

The Critical Role of Psychological Capital in Empowering Female Managers Amid Digital Innovation

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ABSTRACT

Despite significant progress in gender equality, women continue to face underrepresentation in leadership roles, with many opting out of corporate careers due to persistent barriers. This is concerning, as the career advancement of women depends on their ability to stay engaged and perform effectively in the workplace which continues to adopt digital innovations. **The study examines** the critical role of Psychological Capital (PsyCap) in empowering female managers, especially as organizations continue to embrace digital innovations. The study also explores how Leader-Member Exchange (LMX) strengthens this relationship, contributing to performance and engagement in the workplace. **This study was** conducted in two subsidiaries of a multinational company, in India and Indonesia. We applied a mixed method with quantitative analysis from 104 completed questionnaires, and qualitative analysis from interviewing a total of 13 participants from both countries. **The quantitative analysis shows** that PsyCap plays a significant role in enhancing LMX, fostering DIB, and improving both performance and engagement. Qualitative findings highlight three core themes that emphasize how PsyCap supports female managers in navigating digital transformation challenges. **This study examines** PsyCap within the framework of LMX and DIB, highlighting the pivotal role of PsyCap and its dynamic interactions in enhancing the performance and engagement of female managers. Conducted in India and Indonesia, this study offers a unique cross-cultural perspective on the role of PsyCap in empowering female managers amidst digital innovation, addressing gaps in existing literature by focusing on South Asian contexts with low gender equality rankings.

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1. INTRODUCTION

Despite significant progress in gender equality initiatives, women remain underrepresented in leadership positions across various industries globally [1]. This underrepresentation is particularly concerning, as studies show that female managers bring unique perspectives and strengths to leadership roles. Many female professionals face barriers that limit their ability to climb the corporate ladder, and some have even decided to exit the corporate world due to these challenges [2, 3]. To address this issue, it is crucial to explore the factors that contribute to female managers performance and engagement, as these are key determinants of their career

advancement and organizational success. Among the critical factors that may influence women empowerment is Psychological Capital (PsyCap), which encompasses hope, self-efficacy, resilience, and optimism. Studies show that PsyCap has emerged as a powerful resource in enhancing employee performance and well-being [4]. Therefore, for female managers, PsyCap can be vital in overcoming challenges and excelling in leadership roles [5]. This study investigates the role of PsyCap in empowering female managers by examining its influence on Leader-Member Exchange (LMX), DIB, performance, and engagement. Through this lens, we aim to uncover the role of PsyCap as a catalyst in enhancing the performance and engagement of female leaders.

This study provides several contributions to the existing literature. First, while previous research has explored the impact of PsyCap on performance [4], there is still limited knowledge specifically on female managers. This study adds to the existing literature highlighting the pivotal role of psychological capital in the performance of female managers. Second, research has explored PsyCap in terms of its effects on leadership [6, 7], but its unique interaction in the context of digital innovation, performance, and engagement is still underexplored. In addition, this study implemented a mixed study in which both quantitative and qualitative analyses were applied, resulting in a more comprehensive understanding of these important interplays. Third, most studies related to women and digital innovation were done in the more developed countries in the Western world [8, 9]. This study was conducted in two subsidiaries of a multinational company in India and Indonesia. Hence, the study contributes to the existing literature by providing a cross-cultural perspective from the South Asian region, especially on the dynamic roles of PsyCap in the interplays with LMX, digital innovation, performance, and engagement of female managers in these two countries. In summary, while there has been growing interest in examining PsyCap in relation to various workplace factors such as LMX, digital innovation, performance, and engagement, studies that integrate these dynamics and specifically focus on female managers remain relatively limited. This study sheds light on the pivotal role of PsyCap in empowering female managers.

2. LITERATURE REVIEW

This study explores the positive psychological state of growth and development, based on the concept of PsyCap as introduced by [10], and how it interacts with the performance and engagement of female managers considering the dynamics of LMX and digital innovation [11]. According to [10], PsyCap is a set of personal resources, defined as positive attitudes or beliefs about oneself comprised of hopes (positive directions towards a goal), efficacy (self-confidence to make the effort to overcome challenges), resilience (the strength for survival in experiencing problems), and optimism (having positive perspectives).

