

Psychological capital, autonomous motivation and innovative behavior: a study aimed at employees in social networks.

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Abstract

The present study investigates the relationship between positive psychological capital (PsyCap) and innovative work behavior (IWB), as mediated by autonomous motivation and participative leadership moderation. The study was conducted on a sample of 246 employees from various public and private organizations, recruited through different social networks. The moderated mediation analysis provided evidence about the impact of employees' PsyCap on their innovative behavior at work. This behavior will be higher when individual factors (PsyCap) and social factors (participative leadership) interact with one of the most self-determined forms of motivation. Our findings highlight the importance of the individual's positive psychological capital in activating the resources and motivation, necessary to develop innovative behavior in employees, thus achieving organizational success in today's dynamic and competitive business environment. The results also confirmed the moderating effect of participative leadership on the relationship between autonomous motivation and innovative behavior of employees, supporting that the relationship will be stronger when participative leadership is higher. Theoretical and practical implications are discussed, as well as limitations and suggestions for future studies.

Keywords: psychological capital, innovative work behavior, motivation, participative leadership, self-determination.

Introduction

The increasing transformation of the global economy and a dynamic and competitive business environment drives organizations to improve market strategies in order to survive in the face of uncertainty. In such a confusing environment, improving organizational effectiveness depends on employees' interest in the success of their organization through active contribution. This is the key to the competitive advantage that will contribute to the company's sustainable future (Luthans et al., 2015). In recent years, there has been an increased interest in human capital, defined as the set of competences, knowledge, habits, personality traits and cognitive abilities, capable of producing economic value (Sihag & Sarikwal, 2014). The difficulty to acquire or imitate it has led the scientific community to explore which organizational, team and individual resources can contribute to develop and complement it, in order to provide organizations with greater business success (Luthans et al., 2015). The management of employee behavior has always received special attention from researchers, and since the emergence of the so-called positive organizational psychology (Luthans & Avolio, 2009), the interest in positive constructs to improve results at the organizational level is increasing (Salanova et al., 2021). Thus appears the so-called positive organizational behavior, or simply POB, defined as "the study and application of human resource strengths and positively oriented psychological capacities that can be effectively developed, measured, and managed to improve workplace performance" (Luthans, 2002, p. 59). Derived from the POB perspective emerges the concept of positive psychological capital (PsyCap), a higher-order core positive construct that activates resources and motivation for goal achievement (Luthans et al., 2015; Youssef & Luthans, 2013), and represents a "positive evaluation of circumstances and a probability of success based on motivated effort and perseverance" (Luthans, Avolio et al., 2007, p. 550). Organizations should pay more attention to PsyCap, because it is related to a positive and perseverant way of acting in the face of challenges, having a positive impact on attitudes, behaviors and work performance (Luthans et al., 2015). By orienting such positive impact to develop employees' creativity and innovative behavior,

we will achieve an important contribution to success in organizations (Amabile & Pratt, 2016; Thurlings et al., 2015). Thus, through these capacities, employees can generate and implement new ideas to improve or invent products, services and processes at work (Alshebami, 2021). These innovative behaviors of employees become the fundamental initiative for innovation in organizations, hence the importance of knowing the individual and social factors that act on these behaviors.

The main purpose of the present study is to examine the antecedents of innovative behavior at work. The drive to initiate this innovative behavior could be individual (triggered by internal psychological characteristics) or social (to gain the support and respect of others) (Amabile & Pratt, 2016; Tsegaye et al., 2020). In this study, we will test the role of PsyCap and autonomous motivation (i.e., intrinsic motivation and extrinsic motivation with integrated regulation) as individual factors that activate IWB, while participative leadership as a social factor will be taken into account. Therefore, we will test the relationship between PsyCap and IWB through the mediation of autonomous motivation and the moderating role of individual perceptions of participative leadership as a social factor. Our results will contribute to the scientific understanding of the antecedents of innovative behavior at work, and demonstrate that motivational processes such as PsyCap, autonomous motivation and participative leadership can favor greater innovation and profitability in organizations.

Theoretical background and hypotheses

Positive psychological capital

The constant transformation of organizations and the global economy lead companies to a series of reinventions and adaptations they use to face future challenges and increase competitiveness in the market. Researching the capacity of influence of social and individual factors on employees is the best way to face this transformation, so that human resources can be consolidated as the best competitive advantage, a capital that can be developed and that is unique to each organization, inimitable and non-

duplicable (Larson & Luthans, 2006). In this sense, PsyCap is defined as "the state of positive psychological development of an individual that is characterized by: 1) having self-confidence (self-efficacy) to undertake and dedicate the necessary effort for the purpose of achieving success in challenging tasks; 2) making a positive attribution (optimism) about being successful now and in the future; 3) persevere toward goal accomplishment and, when necessary, redirect goal trajectories (hope) to succeed, and; 4) when beset by problems or adversity, sustain and recover, and even beyond, (resilience) to achieve success" (Luthans et al., 2015, p.2). Therefore, PsyCap is considered a second-order core factor that includes all four positive resources, having a greater positive synergistic effect than each of them individually (Avey, Reichard et al., 2011). It represents a motivational tendency to act positively and is a positive predictor of attitudes, behaviors, and performance at the organizational and individual levels (Avey, Reichard et al., 2011; Luthans, 2012; Sarwar et al., 2017). PsyCap is considered an internal psychological state that develops a cognitive ability to focus on the positive aspects of the environment, altering the affective and behavioral functioning of individuals and creating solutions to problems through perseverance and motivation. This results in a greater likelihood of success in their tasks and goals (Fidelis et al., 2021; Luthans et al., 2015). If individuals have a high level of PsyCap, they gain an additional amount of energy that will impact performance at work and extend it over time (Avey, Avolio & Luthans, 2011; Sarwar et al., 2017). In this way, PsyCap is considered a unique personal resource that allows employees to invest it positively in the challenges of their workday (Laschinger & Fida, 2014), becoming a storehouse where employees draw from or deposit the resources they need (Peterson et al., 2011). This benefit of accumulation and utilization of PsyCap as a psychological resource would be determined by the conservation-of-resources theory or COR (Hobfoll et al., 2018). This theory states that individuals tend to acquire, protect and develop their valuable resources over time to perform excellently in their outcomes, creating gain spirals (Salamon et al., 2022) that generate and reinforce each other, contributing to the creation of the so-called "resource caravans" (Hobfoll et al., 2018). In their meta-

analysis, Avey, Reichard, et al. (2011) revealed that PsyCap has a positive relationship with desirable attitudes and behaviors such as job satisfaction, organizational commitment, psychological well-being and performance, and a negative relationship with anxiety, stress and job turnover, among others.

