has been generally conceptualized as a situational construct (e.g. Bakker, 2005; Fullagar & Kelloway, 2009); however, individuals can also proactively create their own flow experiences at work (Bakker & van Woerkom, 2017). Flow has been associated with high levels of performance, confidence, focus, ease, and automaticity (Harris et al., 2017). According to Bakker and van Woerkom (2017), performance generally becomes automatic and happening without deliberate effort during a flow state.

PsyCap Inclusion Criteria and Flow

Since the inception of PsyCap, Luthans et al. (2007), Luthans, Youssef, et al. (2007), Luthans Avolio, and Avey (2007)) set certain criteria to be met to include any construct under the umbrella of PsyCap. In the following section, these criteria are presented one by one, and an attempt has been made to assess the suitability of flow to be included in the PsyCap based on these criteria.

1. Theory- and Research-Based Criterion

Research on flow started in the early 1960s. It became widely popular around 45 years back when Csikszentmihalyi (1975) enumerated the "optimal experience" in his book *Beyond Boredom and Anxiety* (Peifer & Engeser, 2021). The concept of flow was more formally pursued in the laboratories by employing the experience sampling method (ESM) by Csikszentmihalyi and colleagues in Italy (Csikszentmihalyi et al., 1988; Inghilleri, 1999; Massimini & Carli, 1988; Massimini & Delle Fave, 2000). Since then, flow research has been pursued in a variety of fields such as learning, sports, and work contexts (Swann et al., 2017; Peifer et al., 2020), following many traditions such as social situational framework (Boffi et al., 2016), self-determination perspective (Bakker & van Woerkom, 2017), and using all kinds of research traditions (quantitative and qualitative).

2. Flow as a State-Like Construct

There is considerable disagreement about whether flow is a state or a personality trait. According to Zuckerman (1983), state and trait variables act quite differently. To begin, trait variables should be anticipated to demonstrate little variance across situations. That is, they should exhibit a high degree of test–retest reliability and should remain relatively stable in the face of rapid changes in situational variables. On the other hand, state variables should be highly changeable when situational circumstances and features change. Like other PsyCap constructs, flow has also been studied as trait-like construct and one such manifestation is autotelic personality (Baumann, 2012). Flow is also described as a state as it occurs at a certain point of time at a specified degree of intensity and is experienced while executing a specific activity (Fullagar & Kelloway, 2009). Csikszentmihalyi (1985) also suggested flow is a state-like construct that can be subjective and dynamic and the state manifestation of flow can be in the form of "emergent motivation" (Csikszentmihalyi, 1985). This trait vs state debate of flow has been tested empirically by Fullagar and Kelloway (2009). It was found that situational factors account for 74% of the variance in the flow construct, providing credence to the assumption that flow is a state-based concept (Fullagar & Kelloway, 2009). Thus, this state-like flow fits well with the conceptualization of PsyCap criteria of being state-like and open to development. As mentioned by Luthans et al. (2007), Luthans, Youssef, et al. (2007), Luthans Avolio, and Avey (2007)), it is also important to note here that some of the original PsyCap constructs have been contextualized in terms of trait as well as state. For instance, the PsyCap component of hope may be thought of as a trait as well as a developmental state (Snyder, et al., 1996). Likewise, the optimism component of PsyCap has also been positioned as being dispositional as well as an explanatory style that could be developed over time (Luthans et al., 2005, 2006; Seligman, 1998). Moreover, while developing the items of PCQ-24, the authors tried to include those tools that were state-like in nature such as the items from the state hope scale (Snyder, et al., 1996), and Parker's (1998) measure for self-efficacy were used. However, the more trait-like constructs, such as optimism (Scheier & Carver, 1985) and resiliency (Wagnild & Young, 1993), were modified to make them as state-like. Lastly, at the very beginning of the PCQ-24 questionnaire, the respondents are instructed to "describe yourself right now" (p-210) to ensure that all the items are state-like in nature (Luthans et al., 2007a).

3. Measurement of Flow

There are many ways to measure flow. Bakker's (2008) Work-Related Flow Scale (WOLF) is one measure that had been widely used (373 citations as per ResearchGate, 13 June 2022). In this scale, flow has been defined as "a short-term peak experience characterized by absorption, work enjoyment, and intrinsic work motivation". WOLF has been successfully translated/adapted in many countries such as Italy (Zito et al., 2018) , Australia (Happell et al., 2014) , China (Chen et al., 2016)

, and South Africa (Geyser et al., 2015). WOLF has good psychometric properties (Bakker & van Woerkom, 2017) as reported in the above-cited studies. Bakker and van Woerkom (2017) summarized the section on measurement of flow as "the three dimensions of flow are moderately to strongly related – indicating that flow is one overall concept" (p.49). Hence, it is possible to take flow as measured by WOLF as an overarching concept comprising three first-level factors.