2.1. Psychological Capital and Engagement

The concept of employee engagement was developed from the idea of personal engagement initiated by [12], with the understanding that it is how someone being oneself at work connects with their job and coworkers, stays engaged, and fully participates in their role at work. This concept was then further developed and started to be named employee engagement, which is about employee thoughts, feelings, and actions focused on achieving the organization goals. Referring to these initial concepts, a study has elaborated on them by focusing more on work engagement by defining engagement as a positive and satisfying state of mind at work, marked by energy, commitment, and deep involvement. Previous studies have shown the importance of employee engagement, as it is positively related to performance [13], [14], [15].

PsyCap is increasingly recognized as a pivotal predictor of employee engagement. Studies have shown that employees with high levels of PsyCap are more engaged in their work [16, 17]. This is because PsyCap, which encompasses positive psychological capabilities such as optimism, resilience, self-efficacy, and hope, increases job satisfaction and motivates employees to perform beyond their job description [18]. This study aims to further enrich the findings of past studies by investigating the association of psychological capital focusing on specifically the engagement of female managers.

H1: PsyCap has a positive significant association with Engagement.

2.2. Performance and Engagement

While engagement is commonly seen as a driver of individual and organizational outcomes, several studies suggest that the relationship can be reciprocal. Employees who perform well tend to experience heightened feelings of accomplishment, competence, and recognition, which in turn fuels their motivation and deepens their emotional connection to their work. Self-determination theory [19] supports this view by emphasizing

that competence one of the three core needs in the theory can be fulfilled through high performance. When individuals feel effective in their roles, they are more likely to be intrinsically motivated and engaged. Moreover, high-performing employees often receive positive feedback, recognition, and support, creating a reinforcing loop that sustains or enhances their engagement [12]. In the context of leadership, studies have shown that successful performance, particularly in leadership roles, can enhance a leader self-efficacy and increase their psychological investment in their work [10]. Considering that female managers often face higher scrutiny in leadership roles, strong performance not only validates their competence but also bolsters their engagement as they overcome barriers and achieve recognition. Therefore, understanding the interplay between performance and engagement is crucial in shaping strategies to support female managers. By fostering environments that recognize and reward performance, organizations can create a cycle that enhances both engagement and overall productivity.

H2: Performance has a positive significant association with Engagement.

2.3. Psychological Capital and Performance

As explained above, studies have shown that PsyCap has emerged as a powerful resource in enhancing employee performance and well-being [4]. This study explores the association of PsyCap and the performance specifically of female managers. Previous research has demonstrated that employees with high levels of PsyCap tend to exhibit better job performance, greater job satisfaction, and improved overall well-being. For instance, [20] found that PsyCap is significantly related to desirable employee attitudes, behaviors, and performance. Similarly, [21] highlighted the role of PsyCap in fostering employee engagement and reducing turnover intentions. However, there is a gap in the literature regarding how PsyCap influences the performance of female managers, particularly in contexts where gender equality indices are below 70%, such as in India and Indonesia [1]. While [4] provided insights into the general benefits of PsyCap, they did not specifically address its impact on female managers. This study aims to fill this gap by examining how PsyCap contributes to the performance and engagement of female managers in these countries.

H3: PsyCap has a positive significant association with Performance.

2.4. Psychological Capital and Digital Innovation

In today context where digital emerges in almost all activities within the organizational operational processes [22], the role of digital becomes more crucial for performance. In other words, Digital Innovative Behavior (DIB) has a role in affecting performance, as past studies show a positive association between innovative behavior and performance [23]. This study explores specifically the effect of DIB on the performance of female managers. Furthermore, understanding that digital is a relatively new field, it is important for female managers to have psychological capital to embrace this new technology as it brings the right optimism and efficacy in adopting and performing digital innovations at work. Past studies have shown that PsyCap has a positive association with innovative behavior [24], [25], [26]. This study investigates the relationships first between DIB and performance, followed by the relationship between PsyCap and the DIB of female managers.

H4: DIB has a positive significant association with Performance.

H5: PsyCap has a positive significant association with DIB.

2.5. Psychological Capital and Leader-Member Exchange (LMX)

Past studies have shown the importance of having good relationships between leaders and subordinates to deliver the expected performance and innovation [27], [28], [29]. Such a relationship is indicated with LMX refers to the reciprocal interpersonal relationship between leaders (direct managers) and their members or direct subordinates. Studies also discovered that having the right positive attitude which is indicated with PsyCap is important to build a positive LMX [6, 7]. This study explores how the relationship between female managers and their leaders affects DIB, and how PsyCap in turn has a positive association with LMX.