Innovative work behavior

On the other hand, the innovative behavior of employees contributes to the performance and success of an organization, and furthermore, "the study of what motivates or enables individual innovative behavior is critical" (Scott & Bruce, 1994, p. 580). West and Farr (1990) defined innovation as the "voluntary introduction and application of ideas, procedures, processes or products that are new to those who adopt them, within an organization or work group, and that confer benefits to society at large, organizations, groups or individuals" (p. 9). Thus, the innovative behavior of employees is related to the production of new ideas and the behaviors that will be carried out to implement them in the organization, resulting in higher productivity and business performance (de Jong & Den Hartog, 2010; Uen et al., 2021). Such behavior is manifested in three phases of innovative development, idea generation, idea promotion and finally idea realization. In the first phase, employees identify needs, related to their work, and generate novel or adopted ideas to satisfy them, thus providing new solutions. The second phase is when employees seek support to promote their ideas and sponsors to provide resources to implement them. And the last and third phase is when employees transform their ideas into a product, process or service that can be offered or used within a work group or the organization (Janssen, 2000). These stages cannot be seen empirically and may be combined. Thus, and although, theoretically, it is a construct with three dimensions, most research has observed high correlations between these stages, which is why it can be considered as a unidimensional construct (Bos-Nehles et al., 2017; Janssen, 2000).

PsyCap and innovative work behavior

The conservation-of-resources (COR) theory provides our study with a conceptual framework from which workers decide to conserve, acquire or develop a series of personal resources, subject to motivational factors (Hobfoll et al., 2018). According to the COR theory, employees will be motivated to use their resources and adopt a particular behavior, depending on the job or task assigned and on whether such behavior helps to maintain their resources, obtain them, or entails some loss. Individuals with many resources will cope with difficulties and achieve desired goals, being less likely to lose them and obtaining them more easily (Hobfoll et al., 2018). Based on the mechanisms of the COR theory, PsyCap can be interpreted as a psychological resource that will allow responding positively to work challenge (Laschinger & Fida, 2014) as long as individuals attach importance to such goals (Hobfoll et al., 2018). This individual motivational factor, supported by personal resources, will imply a unique and exclusive effect on organizational behavioral outcomes (Alessandri et al., 2018). Considering innovation at work important and challenging activates personal resources with the aim of obtaining a series of benefits, such as acquiring knowledge and developing both personally as well as professionally, investing resources and thus acquiring new ones (Wang et al., 2021). Thus, PsyCap provides employees with positive resources to face goals or challenges in creative and innovative ways (Hsu & Chen, 2017) by developing pathways to achieve goals (hope), trusting themselves as they move through them (self-efficacy), relying on a positive vision of the future (optimism), and adapting to difficulties and emerging stronger (resilience) (Luthans et al., 2015; Ziyae et al., 2015). PsyCap provides individuals with positive cognitive and motivational resources, not only for job performance, but also for persevering in the goals of achieving innovative results in organizations, even in the face of initial failures and difficulties (Abbas & Raja, 2015; Karakitapoğlu-Aygün et al., 2020). On the other hand, PsyCap produces positive emotions that could facilitate an increase in individual cognitive repertoire, and thus trigger more creative and innovative behavior (Luthans et al., 2011). According to Fredrickson's (2013) expand-and-build theory, positive emotions expand thought-action repertoires and originate an accumulation of resources, available

to the individual, so that a high PsyCap would increase innovative behaviors, due to a greater capacity to combine thoughts and ideas (Luthans et al., 2011). Thus, PsyCap would be positively related to creative performance (Ozturk & Karatepe, 2019), creativity (Cai et al., 2019) and innovative work behavior (Abbas & Raja, 2015; Nwanzu & Babalola, 2019; Paul & Devi, 2018). The scientific community is responding to the call for research on PsyCap and its influence on innovative work behavior, and multilevel research is emerging, providing further insight into the relationship of team PsyCap (Uen et al., 2021) and leader PsyCap (Wang et al., 2021), on individual-level employee innovative behavior, resulting in positive findings in both studies. Similarly, Tsegaye et al. (2020) studied the effect of PsyCap on innovative behavior in culturally diverse employees, resulting in a positive moderating effect on most employees' cultural value orientations (Hofstede, 2011). Still, studies on PsyCap and employees' innovative behavior remain scarce, and researchers call to deepen the relationships and mediate and moderate variables (Newman et al., 2014; Nwanzu & Babalola, 2019; Sameer & Ohly, 2017) that may influence innovative behavior. Based on the above considerations, we formulate the following hypothesis:

H1: Employees' psychological capital will be positively related to innovative work behavior.

The role of motivation

Motivation is the force that drives and activates human behavior, and stimulates it to action (Pinder, 2008). A motivated person will be energized or activated towards an end (Ryan & Deci, 2017). Self-determination theory (SDT) (Ryan & Deci, 2017), is a theory of motivation that defines it as an individual psychological process, influenced by innate personal needs and interactions with the environment. According to the SDT, there are three categories of motivation, six levels of self-determination and two types of intention. Lack of intention would correspond to lack of motivation, and the presence of intention to controlled motivation and autonomous motivation.