4. Workplace Impact of Flow

Research on flow at the workplace is mainly conceptualized by Bakker (2008) as flow can be found more often at work than in leisure settings (Csikszentmihalyi & LeFevre, 1989). Flow is related to job satisfaction (Geyser et al., 2015), and three of the dimensions of flow were positively related to self-reported task performance (Kopperud & Straume, 2009). Flow was also found to be related to other rated performances (Bakker, 2008). Bakker (2005) found that job resources including autonomy, social support, supervisory coaching, and performance feedback were important antecedents of flow experiences among music teachers and their students. Salanova et al. (2006), in their longitudinal study of Spanish secondary school teachers, showed that organizational resources including social support climate and clear goals facilitated work-related flow over time. Bakker and van Woerkom (2017) summarized their review by stating that "these studies show that flow in the workplace may have important consequences for job performance and creativity" (p-47).

PsyCap and Flow

The concept of flow and PsyCap share some common theoretical foundations. Firstly, both flow and PsyCap can be seen as both proactive and reactive. For example, PsyCap (except resilience) (Luthans et al., 2015) is proactive, and flow also has been presented recently as a proactive construct (Bakker & van Woerkom, 2017). Pathway components of hope and resilience are reactive constructs (Luthans et al., 2015). Flow was originally construed as a situational construct as a large part of the variance in flow can be attributed to situational factors (Fullagar & Kelloway, 2009). Secondly, in both flow and self-efficacy, the individual tends to target goals that are deemed to be of a higher level based on his/her capacities. Thirdly, the flow process requires constant feedback which is used by the individual to monitor his/her actions. This is in alignment with the cognitive self-reflection processing of self-efficacy. Moreover, both the constructs have agentic theoretical underpinning in the sense that individuals during the flow process and PsyCap state (largely self-efficacy and hope) feel a strong sense of control over their actions. The relationship between flow and self-efficacy has been explored in the past as well. For example, Bandura (1997) has shown that increased efficacy is related to task absorption leading to exert a greater degree of energy and effort to perform an activity. Salanova et al. (2006) investigated the relationship between self-efficacy and work-related flow over an extended period (8 months to be precise) and found a reciprocal relationship

between the two. Mesurado et al. (2016) found that when students feel that they are capable of performing well, it leads to the experience of flow, and "self-efficacy has a positive effect on flow" (p. 17).

Additionally, the optimism component of PsyCap is an explanatory style that attributes positive events to personal, permanent, and pervasive causes and interprets negative events in terms of external, temporary, and situation-specific factors. This is similar to Csikszentmihaly's (1975, 1990) definition of internal locus of control, which is an integral component of flow. The link between teachers' optimism and work-related flow was explored by Beard and Hoy (2010) , and optimism was found to be positively associated with multi-faceted indicators of flow. Although resilience in the context of flow has not been explored yet, some lead hints that the potential for failure is one of the ingredients of flow (Sawyer, 2007). According to Hektner et al. (2007) , in flow experience, people are so involved in an activity that nothing else seems to matter as the experience is so enjoyable that people will continue to do it even at a great cost. Therefore, in flow state, people may experience some difficulties while performing some tasks, and there can also be some fear of failure, and therefore, more resilient people are likely to experience more flow experiences as compared to their low counterparts.

The association between PsyCap and flow have also been tested empirically in the recent past. For example, a study by Pompuang et al. (2019) concluded that flow at work of teachers was directly impacted by PsyCap, job resources, and work engagement. Zubair and Kamal (2015) found that PsyCap and work-related flow were significantly and positively associated and both PsyCap and flow predicted employee creativity. Kawalya et al. (2019) investigated flow as a mediator between PsyCap and workplace happiness. The findings show that flow mediated the link between the two, and when flow was incorporated in the model, the explanatory power of psychological capital on work happiness increased by 13.7%. PsyCap is a personal resource that has the potential to rejuvenate individuals by facilitating their rapid recovery from previous failures, allowing them to be more devoted, focused, and deeply involved in their tasks (Adil et al., 2019) .

The description presented so far provided some background to justify the inclusion of flow as the next PsyCap. It is evident that flow not only meets the criteria of being included in PsyCap but also shares conceptual boundaries with the other four PsyCap constructs. Therefore, the proposed research aims to test:

H2: Can flow be added as the next dimension of PsyCap?

Counterproductive Work Behaviour (CWB)

In this study, CWB was used as an outcome variable for PsyCap and flow. Although PsyCap relates to a variety of outcome variables, including work satisfaction and performance (Avey et al., 2011; Newman et al., 2014), negative employee consequences have historically been a neglected area of PsyCap research (Newman et al., 2014). In an organization, CWBs can present in a variety of ways. Several examples include spreading negative rumours, harassing coworkers, jeopardizing the work of

other personnel, purposefully refusing to follow instructions, and withholding critical information from others, all of which can have a detrimental effect on organizations in a variety of ways. Bennett and Robinson (2000) characterized CWBs as voluntary behaviour by organizational members that breaches significant organizational norms, hence jeopardizing the organization's and/or members' well-being.