Following the model of this study, we can explore the relationships as well between performance and engagement, digital innovation and performance, also between LMX and DIB, as shown in Figure 1 below with the seven hypotheses to be tested.

H6: LMX has a positive significant association with DIB.

H7: PsyCap has a positive significant association with LMX.

In Summary, this study explores how fostering PsyCap affects the performance and engagement of female managers. By focusing on female managers, the research seeks to understand whether the positive effects of PsyCap observed in general employee populations also apply to women in leadership roles. Additionally, it

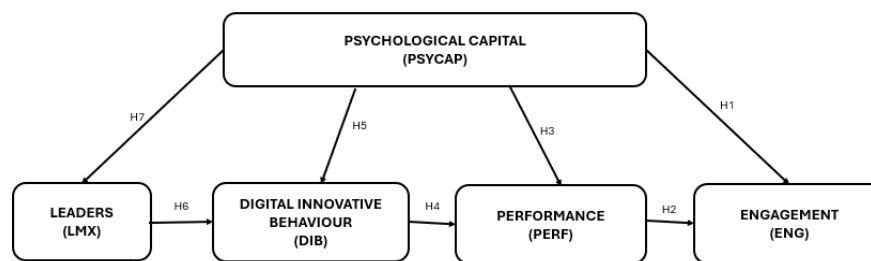


Figure 1. The Conceptual Model of This Research

investigates whether PsyCap can help mitigate the challenges faced by female managers in environments with lower gender equality, thereby enhancing their performance and engagement. This focus on female managers is crucial, as they often encounter unique challenges and barriers in their professional journeys, which may influence their performance and well-being differently compared to their male counterparts. The study also investigates how PsyCap drives DIB and LMX.

3. METHODS

This research was based on 104 completed questionnaires received from female managers within a global cosmetics company, specifically its subsidiaries in India and Indonesia. These locations were intentionally selected due to their lower gender equality rankings [1] and their prominence as major beauty markets in South Asia [30]. Combined, these countries contribute to over half of the company annual sales in the region. The study aimed to investigate the factors influencing the performance of female managers, seeking to understand the reasons behind their declining performance as they progress in their careers. An email survey was distributed to female managers in the Indonesian and Indian subsidiaries, including participants from junior to senior management levels, excluding those on the management committee or board of directors.

The mixed-methods approach, combining quantitative analysis and qualitative insights, offers a unique advantage in this study by capturing both statistical correlations and nuanced personal experiences. This design enables a comprehensive understanding of PsyCap role in different contexts and cultures. The quantitative method was applied to gain an understanding of the relationships between PsyCap and the other variables. Meanwhile, the qualitative method was applied to capture the insights regarding the perceptions of female managers on what empowers them at work, which enables them to perform well and remain engaged at work. The gathering of data for both analyses was done in parallel at the same time within the period between February–August 2023. The data of quantitative and qualitative were then analyzed to complement each other and provide comprehensive insights.

4. RESULT AND DISCUSSION

This study employed well-established surveys and metrics that have been validated in prior research. Responses were collected on a scale from 1 to 6, where 1 indicated ‘strongly disagree’ and 6 indicated ‘strongly agree’.

4.1. Measures

PsyCap was measured using the scale developed by [10], which encompasses four dimensions: hope (4 items, for example, “Right now, I see myself as being pretty successful at work”), self-efficacy (3 items, for example, “I feel confident in representing my work area in meetings with management”), resilience (3 items, for example, “I can get through difficult times at work because I’ve experienced difficulty before”), and optimism (2 items, for example, “I always look on the bright side of things regarding my job”).

The engagement of female managers was assessed using the scale developed by [31]. Bakker defines work engagement as a positive, fulfilling, work-related state of mind. It is characterized by three dimensions: Vigor, which relates to energy and resilience, referring to high levels of energy, effort, resilience, persistence, and the motivation to invest in one work; Dedication, which refers to feeling enthusiasm and being inspired by one work, characterized by a sense of pride, enthusiasm, inspiration, and involvement in one work; and

Absorption, the intense concentration in the work being undertaken, characterized by being fully concentrated and happily engrossed in one work, whereby time passes quickly, and one has difficulties with detaching oneself from work. The engagement measurements consist of 9 indicators, for example, “At my work, I feel bursting with energy”.