The present article focuses on the latter, referring to a person behaving with a full sense of will and choice (Gillet et al., 2013) and involving in personally meaningful and satisfying actions, as opposed to controlled motivation performing tasks driven by external reasons. The most autonomous levels of self-determination would be intrinsic motivation and external motivation with integrated regulation, the latter completely internalized because the values that guide the individual's behavior are congruent with his or her internal values and needs (Battistelli et al., 2013). According to Ryan and Deci (2017), promoting self-determined motivation would be feasible under a social environment that allows the satisfaction of three basic human psychological needs: the need for competence (feeling effective and competent), the need for autonomy (self-organization and control over your own actions) and the need for relatedness (belonging and support) (Bammens et al., 2015), essential to achieve well-being and personal and social development (Piedimonte & Depaula, 2018). Several authors have suggested that individual differences could affect the worker's valuation of his or her environment, and consequently meet or not meet such needs (Gagné & Vansteenkiste, 2013; Ferraro et al., 2018). Individuals with high levels of self-efficacy, optimism, hope and resilience (PsyCap) could perceive that satisfying environment as more accessible, due to a beneficial positive psychological state of mind (Oliveira, 2016). According to the POB, the psychological mechanisms that connect the PsyCap dimensions in a central factor would be rooted in a motivated and persevering effort to achieve the proposed goals (Youssef-Morgan, 2014). Autonomous motivation as a driving force could activate PsyCap and favor the perception of the environment and, consequently, the satisfaction of the three basic psychological needs. Although there are very few studies linking the PsyCap concept and the SDT theory, recently, Datu et al. (2018) found that PsyCap positively predicted autonomous motivation and controlled motivation in a longitudinal study, with the highest values for autonomous motivation at both measurement times. Corroborating those results, Fidelis et al. (2021) found that the higher the PsyCap level, the more the motivation increased toward the more autonomous types of regulation, thus manifesting that there is a relationship between the

SDT theory motivation continuum and employees' PsyCap. And finally, Oliveira (2016) reported a significant and negative relationship between PsyCap and demotivation, mediated by the frustration of basic needs satisfaction, with which PsyCap also had a negative relationship in a sample of unemployed people in Portugal. Thus, and due to the recent call of the scientific community to investigate the role of PsyCap in individual motivation (Datu et al., 2018; Fidelis et al., 2021) and supported by the SDT theory, we propose that:

H2: Employees' psychological capital will be positively related to autonomous motivation at work.

On the other hand, several researchers state that the innovation process is complex and risky, involves breaking stability and routine, and requires considerable effort (e.g., Kwon & Kim, 2020). It is an employee self-initiation procedure, derived from a motivational process that may not be accepted by their supervisors, and facing resistance from the rest of the employees who do not want the change (Carmeli et al., 2006; Tsegaye et al., 2020). That self-initiation process and interest in engaging in discretionary behaviors, such as innovative behavior, will be derived from motivational attitudes, and specifically from more self-determined forms of motivation (Bin Saeed et al., 2019). Because, as we discussed earlier, the innovation process is complex and risky, employees need drives such as intrinsic motivation to overcome the challenges of innovative behavior (Gupta, 2020), in addition to being cognitively flexible and perseverant (Shin, 2015), conditions also provided by PsyCap (Luthans et al., 2015). These challenges require a high level of PsyCap that would favor the perception of the environment and, consequently, the satisfaction of the three basic psychological needs. This would create a predisposition to greater self-determined motivation in employees that would act as a mediator to carry out innovative behaviors, a more motivated and autonomous PsyCap that would manifest itself in better organizational results (Ferraro et al., 2018). There are not many studies that have investigated the mediating role of autonomous motivation in relation to innovative work behavior, but we estimate that

employees with high levels of PsyCap will obtain higher autonomous motivation to generate, promote, and implement novel ideas. Numerous investigations have demonstrated the importance of intrinsic motivation in employee creativity (Amabile et al., 2018; Hammond et al., 2011), and given that creativity is associated with, but not exclusive to, the idea generation phase of innovative behavior, intrinsic motivation should relate to innovative behavior in all its phases (Yuan & Woodman, 2010).

On the other hand, studies by Ngan (2015) and Chen et al. (2010), based on the motivational synergy proposed by the intrinsic-extrinsic combination to benefit motivation in organizations (Amabile & Pratt, 2016), identified the importance of the combination of both types of motivation to have positive results in all stages of innovative behavior. Most of the studies that were consulted study the relationship of intrinsic motivation with innovative behavior, or the relationship of intrinsic versus extrinsic motivation in such behavior (Montani et al., 2017), neglecting the motivational synergy between the two, something that seems fundamental to us in our research. Thus, Gupta (2020) revealed that autonomous motivation (integrated extrinsic motivation and intrinsic motivation) mediated the relationship of leadership and innovative work behavior, so that both complement each other and foster individual innovation. Definitely, the results of the studies converge on the benefits of autonomous motivation for employees' innovative behavior (Saether, 2019), as they perceive the importance of innovation and significant changes at work in a more pronounced way (Montani et al., 2015), and their actions are congruent with their pleasure and enjoyment, values and interests. Based on the above, the hypothesis on the mediating effect of autonomous motivation is stated as follows:

H3: Autonomous work motivation mediates the relationship between individual PsyCap and innovative work behavior.

The moderating effect of participative leadership

Leadership plays a crucial role in developing work environments that enhance employee performance (Laschinger & Fida, 2014; Gupta & Singh, 2015). We can define leadership as the process by which an individual influences follower to contribute to the success of organizational goals (Bass, 2008) by setting direction, aligning employees, and motivating them (Kotter, 2008). Researchers attempt to determine the leadership behaviors and characteristics that facilitate employees' innovative behavior distinguishing it as one of its best predictors (e.g., Lukowski, 2017; Sethibe & Steyn, 2017). Leadership exhibits differences in its relationship with innovative work behavior, due to the intervention of other variables (Rosing et al., 2011), including individual differences in followers (Shin, 2015). Thus, the PsyCap of employees considered an individual personal resource would be reinforced by leadership as a work resource that would favor a positive mindset, contributing in obtaining a series of resources in exchange for others, as shown by the COR theory (Hobfoll et al., 2018). These benefits or new resources could be, for example, acquiring knowledge and developing on a personal and professional level (Wang et al., 2021). Our study also relies on the social-exchange theory (SET), theorizing that an individual performs a behavior in a given relationship according to the benefits or costs involved (Blau, 2017; Xerri, 2013). Consequently, by receiving, for example, trust from leaders or involving them in decision making, employees would decide to reciprocally compensate such behavior and engage in discretionary behaviors such as innovative behavior (Li & Hsu, 2018). Gupta (2020) revealed that positive leadership behaviors can foster followers' autonomous motivation, thus satisfying more self-determined levels of motivation. When employees are invited to participate in decision making, their sense of competence increases, as their opinions are heard and trust in the leader grows (Chang et al., 2019, Wang et al., 2022). Similarly, giving them some responsibility for decision making, problem solving and designing their own tasks increases their autonomy (Wang et al., 2022). In addition, building positive relationships with followers (Chan, 2019) helps more open communication among team members, which decreases barriers between them and favors the needs for relatedness, belonging and support (Chang et al., 2019). These types of behaviors are