In today's organizational context, reorganization of the organizations is the norm, resulting in significant stress for individuals (Contreras & Gonzalez, 2021). Organizational stress (De Clercq et al., 2019), unethical organizational practices (De Clercq et al., 2021), violation of psychological contract (Hoobler & Brass, 2006; Rousseau, 1989), and authoritarian leadership styles (Aryee et al., 2007) are positively associated with CWB. PsyCap can alleviate the detrimental effects of these adverse work conditions, as a negative association has been established between PsyCap, stress, and anxiety (Avey et al., 2009), and hence can act as a buffer against CWB. According to certain studies, there is a negative correlation between PsyCap and CWB (e.g. Avey et al., 2011; Raaghul, 2014). Therefore, the present research aims to expand this literature further by testing the relationships between the original PsyCap and flow and CWB in a non-Western culture; thus it is hypothesized that:

H3: PsyCap will be negatively related to CWB.
H4: Flow will be negatively related to CWB.

The Present Research

As stated above, there are two major aims (and the corresponding 4 hypotheses) of the current study. Two independent studies were conducted to meet the aims of the study. Study 1 was conducted to test the factor structure as well as clear-cut dimensionality of PCQ-24 in the Indian context. Study 2 aimed at examining the possibility of inclusion of flow as the fifth PsyCap.

Study 1

Sample

A sample comprising 906 employees from various service industries was taken for the present study. The sample belonged to the information technology (IT), information technology enabled services (ITES), banks, insurance companies, etc. from the National Capital Region of Delhi, India. The average age of the participants was 27.54 years in the age bracket of 22–45 years. There were 622 female and 384 male participants. In terms of the educational background of the sample, there were 250 graduates, 400 post graduates, and 256 professionals primarily from management and engineering background. The participants had 2 to 18 years of experience, and the mean experience was found to be 8.24 years. Sample size estimation

for factor analysis is a tricky idea as there are many conditions which need to be considered before arriving at an accepted sample size (Field, 2013; Hair et al., 2014). Field (2013) has quoted many researches on this. For example, Comrey and Lee (1992) considered 300 as a good sample size, 100 as poor, and 1000 as excellent. Therefore, the sample size of 906 of the current research is sufficient to get dependable results.

Measures

PCQ-24 (Luthans Avolio, & Avey, 2007; Luthans et al., 2007; Luthans, Youssef, et al., 2007) was used to measure PsyCap. In the present study, the original PCQ-24 (English version) was used. It comprised 24 items, 6 each for the four constructs of self-efficacy, hope, resilience, and optimism. The items have to be scored on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). Sample items included," I feel confident analyzing a long term problem to find a solution" and "I usually manage difficulties one way or another at work". A higher score indicates a high score as compared to a low score. Cronbach's alphas for self-efficacy, hope, resilience, and optimism were found to be 0.86, 0.84, 0.70, and 0.66, respectively (for 6 items each).

Analytical Plan

Data were first tested for outliers and normality. No outliers were found in the data. There were six missing data, and they were replaced with series mean. The skewness and kurtosis for all the items were within the accepted range of ± 2 indicating normality of data. Furthermore, PCQ-24 is a self-reported measure; therefore, all the 24 items were loaded on a single factor as per Harman's test requirement to check the common method variance error. The single factor explained 33.76% of the variance which is below the 50% criteria indicating that data do not suffer from common method variance. After the initial screening, confirmatory factor analysis (CFA) was run in AMOS 24 and confirmatory bifactor analysis (CBA) was run in Mplus-6, to check the factor structure of PCQ-24. CFA was a suitable statistical procedure as suggested by Hair et al. (2014) that the "researcher must specify both the number of factors that exist for a set of variables and which factor each variable will load on before results can be computed" (p-660). As presented under the "Measures" section, we were fully aware that there are 4 factors in PCQ-24 and which of the six items were to be loaded on which of the four dimensions of PsyCap. Moreover, CBA was used as it is the only way to test the clear-cut dimensionality of a construct as it allows items of a construct (e.g. PsyCap) to be simultaneously loaded on a single construct (second-order; PsyCap) and also on the various dimensions of the construct (four dimensions of PsyCap; i.e. HERO) to get the insight as to how to conceptualize PsyCap clearly (Hyland, 2015).

Results

Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) with AMOS 24 maximum likelihood procedure was conducted to examine the construct validity of the four-factor structure of PsyCap.