Performance was assessed using the scale developed by [32], which comprises two dimensions: task performance (5 items, for example, “I was able to plan my work so that I finished it on time”) and contextual performance (8 items, for example, “On my own initiative, I started new tasks when my old tasks were completed”).

DIB was assessed using a modified version of the innovative work behavior scale developed by Janssen. The items were tailored to emphasize digital technology, resulting in a 9-item scale (for example., “I create new ideas to solve difficult problems with digital technology”).

LMX was assessed using the scale developed by Liden & Maslyn, which encompasses four dimensions: affect (3 items, for example, “My direct manager is the kind of person one would like to have as a friend”), loyalty (3 items, for example, “My direct manager defends my work actions to a superior, even without complete knowledge of the issue in question”), contribution (3 items, for example, “I do not mind working my hardest for my direct manager”), and professional respect (3 items, for example, “I respect my direct manager’s knowledge of and competence on the job”).

4.2. Descriptive Statistics

The descriptive statistics analysis with means, standard deviations, correlations, and Cronbach alpha coefficients of this study show that all variables are positively correlated with each other, and the reliability of the measures is high. This suggests that higher levels of PsyCap, LMX, DIB, and Engagement are associated with better Performance among the participants.

Table 1. Means, Standard Deviations, Correlations, and Cronbach Alpha (in parentheses)

Variables	Mean	Std. Deviation	1	2	3	4	5
Performance	4.78	0.64	(0.901)				
PsyCap	4.75	0.66	0.547**	(0.892)			
LMX	4.89	0.75	0.468**	0.353**	(0.929)		
DIB	4.55	0.80	0.470**	0.554**	0.409**	(0.914)	
Engagement	4.81	0.73	0.592**	0.714**	0.419**	0.378**	(0.869)

Note. LMX: Leader-Member Exchange, DIB: Digital Innovative Behaviour

**p-value<0.01, *p-value<0.05

Table 1 presents the descriptive statistics for the main variables of the study, including mean scores, standard deviations, correlations, and Cronbach alpha coefficients. The mean values indicate that participants generally reported high levels of performance ($M = 4.78$), PsyCap ($M = 4.75$), LMX ($M = 4.89$), DIB ($M = 4.55$), and engagement ($M = 4.81$). The standard deviations reflect a moderate degree of variability among the participants responses. Cronbach alpha coefficients for all variables exceed the threshold of 0.7, indicating high internal consistency and reliability of the scales used in this study. The correlation coefficients demonstrate significant positive relationships between all variables, particularly a strong correlation between PsyCap and engagement ($r = 0.714, p < 0.01$). This suggests that higher levels of PsyCap are strongly associated with greater engagement. Furthermore, the correlation between engagement and performance ($r = 0.592, p < 0.01$) highlights the critical role of engagement in enhancing performance outcomes. These results provide robust evidence supporting the theoretical model and hypotheses of this study.

4.3. Model Fit

Our proposed model demonstrated acceptable fit indices ($\chi^2/df = 1.624$, $RMSEA = 0.078$, $GFI = 0.85$, $TLI = 0.92$, $CFI = 0.94$). Therefore, we are confident in examining the significance of the relationships between variables as specified in our theoretical framework. Details of the goodness-of-fit test results are shown in Table 2 below.

Table 2. Goodness of Fit

Fit Measure	Measurement Model Result	Acceptable Fit Interval	Reference
Degrees of Freedom (df)	92		
Chi-square (χ^2)	149.387		
Absolute Fit Indices			
Goodness-of-Fit Index (GFI)	0.850	Close to 1 good fit Depends on N	Arbuckle Byrne
Root Mean Square Error of Approximation (RMSEA)	0.078	$RMSEA \leq 0.08$	Hair
Normed Chi-square	1.624	$\chi^2/df \leq 3$	Hair
Adjusted Goodness-of-Fit Index (AGFI)	0.779	Close to 1 good fit Depends on N	Arbuckle Byrne
Incremental Fit Indices			
Normed Fit Index (NFI)	0.856	$0.90 \leq NFI \leq 0.95$	Hair
Comparative Fit Index (CFI)	0.938	$0.90 \leq CFI \leq 0.95$	Hair
Tucker Lewis Index (TLI)	0.919	$0.90 \leq CFI \leq 0.95$	Hair

4.4. Validity & Reliability

To ensure that the statistical analyses are conducted properly we must assess the validity of the data to certify the quality of the measures used in this research. This assessment involved examining the model using Standardized Factor Loadings (SFL) for each indicator. SFL represents the strength of the relationship between each indicator or item and its corresponding variable or construct [33]. Confirmatory Factor Analysis (CFA) was employed to calculate the SFL for each indicator, determining how effectively the indicators measure their respective variables and evaluating the statistical significance of the factor loadings. According to [33], the general guideline for SFL varies across disciplines but typically ranges from 0.5 to 1.0, with values of 0.7 or higher considered excellent. Upon reviewing the results, it was found that all SFL indicators exceeded 0.5, indicating satisfactory validity, as shown in Table 3 below.

