

Positive Psychological Capital and Innovative Work Behavior: A Systematic Literature Review

Carlos **Blasco-Giner** ^{1,3}, Isabella **Meneghel** ², & Guillaume R.M **Déprez** ¹

¹ Department of Psychology EA4139, Université de Bordeaux, Bordeaux, France. E-mails: carlos.blasco@u-bordeaux.fr (corresponding author), guillaume.deprez@u-bordeaux.fr.

² Area of Psychology and Mind Health, Universitat Internacional de Catalunya, Barcelona, Spain. E-mail: imeneghel@uic.es

³ WANT Research Team, Universitat Jaume I, Castelló de La Plana, Spain. E-mail: al350769@uji.es (corresponding author)

Corresponding author: Carlos Blasco-Giner
Université de Bordeaux, Laboratoire de Psychologie EA4139
3ter place de la Victoire, 33000 Bordeaux, France
Email: carlos.blasco@u-bordeaux.fr
ORCID: [0000-0001-9071-2105](https://orcid.org/0000-0001-9071-2105)

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ABSTRACT

In recent years, the concepts of positive psychological capital (PsyCap) and innovative work behavior (IWB) have attracted the attention of academics and human resources professionals for the benefits they bring to organizations. The aims of this article are: a) to present an overview of PsyCap and its relationship and influence as an antecedent, mediator, and moderator in IWB and; b) to analyze the variety of instruments that have been used to measure both constructs in the articles reviewed. A systematic literature review was conducted to obtain and analyze 39 publications in which both the terms, "psychological capital" and "innovative work behavior", appeared, adopting a series of exclusion-inclusion criteria in our final list. Our findings provide evidence of the relationship between the different roles of PsyCap and IWB, and present the most commonly used tools to explore this relationship, as well as a series of suggestions to facilitate future research.

KEYWORDS: psychological capital, PsyCap, innovative work behaviour, IWB, review.

RÉSUMÉ

Ces dernières années, les concepts de capital psychologique positif (PsyCap) et du comportement innovant au travail (IWB) ont attiré l'attention des académiques et des professionnels des ressources humaines en raison des avantages qu'ils apportent aux organisations. Les objectifs de cet article sont les suivants : a) présenter une vue d'ensemble du PsyCap, de sa relation et de son influence en tant qu'antécédent, médiateur et modérateur de l'IWB ; b) analyser la variété des instruments qui ont été utilisés pour mesurer ces deux concepts dans les articles examinés. Une analyse systématique de la littérature a été menée pour obtenir et analyser 39 publications dans lesquelles les termes "capital psychologique" et "comportement innovant au travail" apparaissaient, en adoptant une série de critères d'exclusion et d'inclusion dans notre liste finale. Nos résultats démontrent la relation entre les différents rôles de PsyCap et de l'IWB, et présentent les outils les plus couramment utilisés pour explorer cette relation, ainsi qu'une série de suggestions pour faciliter la recherche future.

MOTS-CLÉS : capital psychologique, PsyCap, comportement innovant au travail, IWB, synthèse.

I. INTRODUCTION

A series of global economic crises and recessions have marked the first years of the 21st century, transforming the global economy and affecting the business and organizational fabric (Tang et al., 2019). Radical changes in market demands, the constant evolution of science and technology, and even changes in the way we work have pushed organizations to recognize innovation as a primary strategy to maintain organizational effectiveness, and thus gain an essential competitive advantage (Asurakkody & Shin, 2018). This drive for innovation starts with employees (Anderson et al., 2014), and promoting and encouraging innovative behaviors has become part of the strategic development of organizations (Li & Hsu, 2016). Based on West and Farr (1990), such behavior is defined as the intentional creation, introduction and application in a job role, group, or organization of new ideas, processes, products, or procedures in order to benefit the performance of the role, the work team, or the organization. Thus, innovation at work contributes to organizational success due to increased responsiveness to market changes and uncertainties (Dorenbosch et al., 2005; Janssen, 2000; Woodman, 2014). However, the academic knowledge to trigger employee innovation is limited and depends on multiple factors. The interplay between individual, group, and organizational factors will increase or decrease innovativeness (West & Farr, 1990) directed at products, services, and processes, so that exploring the determinants of employee innovativeness is currently receiving a great deal of attention in academia (de Jong & Den Hartog, 2010). According to the literature, the antecedents that facilitate the IWB at the individual level would be a combination of internal and external factors. Internal factors refer to personal resources such as personality traits, abilities, cognitive styles, or psychological states such as positive and negative emotions, etc., while external factors would be distinguished between: (a) task-specific characteristics, such as autonomy or task variety, among others; and (b) specific resources of the social context, such as leadership, feedback or organizational justice (Battistelli, 2014; Rattanawichai et al., 2022). One of the individual factors that are attracting most interest in the scientific community

in recent years is psychological capital (PsyCap), a positive psychological state with a positive orientation which can be effectively measured, developed, and managed to improve job performance (Luthans et al., 2007). In their meta-analysis, Avey, Reichard et al. (2011) reported that PsyCap is positively related to desirable attitudes, behaviors, and performance, as well as to employees' psychological wellbeing. PsyCap facilitates a positive evaluation of reality, modifying the affective, cognitive, and behavioral capacity of individuals (Fidelis et al., 2021) thus, resulting in a construct that favors organizational change (Avey et al., 2008). Several research studies have demonstrated the relationship of PsyCap with innovative and creative behavior (e.g., Abbas & Raja, 2015; Paul & Devi, 2018), however, to date, there are no reviews that have addressed this relationship. In addition, Li and Zheng (2014) identified PsyCap as an antecedent influencing IWB in a literature review and proposed it as an emerging positive psychological resource associated with such behavior. For this reason, the purpose of this review is to contribute to the innovation literature in two ways: (a) the first is to analyze the relationship of PsyCap to innovative work behavior as an antecedent, mediator and moderator; and (b) the second is to reflect on the variety of instruments used to measure both constructs, especially the measurement of employee innovation and the confusion in determining the concept and the phases in which it develops. In the following, we will present the concepts that will be part of the review, followed by the method, results, practical and theoretical implications, limitations, and suggestions for future studies interested in the relationship between the two psychological constructs.

II. THEORETICAL BACKGROUNDS

II.1. INNOVATIVE WORK BEHAVIOR

Nowadays, employee innovation in organizations causes some confusion due to the variety of terms related to it, such as employee creativity, creative performance, creative behavior, innovation-related behaviors, innovativeness, individual innovation, innovative behavior, and so on (Asurakkody & Shin, 2018; de Jong & Den Hartog, 2007; Ng & Feldman, 2013).

Similarly, the concept has been described in terms of traits, characteristics, individual products, and behaviors (Kleysen & Street, 2001), which leads to some confusion when trying to operationalize it in a practical and effective way. In addition, there has been a general orientation to investigate or examine the inspiration of individual ideas or creativity; and call it innovation. This would exclude one or several phases of employee innovation (as we will see below), generating confusion in professionals and academics by calling innovation what would only be the generation of innovative ideas. Thus, to clarify the issue, the most widely used definition of innovation comes from West and Farr (1990) (described in the previous paragraph) (Battistelli, 2014). Employee innovation is conceptualized as innovative work behavior (IWB) and has evolved since then, both in its conceptualization and in its operationalization (Salessi, 2021). The IWB defined by Scott and Bruce (1994) has several phases, suggesting that innovation is a discontinuous process that appears through intermittent activities grouped in phases. Thus, they should not be considered as sequential phases established in different behaviors or dimensions, but recommend combining their items under a single additive scale. This was confirmed by Janssen (2000), and later by de Jong and Den Hartog (2010), among others, who found support for convergent validity, but not for discriminant validity, as the different dimensions showed high correlations with each other. Consequently, they advised the use of a single or unidimensional measure (a criterion that we have respected in this review when studying the relationship between the PsyCap and IWB variables). However, despite the suggestion to use the unidimensional measure, most researchers agree that IWB is a multidimensional construct, composed of differentiated behaviors, that appear in several phases that vary according to the different authors. These phases range from: (a) the two phases established by Dorenbosch et al. (2005) (creative-oriented work behavior and implementation-oriented work behavior); (b) the three of most authors such as Janssen (2000) and Scott and Bruce (1994) (idea generation, idea promotion and idea implementation); (c) the four of de Jong and Den Hartog (2010) (problem recognition,

idea generation, idea promotion and idea realization); (d) Kleysen and Street's (2001) five (opportunity exploration, generativity, formative investigation, championing and application); and (e) Lukes and Stephan's (2017) six (idea generation, idea search, idea communication, implementation starting activities, involving others and overcoming obstacles) (Asurakkody & Shin, 2018; Pérez-Peñalver et al., 2018). Examining all of them, we can observe that the IWB is basically divided into two main stages: (a) the first stage, which is derived from creativity; and (b) the second stage, which is derived from the implementation of the idea (Patterson, 2002). The first is an individual process in which an employee explores and generates new ideas; the second is a social process that depends on the participation and approval of others, so that the first stage would be associated more with individual factors, while the second stage would be associated with group and organizational factors (Axtell et al., 2000). The phases that are part of each of the two main stages will depend on the research of the various authors and will be integrated into their evaluation tools (Asurakkody & Shin, 2018). Due to its importance in IWB literature, one of these phases stands out, the so-called "idea promotion" or "championing" phase which is included in the second stage or idea implementation stage (Dorenbosch et al., 2005). This phase would be dedicated to convincing others to support the innovation (Janssen, 2000; Shane, 1994), and is normally carried out by employees or "champions" who emerge in the organization in an informal manner (Howell et al., 2005). However, as mentioned above, empirical verification of such phases is most often not accurate, mainly because the innovative process is "messy, reiterative and often involves two steps forward for one step back, plus several side steps" (Anderson et al., 2014, p. 1299), and therefore fewer complex models or preferably a single construct are advisable (Botha & Steyn, 2020). For example, the cognitive process of idea generation is not exclusive to the first stage but can also appear when promoting ideas and seeking allies or sponsors, or when realizing or implementing ideas, developing prototypes or new products and services (Kwon & Kim, 2020). Regarding the determinants or factors that influence IWB, the latest published meta-analyses

and reviews (Anderson et al., 2004; Anderson et al., 2014; Battistelli, 2014; Hammond et al., 2011; Hülshager et al., 2009; Rosing et al., 2011) present the individual, team and organizational factors that seem to influence IWB behavior. Individual factors include: creative personality traits, values, cognitive styles such as cognitive flexibility, goal orientation, psychological states, creative self-efficacy, intrinsic motivation, task complexity or proactivity. In terms of team factors: team structure, team climate, social processes, and leadership. And finally, at the organizational level: factors related to the management, use and networking of knowledge and the diffusion of innovation, among others. All these factors and their relationship with the different phases, the relationship between the phases, as well as the interaction between the different levels of analysis and their integration represent, today, the key to understanding the innovation process in organizations (Battistelli, 2014; Yuan & Woodman, 2010).