As is evident from Table 1 that the original 24-item measure of PCQ (model 1) produced an inadequate fit, therefore removing problematic items was the next logical step based on factor loadings. The modification index and poor factor loadings were used as the criteria to delete the poor items one by one. The modification index for the three deleted items ranged from 198.02 to 16.86, and the corresponding parameter changes were from 0.424 to 0.159, respectively. Moreover, the factor loadings of the problematic items ranged from 0.088 to 0.218. Item 23 (Optimism), i.e. "In this job, things never work out the way I want them to" had a poor factor loading of 0.088 which was deleted, and CFA was run again. The resultant, model 2 showed the fit indices, but not much improvement was observed in the model. Further, Item 13 (Resilience) "When I have a setback at work, I have trouble recovering from it, moving on" had a poor factor loading of 0.132, and therefore it was deleted, then running CFA again. However, model 3 also did not show acceptable fit indices. Consequently, Item 20 (Optimism), i.e. "If something can go wrong for me work-wise, it will" was having a poor factor loading of 0.218; therefore, it was removed as well. As it is evident from Table 1 the fit indices were found to be in the acceptable category (Byrne, 1998; MacCallum et al., 1996). Moreover, the Chi-square difference between model 1 and model 2 was 276.27 ($p < 0.01$), between model 2 and model 3 was 113.36 ($p < 0.01$), and finally between models 3 and 4 was found to be 85.12 ($p < 0.01$). All of these Chi-square differences were significant, indicating that there is significant improvement of model 2 over model 1, model 3 over model 2, and finally model 4 over model 3. Cronbach's alphas for the revised scale having 5 items for resilience, 4 items for optimism, and 6 items each for self-efficacy and hope were found to be 0.78, 0.75, 0.86, and 0.84, respectively.

Table 1 Model fit indices for PsyCap (four-factor model)

Model	χ^2	*df*	*p*	χ^2/df	*GFI*	*CFI*	*TLI*	*RMSEA*
Model 1 (24 items)	1264.635	246	< .01	5.141	.891	.879	.865	.068
Model 2 (Deleting Optimism 23)	988.365	224	< .01	4.412	.911	.907	.895	.061
Model 3 (Deleting Resilience 13)	875.006	203	< .01	4.310	.916	.917	.905	.060
Model 4 (Deleting Optimism 20)	789.854	183	< .01	4.316	.921	.924	.913	.061

Table 2 Model Fit indices for PsyCap as a second-order construct (CFA)

χ^2	*df*	*p*	χ^2/df	*GFI*	*CFI*	*TLI*	*RMSEA*
810.436	185	< .001	4.381	.918	.922	.911	.061

Table 3 Model Fit indices for PsyCap as a second-order construct (CBA)

χ^2	*df*	*p*	χ^2/df	*CFI*	*TLI*	*RMSEA*
461.51	168	< .001	2.74	.95	.93	.04

PsyCap as a Second-Order Construct

A confirmatory factor analysis (CFA) with AMOS 24 maximum likelihood was again run to examine PsyCap as a higher-order construct with the following fit indices.

It is evident from the fit indices given in Table 2 that 21 items PCQ-24 can also be considered as a higher-order construct.

Confirmatory Bifactor Analysis (CBA)

A confirmatory bifactor analysis (CBA) in Mplus-6 was conducted wherein all 21 items were simultaneously loaded on a single construct (PsyCap) and on its four factors (self-efficacy, hope, resilience, and optimism) to ascertain the dimensionality of the construct. CBA enables researchers to test the dimensionality of the measures and produces several fit indices, which can be used to estimate the goodness of the model.

As can be seen in Table 3, all the model fit indices were in the acceptable range, as prescribed by the researchers (Byrne, 1998; MacCallum et al., 1996). Table 4 further reveals that all the items have loaded more strongly on the second-order construct of PsyCap as compared to the first-order dimensions of self-efficacy, hope, resilience, and optimism. Therefore, it can be safely concluded that PsyCap as a composite construct better accounts for the variance in the items as compared to the four first-order dimensions.

Study 2

Sample

A sample comprising 302 employees from various public and private sector organizations across various sectors in the National Capital Region of Delhi, India, have participated in the study. There were 221 males and 81 females in the sample. The participants were in the age brackets of 20–65 years, and the mean age was found to be 26.0 years. 120 participants had education up to graduation, 95 had education up to post graduation, 80 of the respondents have professional degrees (engineering, MBAs, law, etc.), and the remaining 7 did not disclose their educational background.

Table 4 Factor loadings on PsyCap as second-order and on its four first-order dimensions

Item	Factor loadings on PsyCap total	Factor loadings on Self Efficacy
SE1	.60	.49
SE2	.63	.63
SE3	.59	.48
SE4	.59	.45
SE5	.57	.04
SE6	.64	.11
		Factor loadings on hope
HOPE7	.61	.06
HOPE8	.67	.25
HOPE9	.62	.33
HOPE10	.53	.37
HOPE11	.65	.43
HOPE12	.64	.31
		Factor loadings on resilience
RES14	.49	.35
RES15	.51	.31
RES16	.51	.40
RES17	.60	.39
RES18	.65	.22
		Factor loadings on optimism
OPT19	.44	.38
OPT21	.45	.64
OPT22	.51	.59
OPT24	.35	.36

Sample size estimation was done with the help of G*Power version 3.1.9.4 software (Faul et al., 2007). To detect a medium effect ($f^2 = 0.15$) with 80% power while using a hierarchical multiple regression (fixed model and R^2 change) at an alpha of 0.05. The estimated sample size was found to be 129; therefore, the actual sample size ($N = 302$) is adequate to test the hypotheses of the study.

