





The influence of women on SME innovation in emerging markets

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Abstract

Research Summary: Our study provides novel insights into how women influence SME innovation in emerging markets, despite the resource-constrained and gender-restrictive contexts in which they are embedded. Building from transactive memory (TM) theory and using data from 741 SMEs in 33 emerging markets, we develop and test a contextualized framework of SME innovation that considers gendered effects in ownership, workforce composition, and communication. Findings indicate that in emerging markets, female-led SMEs employ more women than male-led SMEs, and more women in SMEs (even at modest levels) enhance and enable the TM system to deliver more innovation outcomes. Findings also suggest that emerging-market SMEs can be innovative through differing configurations of women in ownership and workforce composition, underscoring the importance of gendered and contextual considerations in innovation research.

Managerial Summary: Innovation is vital to the social progress and economic development of emerging markets. Even though institutionalized gender bias in emerging markets tends to constrain (rather than empower) women's entrepreneurial activities, our study reveals how women can be an important source of innovation. We find that women in emerging markets are stronger together: women in ownership advocate for and support other women by employing them in their SMEs, and in turn, as

women's representation increases in SMEs, women are empowered to collectively share and leverage their endowed resources for innovation. Thus, our study challenges the general perception that men are more innovative than women by revealing that the presence of women in emerging-market SMEs yields greater innovation outcomes.

KEYWORDS

emerging markets, innovation, SMEs, transactive memory theory, women

1 | INTRODUCTION

Innovation, or the introduction of new products and/or processes (Thompson, 1965), is one of the most critical entrepreneurial activities of small- and medium-sized enterprises (SMEs; Eunni, Brush, & Kasuganti, 2007; Rashid & Ratten, 2020). Innovation is essential to SME productivity, growth, profitability, and survival (Genc, Dayan, & Genc, 2019; Krishnan & Jha, 2011), and it is vital to social progress and economic development (Hsu, Tan, Jayaram, & Laosirihongthong, 2014). SMEs—compared to larger firms—have fewer slack resources available for innovating (Verreyne, Williams, Ritchie, Gronum, & Betts, 2019). Moreover, understanding how SMEs generate innovation outcomes, despite relatively limited resources, becomes even more complicated in resource-scarce contexts. Specifically, SMEs in emerging markets face additional challenges due to the lack of external resources available for innovation efforts; thus, emerging-market SMEs typically rely on unique internal resources and capabilities to innovate (Bruton, Dess, & Janney, 2007). Although the study of these internal factors in emerging-market SMEs remains limited (Capozza & Divella, 2019), recent work notes that, in the case of entrepreneurial activities like innovation, gender has a notable impact on how tasks are defined, resources are configured, and success is achieved (Ozkazanc-Pan & Muntean, 2021).

To date, even though gender has not emerged as a primary focus of entrepreneurship literature, the male stereotype of a successful entrepreneur and the masculine characteristics associated with entrepreneurial success has rendered the field as masculine (Brush, Edelman, Manolova, & Welter, 2018; Ladge, Eddleston, & Sugiyama, 2019). Through this masculine lens of entrepreneurship, the male prototype is superior, and as a result, “women are seen as less innovative than men—and [researchers typically] do not expect or seek contradictory evidence” (Alsos, Ljunggren, & Hytti, 2013, p. 248). For the entrepreneur and innovator, this focus has elevated the importance of understanding *his* contributions to innovation while limiting the intensity of gender discourse, resulting in an incomplete understanding of *her* contributions to innovation (Foss & Henry, 2016). Recently, however, important advancements have been made in recognizing women in the entrepreneurship and innovation literature. Worldwide, women entrepreneurs are noted to be integral to economic growth, social progress, and job creation (Bullough, Guelich, Manolova, & Schjoedt, 2021). Further, women are among the fastest-growing populations of entrepreneurs globally, and they make significant contributions to innovation (de Bruin, Brush, & Welter, 2006). Despite being integral, though, what we know about women and their roles in entrepreneurship and innovation remain limited.

Even further, our knowledge of women and innovation is overwhelmingly based on evidence from developed markets (Welsh, Kaciak, & Shamah, 2018). Consequently, we lack knowledge about women and innovation in contexts, for example, rife with institutional constraints that restrict women and perpetuate gender disparity

(Crittenden, Crittenden, & Ajjan, 2019; Díaz-García, Brush, Gatewood, & Welter, 2016; Rashid & Ratten, 2020). Emerging markets are known to have institutional constraints—such as weak or unenforced laws, ineffective markets, and political volatility (Hoskisson, Eden, Lau, & Wright, 2000; Payne, Moore, Bell, & Zachary, 2013)—that hinder access to essential business resources, thereby stifling new venturing, enterprise growth, and innovation (West III, Bamford, & Marsden, 2008). Often, women, in comparison to men, are more adversely affected by these institutional constraints (Goyal & Yadav, 2014; Hechavarría & Ingram, 2019; Yousafzai, Saeed, & Muffatto, 2015). Societal norms shape gender roles and affect perceptions of the occupations considered appropriate for women, and in emerging markets specifically, cultural values and gender biases limit women's participation in entrepreneurial activities (Brush, de Bruin, & Welter, 2009; Gimenez-Jimenez, Edelman, Dawson, & Calabrò, 2022; Roomi & Parrott, 2008). Thus, our understanding of women and innovation is incomplete without considering the context in which women are embedded (Hughes, Jennings, Brush, Carter, & Welter, 2012).