II.2. DIFFERENCES BETWEEN CREATIVITY AND INNOVATION

The confusion between the concepts of creativity and innovation and their haphazard use in their operationalization and measurement is a challenge for organizations and the scientific community (Scott & Bruce, 1994). On the one hand, the general opinion suggests that creativity refers to the first stage of IWB, thus linking it to idea generation and being a necessary first step for innovation to occur (Patterson, 2002; Shalley & Gilson, 2004; West & Farr, 1990). However, if we consider creativity as an individual characteristic, then it would not correspond to this stage but rather play the role of antecedent of IWB (Battistelli, 2014). Considered as organizational creativity, we could associate it with this first stage, implying that ideas should be novel and useful for the organization (Amabile & Pratt, 2016). Consequently, creativity is crucial for IWB, as it involves generating ideas, combining, and reorganizing existing concepts into a new scenario (de Jong & Den Hartog, 2010). On the other hand, innovation would encompass the subsequent stage, the application or implementation of the generated ideas into a product, a service, a procedure, or a process at the individual, group, or organizational level

(Shalley & Gilson, 2004). Unlike creativity, innovation is intended for application and to provide benefit of some kind to the organization, depending on the support and approval of influential and decisive people, both inside and outside the organization, who can favor the implementation of the ideas (de Jong & Den Hartog, 2010). Ultimately, both creativity and innovation are necessary to introduce new and better ways of doing things (i.e., having IWB), with the former relating to the production of ideas, and the latter to the successful implementation of creativity (Pérez-Peñalver et al., 2018; Scott & Bruce, 1994).

II.3. PSYCAP

Psychological capital (PsyCap) is a malleable, state-like construct, more stable than emotional states, but not as fixed as personality traits. Individuals with high PsyCap seek to focus on the positive aspects of the environment and thus find solutions to problems more easily (Luthans et al., 2007). PsyCap comprises four psychological capacities: self-efficacy, or confidence to strive for and succeed in challenges; optimism, or positive attribution about current and future successes; hope, or perseverance and alternative goal orientation; and resilience, or support and recovery from and after problems and adversity (Luthans et al., 2007). Thus, PsyCap becomes a second-order underlying construct with better predictive power than any of the capabilities separately (Luthans et al., 2007). Employees with high levels of PsyCap increase positive emotions, which directly affects their attitudes and behaviors, thus adding extra effort to tasks and resulting in better performance (Avey, Avolio & Luthans, 2011), and more innovative and creative behavior (Luthans et al., 2011). It is also positively related to job satisfaction, organizational commitment, psychological wellbeing, and behaviors such as organizational citizenship (Avey et al., 2010; Luthans et al., 2007; Luthans et al., 2008), and negatively related to turnover intentions, cynicism, or stress (Avey et al., 2008; Avey et al., 2010). PsyCap's positive evaluation of reality by modifying the individual's affective, cognitive, and behavioral functioning (Youssef & Luthans, 2007), favors flexibility to organizational change and consequently, employees' IWB. In this way, it would increase "the

probability of success based on motivated effort and perseverance" (Luthans & Youssef, 2007, p. 335), promoting innovative behavior from its four dimensions that would interact synergistically (Luthans & Youssef-Morgan, 2017). The first mechanism, self-efficacy, referring to the perception of one's own ability to achieve goals (Bandura, 2012), would act by favoring the consideration of an employee as a generator of ideas and the ability to obtain support to implement them, thus being able to act in the two stages of IWB. The second mechanism, optimism, would entail a positive expectation of the future, as well as an explanatory style of attributing failure to temporary and external circumstances and success to stable and internal circumstances (Forgeard & Seligman, 2012). Thus, during the two stages of IWB, optimism would help with a positive and adaptive explanatory style to the circumstances. The third mechanism, hope, acts on agency or willpower and finding alternative ways to achieve goals (Snyder, 2002) so that employees could achieve their innovative goals with perseverance and finding alternative routes in case of setbacks in the different stages of IWB. The fourth mechanism, resilience, relates to the ability to positively adapt and thrive in adverse circumstances (Masten et al., 2012), thus making it easier for employees to generate and implement ideas in difficult or stressful circumstances.

III. METHODOLOGY

Conducting a systematic literature review (SLR) is nowadays considered a "fundamental scientific activity" (Mulrow, 1994), whose main objective is to identify empirical evidence through a systematic, transparent, and reproducible methodological review process (Walker, 2010). SLR identifies research that addresses a specific question under methodological rigor and provides a balanced and unbiased summary of knowledge from the literature (Tranfield et al., 2003). The methodology, used in the present systematic review, was conducted by identifying four phases: (a) the purpose and objective of the review; (b) the inclusion and

exclusion criteria; (c) identification of studies; and (d) the analysis plan. Changes to the protocol used could introduce bias (Nightingale, 2009) and, fortunately, were not necessary.

III.1. REVIEW OBJECTIVE

In this review, we aim to clarify the relationship of PsyCap to employee IWB, to respond to calls from the scientific community (Abbas & Raja, 2015; Choi & Lee, 2014; Wojtczuk-Turek, 2012) and to facilitate future research studying both concepts. The objective is defined in the following two questions. The first is: what is the relationship between the individual PsyCap factor as antecedent, mediator and moderator in the IWB? And the second: what instruments have been used to measure the relationship between the two constructs? Having defined the purpose of this review, the researchers proceeded to identify the articles from many available sources.

III.2. INCLUSION AND EXCLUSION CRITERIA

The articles analyzed were those published since 2011 onwards, which corresponds to the first publication linking PsyCap to a concept related to innovation, specifically creative performance, by Sweetman et al. (2011). Studies linking PsyCap and IWB were selected or excluded using six criteria: (a) articles being published in English or Spanish; (b) articles being published in peer-reviewed or double-blind journals, excluding book chapters, conference proceedings or dissertations; (c) articles that included the study of PsyCap as a single construct formed by the four dimensions (optimism, hope, self-efficacy, resilience), excluding those studies that neglected any of them; (d) the instrument used to measure employee innovation had to be conceptualized as IWB by the original authors, or be an adaptation derived from such a tool, with the aim of measuring the two main stages of IWB (idea generation and idea implementation); (e) the studies had to examine IWB and PsyCap at the individual level, excluding those at the team or organizational level; and (f) the article had to be empirical rather than a conceptual or theoretical in nature. Finally, articles whose full text could not be accessed

were excluded. Using these criteria, 39 articles were included, excluding duplicates and those that appeared to use the same sample in different studies.

III.3. IDENTIFICATION OF STUDIES

The search began in October 2021 and concluded in May 2023 after several exploration processes, in databases and electronic search engines such as Scopus, Web of Science, EBSCOHost, PsycINFO, PsycARTICLES, and Google Scholar. The descriptors "PsyCap", "Psychological capital", "Innovative work behavior", and "IWB" were used and combined with the Boolean operators "and" and "or" to unify the two concepts.

III.4. ANALYSIS PLAN

The initial search process yielded a total of 161 articles, plus a further 13 added due to the snowball effect. After an identification process, we eliminated 16 articles that were duplicates or used the same sample. Of the 158 articles selected, 13 of them were not access the full text, 31 studies were written in Chinese, Korean, Malay, and Arabic, among other languages. Seventeen were theoretical articles. It results a total of 61 excluded articles. According to the inclusion criteria, we decided to retain articles that used tools called IWB by the original authors or adaptations of such tools, thus eliminating 42 studies. In addition, we eliminated 8 articles that measured one or both variables at the team or organizational level, and 6 articles that measured PsyCap without some of its components. Finally, 2 papers were eliminated due to lack of specificity in the tools used. It resulted in a total of 58 articles being excluded for specific reasons. The final sample was set at 39 articles, all of which met the inclusion criteria. The decision to include or exclude articles was agreed upon by all the researchers involved in this review to minimize selection bias (Nightingale, 2009). Figure 1 presents a PRISMA flowchart showing the selection process of the articles ultimately included in this review.

[Insert Figure 1 here]

IV. RESULTS

After obtaining a final sample of 39 articles, we describe the results in terms of the methodology used, the location where the studies were conducted, the research design, and the years with higher publication rates. All the studies used quantitative methodology, and only one of them used individual interviews, where the questionnaire was read by the researcher (Özsungur, 2019). The countries in which the studies were conducted, in decreasing order are, China (N=6), Indonesia (N=6), Pakistan (N=5), India (N=3), South Korea (N=3), Türkiye (N=3), Iran (N=2), Nigeria (N=2), Poland (N=2), Taiwan (N=1), Thailand (N=1), Rwanda (N=1), Argentina (N=1), Saudi Arabia (N=1), USA-Australia (N=1), and Dubai-New Zealand-Pakistan (N=1). It can be seen that most of the studies were conducted in non-Western countries. Most of the articles used a cross-sectional design, with the exception of 5 studies (12.8%) that used longitudinal designs, more specifically panel studies, where the number of measurements and the time interval per measurement varied between the articles. Three of them measured different constructs in three measurement waves, at intervals ranging from twenty days to three months (Jha, 2021; Kim et al., 2018; Lan, 2019). One study used the same questionnaire in two waves, adding the Service Innovative Behavior (SIB) construct, or employee IWB adapted to customer service, in the final measurement (Schuckert et al., 2018). The last panel study measured PsyCap and humour at T1 and IWB at T2 without outlining the time interval between waves (Suciati et al., 2018). We can also observe an increase in research on both constructs in recent years (Burhanuddin et al., 2019; Hassan et al., 2021). Thus, the main part of the articles, namely 31 (79.5 %) were published in the period between 2018 and 2021. The remaining 8 articles (20.5%) were published between 2012 and 2017. Table 3, 4 and 5 (presented in the appendix), following suggestions made by Popay et al. (2006), describes the 39 articles included in this review, ordered according to the role of PsyCap as antecedent (Table 3), mediator (Table 4) and moderator (Table 5). The authors, the year of publication, the country where the study was carried out, the objectives, the variables used (antecedents,

mediators/moderators, and dependent variables), the sample evaluated, the instruments used, the design, the unit of analysis, the results referring to PsyCap and IWB, and the implications of each study are specified.