Table 3. Results of Validity Tests

Path	Construct	SFL	Sig.
P_TP	Performance	0.672	-
P_CP	Performance	0.713	***
P_O	PsyCap	0.903	-
P_R	PsyCap	0.800	***
P_E	PsyCap	0.543	***
P_H	PsyCap	0.539	***
P_A	LMX	0.768	-
P_L	LMX	0.776	***
P_C	LMX	0.798	***
P_PR	LMX	0.752	***
DIBP1	DIB	0.710	-
DIBP2	DIB	0.887	***
DIBP3	DIB	0.704	***
EEP1	Engagement	0.856	-
EEP2	Engagement	0.792	***
EEP3	Engagement	0.890	***

Following the validation of the data, the next step is to assess the reliability of the variables by examining the composite or Construct Reliability (CR) and the Average Variance Extracted (AVE). Composite or CR evaluates the reliability and internal consistency of the measured variables that represent a latent construct

[33]. The AVE assesses the convergence among a set of items that reflectively measure a latent construct [33]. According to [33], an AVE value of 0.5 or higher is required for convergent validity. Additionally, a Construct Reliability value of 0.7 or greater indicates internal consistency or adequate convergence. The results of these calculations are presented in Table 4 below.

Table 4. Results of reliability tests

Variables	C.R.	AVE
Engagement	0.884	0.847
Performance	0.648	0.693
Psychological Capital	0.798	0.714
LMX	0.856	0.774
DIB	0.814	0.772

4.5. Hypotheses testing

After conducting the validity and reliability tests, we proceeded to examine each hypothesis regarding the relationships between the variables as outlined in our theoretical model. The findings highlighted the significant role of PsyCap in direct paths and through potential mediators as explained below.

4.5.1. Direct paths

H1 suggested that PsyCap has a positive association with engagement. The results indicated a significant and positive correlation between PsyCap and engagement ($\beta = 0.556, p < 0.001$), thus confirming H1. H2 proposed that performance positively correlated with engagement. The results indicated a significant positive correlation between performance and engagement ($\beta = 0.387, p = 0.013$), hence H2 is supported. H3 proposed that PsyCap positively correlated with performance. The results indicated a significant positive correlation between PsyCap and performance ($\beta = 0.277, p < 0.001$), hence H3 is supported. H4 suggested that DIB has a positive association with performance. The results indicated a significant and positive correlation between DIB and Performance ($\beta = 0.284, p = 0.009$), thus confirming H4. H5 suggested that PsyCap has a positive association with DIB. The results indicated a significant and positive correlation between PsyCap and DIB ($\beta = 0.312, p < 0.001$), thus confirming H5. H6 proposed that LMX positively correlated with DIB. The results indicated a significant positive correlation between LMX and DIB ($\beta = 0.252, p = 0.008$), hence H6 is supported. H7 suggested that PsyCap has a positive association with LMX. The results indicated a significant and positive correlation between PsyCap and LMX ($\beta = 0.317, p < 0.001$), thus confirming H7.

Table 5. Regression Weights of the Structural Model

Hypotheses	Relationships of Constructs	Regression Weights	p-value	Results
H1	Psychological Capital → Engagement	0.556	***	Supported
H2	Performance → Engagement	0.387	0.013	Supported
H3	Psychological Capital → Performance	0.277	***	Supported
H4	DIB → Performance	0.284	0.009	Supported
H5	Psychological Capital → DIB	0.312	***	Supported
H6	LMX → DIB	0.252	0.008	Supported
H7	Psychological Capital → LMX	0.317	***	Supported

In summary, the hypotheses tests show that PsyCap (for example, self-efficacy, optimism, resilience) has direct significant positive associations with the performance and engagement of female managers, as well as the quality of relationships with their leaders and DIB. Further, from the hypothesis tests, we also found that LMX has a positive association with DIB, which in turn positively affects the performance of female managers. Finally, female managers with positive performance have a positive association with engagement, suggesting that higher performance correlates with greater engagement at work.