Therefore, the motivation for our study is to investigate the relationship between women and innovation in emerging markets to provide insights into the question: *Given the gender-related constraints in emerging markets, how do women influence innovation in SMEs?* Institutional factors of emerging markets tend to constrain rather than empower women, and thus, we submit that women in these contexts rely on other sources of empowerment to create unique value for SMEs: women organize themselves in ways that increase their self-reliance and support their independent ability to make choices and control resources (Rowlands, 1995). Specifically, we develop and test a gendered and contextualized framework of SME innovation by building from transactive memory (TM) theory. TM theory underscores the importance of collective cognitive functioning for performance (Wegner, 1987), and studies note that a TM system is an effective way of overcoming resource constraints because members share responsibilities to complete collective tasks (Hood, Bachrach, Zivnuska, & Bendoly, 2016). We submit that women entrepreneurs recognize the value in providing employment and social support to other women, thereby involving more women in their SMEs. In turn, as women's representation increases in the SME, we theorize that their innovation-related capabilities, such as information-processing abilities (Meyers-Levy, 1989; Meyers-Levy & Loken, 2015) and relational communication skills (Basow & Rubenfeld, 2003; Hacker, 1981), are activated, shared, and leveraged for innovation.

Our study makes two main contributions to the literature on women and innovation. First, our study expands the focus of women in innovation. Studies of gender and innovation tend to consider an individual entrepreneur, and his or her characteristics, to make predictions about innovation (e.g., Marvel, Lee, & Wolfe, 2015; Strohmeyer, Tonoyan, & Jennings, 2017). While this research suggests differences in innovation outcomes between female- and male-led ventures, factors internal to the SME that may help explain these differences are relatively scarce (Capozza & Divella, 2019). We build from this literature and incorporate theorizing about the gendered characteristics of the SME—which include female representation in ownership *and* across all levels of the workforce (e.g., managers and employees)—to advance knowledge of women and innovation. Our findings suggest that women in ownership directly influence the representation of women in the SME's workforce, and that the representation of women in the SME's workforce directly impacts the SME's level of innovation. Interestingly, results also reveal that SMEs can be innovative through different gender-related configurations of ownership and workforce composition. Thus, our investigation challenges the traditional male-centric perspectives of entrepreneurship that depict women as inferior entrepreneurs (Foss & Henry, 2016; Jennings & Brush, 2013; Marlow & McAdam, 2013, 2015), noting the multiple ways in which women can be involved to deliver beneficial innovation outcomes. Second, our study advances the theoretical discourse in the literature on women and innovation. Women's entrepreneurship research tends to lack theoretical support from perspectives that consider the socially embedded nature of entrepreneurship (Rashid & Ratten, 2020). By drawing from TM theory, we consider the socially embedded nature of *innovation* to offer novel theoretical insights into the social structure and social process through which women enhance innovation in resource-scarce and socially restrictive contexts. Thus, our study demonstrates the value in focusing on the internal resources within SMEs and provides an important contextual advancement: in emerging markets, where women

are often subjected to institutionalized bias, our theorizing and findings suggest that their representation in SMEs is empowering and yields greater innovation outcomes.

2 | EMERGING-MARKET CONTEXT AND THEORETICAL FRAMEWORK

2.1 | Emerging markets

Emerging markets are “low-income, rapid-growth countries using economic liberalization as their primary engine of economic growth” (Hoskisson et al., 2000, p. 249). Examples of emerging markets include countries that have witnessed political liberalization (e.g., countries of Eastern Europe) and/or adopted a free-market system (e.g., countries in the Middle East and North Africa) in recent decades (Eunni et al., 2007). Emerging markets generate 37% of global GDP (Scheepers, Parbhoo, Swart, & Alexander, 2017) and account for 85% of the world's population (Ajjan, Beninger, Mostafa, & Crittenden, 2014).

SMEs are the dominant form of enterprise in emerging markets, generating nearly half of each market's GDP and employing 70–85% of each market's workforce (Eunni et al., 2007). In addition to making a significant impact in terms of their economic contribution and employment rates, emerging-market SMEs are impactful given their ability to innovate (Eunni et al., 2007; Genc et al., 2019). Innovation is essential for the growth and survival of SMEs and also vital to the economic and social development of the emerging markets in which they exist. Given this notable influence, more studies are focusing on identifying factors that affect SME innovation in emerging markets (Na & Shin, 2019).

To date, studies provide considerable evidence supporting the effects of institutional factors, with some institutions shown to impede innovation (Chen, Li, Shapiro, & Zhang, 2014). For instance, emerging markets often have inadequate property rights protections, which creates conditions for illegal patent use and discourages firms from generating and patenting their own innovations (Chen et al., 2014). Emerging markets, compared to more developed markets, tend to have greater governmental bureaucracy and corruption, resulting in more uncertainty for ventures attempting to secure requisite innovation resources (Audretsch, Belitski, & Brush, 2022). When weak formal institutions exist, SMEs are more apt to rely on informal institutions to pursue entrepreneurial activities like innovation (Oriaifo, Torres de Oliveira, & Ellis, 2020).

Although the institutions of most emerging markets present challenges for entrepreneurs, women entrepreneurs are more adversely affected (Goyal & Yadav, 2014; Hechavarría & Ingram, 2019; Yousafzai et al., 2015). Specifically, embedded cultural values and gender biases often limit women's entrepreneurial activities (Roomi & Parrott, 2008). Women encounter obstacles brought on by gender-related characterizations—like the conventional, male-centric conceptualization that entrepreneurship is a masculine endeavor (Bird & Brush, 2002)—that affect their ability to gain the credibility and legitimacy needed to achieve their entrepreneurial goals (Koenig, Eagly, Mitchell, & Ristikari, 2011; Marlow & Patton, 2005; McGowan, Cooper, Durkin, & O'Kane, 2015). Further, women in emerging markets often lack equal access to loans, financial institutions, and business education, which may cause women entrepreneurs to experience restricted venture growth and lack confidence in their decision-making abilities (Rashid & Ratten, 2020). In fact, some institutions even restrict women to only starting businesses or holding jobs that are operated from their home, further limiting the potential for venture growth (Aidis, Welter, Smallbone, & Isakova, 2007; Boateng, 2021).