IV.1. PSYCAP'S ROLE IN THE RELATIONSHIP WITH IWB

After an analysis of the articles, included in this review and oriented to our first proposed objective, we can observe that PsyCap has been studied mainly as an antecedent and mediator of IWB, finding only 4 studies in which it has been analyzed as a moderator (see Table 5). Moreover, in all the studies in which it has been analyzed, the correlations between the variables PsyCap and IWB are positive and significant. Likewise, 4 studies analyzed the relationships between the four PsyCap capacities and IWB, and in 3 of them all the relationships were positive and significant (Tang et al., 2019; Wojtczuk-Turek, 2012). Regarding the mediating role of PsyCap on employees' IWB, we can observe that, in 17 of the 19 articles reviewed, PsyCap partially or fully mediated the relationship between an antecedent and IWB. Finally, the 4 articles reviewed that examined whether PsyCap plays a moderating role between a variable and its relationship with IWB provides results in both directions (see Table 1).

[Insert Table 1 here]

IV.1.A. PsyCap as Antecedent to IWB

The PsyCap as an antecedent of IWB appears in 16 articles in our review. In all of them the correlations and/or effects of PsyCap on IWB are analyzed, and in most of the articles reviewed the relationship is positive and statistically significant. Furthermore, in 4 articles (the first ones in Table 3), the authors reported the results of the relationship between the four PsyCap components and IWB.

Results of the relationship between PsyCap and IWB. Regarding the results of the correlations, the highest values between both variables were obtained in the studies of Jha (2012) ($r = 0.66, p < 0.01$), and Ratnaningsih et al. (2016) ($r = 0.52, p < 0.01$). Regarding the regression analyses of PsyCap on IWB, the only study that does not report a positive and significant direct effect is the article by Lan (2019), ($\gamma = 0.12, p > 0.05$), which is not the case in its total effect ($\gamma = 0.28, p < 0.05$) where, as we can see, it is positive and significant due to its effect on IWB through the mediation of job embeddedness. We consider important to highlight that the direct effect of PsyCap on IWB is neither hypothesized nor reported in the Tang et al. (2019) study. The effect is positive and significant through the mediators of job satisfaction and organizational commitment. In addition, the relationship between PsyCap and IWB was positive in the Nwanzu and Babalola (2019) study; however, the relationship was not moderated by task autonomy. The variables moderating or mediating the relationship between PsyCap and IWB are listed in Table 1. It highlights the role of job satisfaction which mediated the relationship in 3 of the studies. Finally, the results of some of the articles in the present review analyze the proportion of IWB variance that is explained by the PsyCap effect, deduced from the percentage of prediction derived from the coefficient of determination (R^2). Thus, Paul and Devi (2018) conclude that a 48.4 % change in employees' IWB is due to their PsyCap. Ratnaningsih et al. (2016) evaluate the proportion of IWB variance explained by the PsyCap effect as 27 %, and the study by Chitsazan et al. (2017) reports it as 36 %.

Results of the relationship between the four components of PsyCap and IWB. Regarding the 4 articles analyzing such relationship, the studies by Nwanzu and Babalola (2019) and Paul and Devi (2018), provide the highest values of the optimism component in IWB, ($r = 0.50, p < 0.01$) and ($r = 0.37, p < 0.01$) respectively, being both positive and statistically significant. However, in the study by Tang et al. (2019), the correlation result between self-efficacy and IWB was the highest ($r = 0.83, p < 0.01$), as in the study by Ratnaningsih et al. (2016) ($r = 0.57, p < 0.01$). With these results, we observe that optimism and self-efficacy are the capacities

that obtain the highest coefficients, being statistically significant. Regarding regression analyses, only one article shows such results (Paul & Devi, 2018), being positive and significant in the optimism, self-efficacy and hope components, but not significant in the resilience component ($\beta = 0.04, p > 0.1$).

IV.1.B. PsyCap as IWB Mediator

PsyCap appears as mediator in 19 articles in the present review. In 6 articles, PsyCap mediation between antecedent and the IWB is reported as full mediation, in 9 articles, PsyCap partially mediates the relationship, and in 1 article PsyCap acts as both partial mediator and full mediator between two antecedents and the IWB. In 1 article, mediation was analyzed on the various dimensions of the IWB antecedent, providing different results (see all results in Table 4). Regarding the remaining 2 articles, PsyCap was not considered a mediator in the relationship between happiness at work and IWB in Etikariena's (2018) study, and mediation was not analyzed in Suvonova et al. (2019) research. In addition, most articles that used PsyCap as a mediator also reflected the correlation results and/or effect of PsyCap on IWB. The highest value in the correlation results between two variables was offered by Mishra et al. (2019) study ($r = 0.93, p < 0.01$), and the largest effect ($\beta = .96, p < .01$) appeared in Hsu and Chen' (2017) research. Importantly, Brunetto et al. (2020) analyzed the effects of personal and organizational support on the IWB of frontline health care workers in Australia (N = 220) and the United States (N = 260). They found that PsyCap acted as an overall mediator of the relationship in both countries. However, there were significant differences in the variance of IWB, explained by PsyCap, representing 15% in the Australian sample and 40% in the US sample. Finally, simple regression results for both samples yielded a higher value in the US sample ($\beta = 0.60, p < 0.01$) compared to the Australian sample ($\beta = 0.43, p < 0.01$). It reveals the difference of the results depending on, among other factors, of the location where the study takes place.

IV.1.C. PsyCap as a Moderator and Its Influence on IWB.

Following our review of the literature, PsyCap moderation between a variable and IWB was studied in 4 articles. In 2 articles such moderation occurred, in 1 article moderation occurred in some of the dimensions of the construct studied (see results in Table 1), and finally in the article by Ishaq et al. (2021), PsyCap did not moderate the relationship between leader's paradoxical behavior and employees' IWB. In addition, all articles reflected the results of the correlation between PsyCap and IWB. The highest value between both variables was offered by Ijje et al. (2021) research ($r = 0.81, p < .05$). Finally, in 2 studies, the role of PsyCap as an antecedent of IWB was also investigated, with the largest effect being provided by the regression analysis of Ijje et al. (2021) article ($\beta = .59, p < .05$).

IV.2. INSTRUMENTS USED TO MEASURE CONSTRUCTS

The second aim of the present review was to reflect the variety of instruments, used to measure both psychological constructs (see instruments in table 2). The two constructs have been extensively researched by the scientific community in recent years, therefore, many questionnaires to measure them have been developed (de Jong & Den Hartog, 2010; Luthans et al., 2007), their psychometric properties have been studied in depth (Dawkins et al., 2013) and some of them have been adapted to different languages (Choisay et al., 2021; Lecat et al., 2018; León-Pérez et al., 2017; Pohl & Binard, 2014). The present study will focus exclusively on the tools, used in the articles where both constructs appear, following the exclusion-inclusion criteria, set out in the previous section.

[Insert Table 2 here]

IV.2.A. Instruments to Measure PsyCap in Our Review

The measurement of the PsyCap concept has been carried out mainly with the PCQ-24 tool, developed by Luthans et al. (2007). This tool is derived from pre-existing measures of

self-efficacy (Parker, 1998), resilience (Wagnild & Young, 1993), optimism (Scheier & Carver, 1985), and hope (Snyder et al., 1996). Some items were removed from these measures and others were modified to adapt them to the organizational setting (Dawkins et al., 2013). End up resulting distributing 6 items in each dimension. Subsequently, Avey, Avolio and Luthans (2011) developed a reduced scale called PCQ-12, using the criteria specified by Stanton et al. (2002) and writing all items in a positive form, with no reverse-scored items, which supposedly improves the reliability of the scale (Youssef-Morgan, 2014). The scale is composed of 3 items representing self-efficacy, 4 items for hope (2 items representing each of the mechanisms of hope, pathways, and agency), 3 items representing resilience, and 2 items for optimism. In the present review, 21 studies used PCQ-24 and 16 studies used PCQ-12. The authors of the remaining 2 articles decided to measure PsyCap with self-built tools. The first one uses the 15-item scale developed by Gupta and Singh (2014), based on the measures of optimism by Scheier and Carver (1985) with 4 items, resilience by Wagnild and Young (1993) with 4 items, hope by Snyder et al. (1996) with 3 items, and self-efficacy by Tierney and Farmer (2002) with 4 items. The authors of this measure warn against its use, due to the low internal consistency of its dimensions. Finally, an article in the present review uses a self-built 12-item scale by Omar et al. (2014) called CapPsi-12 (PsyCap in Spanish), validated with good reliability in a sample of workers in Argentina. The items that constitute the four capacities were drafted based on a series of focus group sessions and a literature review (Bandura, 2012; Omar et al., 2013; Schrank et al., 2011; Seligman, 2006).