part of participative leadership, a leadership that involves followers in decision making, valuing their views and opinions (Wang et al., 2022). In participative management, leaders and followers meet, discuss problems and express their views, so that employees are assigned greater responsibility and perceive a bigger influence on organizational decisions (Chan, 2019). The critical and analytical exchange and discussion of new ideas enhances employee involvement in the solutions adopted, due to the sense of ownership of these solutions (Wang et al., 2022). The participative leader invites the expression of ideas, generating a climate of trust and respect in which employees feel free to raise novel ideas without fear of ridicule or lack of approval (Edmondson & Lei, 2014; Rego et al., 2012), thus facilitating the exploration of new cognitive avenues and adopting more innovative behaviors (Odoardi et al., 2019). Recently, a literature review on participative leadership (Wang et al., 2022) examines its conceptualization and measurement, investigates the role of such leadership style in organizations, and provides excellent material for further study in the future.

In our model and according to the SET theory, the moderating effect of participative leadership that fosters innovation to explore new opportunities and challenges (Edmondson & Lei, 2014) could lead employees to make the decision to reciprocally compensate such leadership style with innovative behaviors. Such encouragement of innovation would attribute positive meaning to innovative behavior and activate employees' PsyCap through autonomous motivation that aligns action, goal and personal values with the enjoyment and pleasure, associated with their accomplishment. The moderating impact of participative leadership has hardly been examined in literature, but several studies have shown a positive relationship between participative leadership and innovative behavior at work. Krause (2004) found a positive and significant relationship between support for innovation, participation in decision making, and autonomy in idea generation and implementation, and Somech (2005) related participative leadership to the innovation of several teams in different elementary schools. More recently, Odoardi et al., (2019) found that the relationship between affective organizational commitment and innovative employee

behavior was stronger when participative leadership at the team level was high. Furthermore, participative leadership has been positively related to performance when employees perceived that their leaders exhibited consistently high participative leadership and high information sharing (Lam et al., 2015). Consequently, we suggest that participative leadership would act as a moderator of the relationship between autonomous motivation and employees' innovative behavior. This leads us to the following hypothesis:

H4: Participative leadership will moderate the relationship between autonomous motivation and employees' innovative behavior, with the relationship being stronger when participative leadership is higher.

The proposed research model can be seen in Figure 1.

Insert Figure 1 here

Method

Participants and Procedure

This study was conducted in Spain based on a sample obtained from three social networks, LinkedIn, Facebook and Whatsapp, adding two reminders ten days apart. A total of 349 employees from public and private organizations agreed to participate in the study through the online interview platform Qualtrics, but only 246 questionnaires were valid for data analysis due to systematic errors or incomplete information (response rate = 70.5%). The professional fields of the participants were mainly healthcare, public services, manufacturing, hospitality, information technology, banking and finance, education and other less prominent fields. Of all the participants, 171 (69.5%) were female. The average age of all

participants was 43 years ($SD = 9.52$). Of the total sample, 65.9% of the employees belonged to large companies, 72% to the service sector, and 85% worked full time. In addition, 67% worked entirely on a face-to-face basis, the others opting for telework or mixed alternatives. The questionnaire, which took approximately 15 minutes to complete, was addressed to active employees, regardless of job position, task or function performed, via a link. All participants provided the requested data after reading the informed consent that guarantees confidentiality and voluntarily agreeing to participate in the study.

Measures

Psychological capital (PsyCap) was measured using the short Spanish version of 12-items of the Psychological Capital Questionnaire (PCQ-12) (Avey, Avolio & Luthans, 2011). This questionnaire, distributed by Mind Garden, Inc., contains four items to measure hope, three items to measure self-efficacy, three items to measure resilience, and two items to measure optimism [1]. Examples of items for each subscale are: optimism “I’m optimistic about what will happen to me in the future as it pertains to work”, hope “I can think of many ways to reach my current work goals”, resilience “I usually take stressful things at work in stride”. Items were measured on a six-point Likert scale ranging from 1 “strongly disagree” to 6 “strongly agree”.

Autonomous Work Motivation was measured using a 5-item for the two dimensions of intrinsic motivation and integrated motivation from the Multidimensional Work Motivation Scale (MWMS) of Battistelli et al. (2017). This measure is a Spanish version of the original MWMS of Gagné et al. (2015). Sample items include: intrinsic motivation “I try hard because I enjoy this work very much”, integrated motivation “I strive because I am fully fulfilled in this work”. Participants answered on a seven-point Likert type scale ranging from 1 "not at all" to 7 "completely".

Innovative work behavior (IWB) was assessed using a 9-item scale, developed by Janssen (2000) and used in its Spanish version (González et al., 2020). The IWB includes three different subscales: generation of

ideas, promotion of ideas and realization of ideas. Respondents were asked to rate how often they adopt a series of innovative behaviors in their work. Sample items include: realization “How often do you transform your innovative ideas into useful applications for your work?”, generation “How often do you generate new ideas for difficult issues?”, promotion “How often are you acquiring approval for innovative ideas?”. The items were measured on a five-point Likert scale type ranging from 1 “rarely” to 5 “often”.

Participative Leadership was measured using a 6-item of the participative decision-making scale, developed by Arnold et al. (2000) to measure Empowering Leadership (ELQ). The Spanish version of the ELQ was obtained from the translation, used by Becerra Pando et al. (2017). An example of an item is: "My direct supervisor encourages work group members to express ideas/suggestions". Responses to items ranged from 1 “never” to 5 “always”.