Due to the numerous obstacles that exist for women entrepreneurs in emerging markets, forms of assistance have emerged to support women's engagement in entrepreneurial activities, such as access to education, technology, and government programs (Hechavarría & Ingram, 2019). Specifically, increasing women's access to technology through formal and/or informal education increases their expression, self-esteem, and employment opportunities; thus, technology is a tool for female empowerment and business efficiency that is noted to ease cultural barriers (Ajjan et al., 2014). Government programs and policies can also be used to assist women's entrepreneurial activities

in emerging markets (Brush, Ali, Kelley, & Greene, 2017; Rashid & Ratten, 2020). For example, financial support through programs that cover patent payments and new-product certifications have been encouraged in Russia (Iakovleva, Solesvik, & Trifilova, 2013), and policies that facilitate collaboration among women entrepreneurs have been encouraged in South Asian countries (Rashid & Ratten, 2020).

Although the literature notes the importance of these *external* resources to women's entrepreneurial activities in emerging markets, less is known about the *internal* resources and processes within SMEs that facilitate women's innovation endeavors (Rashid & Ratten, 2020). Given that the lack of supporting institutions in emerging markets limits the availability of external resources (Bruton et al., 2007), especially for women, SMEs' internal resources are potentially more valuable. Despite the value of internal resources—and those particularly essential to innovation—the study of such resources in emerging markets remains remarkably scarce (Capozza & Divella, 2019). Therefore, we focus our attention on the women in emerging-market SMEs (i.e., the internal human resources) to theorize about how they enhance innovation (i.e., the internal process), and we develop our theorizing with insights from TM theory.

2.2 | TM theory

TM theory represents a notable departure from theories of individual knowledge by focusing on the importance of interdependent, collective knowledge (Wegner, 1987). Although originally conceived as a theory to describe how intimate couples divide, organize, and share knowledge to create a TM system that is larger and more effective than each partner's individual knowledge system (Wegner, Giuliano, & Hertel, 1985), the applicability of TM theory has broadened. For more than two decades, research has extended TM theory to organizational contexts to explain the relevance and benefits of group-level cognition on performance outcomes (Bachrach et al., 2019). Organizationally defined, a TM system “is a shared cognitive system for encoding, storing, and retrieving knowledge uniquely held by individuals, based on having a collective awareness of each others' specialized knowledge domains” (Liao, Jimmieson, O'Brien, & Restubog, 2012, p. 205). Simply put, a TM system is “a combination of individual minds and the communication among them” (Wegner et al., 1985, p. 256).

The TM system consists of two primary components: a structural component and a process component (Ren & Argote, 2011; Wegner et al., 1985). The TM structure represents the collective cognition that emerges from each member's individual knowledge (Lewis & Herndon, 2011; Wegner et al., 1985). As members learn where knowledge resides within the structure, they rely on one another's knowledge for the efficient completion of collective tasks (Lewis & Herndon, 2011; Liao et al., 2012). The shared division of knowledge resources not only reduces the cognitive burden placed on individual members, but the structure also improves overall performance given the depth of knowledge that is readily accessible and usable by the collective (Lewis & Herndon, 2011; Olabisi & Lewis, 2018). The TM process represents the communication used by members to collectively encode, store, and retrieve knowledge for a task (Jackson & Klobas, 2008; Lewis & Herndon, 2011). Communication allows multiple minds to work as one by enhancing the distribution of knowledge and the identification of where knowledge is stored (Jackson & Klobas, 2008; Peltokorpi, 2008; Wegner et al., 1985). Essentially, communication enables members to identify “who knows what” in the system, allowing for the efficient recall and dissemination of the knowledge needed for collective task performance (Lewis & Herndon, 2011; Peltokorpi, 2008).

Research recognizes the importance and relevance of TM theory to the entrepreneurial context. For instance, a TM system is shown to influence new product development outcomes, including speed-to-market and new product success (Akgün, Byrne, Keskin, & Lynn, 2006; Dayan & Elbanna, 2011). In the family firm context, Chirico and Salvato (2016) use TM theory to explain how family firms drive product development across generations, and Madison, Daspit, and Marett (2021) find that a TM system integrating nonfamily members with family members is effective for innovation. In a study of knowledge-intensive and turbulent environments, Kaya, Abubakar, Behraves, Yildiz, and Mert (2020) show that a TM system enhances innovation outcomes by leveraging knowledge and