4.5.2. Potential Mediating roles

Mediation occurs when a variable helps explain the relationship between an independent variable and a dependent variable. For a mediation to be significant, not only must the direct paths be significant, but the

indirect effect should also be strong enough and significant to create a mediating relationship [34]. Based on the research model, we were able to test potential mediating roles on three paths.

First, LMX as a mediator for PsyCap to DIB. Previous tests on direct paths found that from PsyCap to LMX and the path from LMX to DIB are both significant, hence we can potentially argue that LMX plays a mediating role between PsyCap and DIB. Results show a total indirect effect of 0.08, $p = 0.03$. This means that the effect of psychological capital on DIB is partially transmitted through the quality of leader-member exchange relationships. LMX theory posits that high-quality relationships between leaders and their subordinates can significantly enhance various positive work outcomes. Our findings support this theory by demonstrating that LMX mediates the relationship between PsyCap and DIB. Employees with high PsyCap are more likely to develop strong, supportive relationships with their leaders, which in turn fosters an environment conducive to digital innovation [35]. This aligns with previous research indicating that LMX can enhance employees innovative behaviors by providing the necessary support and resources. Essentially, PsyCap may enhance the quality of the relationship between the manager and their team, which in turn fosters more DIB.

Second, DIB as a mediator for PsyCap to Performance. Both paths from PsyCap to DIB and from DIB to Performance are found significant, suggesting that DIB plays a mediating role between PsyCap and Performance. Results show a total indirect effect of 0.11, $p = 0.04$. This indicates that psychological capital positively influences performance by first enhancing DIB, which then leads to better performance outcomes. DIB plays a pivotal role in translating the psychological resources provided by PsyCap into tangible performance outcomes. Our study found that DIB mediates the relationship between PsyCap and Performance, suggesting that employees who are more innovative in their use of digital tools and technologies are better able to leverage their psychological resources to achieve higher performance levels. This finding is consistent with the work of Rego, who found that PsyCap positively influences innovative behavior, which in turn enhances performance.

Third, Performance as a mediator for PsyCap to Engagement. Although both the paths from PsyCap to performance and from performance to engagement are significant, the mediating role of performance in the relationship between PsyCap and the engagement of female managers is not significant. Results show a total indirect effect of 0.15, $p = 0.05$. This indicates that PsyCap may have a strong direct effect on engagement, which means that much of the influence of psychological capital on engagement is not carried through performance. This finding aligns with the work of [36], who noted that while PsyCap positively influences well-being and performance, the pathways to engagement might involve other factors such as organizational support and work-life balance. It suggests that engagement among female managers may be more directly influenced by PsyCap without necessarily translating through performance metrics. PsyCap could directly increase engagement by fostering resilience and optimism, which promote intrinsic motivation and involvement at work, rather than through performance improvement alone. PsyCap has a powerful and direct effect on engagement, possibly overshadowing the mediating role of performance. This highlights the importance of psychological resources in driving engagement among female managers, making PsyCap a more critical factor for improving work engagement than performance alone. In other words, female managers with high psychological capital may become more engaged directly, without needing to first improve their performance.

Table 6. Mediating Roles

Mediation Paths	95% LLCI	95% ULCI	p-value	Results
PSYCAP → LMX → DIB	0.019	0.225	0.031	Supported
PSYCAP → DIB → Performance	0.021	0.278	0.044	Supported
PSYCAP → Performance → Engagement	0.031	0.431	0.052	Not Supported

LMX mediates the relationship between PsyCap and DIB: The strength of the leader-member relationship is influenced by PsyCap, and this enhanced relationship contributes to greater DIB. DIB mediates the relationship between PsyCap and Performance: Digital innovation acts as a bridge, allowing the positive effects of PsyCap to be realized in performance outcomes. Performance does not have a significant mediating role in the relationship between PsyCap and engagement.

5. RESULT AND DISCUSSION

We gathered insights regarding what empowers female managers at work, based on in-depth interviews with thirteen informants, from May until September 2023. The interviews transcripts and notes revealed

insightful findings with three themes highlighted: Driving the Ambition, Building the Support System, and Adapting to Digital. Following are the explanations for each of these themes.