Measures

PCQ-24

PCQ-24 (Luthans Avolio, & Avey, 2007; Luthans et al., 2007; Luthans, Youssef, et al., 2007) was used to measure PsyCap. Based on the findings of Study 1, only 21 items have been used in Study 2. Resilience was measured by 5 items, while optimism was assessed by 4 items only. Self-efficacy and hope were measured with the help of 6 items each. Cronbach's alphas for self-efficacy, hope, resilience, and optimism were found to be 0.78, 0.83, 0.74, and 0.71, respectively.

Flow Scale

Work-Related Flow Inventory (Bakker, 2008) was used to measure flow. There are thirteen items in WOLF encompassing absorption (4 items), work enjoyment (4 items), and intrinsic work motivation (5 items). However, there is evidence that flow can be measured as a whole as well to get an overall score (Bakker & van Woerkom, 2017). Some of the sample items included "My job makes me feel good" and "I get carried away by my work". The responses range from never (1) to always (7) for each question, and a higher score indicates a high amount of flow. Cronbach's alpha was found to be 0.894 on the current sample.

Counterproductive Work Behaviour (CWB)

CWB was assessed by the 10-item questionnaire developed by Spector et al. (2010). Responses can be captured on a 5-point Likert scale from never (1) to every day (5). A higher score indicated more presence of CWB among the respondents. Sample items included "Purposely wasted your employer's materials/supplies" and "Complained about insignificant things at work". Cronbach's alpha on the current sample was found to be 0.891.

Analytical Plan

Data were first tested for outliers and normality. Obtained data were analysed in IBM-SPSS version 22. There were no outliers in the data. There were four missing data and they were replaced with series mean. The skewness and kurtosis for all the items were within the accepted range of ± 2 indicating normality of data. As all the scales were self-reported, the data might have suffered from common method variance error. Therefore, all the items were loaded on a single factor as per Harman's test requirement to check the common method variance error. The single factor explained 38.06% of the variance which is below the 50% criteria indicating that data do not suffer from common method variance. Descriptive statistics such as means, standard deviations, and Pearson product–moment correlation were obtained. Moreover, a three-step hierarchical multiple regression model has been used to test the stated hypotheses. Demographic variables (age and gender) were regressed in model 1. PsyCap and flow were entered one by one in model 2 and model 3, respectively, to get the step-by-step increments in criteria variable (CWB). According to Kline (2011), sometimes demographic variables are entered at the first step of hierarchical regression and then psychological variable of interest are entered in a step-by-step order. Kline (2011) further opined that "this order not only controls for the demographic variables but also permits evaluation of the predictive power of the psychological variable, over and beyond that of simple demographic variables." (p- 27).

Results

The above descriptive table reveals that participants scored high on all four dimensions of PsyCap and flow. However, CWB was scored low by the respondents. Correlation results in Table 5 show that all the components of PsyCap, namely self-efficacy, hope, resilience, and optimism, exhibited significant positive associations with each other well as with the overall second-order construct of PsyCap. Moreover, flow shared moderate to high correlations with the four PsyCap constructs ranging from 0.38 to 0.52. Flow also shared a very high correlation with PsyCap total (0.89). Additionally, all the four constructs of PsyCap, PsyCap total, and flow shared negative correlations (low to moderate) with CWB ranging from − 0.210 to − 0.410.

Hierarchical regression analysis was also run to test how original and expanded PsyCap would influence an outcome variable (CWB). The above table reveals that age is a negative predictor of CWB. PsyCap and flow total too predicted CWB in a negative direction. It is interesting to report that PsyCap has contributed significantly over and above the demographics in predicting CWB. Similarly, flow has been predicted significantly over and above PsyCap in predicting CWB. However, the effect size from model 1 to model 2 is 0.093 (small effect size) and also from model 2 to model 3 is 0.022 (small effect size).

Discussion

The present study is a modest attempt to address two of the neglected areas in PsyCap literature by examining PsyCap in a non-Western world and expanding the construct of PsyCap by conducting two independent studies. A scrutiny of the results in Table 1 revealed that three of the deleted items (13, 20, and 23) to achieve a good model fit were negative items. Items 13 and 20 were found to be problematic by Görgens-Ekermans and Herbert (2013) in the South African context. In another South African study (Hansen et al., 2015) , Item 20 was found to be problematic and removed after the factor analysis. Items 13 and 24 were found to be troublesome in one of the Indian

Table 5 Descriptive and correlation analysis of study variables

Variable	Mean	SD	Self-Efficacy	Hope	Resilience	Optimism	PsyCap Total	Flow	CWB
Self-Efficacy	30.87	3.97	-	.68**	.57**	.48**	.68**	.38**	-.20**
Hope	30.58	4.18		-	.64**	.68**	.80**	.52**	-.41**
Resilience	24.38	3.77			-	.61**	.75**	.49**	-.21**
Optimism	20.27	2.97				-	.78**	.47*	-.23**
PsyCap	117.77	14.17					-	.89**	-.29**
Flow	75.58	12.87						-	-.21**
CWB	15.46	6.49							-