Results

Confirmatory Factor Analysis

We first conducted a confirmatory factor analysis (CFA) by maximum likelihood estimation with the AMOS 21.0 statistical software (Arbuckle, 2016) on the four variables of our study: psychological capital, autonomous motivation, innovative work behavior and participative leadership. Results are presented in Table 1. The fit of the hypothesized four-factor model, in which each multi-item scale loaded on a first-order latent factor, was acceptable. This model was compared with two alternative, more parsimonious models with three factors each. In the first, psychological capital and autonomous motivation loaded on a single factor ($\Delta\chi^2 (1 \text{ gl}) = 451.033$), and in the second model, autonomous motivation and participative leadership loaded on a single factor ($\Delta\chi^2 (1 \text{ gl}) = 879.735$). Finally, the hypothesized four-factor model was compared with a single-factor model in which all independent variables loaded on a common factor ($\Delta\chi^2 (4 \text{ gl}) = 1970.572$). Thus, as can be seen in table 2, the results

indicated that the four-factor model fitted the data well, according to the recommended criteria (Hu & Bentler, 1999), and was better than any of the alternative modes, so the four-factor model was retained.

Insert Table 1 here

Descriptive Analyses

First, descriptive analyses were performed and internal consistencies (Cronbach's alpha) were analyzed for each of the study scales using IBM SPSS Statistics 22.0. The means, standard deviations and correlations between the dimensions of PsyCap, autonomous motivation, innovative behavior and participative leadership are presented in Table 2. Because PsyCap, autonomous motivation, participative leadership and innovative work behavior were measured at the same time by the same source, we checked whether the matrix is affected by common variance bias, in which case all the variables analyzed would be grouped into a single factor, using Harman's one-factor test (Podsakoff et al., 2003). In our study data, there are no problems of common method bias, as the total variance extracted by one factor is 36.39% and therefore below the recommended threshold of 50%. Consequently, common method bias did not significantly distort the results of our study.

Insert Table 2 here

Hypothesis Testing

The macro script "PROCESS" version 3.5.3, developed by Hayes (2017) (complementary program to SPSS), was used to test the mediation and moderation effects. When assessing indirect effects, PROCESS allows the use of bootstrapping, a resampling strategy for estimation and hypothesis testing where the sample is conceptualized as a pseudo-population representing the larger population from which the sample was derived (Preacher, Rucker and Hayes, 2007, p. 190). In our case we used 10,000 bootstrap samples (95% CI). Firstly, we tested if the autonomous motivation mediated the relationship between

PsyCap and innovative work behavior. The results, as can be seen in Table 3, showed that PsyCap was positively associated with innovative work behavior [$\beta = 0.284$, $t = 4.099$, 95% CI = (0.147, 0.420)] and autonomous motivation [$\beta = 0.857$, $t = 7.768$, 95% CI = (0.639, 1.074)], which supports hypotheses 1 and 2. Furthermore, autonomous motivation was positively associated with innovative work behavior [$\beta = 0.275$, $t = 7.660$, 95% CI = (0.205, 0.346)] and the indirect effect between PsyCap and innovative work behavior was significant. [$\beta = 0.236$, 95% CI = (0.150, 0.334)]. The total effect (direct effect + indirect effect) of PsyCap on the IWB through autonomous motivation was also significant [$\beta = 0.520$, $t = 7.543$, 95% CI = (0.384, 0.655)]. Therefore, our hypothesis 3 was supported. The statistically significant direct effect of PsyCap on innovative work behavior, once the autonomous motivation mediator was included, supported a partial mediation.

Second, we examine the moderating role of participative leadership. As shown in Table 4, autonomous motivation was positively associated with innovative work behavior [$\beta = 0.249$, 95% CI = (0.178, 0.320)], and the interaction of autonomous motivation and participative leadership played a significant role in innovative work behavior [$\beta = -0.075$, 95% CI = (0.015, 0.136)]. The moderate mediation index (0.064) was significant [95% CI = (0.015, 0.123)], therefore, the indirect effect of PsyCap on innovative work behavior through autonomous motivation was moderated by participative leadership (Table 5).

Additionally, the conditional indirect effect on the participative leadership values was calculated at three levels, as we can see in Table 6: a high one with a higher standard deviation (+0.67), the mean value, and a low one with a lower standard deviation (-0.67). The results showed that, at high levels [effect = 0.280, 95% CI: (0.170, 0.403)], medium [effect = 0.213, 95% CI: (0.125, 0.315)] and low [effect = 0.147, 95% CI: (0.046, 0.250)] for participative leadership, the conditional indirect effect between PsyCap and innovative work behavior was significant, the greatest effect being at high levels of

participative leadership, as shown in Figure 2. These results support hypothesis 4. In any case, and due to the limited number of previous research regarding the possibility of a reciprocal relationship between PsyCap and autonomous motivation (Datu et al., 2018), we decided to conduct an additional analysis by testing an alternative moderated mediation model (i.e., autonomous motivation - PsyCap - IWB, and participative leadership as moderator). The results did not support this alternative model, due to the lack of moderate mediation [effect = 0.012, 95% CI: (-0.013, 0.039)].

Insert Table 3 here

Insert Table 4 here

Insert Table 5 here

Insert Table 6 here

Insert Figure 2 here

Discussion

The study examined the influence of PsyCap on innovative work behavior in employees with a wide variety of functions, as well as the role of autonomous motivation and participative leadership in the relationship between PsyCap and such innovative behavior. Overall, the results confirmed that there is a positive relationship between PsyCap and IWB (confirming hypothesis 1), and that this relationship is partially mediated by autonomous motivation (confirming hypotheses 2 and 3). In addition, the results show the moderating role of participative leadership in the relationship between autonomous motivation and IWB (confirming hypothesis 4), with the relationship being stronger when participative leadership is higher. Consequently, when employees perceive participative leadership, they more readily develop innovative behaviors. The results provide implications for research and practice.