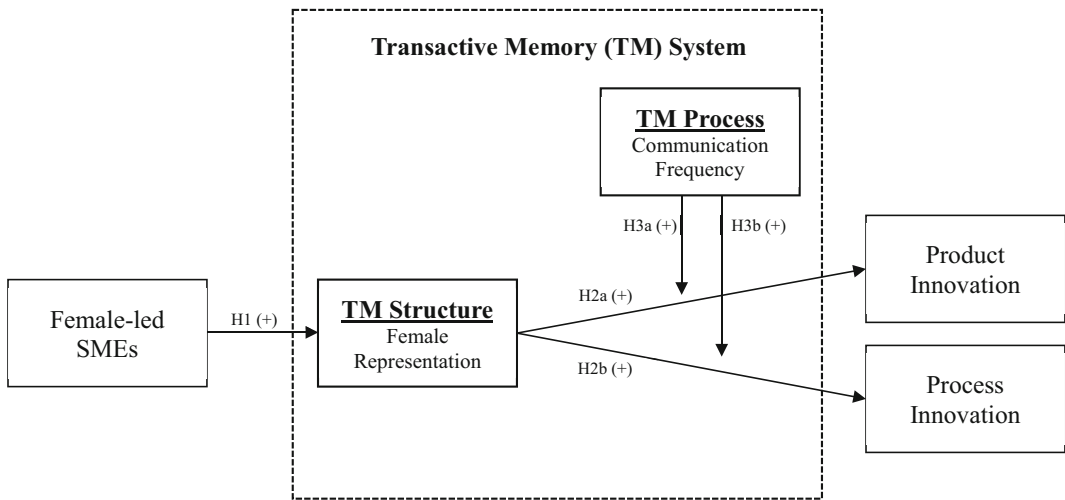


FIGURE 1 Theoretical framework of women's influence on innovation in emerging markets

communication both within and between organizations. Even further, in emerging markets, Zheng and Mai (2013) investigate the importance of a founding team's TM system on the enterprise's ability to create knowledge internally; this finding is particularly salient to our study given it is related to internal knowledge generation and the resource constraints in emerging market contexts that limit access to external knowledge.

By considering the emerging market context and extending insights from TM theory, we develop a contextualized framework of SME innovation that considers gendered effects in ownership, workforce composition, and communication (Figure 1). The TM system, both the structure and process components, is illustrated in the center of the framework to showcase its importance to innovation in this context. We also consider a critical antecedent of the TM system to advance our understanding of women's influence on innovation in emerging markets.

3 | HYPOTHESES DEVELOPMENT

Before proceeding, it is necessary to articulate a context-specific boundary condition of our theorizing. Due to the gender-restrictive institutions prevalent in emerging markets, we assume that women are generally underrepresented in SMEs. This assumption is grounded in statistics from the International Labour Organization (2018) indicating that in emerging markets, the gender gap in labor force participation is 30.5% (e.g., 45.6% participation for women compared to 76.1% participation for men) and the female-to-male unemployment ratio is 1.2. The implications of this assumption, as aligned with prior gender and innovation research in male-dominated contexts (Díaz-García, González-Moreno, & Sáez-Martínez, 2013; Xie, Zhou, Zong, & Lu, 2020), are (a) we expect that even a conservative increase in female representation is likely to yield notable effects; and (b) the upper bounds of our theorizing is gender balance in the SME.

3.1 | Female-led SMEs and female representation

Evidence suggests that female-led SMEs, compared to male-led SMEs,¹ provide employment opportunities for women (Tan, 2008; Welter, Smallbone, Aculai, Isakova, & Schakirova, 2003). For instance, a report from the World Bank indicates that in the majority of countries sampled, female-led firms have higher levels of female representation

in their workforces than male-led firms (Cirera & Qasim, 2014). In emerging markets specifically, female-led firms in Moldova, for example, mainly employ women and are credited with reducing the historically high female unemployment rate; moreover, female-led firms in Ukraine prefer to employ women, which has reduced women-trafficking problems in the country (Welter et al., 2003).

Given this evidence, we submit that in emerging markets, female-led SMEs are likely to be better positioned to employ women in their workforce compared to male-led SMEs. First, based on gender role socialization, family responsibilities (e.g., caregiving) are perceived to be the responsibilities of women; thus, women are more likely than men to value work that is compatible with their family-related demands and forego employment opportunities that limit their work-life balance (Barbulescu & Bidwell, 2013). Research indicates that firms with women in governance are more likely to implement and normalize family-friendly work initiatives as well as mitigate pay discrimination and sexual harassment (Fine, Sojo, & Lawford-Smith, 2020). Thus, female-led SMEs are more likely than male-led SMEs to have internal environments that accommodate women's needs, and in turn, are able to attract more women to their workforces.

Second, due to social and/or religious norms that place a high value on the "purity" of a woman, women's interaction with men beyond the family unit is often restricted (Jayachandran, 2021). Consequently, in male-led SMEs, women's employment opportunities may be restricted to familial women; thus, assuming that there are fewer familial women than non-familial women in the labor force, women's representation in male-led SMEs is likely lower. Whereas, in female-led SMEs, due to the presence of a female owner, these norms are likely to be less pronounced; and consequently, female-led SMEs are less restricted in their employment choices and can consider the employment of non-familial women. Thus, female-led SMEs are more likely than male-led SMEs to have a higher level of female representation in their workforces.

Third, based on institutionalized stereotypes in emerging markets of the occupations considered suitable for each gender, women are less likely than men to identify with masculine jobs (Barbulescu & Bidwell, 2013). Given the perception that entrepreneurship and innovation are masculine endeavors (Alsos et al., 2013; Bird & Brush, 2002; Ladge et al., 2019), women are less likely to identify with such work, resulting in fewer women in the SME's workforce. However, we suggest that women are more likely to identify with the work and be represented in the SME when the SME has a female owner. Research indicates that female owners often serve as mentors and role models to the women they hire, which increases the self-efficacy, retention, engagement, and career advancement opportunities of female employees (Byrne, Fattoum, & Diaz Garcia, 2019; Kurtulus & Tomaskovic-Devey, 2012; Ladge et al., 2019). Thus, female-led SMEs in emerging markets are more likely than male-led SMEs to change women's perceptions of the type of work available to them, and thus, are more likely to have a higher level of female representation in their workforces.