The first theme is “Driving the Ambition”. Being a woman in countries with patriarchal cultures requires the courage to break the stigma. “As a woman in our culture, we are expected to stay at home and take care of the family”, a female manager said. Therefore, to start their careers and reach their current positions today, these female managers shared that they must be able to drive their ambition and have courage. Some of them had to get permission to work from their family, such as parents, in-laws, and their husbands. Once they get permission to work, to build their career they must display good performance and drive further their career ambition. A female manager said, “... my efforts also did not like to fail me to get to where I am now... to do my best effort despite any challenges that there are...”. They understand that achieving a certain position requires more than just luck or opportunity; it demands hard work and effort to deliver the necessary performance, enabling them to advance their careers. This implies that they need to have strong motivation, resilience, optimism, and the right efficacy. In other words, they require PsyCap to break the culture, face challenges at work, and to drive their career ambition.

The second theme is “Building the Support System”. Considering that women are the main ones responsible for taking care of the family, there are challenges faced by informants in this study especially those who have married and have children or dependents to take care of. They are expected to deliver their responsibilities at work and home. Therefore, it is important to be able to build a strong support system. Many respondents expressed the important role of their superiors and for having a good relationship with them. Meanwhile at home, they require support from their spouse and family who can share the responsibilities of handling household matters. “...My partner is also quite supportive. He in a sales role, so his work is also super hectic, but he starts his day late and his day ends late. So, the morning is when he the captain of the ship, and evening is when I’m captain of the ship...”, a female manager said. Having the ability to integrate their professional and personal life becomes a crucial factor in enabling them to perform and stay engaged at work. In building a support system both at work and at home, female managers need to cultivate the right attitude and personality. This enables them to foster positive relationships with their family and superiors. Such an attitude and personality are indicative of high levels of PsyCap.

The third theme is “Adapting to Digital”. These female managers are aware that in today environment, they are required to adapt to digital technology which plays an important role in their performance at work. However, they are not naturally fond of technology and feel behind compared to their male counterparts. A female manager said, “I feel like traditionally men feel that they’re more, uh, interested in, in the latest technologies, the latest digital innovations, and women interests, um, you know, lie in other areas or they may not be so interested in...”. Therefore, they must put more effort into adapting to digital technology. Having supportive managers can significantly aid in this transition, providing the necessary guidance and encouragement.

In summary, across all the themes, we observed that although the interviewees did not explicitly use the term PsyCap, their explanations implicitly reflected its elements. These female managers require all components of PsyCap—Hope, Efficacy, Resilience, and Optimism—to drive their career ambitions, build supportive systems, and adapt to digital technology. Consequently, possessing these PsyCap elements enables them to perform effectively and remain engaged at work.

5.1. Discussions

This study reinforces the theoretical framework that PsyCap positively influences various workplace outcomes. PsyCap, which encompasses hope, efficacy, resilience, and optimism, has been extensively studied and shown to be a robust predictor of desirable employee attitudes and behaviors [10]. Our study specifically focuses on the critical role of PsyCap among female managers and provides some theoretical contributions as explained below. These findings not only contribute to the understanding of PsyCap role in enhancing female managers engagement and performance but also align with broader global challenges in bridging gender gaps in digital transformation, offering actionable insights for policymakers and organizations.

First, it contributes to studies on the positive association of PsyCap and performance. Previous research has consistently demonstrated that high levels of PsyCap are associated with improved job performance and employee well-being. For instance, [10] found that employees with higher PsyCap levels exhibited better job performance and greater job satisfaction. Similarly, Avey conducted a meta-analysis that confirmed the positive relationship between PsyCap and various work outcomes, including job performance, job satisfaction, and organizational commitment. Our study contributes in this context by showing that PsyCap is associated

with the empowerment of female managers, through the positive relationships with LMX, DIB, Performance, and Engagement.

Second, the contribution of this study concerns the mediating roles of LMX and DIB in the PsyCap-Performance pathway. Our study highlights the critical mediating role of LMX in the relationship between PsyCap and DIB, as well as the mediating role of DIB in the relationship between PsyCap and Performance. These findings provide deeper insights into the mechanisms through which PsyCap influences performance outcomes. The integrated mediation model proposed in our study underscores the importance of both LMX and DIB in the PsyCap-Performance pathway. By fostering high-quality leader-member relationships and encouraging digital innovation, organizations can effectively harness the potential of PsyCap to improve performance outcomes. This integrated approach provides a more comprehensive understanding of the pathways through which PsyCap influences performance, highlighting the synergistic effects of leadership and innovation of female managers.