Theoretical Implications

This article contributes to the existing literature on the individual and contextual factors that would be related positively to innovative behavior in organizations and the underlying motivational processes. First, we have provided evidence about the relationship of PsyCap on innovative work behavior. Under the framework of the COR theory (Hobfoll et al., 2018), we have extended knowledge of the role of PsyCap in motivational processes, oriented toward innovative behavior. The COR theory defines employees' decision-making ability to adopt a certain behavior, taking into account the preservation, acquisition or development of a number of personal resources. The result of our study is consistent with the COR theory, as activating PsyCap would provide employees with positive resources to face challenges in a creative and innovative way (Hsu & Chen; 2017), in exchange for a number of benefits and new desired resources, such as increasing efficacy beliefs or professional and personal development, thus increasing their "resource caravan" (Hobfoll et al., 2018). These results are consistent with previous studies (Abbas & Raja, 2015; Gupta & Singh, 2014; Jafri, 2012; Paul & Devi, 2018; Sameer, 2018; Ziyae et al., 2015). Second, the results would also support that PsyCap would be related to IWB through autonomous motivation. Relying on the theoretical framework of SDT (Ryan & Deci, 2017), the results confirm that, thanks to PsyCap and its beneficial positive mental state, the three basic human psychological needs could be satisfied to a great extent, deriving in the emergence of the most self-determined motivational states. This relationship would be consistent with previous studies (Datu et al., 2018; Fidelis et al., 2021). On the other hand, and according to Bin Saeed et al. (2019), the interest to engage in discretionary behaviors such as innovative behavior would be derived from motivational attitudes, and specifically from the more self-determined forms of motivation. Thus, employees would perceive the importance of innovation and significant changes at work more strongly (Montani et al., 2015), and their actions would be congruent with their pleasure and enjoyment, values and interests. The results of our study confirm the hypothesized spillover effects. Third, our results provide evidence about

the moderating effect of participative leadership on the relationship between autonomous motivation and innovative work behavior, supporting that this relationship will be stronger when participative leadership is higher, as we hypothesized. Under the theoretical framework of the SET, which indicates that an individual performs a behavior in a given relationship, according to the benefits or costs involved (Blau, 2017; Xerri, 2013), we found the following evidence: involving followers in decision making would result in an increase in their innovative behavior, enabling them to compensate for the behaviors of the participative leader. Moreover, in the same way as PsyCap, the behaviors of a participative leader could facilitate the satisfaction of basic needs (competence, autonomy and relatedness) and consequently develop the most self-determined types of motivation. Also, the leader's encouragement of innovation to explore new opportunities and challenges (Edmondson & Lei, 2014), and the attribution of positive meaning to innovative behavior, would activate employees' PsyCap through autonomous motivation. This would align the action, goal, and personal values (integrated motivation) with the enjoyment and pleasure involved in their accomplishment (intrinsic motivation). Our results suggest that this would lead to greater innovative work behavior, as well as being consistent with previous studies (Fatima et al., 2017; Odoardi et al., 2019). In short, the results suggest that, when employees possess high PsyCap, their innovative work behavior is also high, and this relationship is stronger if employees possess high levels of autonomous motivation and perceive participative leadership. This study goes a step further by suggesting that employees with high PsyCap (personal resource) may perceive a more favorable environment (work resource), due to a positive mindset, thus increasing their self-determined motivation and consequently innovative work behavior, obtaining a number of resources in exchange for others, as determined by the COR (Hobfoll et al., 2018) and SET (Blau, 2017) theories.

Finally, this article responds to calls in literature to study the psychological processes that lead employees to engage in innovative behavior (Anderson et al., 2014; Battistelli, 2014), in addition to seeking a greater understanding of the role of PsyCap in organizations (Rego et al., 2012). Also, this

study represents a step forward for the literature, since it explores the synergy between the motivational processes of SDT and POB, suggested by several authors (Kong & Ho, 2016; Verleysen et al., 2015), thereby deepening the knowledge of positive human development.

Practical Implications

Our results show that a positive psychological environment seems to be fundamental in increasing the motivation and innovative behavior of employees, thus leading to greater innovation in organizations. Innovation is an important part of organizational strategy and is considered essential in all departments of the organization. Undoubtedly, all employees can be part of generating, promoting and implementing an idea, so companies should develop strategies and practices at the organizational and individual levels to enhance employees' innovative behavior (Tang et al., 2019). At the organizational level, companies can build a culture that supports innovation by granting recognition to innovative employees, developing managers' interpersonal skills and problem-solving techniques, and establishing flexible and participatory practices where employees have confidence to express their opinions without fear of ridicule, error, or punishment. Companies can guide their leaders to develop participative behaviors, promote cooperation and group cohesion, encourage employees to participate in decision making, and organize regular meetings to identify problems, opportunities, and promote and implement innovative ideas. From a self-determination theory perspective, leaders should seek to satisfy the basic needs of competence, autonomy and relatedness by designing practices and initiating behaviors toward their followers (Ryan & Deci, 2017). Delegation of attributions, empowerment, alignment of values with the organization, order of task execution, feedback, constructive criticism to employees on new ideas, tangible and intangible incentives to innovation, and dissemination of innovative proposals to top management would favor the emergence of the more self-determined types of motivation, thus contributing to greater innovative behavior on the part of employees (Choi et al., 2016; Cingöz & Akdoğan, 2011; Garg & Dhar, 2017; Odoardi et al.,

2019). On the other hand, maintaining excellent relationships and position in social networks by the organization ensures high visibility and updates on new trends in the sector that could provide solutions or innovative ideas to be explored (Ngan, 2015). At the individual level, it is considered of great strategic importance to develop employee positivity. PsyCap is a valuable resource for gaining positive psychological functioning, coping with adversities, and achieving at work. Interventions and training are effective procedures to enhance employees' personal resources (Bakker et al., 2023), and specific training to develop and maintain PsyCap could be a valuable tool to incorporate into human resource development programs in organizations (Roemer & Harris, 2018). Luthans, Youssef and Avolio, (2007) developed and implemented so-called "micro interventions" (lasting between 1 and 3 hours) which develop the PsyCap components in an integrated and synergistic manner, due to the fact that PsyCap is a state-type construct and is open to development. These psychological capital interventions (PCI), have been shown to increase PsyCap levels, even in brief online trainings (Luthans et al., 2008). This type of online training is interesting for organizations because of its flexibility and compatibility with work schedules (Meyers et al., 2013). Increasing employees' PsyCap levels through PCIs will not only help increase the positive psychological functioning and motivation of our human capital, but will promote positive changes and outcomes within organizations, such as the development of innovative behavior (Abbas & Raja, 2015; Ziyae et al., 2015), job satisfaction, organizational commitment, psychological well-being and performance, and decrease negative outcomes such as anxiety, stress and job turnover, among others (Avey, Reichard et al., 2011). In short, and due to the importance, that innovation generates in the future of the company, it is recommended that organizations adequately manage the social and individual resources of employees to improve motivational processes and innovative behavior, thus promoting greater competitive advantage and business success.