IV.2.B. Instruments for Measuring IWB in our Review

Operationalizing and measuring employee innovation has been a challenge in the scientific community, and many instruments have been developed to measure such behavior, including IWB and its proxies (creativity, creative performance, creative behavior, innovation, etc.). Several authors warn researchers about the inappropriate use of IWB proxies' tools which often measure only a part of IWB behavior, idea generation or idea implementation (Botha & Steyn,

2020; Potočnik & Anderson, 2016). It is therefore important to be clear about the purpose and scope of the measurement, as the use of IWB "proxies" may lead to a result that is not the desired one. Therefore, in our review, we only included studies in which the measurement instrument was conceptualized as an IWB by its authors, or studies that used questionnaires derived from them. According to the literature, the first unidimensional IWB scale was developed by Scott and Bruce (1994), suggesting three phases through which ideas were generated, coalitions were created, and ideas were realized. Shortly afterward, Janssen (2000) attempted to develop a 3-phase multidimensional measure: idea generation, idea promotion, and idea implementation. Due to the high correlation between them, Janssen (2000) suggested the unidimensional use of such a scale. These two scales are the most commonly used in our review, with 10 and 12 studies, respectively. Subsequently, Kleysen and Street (2001) unified seventeen behaviors associated with innovative behavior into five factors. It gave rise to the phases of opportunity exploration, generativity, formative investigation, championing, and application. However, the authors also advised using the measure in a unidimensional way. This scale ranks third in terms of its use in our review, with a total of 5 articles applying it. One study used the scale, developed by de Jong and Den Hartog (2010) (inspired by Janssen, 2000; Kleysen & Street, 2001; and Scott & Bruce, 1994), which suggests four phases (problem recognition, idea generation, idea promotion, and idea realization), and like the previous ones, the authors suggest the unidimensional use. In 3 articles, the authors opted for self-built scales. These self-constructed questionnaires are derived from combinations of tools widely used to measure IWB (e.g., de Jong & Den Hartog, 2010; Janssen, 2000; Scott & Bruce, 1994), and consequently measure the two stages that we consider fundamental to IWB, idea generation and idea implementation. In one article the authors used Huang's (2006) IIBM scale, which refined the Kleysen and Street (2001) scale by applying it to research in Taiwan and showing good internal consistency and reliability. Finally, this review includes two tools that measure IWB in specific groups. The first of these is the Service Innovative Behavior (SIB), consisting

of 6 self-report items and developed by Hu et al. (2009), based on the three-phase scale developed by Scott and Bruce (1994). This scale has been used in numerous studies and has sufficient empirical support. In the present review, it appears in 5 studies whose sample is made up of employees in the hospitality and tourism industry, and in one study whose sample was drawn from organizations in the service sector. The second tool (IWBST or Innovative Work Behavior Scale for Teachers) is an instrument in Spanish with 12 items and four phases (exploration of opportunities, generation of ideas, socialization of ideas and realization of ideas) developed by Salessi and Etchevers (2020) and based on Janssen (2000) IWB scale. It was created from a sample of primary school teachers in Argentina. The authors propose future studies in other occupational groups, thus making it possible to find differences between professions and provide validity to this measurement tool. This last scale appears in an article in the present review.

V. DISCUSSION

The present review contributes to the investigation of the psychological concepts PsyCap and IWB, based on two pre-established objectives. The first one was to present a review of PsyCap and its relationship and influence as an antecedent, mediator, and moderator in IWB. The second one was to analyze the variety of instruments that have been used to measure both constructs in the articles reviewed.

V.1. THEORETICAL IMPLICATIONS

Regarding the first objective, our results confirm the important role of PsyCap in employees' IWB. Indeed, we can observe positive and significant relationships between both variables in most of the articles in our review. Furthermore, we can observe that PsyCap has been studied mostly as an antecedent and mediator of IWB, with 16 and 19 articles respectively, finding only 4 studies in which it has been analyzed as a moderator. In the first case (i.e.,

PsyCap studied as antecedent of IWB), the correlations and effects of PsyCap on IWB reported in the 16 articles are always positive and significant. In two studies (Lan, 2019; Tang et al., 2019), there was no direct effect of PsyCap on IWB. Nevertheless, the effect was positive and significant through job embeddedness (Lan, 2019), and through job satisfaction and organizational commitment (Tang et al., 2019). These three variables (job embeddedness, job satisfaction and organizational commitment) have been argued as antecedents of IWB in various literature reviews (i.e., Anderson et al., 2014; Li & Zheng, 2014; Srirahayu et al., 2023). This could explain its full mediation effect between PsyCap and IWB. Regarding the results of the relationship between the four PsyCap and IWB capacities, we observed that optimism and self-efficacy are the capacities that obtain the highest, positive and statistically significant coefficients. Both capacities have been analyzed and confirmed in relation to IWB (Hsiao et al., 2011; Hsu et al., 2011; Islam et al., 2022), although future studies may further explore about the factors that could favor or enhance such relationship. Therefore, the role of PsyCap as an antecedent of IWB seems to report good results if studied as a single construct, as advised by the literature (Bos-Nehles et al., 2017; Luthans et al., 2007).

In the second case, the role of PsyCap as a mediator between a variable and IWB also seems appropriate. In all analyzed articles, PsyCap is considered as a partial or full mediator, except in two studies. Indeed, in Etikariena (2018)' study, PsyCap mediation between happiness at work and IWB does not occur; and in the Suvonova et al. (2019)' study, mediation was not tested. The most used antecedents to study their influence on IWB through PsyCap medication were: organizational innovation climate, authentic leadership, transformational leadership, and ethical leadership, all of them appeared in two studies (see Table 1). The last two antecedents, transformational leadership (Gashema & Kadhafi, 2020; Schuckert et al., 2018) and ethical leadership (Erdem, 2021; Özsungur, 2019) yielded similar results, PsyCap acted as a partial mediator in the relationship with IWB. However, organizational innovation climate (He, 2013; Hsu & Chen; 2017) and authentic leadership (El Fath & Radikun, 2019;

Schuckert et al., 2018) yielded different results in the two studies. Indeed, PsyCap was considered a partial mediator in one study and a full mediator in the other, and vice versa. In this sense, and among other factors, the different occupational groups from which the sample is derived could have influenced the results. In addition, all correlations and effects analyzed between PsyCap and IWB constructs were positive and significant when PsyCap was considered a mediator. In the third case, we can highlight the moderating role of PsyCap in the relationship between transformational leadership and IWB (Zhu & Mu, 2016), and workload and the IWB of employees (Ijje et al., 2021). Even though the number of studies in which PsyCap plays a moderating role between a variable and IWB is scarce, the results seem to confirm this role. Finally, all the correlations and effects analyzed between the PsyCap and IWB constructs were positive and significant when PsyCap was considered as a moderator. Thus, and following the suggestion of the authors of the reviewed articles, we underline the need for further investigation of the PsyCap construct as antecedent, mediator, or moderator in the IWB relationship. Our findings, although positive, show that there is still limited knowledge on the relationship between both variables and the factors that favor it.

With regard to the second objective (i.e., measures of constructs), and starting with employee innovation, we would highlight the widespread confusion in determining the concept, establishing the different phases in which it develops and measuring it appropriately and effectively. Thus, the most widely used concept for measuring employee innovation is the IWB, included in our review and originally conceived by West and Farr (1990). Based on it, several adaptations for specific groups such as customer service (SIB) and primary school teachers (IWBST) have also been included in our review. This behavior (i.e., IWB) would be arranged in two main stages, one derived from creativity or first stage, the other one derived from the implementation of the idea or second stage (Patterson, 2002). Both stages were developed by various authors in up to six phases. The most widely used tools to measure IWB in our review have been the three-phase measurements by Janssen (2000) with 12 studies, and

by Scott and Bruce (1994) with 10 studies. Regardless of the phases, the original authors advise taking the measurement in a unidimensional manner, due to the strong correlations between the phases and/or associated behaviors. As for the PsyCap construct, the original authors also advise its unidimensional use due to the synergistic effect between its four components (self-efficacy, optimism, hope and resilience). The most commonly used tools to measure PsyCap were, PCQ-24 (Luthans et al., 2007) with 21 studies and PCQ-12 (Avey, Avolio & Luthans, 2011) with 16 studies. It is worth mentioning that both PCQ tools are protected by copyright but can be acquired free of charge for research purposes⁵. The authors of the remaining 2 articles decided to measure PsyCap with self-built tools, such as PsyCap-15 (Gupta & Singh; 2014) and CapPsi-12 (Omar et al., 2014), although they have hardly been used in literature and their use might not provide reliable results due to poor theoretical support.

Finally, research interest in both constructs seems to have increased in recent years. We find that 79.5% of the articles in this review have been published between 2018 and 2021, suggesting a trend to explore, at the individual level, the impact of PsyCap on employees' IWB, following recommendations from the literature (Li & Zheng, 2014). It is also important to highlight that most of the studies in this review were conducted in non-Western contexts, specifically 35 articles (90%). This could be explained by the growing interest in the search for factors that increase innovation in organizations from continents such as Asia and Africa. These studies would contribute to these organizations to achieve a competitive advantage in a highly globalized market (Dorenbosch et al., 2005).

V.2. PRACTICAL IMPLICATIONS

Based on the results obtained in this review, we propose to organizations and HR professionals: (a) a series of resources to increase IWB directly, and from employee PsyCap; and (b) suggestions for the measurement of both variables. First, a series of training programs that increase employees' personal resources are proposed. To favor the generation and

implementation of ideas, we suggest creativity training based on TRIZ (theory of inventive problem solving), which enhances the cognitive and affective dimensions facilitating individual innovation (Birdi et al., 2012). Another type of training is psychological capital intervention (PCI), which increases PsyCap levels, as the construct is state-based and open to development (Luthans et al., 2007). By increasing this positive resource, employees can cope better with future changes and challenges required by the IWB (Hsu & Chen, 2017). It should be noted that this type of positive interventions should be carried out by professionals to avoid the possible U-invert effect (Grant & Schwartz, 2011). This effect, which comes from a high PsyCap, could occur in some individuals and derive in negative consequences, both for the individual and for others (Hervás, 2017). Similarly, requesting a high number of innovations from employees could induce states of anxiety and low performance. Managers should be aware of these undesirable consequences when managing work teams (Bolino et al., 2016; González-Romá, & Hernández, 2016). We also recommend the incorporation of programs that promote authentic leadership, transformational leadership, ethical leadership, servant leadership or humble leadership behaviors, thus fostering an environment conducive to IWB through the establishment of innovative objectives or direct encouragement to employees (Anderson et al., 2014; Li & Zheng, 2014). In the same vein, we propose to develop employees' flexibility, humor or spirituality in the workplace. Last but not least, cultural differences can be found in organizations, hence training programs should be specific and culturally oriented (Gupta et al., 2002).