**Correlation is significant at the 0.01 level (2-tailed)

studies that examined the factor structure of PCQ-24 (Sahoo & Sia, 2015). Items 13, 20, and 23 were deleted in some other studies as well to get a good model fit (e.g. Imran & Shahnawaz, 2020; Dirzyte et al., 2021; and Abbasi et al., 2020). Negative items are generally included along with positive items in a scale to control acquiescence bias (Nunally, 1978; Baumgartner & Steenkamp, 2001). However, the effectiveness of negative items to control response bias has been severely questioned (Salazar, 2015) as many people have difficulty in cognitively processing negative items vis-à-vis positive items on the same scale (Sonderen et al., 2013). This would result in low item-total correlation (Roszkowski & Soven, 2010), and low-reliability coefficients (Johnson et al., 2011). The reliability coefficients of resilience and optimism (in which there are negative items) were found to be low as compared to the other two constructs of PsyCap (Dawkins et al., 2013; Gooty et al., 2009). Even the results of the present study support this point. The reliability coefficients for resilience and optimism in Study 1 (before deleting the 3 items during CFA) were 0.70, and 0.66, respectively, which were low as compared to self-efficacy and hope. However, after deleting three negative items belonging to resilience and optimism, reliability coefficients rose to 0.78, and 0.75, respectively. Merritt (2012) also cautioned that positive and negative items of the same construct may load on two different constructs (positive items making one construct while negative items making another construct). As Items 20 and 23 are negative items, and there is evidence to suggest that optimism and pessimism are independent of each other (Kubzansky et al., 2004; Marshall & Lang, 1990) and thus form two different constructs. Similar kinds of results have also been found for the self-compassion scale (Neff, 2003). Positive and negative items of the self-compassion scale are loaded on two different factors (López et al., 2015; Kumlander et al., 2018). This indicates that positive and negative items, at times, do not represent the content domain of the same construct, and therefore it is also recommended to use the positive items only (Schriesheim & Eisenbach, 1995).

The results (Tables 2, 3, 4) clearly showed that PsyCap is indeed a higher-order construct as confirmatory bifactor analysis (Table 4) revealed that items have loaded more strongly on PsyCap as a whole than on its constituent four dimensions. The results imply that four PsyCap resources are interactive and synergistic, which many researchers have proposed (e.g. Luthans et al., 2007a; Avey et al., 2011), but which never got empirically tested. Therefore, it can now be safely concluded that the overall influence of PsyCap on the outcome variables shall be much more than the individual contribution of all the four resources (Luthans et al., 2015). Luthans et al. (2015) have used Bandura's (2001) social cognitive and agency theory to endorse PsyCap as a higher-order construct. They suggested that PsyCap's constituents, namely, hope, self-efficacy, resilience, and optimism, share the essential aspects of Bandura's agentic perspective, i.e. a sense of agency, intentionality, and control that lead individuals to have a positive outlook, be motivated, and tenaciously pursue goals (Bandura, 2006). Despite this theoretical lead, the debate of treating PsyCap as second-order or first-order got never settled (e.g. Dawkins et al., 2013). One possible reason for this ambiguity is the use of EFA and CFA to test the factor structure of PsyCap by the researchers (the summary of review of literature in the Appendix [Tables 7 and 8] at the end of the paper clearly show this trend). EFA and CFA are useful analyses but the clear-cut dimensionality of any construct can only be established through

confirmatory bifactor analysis (CBA) (Hyland, 2015). To the best of our knowledge, none of the published research on PsyCap has used CBA. Results show that there is a common thread of agency and positivity which run through the four constructs and influence individual's perception, emotion, and behaviour. The above discussion supports H_1.

The present research also aimed at expanding the PsyCap construct by assessing the relationships of four PsyCap constructs, PsyCap as a whole with flow as a new component. Correlation results in Table 5 showed that flow was strongly related to four PsyCap constructs (effect size being moderate to high). Correlation results showed that flow was related to PsyCap as a whole very strongly ($r=0.89$), implying that flow and PsyCap total share 80% of the variance with each other. Correlation results suggest that flow and four PsyCap constructs share14% to 27% variance with each other. As presented at the beginning of the paper, agency and goal-setting are core components of hope, self-efficacy (Luthans et al., 2007a), as well as flow (Csikszentmihalyi, 1990). Moreover, the optimism of PsyCap and locus of control dimension of flow also share common conceptual boundaries. Flow experience facilitates goal achievement; however, there are always chances of failure (Sawyer, 2007) and therefore, resilience would help people to achieve goals despite hardships and potential to fail. The correlation results and the above explanation indicate that flow has overlapping conceptual boundaries with other PsyCap constructs and also with overall PsyCap, hence can be included as the next dimension of PsyCap. To the best of our knowledge, the present results provide the first empirical evidence that flow can be included as the next PsyCap. Therefore, the above discussion provides evidence to accept H_2.