Limitations and Future Research Directions

Although our study provides interesting results, it also has limitations that reduce the generalizability of the findings. First, data collection was obtained through self-report measures. This may cause the relationships between variables to be exaggerated, and our results to be influenced by common method bias due to the cross-sectional research design (Podsakoff et al., 2003). Since the constructs studied (PsyCap, autonomous motivation, and innovative work behavior) are concerned with the internal states of individuals, we argue that it is logical to collect data directly from the participants themselves, as they are the most accurate source of their internal perceptions. Still, to address this problem, we followed the recommendations of Podsakoff et al. (2003) and ensured the anonymity of the respondents. Thus, we ensure the reduction of the probability of common method bias, as the possibility of this error can never be completely ruled out. Nevertheless, we believe that multilevel research would provide greater insight into the relationships, as perceived by the employee, co-workers and supervisors (Battistelli, 2014), and would allow us to gain a deeper understanding of the dynamics of organizational and individual factors in employee behavior. We encourage researchers to conduct studies at the team and organizational levels, in order to learn more about psychological processes within organizations, including ratings from other sources such as supervisors, peers, interviews, or through "participant observation." Second, our study was based on a cross-sectional design, so we cannot establish causal connections between the research variables (Bono and McNamara, 2011). This is even more relevant in our study because it analyzes moderated mediation, a difficult combination to explore in part because of unmeasured moderators affecting the strength of the mediated relationship (Calantone et al., 2017; Preacher, Rucker, & Hayes, 2007). Studies in the future could adopt a longitudinal research design to establish directionality and allow for causal interpretation. A third limitation that could be considered is the size and variety of professions and participants in the sample, leading to limited generalizability of our results. To make our model more robust, it would be advisable to replicate the study in different populations, countries and organizations with diversified sizes and characteristics. On the other hand, we have studied all the

variables globally and may have overlooked unique relationships between the different sub-dimensions. For example, each stage of innovative behavior might require a different type of motivational regulation according to the SDT theory (Ngan, 2015). Despite the limitations, our results evidence that the PsyCap and autonomous motivation variables are positively related, and that both may favor innovative behavior in employees. Employees' perceptions of their leader also showed that participative management helps innovative behavior. Finally, we should consider that certain factors that were not studied could influence the results, so future research should examine other mediators or moderators that would enhance the relationship of PsyCap on innovative work behavior.

Notes

¹We contacted Mindgarden to acquire the license and use the questionnaire in Spanish. We requested the number of questionnaires and the time of use. Free for research.

‘The Author(s) declare(s) that there is no conflict of interest’

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Table 1. Fit indices for confirmatory factor analysis

Model	χ^2	df	$\Delta\chi^2$	Δ df	CFI	TLI	SRMR	RMSEA
Hypothesized model	867.913	426	--	--	.913	.905	.0601	.065
Three factors: Combining PsyCap and AM	1321.672	429	453.759	3	.825	.810	.1070	.092
Three factors: Combining AM and PL	1750.374	429	882.461	3	.741	.719	.1057	.112
One factor model	2841.211	432	1973.298	6	.528	.492	.1255	.151

Note: N = 246. AM = autonomous motivation; PL = participative leadership; PsyCap = psychological capital; df. = degree of freedom; $\Delta\chi^2$; χ^2 difference tests between the four-factor model and alternative models; CFI = Comparative Fit Index; TLI = Tucker Lewis Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

Table 2. Means, Standard Deviations, and Correlations

Variables	Mean	SD	1	2	3	4
PsyCap	4.64	.67	--			
AM	3.35	.78	.45**	--		

IWB	4.65	1.25	.48**	.53**	--	
PL	2.48	.67	.40**	.39**	.42**	--

Note: N = 246. AM = autonomous motivation; IWB = innovative work behavior; PL = participative leadership; PsyCap = psychological capital. *p < .05, **p < .01

Table 3. Mediating effect of autonomous motivation in the relationship between PsyCap and innovative work behavior.

	β	SE	t	p	LLCI	ULCI
Direct Effects						
PsyCap-AM	0.857***	0.110	7.768	.000	0.639	1.074
AM-IWB	0.275***	0.036	7.660	.000	0.205	0.346
PsyCap-IWB	0.284***	0.069	4.099	.000	0.147	0.420
	Boot β	Boot SE			LLCI	ULCI
Indirect Effect						
PsyCap-AM-IWB	0.236***	0.047			0.150	0.334
	β	SE	t	p	LLCI	ULCI
Total Effect						
PsyCap-IWB	0.520***	0.069	7.543	.000	0.384	0.655

Notes: N=246. AM = autonomous motivation; IWB = innovative work behavior; PsyCap = psychological capital. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. *P<0.05, **P<0.01, ***P<0.001.

Table 4. Results of participative leadership moderate the mediation process.

	β	SE	t	p	LLCI	ULCI
Moderated mediation analysis						
Outcome variable: AM						
PsyCap	0.857***	0.110	7.768	.000	0.639	1.074
Outcome variable: IWB						
PsyCap	0.204**	0.070	2.897	.004	0.065	0.342
AM	0.249***	0.036	6.880	.000	0.178	0.320
PL	0.162**	0.045	3.589	.000	0.073	0.250
AM x PL	0.075**	0.031	2.447	.015	0.015	0.136

Notes: N=246. AM = autonomous motivation; IWB = innovative work behavior; PL = participative leadership; PsyCap = psychological capital. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit. *P<0.05, **P<0.01, ***P<0.001.