Second, based on the results of this review, we recommend the use of the following measurement tools. On the one hand, to measure employee's PsyCap, we suggest PCQ-24 and PCQ-12 questionnaires, both of which are the most widely used in the literature and are protected by copyright¹. However, and although the authors of the articles in our review have

¹ Contact www.mindgarden.com to acquire the license to use the PsyCap questionnaire. Free for research.

not used it, we propose the CPC-12 or Compound PsyCap Scale tool, developed in German by Lorenz et al. (2016), open access and validated in other languages such as Japanese, Slovak and Spanish among others (Ikeda et al., 2022; Kačmár et al., 2022; Platania & Paolillo, 2022). Recently, Dudasova et al. (2021) recommend using the revision of that tool or CPC-12R, which provides better internal consistency and has better psychometric characteristics than the original. On the other hand, and although the measurement of the IWB is still evolving, we suggest the tools developed by the original authors (de Jong & Den Hartog, 2010; Janssen, 2000; Kleysen & Street, 2001; Scott & Bruce, 1994), and the adaptation for the customer service collective (SIB). All of them have greater empirical support than the scales self-built by the authors of some articles in this review. Finally, we advise HR professionals to properly specify the objective of measuring innovation in the organization. Thus, using tools that measure IWB or choosing one of its proxies (creative performance, innovativeness, etc.), will achieve a reliable result and an effective measurement.

V.3. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Regarding the limitations, derived from the articles analyzed in this review, we can find the following. On the one hand, 77 % of the articles examined were designed in a cross-sectional manner, based on self-report measures (30 articles). For these last 30 articles, we cannot draw causal conclusions and whose conclusions are limited. Five studies (12.8%) have been conducted using panel studies, and four studies (10.2%) using tools involving multiple raters, both methods to minimize common method bias (Podsakoff et al., 2003) and the probably distorted view of innovative behaviors themselves reflected in self-report measures (de Jong & Den Hartog, 2010). Still, we recommend longitudinal and/or experimental studies to establish the directionality and causal order of the relationships between the analyzed factors. In this way, future research could, for example, examine how employees' IWB influences their PsyCap, and whether this relationship could be beneficial for both the organization and its innovative capacity, as for the employee and his or her own psychological wellbeing. On the

other hand, we consider it is important to highlight that most of the results found are based on samples, obtained in non-Western countries. Consequently, we consider that the studies should be replicated in order to generalize the findings in Western countries and in different cultural settings (Hofstede, 2011). Regarding the method, used in our review, we consider it relevant for future studies to obtain data qualitatively. We found no such method in any of the articles reviewed, with the limited exception of Özsungur's (2019) study, in which the questionnaire was read by the researcher. Regarding the established inclusion criteria, we recall that only studies, written in English or Spanish, and those published in peer-reviewed or double-blinded journals were accepted, thus eliminating book chapters, conference proceedings or dissertations. Greater flexibility in these criteria could have provided us with some relevant publications in our review. Furthermore, limiting the studies to be examined to those that included IWB and PsyCap at the individual level may have conditioned our results. Another inclusion criterion that may have limited the results was the terms concerning tools. Indeed, tools for measuring employee innovation had to be referred to as IWB by their authors or were derived from them. Some IWB proxies and the relationship with PsyCap could have yielded different results than those proposed in this review. In this sense, we propose the scientific community further research on IWB scales and their proxies, based on comparative psychometric analyses in order to explore the relationships, similarities, and overlaps between constructs, and the extent to which they represent truly distinct phenomena (Potočnik & Anderson, 2016). Finally, although most authors agree that IWB is a multidimensional construct, it is advisable to use it in a unidimensional way, due to the high correlation between its component phases (Janssen, 2000). Future research could identify other possible antecedents, mediators or moderators at different levels that improve IWB outcomes at the individual, team, and organizational level, to shed some light on improving innovation in organizations (Axtell et al., 2000).

VI. CONCLUSION

We believe that the present review summarizes attempts to draw links between PsyCap and IWB. Our article contributes to literature through an analysis of the articles that have investigated it, with PsyCap in the role of antecedent, as well as mediator or moderator. In addition, it provides suggestions both to measure and to favor employees' PsyCap and IWB. Finally, we hope that the findings, presented in this integrative review, will help future researchers to generate questions. This review could serve as a guide for designing future studies, aimed at increasing knowledge about the relationship between PsyCap and IWB.

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**Les articles marqués ont été inclus dans la revue systématique*

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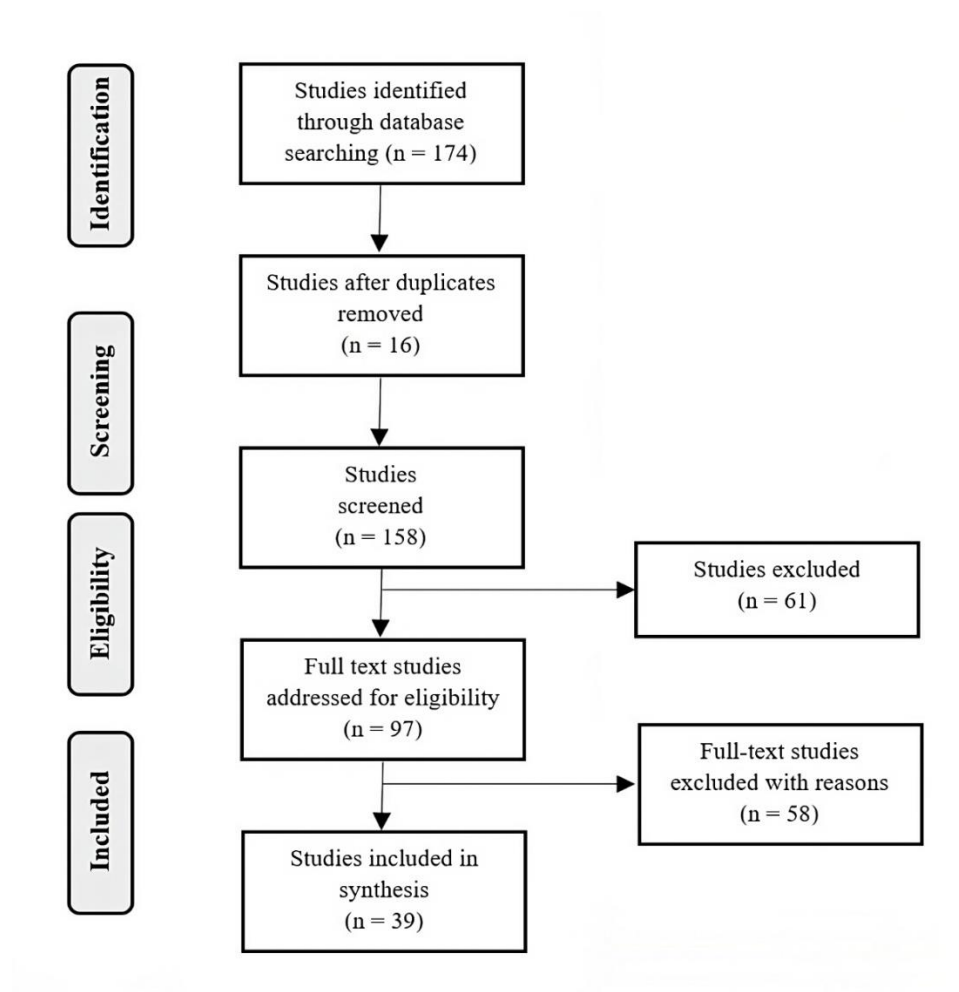
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IX. Figures

Figure 1. PRISMA diagram of systematic review process.



X. Tables

Table 1. Summary of the observed relationship in table 3, 4, and 5.

Role of PsyCap	Nature of the relationship	Measures
PsyCap as an antecedent (Table 3)	Variable that mediates the relationship between PsyCap and IWB	Job satisfaction (4,13,15), organizational commitment (4), job embeddedness (9), psychological safety (10), passion for work (11), job crafting (12), employee voice behavior (16).
	Variable moderating the relationship between PsyCap and IWB	Organizational culture (7).
PsyCap as a mediator (Table 4)	Antecedents of IWB when PsyCap has a total mediator role.	Organizational innovation climate (17), HR flexibility (21), individual flexibility (21), humour (23), authentic leadership (24), work-to-family enrichment (25), family-to-work enrichment (25), leader-member exchange (29).
	Antecedents of IWB when PsyCap has a partial mediator role.	Psychological contract breach (19), organizational innovative climate (20), transformational leadership (22, 35), authentic leadership (22), ethical leadership (26,33), humble leadership (28), servant leadership (30), workplace spirituality (30), high-performance work practices (34).
	Dimensions of IWB antecedents when PsyCap has a partial mediator role.	Paternalistic leadership (benevolent leadership) (31).
	Dimensions of IWB antecedents when PsyCap has a total mediator role.	Paternalistic leadership (authoritarian leadership, authoritative leadership) (31).
PsyCap as a moderator (Table 5)	Variables whose effect on IWB is moderated by PsyCap.	Transformational leadership (36), workload (39).
	Variables whose effect on IWB is not moderated by PsyCap.	Paradoxical leader behavior (38).
	Dimensions of variables whose effect on IWB is moderated by PsyCap.	Organizational culture (power distance, uncertainty avoidance, masculinity) (37).
	Dimensions of variables whose effect on IWB is not moderated by PsyCap.	Organizational culture (collectivism) (37).

Note. (n°) Article number of our review according to the order in Table 3, 4, or 5.

Table 2. Measures used in the 39 studies in this review.

Psychological variable	Measures	Items	Number of studies (%)	Number of participants
Psychological capital	PCQ-24 (Luthans et al., 2007)	24	21 (54 %)	5847
	PCQ-12 (Avey, Avolio & Luthans, 2011)	12	16 (41 %)	5443
	PsyCap-Scale developed by the authors (Gupta & Singh; 2014)	15	1 (2.5 %)	866
	CapPsi-12 (Omar et al., 2014)	12	1 (2.5 %)	458
Innovative work behavior	IWB (Janssen, 2000)	9	12 (30.7 %)	3808
	IWB (Scott & Bruce, 1994)	6	10 (25.6 %)	3292
	IWB (Kleynen & Street, 2001)	14	5 (12.8 %)	1197
	IWB (own constructions based on different authors)	Various	3 (7.7 %)	632
	IWB (de Jong & Den Hartog, 2010)	10 (initially 17)	1 (2.6 %)	746
	IWBST (Salessi & Etchevers, 2020) (special for teachers)	12	1 (2.6 %)	458
	IIBM (Huang, 2006).	Unknown	1 (2.6 %)	209
	SIB (Hu et al., 2009) (special for frontline service employees)	6	6 (15.4 %)	1781

Note. (PCQ) psychological capital questionnaire; (IWB) innovative work behavior; (CapPsy/PsyCap) psychological capital; (IWBST) innovative work behavior scale for teachers; (IIBM) individual innovative behavior measure; (SIB) service innovative behavior.