Fourth, the institutional norms of emerging markets often cause women to experience stereotype threat—"a situational phenomenon that arises when people face the prospect of being viewed or evaluated in light of a negative stereotype about a group they belong to" (Walton, Murphy, & Ryan, 2015, p. 524)"—because they reinforce stereotypes that women are weak, lack leadership skills, and are inferior to men (von Hippel, Sekaquaptewa, & McFarlane, 2015). Importantly, a recognized remedy for reducing stereotype threat is for women to reach a "critical mass" in the workforce; with greater female representation, women feel less isolated and are more empowered to make meaningful contributions to the organization (Kakabadse et al., 2015; Kanter, 1977; Torchia, Calabrò, & Huse, 2011). Greater female representation signals that women are valued and reduces the pressure to conform to stereotypical gendered roles, allowing the SME to benefit from the knowledge of women (Dai, Byun, & Ding, 2019; Kakabadse et al., 2015). Moreover, a greater level of female representation in the SME provides more opportunities for women to work with other women, which is known to offer multiple benefits: the social support women provide one another reduces the negative consequences of stress (von Hippel et al., 2015), they experience less role ambiguity and enhanced effectiveness (Tsui & O'Reilly III, 1989), and they have stronger leader-member relationships (Duchon, Green, & Taber, 1986). It may also signal to women outside the SME that they may have a place within the SME, which in turn, enhances women's desire to work in the SME and perpetuates higher levels of female representation. Accordingly, in emerging markets, female-led SMEs are more likely than male-led SMEs to neutralize gender-based stereotype threats and increase the level of female representation in their workforces.

In summary, in emerging markets, female-led SMEs are more likely than male-led SMEs to create an accommodating workplace environment, reduce work-related stressors, build strong leader-member relationships, and provide opportunities for women to work with other women. These SME characteristics enhance women's self-worth, appreciation, and work meaningfulness—factors that are of particular relevance in emerging markets given institutionalized gender disparities—allowing women's individual resources to be focused on creating organizational value rather than being used to cope with stressors (cf., Hobfoll, 1989). These arguments suggest that female-led SMEs are more likely to recognize and leverage the value offered by women, and therefore, are expected to have more female representation in their workforces when compared to male-led SMEs:

Hypothesis 1. (H1). *In emerging markets, female-led SMEs, compared to male-led SMEs, have a greater level of female representation in their workforces.*

3.2 | Female representation and innovation

In our second hypothesis, we theorize that a greater level of female representation in emerging-market SMEs results in a higher likelihood of innovation. To reiterate the contextual assumption guiding our theorizing, greater female representation indicates that the SME is more gender balanced, and thus, our theorizing aligns with the perspective that, "...the dominance of one gender does not promote innovation" (Østergaard, Kristinsson, & Timmermans, 2011, p. 507). However, given the field's history of male-centric theorizing (Foss & Henry, 2016; Jennings & Brush, 2013; Marlow & McAdam, 2013, 2015), our theorizing shifts the focus by taking a female-centric approach. Thus, we begin this hypothesis with a discussion of women's characteristics that are particularly suited to creating an effective TM structure for innovation. Then, we describe the unique characteristics of women that enhance two types of innovation: product and process innovation.

Women are noted to have strong information-processing abilities that allow them to integrate dispersed knowledge (Dai et al., 2019). They tend to process more informational cues, including subtle and nonverbal cues; whereas, men tend to process fewer cues and, thus, do not use all relevant or available information when problem solving (Meyers-Levy, 1989; Meyers-Levy & Loken, 2015). Women are also suggested to be more receptive to unfamiliar knowledge (Dai et al., 2019), make more accurate decisions related to complex tasks, and have greater information recall (Chung & Monroe, 2001). Moreover, Walker (1981) argues that women's abilities to share and learn from emotional experiences enhance their cognitive independence and allow them to better promote their awareness of strengths and weaknesses.

Considering women's innovation capabilities from a TM theory perspective, we submit that as the number of women in the SME increases, the level of collective knowledge among women increases. With their differentiated cognitive skills, women have unique abilities to integrate and retrieve stored knowledge, which are key to an effective TM structure. Moreover, as female representation increases, there is a lower likelihood of stereotyping (Hoyt, Johnson, Murphy, & Skinnell, 2010); thus, perceptions of others' knowledge resources are likely based on the actual knowledge resources possessed rather than on assumptions governed by gendered stereotypes. Consequently, a more accurate assessment of "who knows what" within the TM structure is formed, creating knowledge-sharing efficiencies (Bachrach et al., 2019; Hollingshead & Fraidin, 2003). Accordingly, the enhanced efficiencies created in the TM structure from the increased presence of women in the SME result in a higher likelihood of innovation.

Regarding the types of innovation, we submit that women have characteristics that are beneficial for product innovation. Product innovation refers to the firm's introduction of a new product or service and tends to be triggered by market needs and opportunities (Utterback & Abernathy, 1975). Given the importance of the market, product innovation requires market knowledge. Market-specific knowledge is often extensive, and developing detailed market knowledge is facilitated through collective perceptions and experiences related to customer needs (Fernández, 2015; López-Cabarcos, Srinivasan, Göttling-Oliveira-Monteiro, & Vázquez-Rodríguez, 2019). Numerous examples exist of women excelling at product innovation due to their unique perceptions, ability to process more