Correlation results in Table 5 also showed that four PsyCap constructs, PsyCap total, and flow were negatively related to CWB, and all the correlation coefficients were found to be significant. In the present day demanding and stressful work situation, CWB is a very common phenomenon (Vatankhah et al., 2017). According to Balducci et al. (2011) cognitive resources tend to have a negative influence on CWB. Hence, PsyCap as a positive cognitive resource will lead to an appraisal of work and context of work in a more positive manner (Luthans et al., 2015), and therefore it would mitigate the effect of the negative work conditions (Avey et al., 2009), leading employees not to engage in CWB. Therefore, all PsyCap constructs are negatively associated with CWB, thus supporting H_3 and H_4 of the present research.

Hierarchical regression analysis (Table 6) was also run to examine how PsyCap and flow would influence CWB. Before we entered our main variables (PsyCap and flow), demographics (age and gender) were regressed as predictors of CWB to evaluate the predictive power of psychological variables over demographic variables (Kline, 2011). The results reveal that age is a negative predictor of CWB. However, PsyCap and flow contributed significantly to CWB in the next two models. PsyCap contributed significantly over demographics (though with low effect size) and flow over PsyCap (low effect size again), respectively. As already discussed above, PsyCap (and therefore flow too) would result in the positive appraisal of work and work-related contextual factors (Avey et al., 2009), thus mitigating the influence of stressors, and therefore, employees would not indulge in CWB if they are high on PsyCap and flow. Thus, flow has also behaved similarly in predicting CWB as PsyCap, thus providing more evidence of it being the next possible component of PsyCap.

Table 6 Hierarchical regression analysis (CWB as the criterion variable with respect to three models (demographics, PsyCap, and flow respectively)

Model	Variable	*B*	*SE*	*β*	*t*	*p*	*R*	R^2	ΔR^2
1		$F(2,297) = 7.665$ ($p = .001$)					.222	.049	.081
	Age	−.123	.034	−.204	3.603	< .001			
	Gender	−1.494	.830	−.102	−1.800	.073			
2		$F(3,296) = 14.787$ ($p < .001$)					.361	.130	.035
	PsyCap	−.084	.016	−.290	5.259	< .001			
						*Effect size = .093 (Models 1–2)			
3		$F(4, 295) = 12.895$ ($p < .001$)					.386	.149	.018
	Flow	−.159	.034	−.547	4.745	< .001			
						*Effect size = .022 (Models 2–3)			

Conclusion, Limitations, and Future Directions

The present research aimed to address two of the unexplored areas in PsyCap literature, (i) exploring PsyCap in a non-Western country and (ii) expanding the construct of PsyCap by conducting two independent studies. Study 1 results clearly showed that PsyCap is indeed a higher-order construct and therefore it should be treated like this only. It also implied that whole is more than the sum of its parts and therefore, PsyCap constructs synergistically work together to create a bigger impact than the contribution of individual components of PsyCap. This is a unique contribution of the present research. Study 2 provided preliminary evidence (both conceptually and empirically) that flow can be the next component of PsyCap. The results of Study 2 also provided some more evidence that PsyCap along with flow can check 15% of the variance in CWB. This is again a unique contribution of the present research.

Despite the unique contributions of the present research, it also suffers from some limitations, which can be taken up the future researchers. The study employed a cross-sectional research design and therefore causal inference cannot be drawn. Data were collected through self-rated measures and may suffer from common method biases even though Herman's single factor results suggested that the data do not suffer from it. Therefore, future researchers should use other methods of data collection, such as supervisory ratings, peer ratings, or even qualitative methods. The sample size of Study 2 was relatively small ($N = 302$), although adequate as compared to Study 1 ($N = 906$); therefore, the inclusion of flow as the next component of PsyCap should be taken cautiously. Future researchers should assess the inclusion of flow with a relatively larger sample, and in diverse cultural context as well, as the current study is based on Indian sample only. Moreover, CWB has been used as the only criterion variable, and therefore, future researchers may take other measures of performance as performance is a multi-faceted construct. Lastly, only direct relationships (correlation and regression) between predictors (PsyCap and flow) and CWB (criterion variable) have been explored in the current research, and therefore, future researchers may take up boundary conditions (moderator) and the pathways (mediators) to further strengthen the PsyCap literature.