XI. Appendix

Table 3. Articles included in this review with *PsyCap* as an antecedent.

N ^o	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure <i>PsyCap</i>	Instrument to measure <i>Iwb</i>	Design / Unit of Analysis	Results between <i>PsyCap</i> and <i>Iwb</i>	Discussion and Implications
1	Ratnaningsih et al. (2016)	Indonesia	To examine the relationship between PsyCap and IWB of employees in an organization.	PsyCap (A), IWB (Dv).	N = 149 employees of a clothing factory.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Etikariena and Muluk, 2014 (Based on Scott and Bruce, 1994 and Janssen, 2000).	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .52, p < .001$) PsyCap (four capacities), IWB : The correlations of the PsyCap capacities are positive and significant in the IWB .	The results reveal that the demographics of the participants (differences in age, education and sex) do not imply differences in the IWB .
2	Paul and Devi (2018)	India	This research explores how the IWB of information technology (IT) employees affects their job performance. It also explores the influence of PsyCap and employee expectations on their IWB .	PsyCap (A), outcome expectation (A, M), IWB (M), job performance (Dv).	N = 180, employees working in information technology companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Direct effect: ($\beta = .69, p < .001$) PsyCap (four capacities), IWB : The correlations and effects of the PsyCap capacities on IWB are positive and significant, except for the	The results reveal that IWB mediates the relationship between PsyCap , outcome expectations, and job performance among information technology employees.

effect of
resilience.

Table 3. Articles included in this review with *PsyCap* as an antecedent (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure Psycap	Instrument to measure Iwb	Design / Unit of Analysis	Results between Psycap and Iwb	Discussion and Implications
3	Nwanzu and Babalola (2019)	Nigeria	To examine the relationship between PsyCap and IWB , taking into account the mediation of task autonomy, in employees of public organizations.	PsyCap (A), task autonomy (Mo), IWB (Dv).	N = 125, public hospital employees.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .51, p < .05$) PsyCap (four capacities), IWB : The correlations of the four PsyCap capacities on IWB are positive and significant.	The study confirms social cognitive theory (Bandura, 2012) and Vroom's expectancy theory (Vroom et al., 2015). The data did not confirm the moderating effect of task autonomy.
4	Tang et al. (2019)	China	This study explores the effect of PsyCap on employees' IWB through the mediation of job satisfaction and organizational commitment.	PsyCap (A), job satisfaction (M), organizational commitment (M), IWB (Dv).	N = 266, employees of various companies.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994 and IWB-3 scale from Tsai and Kao, 2004.	Cross-sectional / Individual	PsyCap and IWB : (Not listed, not hypothesized) PsyCap (four capacities), IWB : The correlations of the four	Employee PsyCap is confirmed to affect IWB through organizational commitment and job satisfaction for small and medium-sized enterprises (SMEs)

Psychap capacities are positive and significant in the **IWB**.

Table 3. Articles included in this review with *PsyCap* as an antecedent (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure Psychap	Instrument to measure Iwb	Design / Unit of Analysis	Results between Psychap and Iwb	Discussion and Implications
5	Wojtczuk-Turek (2012)	Poland	Investigate the relationship between individual dimensions of PsyCap and employees' IWB .	PsyCap (A), IWB (Dv).	N = 246, employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	PsyCap and IWB : (Does not list the result, but the authors report it as positive and significant.)	The results explain the importance of high PsyCap in employees, highlighting the self-efficacy dimension, and its relationship with the IWB .
6	Abbas and Raja (2015)	Pakistan	This study explores the impact of PsyCap on IWB and job stress, drawing on Fredrickson's (2013) "broaden and build" theory.	PsyCap (A), IWB (Dv), job stress (Dv).	N = 237, administrative and technical staff.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from IWB-9 Janssen, 2000.	Cross-sectional/ Individual/ Multilevel (IWB measured by supervisor)	PsyCap and IWB : Correlation: ($r = .20, p < .01$) Direct effect: ($\beta = .21, p < .001$)	The research showed that people with high PsyCap experienced low levels of job stress.
7	Chitsazan et al. (2017)	Iran	This study explores the effects of psychological, intellectual and social capital on business innovation. It also examines whether	Social capital (A), intellectual capital (A), PsyCap (A), organizational	N = 126 middle and high-level managers of knowledge and high	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Direct effect: ($\beta = 0.36, p < .01$)	The results show that the structural factor in intellectual capital (IC), cognitive ability in social capital, and hope in PsyCap have the strongest effect on IWB .

		organizational culture (OC) plays a moderating role in the association between these variables.	culture (Mo), IWB (Dv).	technology companies.						We found the moderating impact of OC on the association between PsyCap and IC and IWB . The IC construct of a company has the strongest effect on IWB .
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Table 3. Articles included in this review with *PsyCap* as an antecedent (continued).

Nº	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
8	Akhtar et al. (2018)	Pakistan	This research studies the impact of PsyCap , supervisor support and managerial risk tolerance on employee IWB .	Social organization support (A), risk tolerance in manager (A), PsyCap (A), IWB (Dv).	N = 400 employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .38, p < .05$) Direct effect: ($\beta = .33, p < .001$)	The results show that PsyCap , supervisor support, and innovative risk behavior have a positive effect on employees' IWB . If the supervisor takes risks, her subordinates are likely to do innovative work.
9	Lan (2019)	China	This study explores the impact of employee PsyCap on IWB and the role of job embeddedness (JE) and internal social capital (ISC) in this process.	PsyCap (A), internal social capital (Mo), job embeddedness (M), IWB (Dv).	N = 66 leaders and 106 leader-employee pairs were matched.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	3 times / 3 mont lag / panel / multilevel (T1-leader: ISC, T2-employees: PsyCap and JE, T3-leader: IWB)	PsyCap and IWB : Correlation: ($r = .24, p < .01$) Total effect: ($\beta = .28, p < .05$) Direct effect: ($\beta = .12, p > .05$) (the direct effect is not significant)	In line with the conservation of resources (COR) theory (Hobfoll et al., 2018), this study enriches the literature by evidencing the mediating effect of job embeddedness and the moderating effect of internal social capital on the relationship between PsyCap and IWB .

10	Sun and Huang (2019)	China	To examine the role of psychological safety as a mediator of the relationship between PsyCap and IWB .	PsyCap (A), psychological safety (M), IWB (Dv).	N = 136 university teachers.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Total effect: ($\beta = .48, p < .01$) Direct effect: ($\beta = .33, p < .01$)	The study shows that psychological safety partially mediated the relationship between PsyCap and IWB . It shows the importance of employees' PsyCap in understanding their IWB .
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Table 3. Articles included in this review with *PsyCap* as an antecedent (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
11	Salessi (2020)	Argentina	This study analyzes the direct and indirect effect of PsyCap and passion for work on employees' IWB .	PsyCap (A), passion for work (M), IWB (Dv).	N = 458 teachers from various management schools.	CapPsi-12 scale from Omar, Salessi and Urteaga, 2014.	IWBST-12 scale from Salessi and Etchevers, 2020 (Based in Janssen, 2000).	Cross-sectional / Individual	PsyCap and IWB : (Does not list the result, but the authors report it as positive and significant.)	This study incorporates into the literature the partial mediating role of passion for work in the relationship between PsyCap and IWB .
12	Adikara and Soetjipto (2021)	Indonesia	Examine the effect of leader-member exchange (LMX) and PsyCap on job crafting and IWB , in addition to the mediating effect of job crafting.	Leader-member exchange (A), PsyCap (A), job crafting (M), IWB (Dv).	N = 105 entry-level employees from a government office.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	PsyCap and IWB : Total effect: ($\beta = .65, p < .01$) Direct effect: ($\beta = .39, p < .01$)	This research shows that job creation acts as a partial mediator between employees' PsyCap and their IWB . The application of job crafting (Tims and Bakker, 2010) is recommended in organizations to achieve positive change.

13	Alshebami (2021)	Saudi Arabia	This study investigates the impact of PsyCap on employees' IWB through the mediating effect of job satisfaction and employees' innovative intention.	PsyCap (A), employees' job satisfaction (M), employees' innovative intention (M), IWB (Dv).	N = 204 employees of small and medium enterprises (SMEs).	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Total effect: ($\beta = .47, p < .001$) Direct effect: ($\beta = .24, p < .001$)	This study provides empirical evidence on the relationship of PsyCap with job satisfaction, employee innovative intention and IWB for SMEs in Saudi Arabia. PsyCap had a direct effect on IWB , and also through job satisfaction.
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Table 3. Articles included in this review with *PsyCap* as an antecedent (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
14	Farrukh and Ansari (2021)	Pakistan	This research examines the mediating effect of SIB on the relationship between employee PsyCap and customer value cocreation (VCC).	PsyCap (A), SIB (M), customer value cocreation (Dv).	N = 255 hotel employee-customer dyads.	PCQ-12 scale from Avey, Avolio et al., 2011.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Multilevel (Employees-customers dyads)	PsyCap and IWB : Total effect: ($\beta = .40, p < .001$) Direct effect: ($\beta = .20, p < .001$)	This research demonstrated that SIB partially mediates the relationship between PsyCap and VCC, thus extending the literature.
15	Ghafoor and Haar (2021)	Dubai, New Zealand and Pakistan	The study examines the relationship between PsyCap and job stress (JS) in the employees' IWB . It also investigates the mediating role of job satisfaction and the moderating role of JS.	PsyCap (A), job satisfaction (M), job stress (Mo), IWB (Dv).	Sample 1 N = 269 employees and sample 2 N = 475 employees (all from different companies).	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Sample 1: Correlation: ($r = .47, p < .01$) Direct effect: ($\beta = .18, p < .01$) Sample 2: Correlation: ($r = .49, p < .01$) Direct effect: ($\beta = .52, p < .001$)	Job stress has been shown to have a positive moderating effect on IWB . Job satisfaction mediated the relationship between PsyCap and IWB . The positive influence of stress is demonstrated when combined with high psychological resources (PsyCap).