informational cues, and their broader understanding of the consumer market. For instance, women are noted for their product innovations in the food, education, and healthcare industries due to the alignment between these industries and their role as family caretakers (Elam et al., 2019), which is the traditional gender role of women in many emerging markets (Ahmad, Suseno, Seet, Susomrith, & Rashid, 2018; Prasad, Naidu, Kinnera Murthy, Winkel, & Ehrhardt, 2013). Further, given women's gender roles in this context, firms with more women can leverage women's experiences as primary caregivers to incorporate end-user needs in product innovations, creating more desired outcomes (Mestre, Samper, Frías, & Tur, 2009). Additionally, a recent study of the wine industry in an emerging market finds that women working in the industry, compared to their male counterparts, are more sensitive and discerning regarding the flavors and aromas of the wine and, thus, are better able to produce desirable wines "with a more feminine character" (Alonso, Kok, & Galbreath, 2020, p. 12). Moreover, women are more likely to consider the needs of women when innovating. For example, women are credited with improving safety testing by introducing female and pregnant crash-test dummies and for developing menstrual cups that improve women's health and the environment (Fine et al., 2020). Thus, as female representation increases in the SME, women's collective experiences, roles, and abilities increase the depth of knowledge related to the market, resulting in a higher likelihood of product innovation.

We also theorize that women are likely to have characteristics that are beneficial for process innovation, which refers to the introduction of a new, or significantly improved, process for production or distribution (Fernández, 2015). This type of innovation represents a new method of organizing and tends to be triggered by increased demand and/or a desire to increase efficiency (Utterback & Abernathy, 1975). It requires technical knowledge related to the ability to design and re-organize facilities for automation and improved efficiency (López-Cabarcos et al., 2019). Prior studies note that women's unique experiences and insights are valuable for such efficiency-focused improvements. Women are known to use their social competencies more effectively than men (Godwin, Stevens, & Brenner, 2006), and thus are better able to acquire an array of information from external sources (Dai et al., 2019) and obtain more insight from subtle and nonverbal social cues (Meyers-Levy, 1989; Meyers-Levy & Loken, 2015). This information, which may be overlooked by individuals who are less adept at observing and processing informational cues, is stored within the TM structure and then recalled to more accurately forecast consumer demand, allowing SMEs to innovate processes in response to changing market demands. Additionally, process innovations can result in more expedient delivery of the product or service to the end user. Given that women are noted to better recognize the needs of others and be more concerned with the welfare of customers and stakeholders (Carlson, 1972; Ibrahim, Angelidis, & Tomic, 2009), the increased representation of women in the SME magnifies the importance of delivering the product or service to the customer in a timely manner. Further, given the motivation to serve, efficiency in processes is essential, and the knowledge stored within the TM structure related to market expectations is leveraged to yield process improvements to satisfy stakeholders. Moreover, because women tend to have a greater awareness of their own strengths and weaknesses, as women's representation in the SME increases the strengths and weaknesses of the collective are better known. The increased awareness of process-related weaknesses allows the collective to introduce new, or significantly improved, processes for production or delivery. In all, these insights lead us to predict:

Hypothesis 2. (H2). *In emerging-market SMEs, female representation in the workforce is positively related to (a) product innovation and (b) process innovation.*

3.3 | Moderating effect of communication

Communication is a way for members of the TM structure to share their expertise, allowing for greater precision in understanding who the experts are in each knowledge domain (Ren & Argote, 2011). Communication allows individuals to have more accurate assessments of knowledge embedded in the TM structure rather than relying on potentially inaccurate assessments, which may result from stereotypes that assume individuals of a certain gender do

(or do not) have expertise in a particular area (Hollingshead & Brandon, 2003). When expert members know they are relied upon for specific knowledge, they are more likely to enhance their expertise for the benefit of the collective, and this increases the depth of collective knowledge while creating new knowledge that can be beneficial for task completion (Lewis & Herndon, 2011; Soon, 2020). In this hypothesis, we extend these communication-specific insights, and integrate gender-specific arguments, to predict that communication strengthens the relationship between female representation and innovation in emerging-market SMEs.

First, we expect communication to strengthen the positive effect of female representation on innovation due to the communication style of, and among, women. Decades of linguistics research confirm that women and men communicate differently (Barrett & Davidson, 2006) as a result of being socialized in different communication cultures (Tannen, 1990). Generally, women are more communicative than men (Hacker, 1981). Women tend to communicate to enhance relationships and social connections, whereas men tend to communicate to enhance social dominance (Basow & Rubinfeld, 2003). Due to gender-specific socialization, each gender possesses a shared language that streamlines communication efforts and improves task coordination (McPherson, Smith-Lovin, & Cook, 2001). Members of the same gender, especially women, are more likely to stick together, communicate, and learn from one another (Škerlavaj, Dimovski, & Desouza, 2010). Women are more likely than men to keep the channels of communication open, encourage participation, and create “speak-up cultures” that facilitate innovation (Foss, Lee, Murtinu, & Scalera, 2021). Thus, as more women are represented in SMEs, the benefits of their relational focus, shared language, and collective orientation are enhanced and can be better leveraged for innovation when frequent communication exists.

Second, recent linguistics research reveals new gender differences in communication styles that we submit will strengthen the relationship between female representation and innovation. Women tend to be concrete speakers, whereas men tend to be abstract speakers (Joshi, Wakslak, Appel, & Huang, 2020). Concrete speech focuses on specific information, details, and the steps to attaining action; in contrast, abstract speech focuses on the broader picture and stresses the purpose of action (Joshi et al., 2020). Concrete and abstract speech have been examined in the entrepreneurship context with findings indicating that communication style partially explains gender disparity in entrepreneurial investments: investors prefer to support entrepreneurs who communicate a broad vision (i.e., abstract speech typical of men) rather than in entrepreneurs who communicate specific goals and issues (i.e., concrete speech typical of women; Huang, Joshi, Wakslak, & Wu, 2020). These insights shed light on another gender difference in communication that potentially alters the effect of female representation on innovation. Specifically, when more women are represented in SMEs, more frequent concrete speech among women is likely to provide the workforce with precise, actionable direction and more exact feedback, which should strengthen the SME's ability to innovate (Joshi et al., 2020).