Appendix

Table 7 Representation of some of the PCQ-24 research from the Western World

Western sample					
Author(s)	Year of publication	Sample	Statistical Technique used	Factor Structure Results	Model Fit Indices
Luthans, Avolio, Avey & Norman	2007	Study 1: 167 management students Study 2: for high-tech manufacturing sample 112 Engineers Study 2: for service sample: 144 employees	CFA	Higher Order	$\chi 2 = 754.1$, df = 238, SRMR = .056, RMSEA = .048, CFI = .924
Avey, Wernsing & Luthans	2008	USA, 132 working adults	CFA	Higher Order	CFI = .93 RMSEA = .07
Luthans, Norman. Avolio, & Avey	2008	Study 1: 404 management students Study 2: 163 employees	CFA	Higher Order	$\chi 2$ (246) = 1532.84, CFI = .97, RMSEA = .08, SRMR = .01
Gooty, Gavin, Johnson & Snow	2009	253 band members of a marching band	CFA	Higher Order	$\chi 2 = 553.93$, $df = 185$, $p < .05$, CFI = .95, SRMR = .07
Avey, Luthans & Youssef	2010	USA, 336 employees	CFA	Higher Order	SRMR = .05, RMSEA = .05, CFI = .96
Luthans, Avey, Avolio & Peterson	2010	USA, 80 Managers	CFA	Higher Order	$\chi 2 = 401.88$, *df = 228, RMSEA = 0.05 CFI = 0.91, SRMR = 0.05*
Antunes, Caetano & Pina e Cunha	2017	Portugal, Sample 1: 542 employees from the Portuguese workforce Sample 2: 115 employees	CFA	Five-Factor model	$\chi 2 = 578.94$, ×2/df = 2.37, CFI = O.92, GFI = 0.92, RMSEA = 0.05
Peterson, Luthans, Avolio, Walumbwa & Zhang	2011	USA, 179 employees	CFA	Four- factor model	3 CFAs were conducted at 3 different time points Average CFI = 1.00, average TLI = 1.00, RMSEA ranged from 0.05 to 0.07, and average SRMR = 0.00)
Rego, Leal, Sousa & Cunha	2010	Portugal, 278 civil servants	CFA	Five factor-model	×2/df = 2.2, RMSEA = 0.07, GFI = 0.90, CFI = 0.89,
Cid, Martins, Dias, & Fidelis	2020	Brazil, 749 employees	CFA	Higher Order	×2/df = 2.67, CFI = 0.90, RMSEA = 0.04

Table 8 Representation of some of the PCQ-24 research from the Non-Western World

Non-Western Sample					
Author(s)	Year of publication	Sample	Statistical Technique Used	Factor Structure Results	Model Fit Indices
Du Plessis and Barkhuizen	2012	131 members of the South African Board of People Practice (SABPP)	EFA	A three-factor model	Not mentioned
Chen & Lim	2012	179 retrenched professionals, managers, executives, and technicians	CFA	After dropping Resilience 1 and Optimism 2 and 5, the remaining items loaded reasonably well on their latent factors	$\chi 2$ (170, 179) = 290.31, p < .01, CFI = 0.95, TLI = 0.94, RMSEA = 0.06, SRMR = 0.07)
Abbas, Raja,Darr & Bouckenooghe	2012	Pakis tan, 237 employees	CFA	Results yielded a good fit for a latent single factor model	$\chi 2$ = 102.91, *df* = 52; CFI = .95, GFI = .94, IFI = .95, RMSEA = .06)
Görgens-Ekermans & Herbert	2013	South Africa, 209 employees	EFA and CFA	Four-factor model fitted the data better than the one-factor model, higher model could not be tested due to operational issues	p < 0.05; NNFI = 0.96; CFI = 0.98; SRMR = 0.05 and RMSEA = 0.06)
Wang, Sui, Luthans, Wang & Wu	2014	China, 49 leaders and 794 of their followers	CFA	Higher Order	$\chi 2$ = 528.89, /df(98) = 5.40, CFI = .95, RMSEA = .07
Sahoo & Sia	2015	India, 276 employees	CFA	3-factor model	$\chi 2$ = 354.74,df = 135, GFI=0.87,NFI=0.89,CFI=0.93,RMSEA = 0.08
Imran & Shahnawaz	2020	India, 225 employees	CFA	Higher-order factor structure for the overall PsyCap measure with 21 items	$\chi 2$ = 355.533, df = 185; CFI = 0.931; TLI = 0.922 and SRMR = 0.064
Abbasi, Kamal & Masood	2020	Pakistan, 380 small business entrepreneurs	CFA	Four factor model showed a better fit than the higher order structure	$\chi 2$ = 454.58 (183), GFI = .90, CFI = .90, SRMR = 05, RMSEA = .06

Table 8 (continued)

Non-Western Sample					
Author(s)	Year of publication	Sample	Statistical Technique Used	Factor Structure Results	Model Fit Indices
Upadhyay & Kumar	2020	India, dyads of 70 supervisors and 280 employees	CFA	Results indicated an unsatisfactory model fit when PsyCap items were loaded onto a single factor	$\Delta\chi 2 = 0.88$; $p = 0.41$, RMSEA = 0.06, GFI = 0.91, CFI = 0.93, RFI = 0.91
Dirzyte, Perminas, & Biliuniene	2021	Lithuania, 2003 employees	EFA and CFA	Higher order factor structure was confirmed after dropping the three negatively worded items	$\chi 2 = 2305.383$; df = 185; RMSEA = 0.077, SRMR = 0.0450

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Data Availability The data generated during and/or analysed during the current study are available from the corresponding author on reasonable request. Correspondence concerning this article should be addressed to mgshahnawaz@gmail.com.

Declarations

Consent to Participate All procedures followed were following the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all participants for participation in the study. The participant has consented to the submission of the case report to the journal.

Conflict of Interest The authors declare no competing interests.

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