16	Jha (2021)	India	To investigate the relationship between PsyCap and IWB , as well as employee voice behavior (EVB) as a mediator. The high-performance work system (HPWS) is also studied as a moderator between PsyCap and voice behavior.	PsyCap (A), high performance work system (Mo), employee voice behavior (M), IWB (Dv).	N = 514 managers and supervisors.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	2 times / 20 days lag / panel / Individual (T1- PsyCap and HPWS, T2-demographic variables, EVB and IWB)	PsyCap and IWB : Correlation: ($r = .66, p < .01$) Direct effect: ($\beta = .48, p < .01$)	The study contributed significantly to the HPWS literature by understanding the relationship between PsyCap -EVB- IWB , the mediation of which was positive and significant.
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Table 3. Articles included in this review with *PsyCap* as an antecedent (continued).

Note. Antecedents (A), mediators (M), moderators (Mo), dependent variables (Dv). Acronyms proposed for the instruments by the original authors: (IWB) innovative work behavior, (CapPsi) psychological capital, (PCQ) psychological capital questionnaire, (SIB) service innovative behavior. Acronyms proposed for the instruments by the authors of this review, based on the term adopted for the questionnaire: (IWBST) innovative work behavior scale for teachers. Creativity as a single construct has not been considered in this review.

Table 4. Articles included in this review with *PsyCap* as a mediator.

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure <i>PsyCap</i>	Instrument to measure <i>Iwb</i>	Design / Unit of Analysis	Results between <i>PsyCap</i> and <i>Iwb</i>	Discussion and Implications
17	Hsu and Chen (2017)	Taiwan	To explore whether the PsyCap of the employees is a mediator between the organizational innovation climate (OIC) and the IWB of the employees, from a multilevel approach.	Organizational innovation climate (A), PsyCap (M), IWB (Dv).	N = 781 diverse employees from 16 organizations.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Multilevel (Climate measured at the organizational level)	PsyCap and IWB : Correlation: ($r = .71, p < .01$) Effect: ($\beta = .96, p < .01$) PsyCap is a mediator between OIC and IWB .	The present study found evidence that personal characteristics (PsyCap) may be more important than the influence of the environment (organisational innovation climate) on employees' IWB .
18	Etikariena (2018)	Indonesia	This study examines the mediating role of the employee's PsyCap in the relationship between work happiness (WH) and the employee's IWB .	Work happiness (A), PsyCap (M), IWB (Dv).	N = 135 bank employees.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .33, p < .001$) PsyCap does not mediate between WH and IWB .	This research shows that WH and IWB are not significantly correlated. Thus, and based on previous studies, WH would not be related to increased employee productivity, and in this case IWB .
19	Kim et al. (2018)	South Korea	To examine whether PsyCap plays a mediating role in the relationship between psychological breach of contract (PCB) and SIB .	Psychological contract breach (A), PsyCap (M), SIB (Dv).	N = 314 managerial and non-managerial employees of 15 five-star hotels.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	3 times / 1 month lag / panel / Individual (T1- PCB, T2- PsyCap , T3- SIB)	PsyCap and SIB : Correlation: ($r = .62, p < .01$) Effect: ($\beta = .47, p < .001$) PsyCap is a partial mediator between PCB and SIB .	It is demonstrated that PCB impedes the SIB of employees in contact with the customer, while the joint presence of self-efficacy, hope, resilience and optimism (PsyCap) encourages their SIB .

Table 4. Articles included in this review with *PsyCap* as a mediator (continued).

N ^o	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure <i>PsyCap</i>	Instrument to measure <i>Iwb</i>	Design / Unit of Analysis	Results between <i>PsyCap</i> and <i>Iwb</i>	Discussion and Implications
20	He (2013)	China	Explore the influence of innovative organizational climate (IOC) on IWB , and the mediation of PsyCap .	Organizational innovative climate (A), PsyCap (M), IWB (Dv).	N = 209 employees of various companies.	PCQ-24 scale from Luthans et al., 2007.	IIBM-scale from Huang, 2006 (Based on Kleysen and Street, 2001).	Cross-sectional / Individual	PsyCap and IWB : Effect: ($\beta = .80, p < .001$) PsyCap is a partial mediator between OIC in IWB .	This study showed that OIC has a positive impact on the IWB of creative talents. It is essential to develop and improve the PsyCap of creative talents to facilitate their IWB .
21	Wojtczuk-Turek and Turek (2015)	Poland	To investigate how the flexibility of the HR system (HRSF), in combination with the individual flexibility (IF) of employees and their positive character traits (PsyCap) predict IWB .	HR flexibility (A), individual flexibility (A), PsyCap (M), IWB (Dv).	N = 236 employees of various organizations and graduate student-employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB -14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .55, p < .01$) Effect: ($\beta = .73, p < .01$) PsyCap is a full mediator between HRSF and IF, and IWB .	The results confirm that HRSF and IF are not directly related to IWB . Thus, individual skills and human resource practices are necessary but not sufficient to initiate IWB . The relationship of both variables is indirect with PsyCap as a mediator.
22	Schuckert et al. (2018)	South Korea	To empirically test a research model that investigates the effects of authentic leadership (AL) and transformational leadership (TL) on follower SIB with	Transformational leadership (A), authentic leadership (A), PsyCap (M), IWB (Dv).	N = 336 full-time frontline employees.	PCQ-24 scale from Luthans et al., 2007.	SIB -6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	2 times / 1 month lag / panel / Individual (T1- TL, AL, PsyCap / T2-	PsyCap and SIB : Correlation: ($r = .61, p < .01$) Effect: ($\beta = .27, p < .001$) PsyCap is a partial mediator	The results suggest that AL has a greater effect on the PsyCap and SIB follower than TL. The practice of corporate human resource management must

	follower PsyCap as a partial mediator.	T1 survey + SIB)	between AL and TL on SIB .	emphasize the development of AL.
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Table 4. Articles included in this review with *PsyCap* as a mediator (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
23	Suciati et al. (2018)	Indonesia	To explore the relationship between humour and IWB , as well as the mediating role of PsyCap , using the "broaden and build" theory (Fredrickson, 2013).	Humour (A), PsyCap (M), IWB (Dv).	N = 172 employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	2 times / panel / Individual (T1-Humour, PsyCap , T2- IWB)	PsyCap and IWB : Correlation: ($r = .46, p < .01$) Effect: ($\beta = .57, p < .01$) PsyCap is a full mediator between humor and IWB .	The study contributes to knowledge about the role of PsyCap by explaining how humour can improve IWB . Humour is one of the responses to adapt to problems, which can help build PsyCap .
24	El Fath and Radikun (2019)	Indonesia	This study examines the role of authentic leadership (AL) as a predictor of IWB using PsyCap as a mediator in the model.	Authentic leadership (A), PsyCap (M), IWB (Dv).	N = 115 employees of various companies.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .35, p < .05$) Effect: ($\beta = .29, p < .05$) PsyCap is a full mediator between AL and IWB .	This finding provides new insight into the influence of AL on teamwork. AL favors PsyCap and helps employees be innovative.
25	Mishra et al.(2019)	India	To study how work-to-family enrichment (WFE) and family-to-work enrichment (FWE) are positively related to PsyCap , and PsyCap in turn to IWB in an oriental culture, under the framework "broaden	WFE (A), FEW (A), PsyCap (M), supervisor support for IWB (Mo), IWB (Dv).	N = 398 service-sector employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-6 scale from IWB-14 scale of Kleysen and Street, 2001.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .93, p < .05$) Model A: Effect: ($\beta = .96, p < .01$) Model B: Effect: ($\beta = .91, p < .01$)	The study demonstrates that PsyCap 's full mediation between bidirectional enrichment and the IWB and the supervisor's support directly related to the IWB , suggests that these are factors that

	and build" theory (Fredrickson, 2013).	PsyCap fully mediates between WFE and FEW, and IWB .	promote individual innovation.
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Table 4. Articles included in this review with PsyCap as a mediator (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
26	Özsunğur (2019)	Türkiye	To evaluate the impact of ethical leadership (EL) in SIB , examining the role of PsyCap as a mediator in this relationship.	Ethical leadership (A), PsyCap (M), SIB (Dv).	N = 376 blue-collar workers.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Individual / Questionnaire read by the researcher	PsyCap and SIB : Correlation: ($r = .68, p < .01$) Effect: ($\beta = .68, p < .000$) PsyCap partially mediates the relationship between EL and SIB .	The results confirm the relationship between EL and PsyCap and its influence on the employees' SIB . In this study, female employees had higher levels of PsyCap , IWB , and perceived EL than male employees.
27	Suvonova et al. (2019)	South Korea	This research explores the effects of organizational preparedness for corporate entrepreneurship (OPCE) on employees' PsyCap and IWB in SMEs, and the moderating effect of managerial level.	OPCE (A), managerial level (Mo), PsyCap (M), IWB (Dv).	N = 217 managers in South Korean SMEs.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-8 scale adapted from two previous studies, based on De Jong and Den Hartog, 2010; Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .70, p < .01$) Effect: ($\beta = .80, p < .01$) No statistical procedure was performed to estimate the effect of possible full or partial PsyCap mediation.	It is shown that middle managers' perception of the OPCE and PsyCap dimensions is significantly more positive for upper-level managers than for lower-level managers. In addition, two of the four OPCE dimensions are positively related to PsyCap and PsyCap is positively related to IWB .