Third, trust is critical for the effective functioning of the TM system (Huang & Chen, 2018). We suggest that when communication is frequent, the level of trust within the TM structure increases, which enhances the SME's ability to innovate. Most notably, trust fosters open communication and enhances problem-solving effectiveness (Scott, 1983). To leverage knowledge resources in the TM structure, individual members must have trust in one another and their respective knowledge resources, and trust is more likely to develop with increased communication among similar individuals. Ibarra (1993) states that “interpersonal similarity increases ease of communication, improves predictability of behavior, and fosters relationships of trust and reciprocity” (p. 61). In particular, when gender is the category of interpersonal similarity, higher levels of trust are found among individuals of the same gender (Levin, Whitener, & Cross, 2006; Spector & Jones, 2004), and organizational communication research finds that employees have more trust in a leader's abilities and interpersonal exchanges when the leader is of the same gender (Berkovich, 2018). Additionally, gender similarity is a strong predictor of performance (Tsui & O'Reilly III, 1989) because it builds trust, enhances social support, increases the willingness of employees to help one another, and facilitates the attainment of collective goals (Chen Yi-Feng, Huang, & Tjosvold, 2008). Even further, women are generally perceived as more trustworthy than men (Spector & Jones, 2004), and their communication often reflects their willingness to share resources (Douglas, 2012; Xie et al., 2020). Given the resource constraints in emerging markets that more adversely affect women (Hechavarría & Ingram, 2019), women often depend more on the resources accessed

through their relational networks, which suggests that, in this context, women are more likely than men to rely on trust, reciprocity, and cooperative relationships (Carpenter, Daniere, & Takahashi, 2004). Thus, the positive effect of female representation on innovation is likely strengthened with frequent communication because knowledge resources are shared more efficiently, collaboration is increased with trust, and the achievement of collective goals is supported.

Specific to the different types of innovation, we predict that frequent communication strengthens the positive effect of female representation on product innovation. Fundamentally, product innovation requires knowledge of customer needs (Fernández, 2015; López-Cabarcos et al., 2019; Reichstein & Salter, 2006), which is enhanced through communication. Hwang, Han, and Kim (2015), for example, find that the more expressive nature and social orientation of female employees increase customer disclosure, commitment, and loyalty. Thus, women's relational communication style encourages customers to express their concerns and needs, and in turn, women in SMEs gain deeper knowledge about the market that can then be collectively shared and used for product innovation.

We also predict that frequent communication strengthens the positive effect of female representation on process innovation. Recent research indicates that women are more likely to introduce innovations that enhance the venture's impact and social responsibility (e.g., Loarne-Lemaire, Bertrand, Razgallah, Maalaoui, & Kallmuenzer, 2021; Loarne-Lemaire, Maalaoui, & Dana, 2017; Peake & Eddleston, 2021). For instance, women are more likely to pursue environmentally friendly process innovations that efficiently utilize resources to lower production costs (Loarne-Lemaire et al., 2021; Reichstein & Salter, 2006). When communication is frequent, task-related coordination is enhanced (McPherson et al., 2001), enabling women to identify areas where process innovations are needed. Even further, when frequent communication occurs among women, the concrete speech typically used by women—especially when combined with interpersonal trust in emerging market contexts—allows for identifying specific processes within the SME that would benefit from refinement and increased efficiency.

In contrast to the positive impact of high communication frequency, we suggest that low communication frequency suppresses the benefits of female representation on innovation. In emerging markets, women are often marginalized due to gender biases and stereotypes, and because of such perceptions, communicating with members of another gender creates notable barriers. In fact, when women and men communicate with one another, women tend to hide their strengths while men tend to hide their weaknesses (Hacker, 1981). Moreover, communication apprehension, or “the fear or anxiety associated with either real or anticipated communication with another person or persons” (McCroskey, 1977, p. 78), increases when the communication is with a member of another gender (Jones, 2009). When communication apprehension exists, individuals tend to avoid communicating and are often perceived as less competent (Richmond, 1984), consequently leading to diminished and/or negative organizational outcomes (Jones, 2009). In emerging markets—where the socio-political-cultural context often supports norms that create disparity between men and women—the benefits to innovation from the representation of women in the SME are predictably limited if communication apprehension exists between men and women, resulting in less frequent communication. This communication barrier undermines the coordination and exchange necessary to produce product and process innovations. Further, if communication is less frequent among women in emerging-market SMEs, the ability to develop collective trust and strong relational bonds is marginalized. Without a foundation of trust, women are reluctant to demonstrate their competencies, and thus, are less likely to overcome gendered stereotypes of incompetence (Huang et al., 2020). As such, when communication is less frequent—even with greater levels of female representation in the SME—the outcomes associated with product and process innovation are expected to be limited.