Table 5. Index of moderated mediation.

Variables	Index	Boot SE	Boot LLCI	Boot ULCI
Participative Leadership	0.064	0.028	0.015	0.123

Notes: N=246. Bootstrap size = 10000, bootstrap confidence interval = 95%. LL, low limit; CI, confidence interval; UL, upper limit.

Table 6. Results for conditional indirect effect analysis.

Participative Leadership	Effect	Boot SE	Boot LLCI	Boot ULCI
-1 SD (-0.67)	0.147	0.052	0.046	0.250
Mean	0.213	0.048	0.125	0.315
+1 SD (+0.67)	0.280	0.060	0.170	0.403

Bootstrap size = 10000. SD, standard deviation; LL, low limit; CI, confidence interval; UL, upper limit.

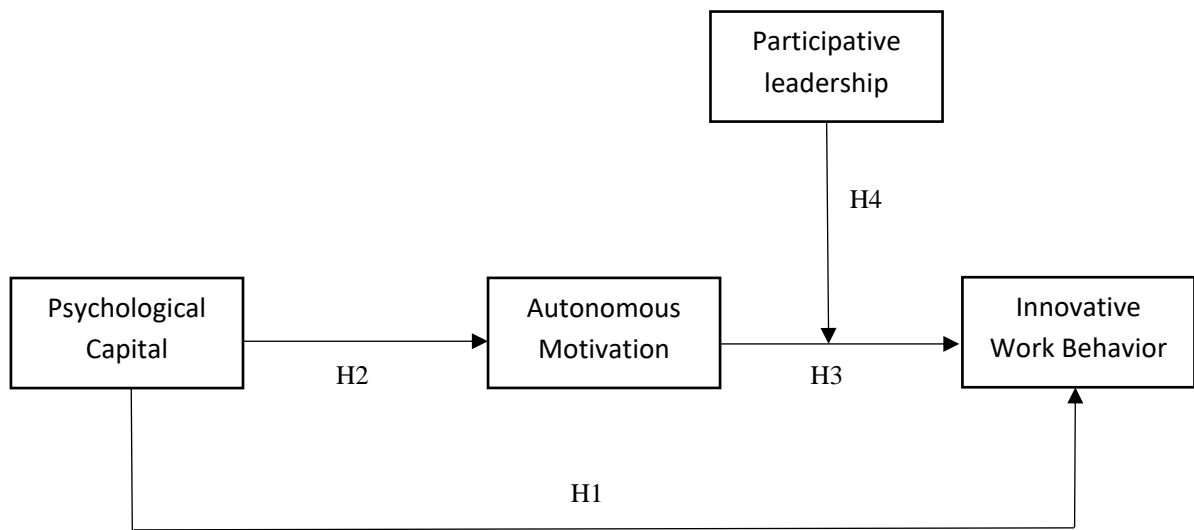


Figure 1. Research model.

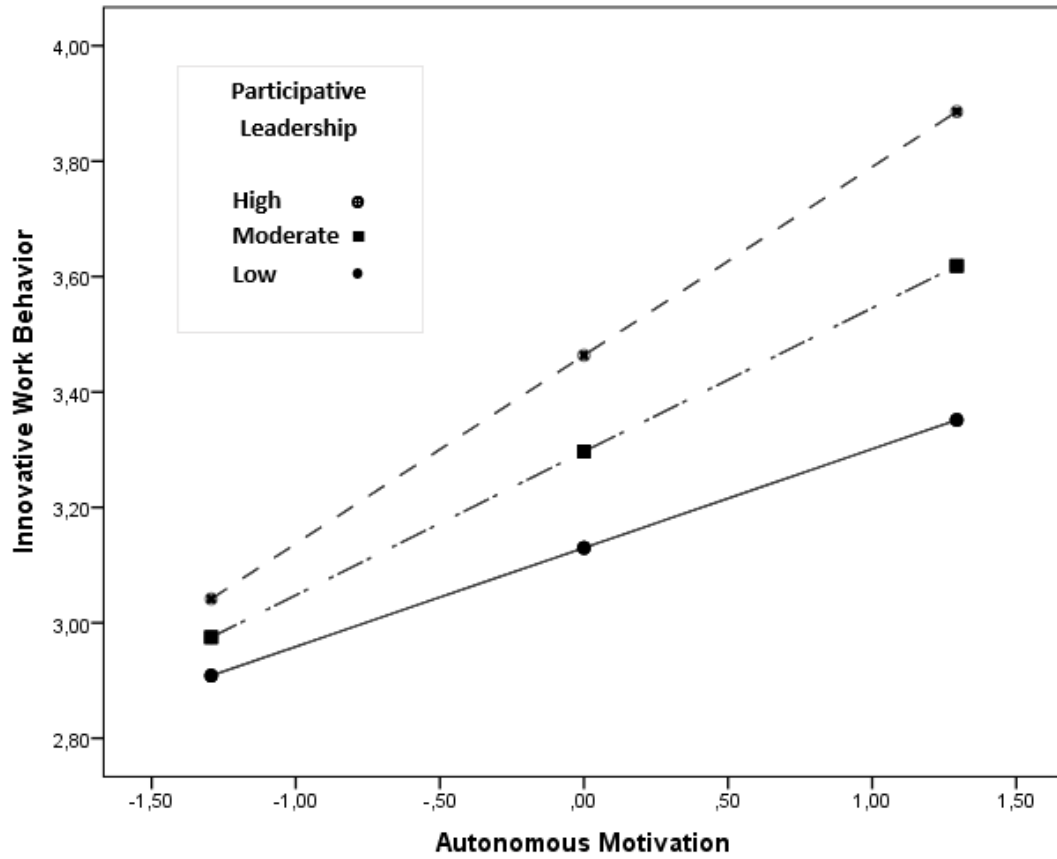


Figure 2. The moderation effect of participative leadership on autonomous motivation to innovative work behavior.