Table 4. Articles included in this review with *PsyCap* as a mediator (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure <i>PsyCap</i>	Instrument to measure <i>Iwb</i>	Design / Unit of Analysis	Results between <i>PsyCap</i> and <i>Iwb</i>	Discussion and Implications
28	Aghighi and Manteghi (2021)	Iran	To investigate the relationship between humble leadership (HL) and <i>IWB</i> with emphasis on the mediating role of <i>PsyCap</i> .	Humble leadership (A), <i>PsyCap</i> (M), <i>IWB</i> (Dv)	N = 123 employees of public libraries.	PCQ-24 scale from Luthans et al., 2007.	<i>IWB</i> -6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	<i>PsyCap</i> and <i>IWB</i>: Effect: ($\beta = .17, p < .001$) <i>PsyCap</i> works as a partial mediator between HL and <i>IWB</i>.	The results show that the theoretical model is valid for increasing employee <i>IWB</i> , and all direct relationships between the model variables are significant.
29	Brunetto et al. (2020)	United States and Australia	This paper examines the impact of personal attributes (<i>PsyCap</i>) and organizational support (LMX) on the <i>IWB</i> .	Leader-member exchange (A), <i>PsyCap</i> (M), <i>IWB</i> (Dv).	N = 260 USA health workers N = 220 Australia health workers.	PCQ-12 scale from Avey, Avolio et al., 2011.	<i>IWB</i> -6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	<i>PsyCap</i> and <i>IWB</i>: USA: Correlation: ($r = .60, p < .01$) Effect: ($\beta = .60, p < .001$) Australia: Correlation: ($r = .34, p < .01$) Effect: ($\beta = .43, p < .001$) <i>PsyCap</i> fully mediated the relationship between LMX and <i>IWB</i> for both countries.	The study shows that organizational (LMX) and individual (<i>PsyCap</i>) supports significantly influence <i>IWB</i> , with U.S. respondents having the highest values for all three variables evaluated.

Table 4. Articles included in this review with PsyCap as a mediator (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure Psycap	Instrument to measure Iwb	Design / Unit of Analysis	Results between Psycap and Iwb	Discussion and Implications
30	Chongvisal (2020)	Thailand	Investigate about the factors that affect the IWB of senior and middle managers in private and public organizations.	Servant leadership (A), workplace spirituality (A), work engagement (M), PsyCap (M), IWB (Dv).	N = 746 senior-level or middle-level.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-12 scale from IWB-17 scale De Jong and Den Hartog, 2010.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .74, p < .01$) Effect: ($\beta = .50, p < .01$) PsyCap partially mediates between antecedents and managers' IWB .	The results confirm the relationship between the variables: servant leadership, PsyCap , work spirituality and work commitment, with the IWB of managers.
31	Karakitapoğlu-Aygün et al. (2020)	Türkiye	The study investigates the effects of the three dimensions of paternalistic leadership (PL) on task performance (TP) and IWB , and the effect of PsyCap as a mediator.	Paternalistic leadership (A), PsyCap (M), task performance (Dv), IWB (Dv).	N = 409 Turkish employees and their 72 leaders.	PCQ-24 scale from Luthans et al., 2007.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Multilevel (Employees: PL and PsyCap , leaders: TP and IWB).	PsyCap and IWB : Correlation: ($r = .22, p < .001$) Effect: ($\beta = .13, p < .001$) PsyCap mediates the three dimensions of PL and the IWB .	The results show that PL is not related to TP but is related to IWB , at least in two of its dimensions, benevolent and authoritarian leadership. PsyCap acts as a mediator and is related to IWB and not TP.
32	Rachmawati (2020)	Indonesia	Investigate how internal (PsyCap and learning goal orientation or LGO) and	Servant leadership (A), learning goal orientation (A),	N = 407 non-managerial employees	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .73, p < .05$)	The finding of this research shows that internal factors (LGO and PsyCap) have more influence on

		organizational (servant leadership or SL) factors affect IWB employees.	PsyCap (M), IWB (Dv)	of a public organization.					PsyCap fully mediates SL and IWB , and partially mediates LGO and IWB .	IWB than external factors (SL).
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Table 4. Articles included in this review with PsyCap as a mediator (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
33	Erdem (2021)	Türkiye	To determine whether PsyCap functions as a mediator in the relationship between ethical leadership (EL) and employee SIB .	Ethical leadership (A), PsyCap (M), SIB (Dv).	N = 170 hotel employees.	PCQ-24 scale from Luthans et al., 2007.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Individual	PsyCap and SIB : Effect: ($\beta = .70, p < .01$) PsyCap partially mediates between EL and SIB	The results show that the positive factors PsyCap and EL are directly and indirectly related to employees' SIB .
34	Farrukh et al. (2021)	Pakistan	This study investigates the role of High-Performance Work Practices (HPWP) and PsyCap in the SIB of employees.	High-Performance Work Practices (A), PsyCap (M), SIB (Dv).	N = 330 frontline service employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	SIB-6 scale from Hu et al., 2009 (Based in Scott and Bruce, 1994).	Cross-sectional / Individual	PsyCap and SIB : Effect: ($\beta = .25, p < .000$) PsyCap partially mediates between HPWP and SIB .	This study indicates that HPWP and PsyCap are important factors in fostering employee SIB , as they are positively and significantly related.
35	Gashema and Kadhafi (2020)	Rwanda	To determine if PsyCap will act as a mediator in the relationship between TL and IWB , in addition to the moderating effect of Effort-Reward Equity (ERE) perceptions between TL and IWB .	Transformational leadership (A), PsyCap (M), Effort-Reward Equity (Mo), IWB (Dv).	N = 412 bank employees.	PCQ-12 scale from Avey, Avolio et al., 2011.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .57, p < .01$) Effect: ($\beta = .51, p < .001$) PsyCap mediates TL and IWB , and ERE acts as a moderator	The study extends the understanding of the moderating effect of ERE and the mediating effect of PsyCap on the relationship between employee TL and IWB .

Note. Antecedents (A), mediators (M), moderators (Mo), dependent variables (Dv). Acronyms proposed for the instruments by the original authors: (IWB) innovative work behaviour, (PCQ) psychological capital questionnaire, (SIB) service innovative behaviour. Acronyms proposed for the instruments by the authors of this review, based on the term adopted for the questionnaire: (IIBM) individual innovative behavior measure. Creativity as a single construct has not been taken into account in this review.

Table 5. Articles included in this review with PsyCap as a moderator.

Nº	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure PsyCap	Instrument to measure Iwb	Design / Unit of Analysis	Results between PsyCap and Iwb	Discussion and Implications
36	Zhu and Mu (2016)	China	This research aims to establish a moderate mediation framework to explore the factors that influence the IWB of employees in organizations.	Transformational leadership (A), knowledge sharing (M) PsyCap (Mo), IWB (Dv).	N = 212 employees of various companies.	PCQ-24 scale from Luthans et al., 2007.	IWB-14 scale from Kleysen and Street, 2001.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .42, p < .01$) TL is positively related to IWB and PsyCap plays a moderating role. High PsyCap ($\beta = 0.27, p < .05$) Low PsyCap ($\beta = -0.02, ns$)	This article enriches the innovation literature by empirically testing the moderating role of PsyCap and the mediating role of knowledge sharing on the link between TL and IWB .
37	Tsegaye et al. (2020)	China	To examine the antecedent effect of cultural value orientation (CVO) and PsyCap on employees' IWB , as well as to test whether there is also a moderating effect of PsyCap on the relationship between CVO and IWB .	Organizational culture (A), CVO (A), PsyCap (A, Mo), IWB (Dv).	N = 370, engineering and design employees of various nationalities.	PsyCap-15 scale from Gupta and Singh, 2014.	IWB-9 scale from Janssen, 2000.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .68, p < .01$) Effect: ($\beta = .37, p < .001$) PsyCap moderates the relationship between CVO and IWB in the	The study shows that employees with high PsyCap , high masculinity, low power distance, low collectivism, and low uncertainty avoidance score higher IWB . This shows that IWB is not only influenced by a socially initiated factor of cultural value

dimensions; power distance ($\beta = -0.09, p < 0.05$), uncertainty avoidance ($\beta = -0.14, p < 0.01$), and masculinity ($\beta = -0.16, p < 0.01$). orientation; instead, personal factors also affect it.

Table 5. Articles included in this review with *PsyCap* as a moderator (continued).

N°	Author (Date)	Country	Objectives	(A), (M), (Mo), & (Dv)	Sample	Instrument to measure Psycap	Instrument to measure Iwb	Design / Unit of Analysis	Results between Psycap and Iwb	Discussion and Implications
38	Ishaq et al. (2021)	Pakistan	Examining the Big Five personality traits of leaders as antecedents of IWB and employees' in-role performance (IRP), and the mediation of paradoxical leader behavior (PLB). It also examines the moderating effect of PsyCap on the relationship between PLB, IWB, and IRP.	Leaders' Big Five personality traits (A), PLB (M) PsyCap (Mo), in-role performance behavior (Dv), IWB (Dv).	N = 131 managers and 609 followers.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .10, p < .01$) PsyCap moderates the relationship between PLB and IRP, but does not moderate the relationship with followers' IWB ($\beta = 0.01, p = ns$).	This study demonstrates that follower PsyCap reinforces the positive relationship between PLB and IRP outcomes; however, it does not do so for IWB . This shows that leader behaviors and follower characteristics may have a differential impact on work behaviors.
39	Ijje et al. (2021)	Nigeria	This study aims to test a conceptual model on the impact of workload on the IWB of employees and the role of their PsyCap .	Workload (A) PsyCap (A, Mo), IWB (Dv).	N = 315 manufacturing company employees.	PCQ-24 scale from Luthans et al., 2007.	IWB-6 scale from Scott and Bruce, 1994.	Cross-sectional / Individual	PsyCap and IWB : Correlation: ($r = .81, p < .05$) Effect: ($\beta = .59, p < .05$)	The results present workload as a job demand that could be mitigated by a high PsyCap as a personal resource, in order to

	<p>PsyCap moderates the relationship between workload and IWB ($\beta =$ 0.07, $p < 0.05$).</p>	<p>promote employees' IWB.</p>
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Note. Antecedents (A), mediators (M), moderators (Mo), dependent variables (Dv). Acronyms proposed for the instruments by the original authors: (IWB) innovative work behavior, (PCQ) psychological capital questionnaire. Acronyms proposed for the instruments by the authors of this review, based on the term adopted for the questionnaire: (PsyCap-15) psychological capital-15 items. Creativity as a single construct has not been considered in this review.