Third, the study contributes to studies on enhancing employee engagement. PsyCap has also been linked to higher levels of employee engagement [18], [16], [17]. Employees with higher PsyCap are more likely to be engaged in their work, demonstrating greater enthusiasm, dedication, and absorption in their tasks. This is supported by research from Sweetman and Luthans, who found that PsyCap significantly predicted employee engagement. Our study contributes by specifically showing that PsyCap significantly predicted the engagement of female managers.

Fourth, the study contributes to studies on the impact of PsyCap on innovation. PsyCap has been shown to foster innovation and creativity in the workplace [37, 38]. Employees with high PsyCap are more likely to engage in innovative behaviors and contribute to organizational innovation. Rego highlighted that PsyCap positively influences employees innovative behavior by enhancing their confidence and resilience in the face of challenges. Our study contributes by specifically focusing on digital innovation and female managers, showing that female managers with positive PsyCap have a positive association with their DIB.

In summary, our study adds to the growing body of evidence that PsyCap is a critical psychological resource that positively influences a wide range of workplace outcomes. By fostering hope, efficacy, resilience, and optimism, organizations can enhance employee performance, well-being, engagement, and innovation. Specifically, our study focuses on the critical role of PsyCap in the performance and engagement of female managers.

6. MANAGERIAL IMPLICATIONS

Through this study, we have identified some practical implications. First, the findings of the study show the importance of PsyCap, hence organizations should develop strategies for developing and enhancing PsyCap among female managers through various activities, such as training programs focused on building resilience, optimism, hope, and self-efficacy. Second, the study has shown the role of LMX in mediating PsyCap towards adopting digital innovation. Therefore, it is critical for organizations to foster LMX, by providing practical steps for improving leader-member relationships, through leadership development programs that emphasize trust-building, communication, and support. Third, the finding of the study also shows the importance of DIB on performance, hence organizations must promote DIB among female managers by creating conducive environments that encourage digital innovation, such as providing resources, fostering a culture of experimentation, and recognizing innovative efforts. Finally, as the study shows that Performance has a significant positive impact on the Engagement of female managers, organizations should develop favorable working environments that allow female managers to perform as it, in turn, would develop stronger engagement.

7. CONCLUSION

This study offers valuable insights into the relationships among PsyCap, LMX, DIB, Performance, and Engagement among female managers. The findings highlight that PsyCap significantly enhances engagement, performance, LMX, and digital innovation, underscoring the importance of psychological resources like resilience, optimism, and self-efficacy. Female managers with higher PsyCap demonstrate superior performance, stronger engagement, and innovative digital behaviors. Additionally, the positive impact of DIB on performance and the connection between performance and engagement reinforce the role of digital innovation and achievement as critical factors in managerial success.

Despite its contributions, this study has certain limitations. The relatively small sample size, limited to

a multinational company in the cosmetics sector, may affect the generalizability of the results. **Future research** could expand by incorporating larger, more diverse populations across industries and regions. The reliance on self-reported data introduces potential bias, which could be mitigated by integrating alternative data sources, such as evaluations from supervisors. Furthermore, this research focused solely on PsyCap related pathways. Exploring additional mediators, like DIB in the LMX performance relationship or performance in the DIB-engagement connection, could provide a deeper understanding. Lastly, as the study used a cross-sectional design, adopting longitudinal methods would offer insights into causal links and long-term effects.

In conclusion, PsyCap is a critical enabler for female managers, driving innovation, enhancing productivity, and fostering engagement. Addressing the study limitations and exploring new pathways in future research will advance knowledge in this field. Organizations can empower female managers to thrive in dynamic, technology-driven settings by nurturing PsyCap and fostering supportive relationships between leaders and their teams.

8. DECLARATIONS

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8.2. Author Contributions

Conceptualization: RW; Methodology: RW; Software: OJ; Validation: BW and MS; Formal Analysis: BW and MS; Investigation: RW; Resources: OJ; Data Curation: OJ; Writing Original Draft Preparation: RW; Writing Review and Editing: MS; Visualization: RW; All authors, RW, BW, MS, and OJ, have read and agreed to the published version of the manuscript.

8.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

8.4. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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