In all, our theorizing leads us to predict that in emerging-market SMEs, when high communication frequency exists, the positive effect of female representation on innovation is strengthened; whereas, when low communication frequency exists, the synergistic benefits from communication diminish, suppressing the positive effect of female representation on innovation:

Hypothesis 3. (H3). *In emerging-market SMEs, communication moderates the relationship between female representation and innovation, such that more frequent communication strengthens the positive effect of female representation on (a) product innovation and (b) process innovation.*

4 | METHODOLOGY

4.1 | Sample and data

To test our hypotheses, we utilized data from the sixth round of the Business Environment and Enterprise Performance Survey (BEEPS-VI) collected as a joint initiative of the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the World Bank. The survey was administered between 2018 and 2020 using face-to-face interviews with owners and top managers, with input from other employees (e.g., financial data from accountants, labor statistics from human resource managers),² to collect firm-level data from commercial, service, and industrial enterprises (European Bank for Reconstruction and Development (EBRD), 2020). The survey employed a stratified-sampling methodology to generate representative samples³ of adequate sizes for statistical analyses across industry, firm size, and geographical location strata from emerging markets in Eastern Europe, Central Asia and the Middle East, and North Africa. We restricted our sample to SMEs, operationalized as enterprises with up to 250 employees as this is the standard size criterion of SMEs in emerging markets (Haddad, Williams, Hammoud, & Dwyer, 2019; Nizaeva & Coşkun, 2018). After applying this criterion and removing outliers and observations with missing values for focal variables, our final sample size is 741 SMEs in 33 emerging markets.

Additionally, we obtained data from *The Global Gender Gap Report 2018* (World Economic Forum, 2018) for each emerging market in our sample. This report captures the level of gender-based disparities across 149 countries in terms of economic participation, educational attainment, health and survival, and political empowerment (Brush et al., 2017). Our sample of countries ranged from ratings of 0.784 (Slovenia) to 0.595 (Lebanon), which, respectively, indicates 78.4% and 59.5% gender parity (or a 21.6% and 40.5% gender gap). For comparison purposes, countries with the most gender parity are in Western Europe: Iceland (0.858), Norway (0.835), and Finland (0.821); none of these countries is represented in our sample.

4.2 | Variables and measures

4.2.1 | Dependent variables: Product innovation and process innovation

For *product innovation*, respondents were asked if new or significantly improved products/services were introduced to the market in the last 3 years. Significant improvements are limited to product/service capabilities or other functions, technical specifications, components and materials, incorporated software, or user-friendliness and do not include minor changes (e.g., routine upgrades, aesthetic design changes that do not affect functionality, regular seasonal changes). *Process innovation* includes new or improved processes introduced by the firm in the last 3 years. Examples of process innovation include new or improved methods related to the following: manufacturing products or offering services; logistics, delivery, or distribution methods for inputs, products, or services; and supporting activities. Both variables were measured dichotomously, equal to 1 for an affirmative response and equal to 0 otherwise.

4.2.2 | Independent variable: Female-led SMEs

We measured *female-led SMEs* as an indicator variable equal to 1 for an affirmative response to the survey question, “Amongst the owners of the firm, are there any females?” and equal to 0 for a negative response, which indicates male-led SMEs.

4.2.3 | TM system variables: Female representation and communication frequency

We conceptualized *female representation* as a latent construct reflected by women's participation in management, production, and overall employment. As such, we constructed a firm-level, composite measure of female representation from the following four items: the presence of a female top manager, percentage of female managers, percentage of female production employees, and percentage of female employees. These items include a discrete, binary variable (presence of a female top manager) that violates the distributional assumptions of factor and principal component analyses (Hotelling, 1933). Therefore, we computed maximum likelihood estimates of polychoric correlations using the *polychoric* Stata package (Kolenikov & Angeles, 2004). Then, we utilized this correlation matrix in a subsequent principal component analysis to create a composite measure of female representation with the mean equal to 0 and the standard deviation equal to 1 (Drasgow, 1986; Hotelling, 1933; Olsson, 1979; Pearson, 1907).

Since our measure of female representation uses multiple items, we are able to assess validity and reliability. We assessed convergent validity--the degree of agreement between multiple measures of a construct (Campbell & Fiske, 1959; Cote & Buckley, 1987)--by examining the item loadings and proportion of explained variance. Each item loading is greater than 0.4 (λ range: 0.468–0.968),⁴ explaining 57.4% of variance. Following Fornell and Larcker (1981), we assessed discriminant validity--the degree to which a construct differs from others--of the female representation construct by comparing its average variance explained (AVE) to the variance it shares with other variables or constructs. As evidence of discriminant validity, the square root of the female representation constructs AVE ($\sqrt{0.574} = 0.758$) exceeds the construct's correlation with any other variable. Finally, the measure demonstrates acceptable reliability with a composite reliability score of 0.831.

Communication frequency was measured from responses to the interview question, "How often does the top manager meet with employees in production or services provision?" using a 5-point scale ranging from (1) never to (5) more than once a day.

4.2.4 | Control variables

We included several SME-level, resource-specific variables to control for alternative explanations of effects on innovation outcomes. We controlled for firm size by including the number of *full-time employees* and the natural log of the firm's *revenues* for the fiscal year prior to data collection because firm size can influence the resources devoted to innovation (Chaganti & Parasuraman, 1996; Dai et al., 2019; Tang, 2015). We controlled for *firm age*, measured as the natural log of the firm's age at the time of data collection, because older firms tend to be conservative and more likely to withhold resources from innovation risk (Dai et al., 2019). Given the relationship between R&D and innovation outcomes (e.g., Díaz-García et al., 2013), we included a dummy variable (coded as yes = 1, no = 0) if the firm invested in R&D during the 3 years prior to data collection.

Further, we included variables to control for alternative competitive, strategic, and experience-related effects on innovation outcomes. We controlled for the natural log of the *number of competitors* because increased competition is known to limit the likelihood of introducing profitable innovations (Banbury & Mitchell, 1995). Based on prior research that suggests formalized strategic plans influence entrepreneurial outcomes (Perry, 2001), we included a dummy variable (coded as yes = 1, no = 0) for *formal strategy* to account for whether the SME reported having a formal, written business strategy. We also controlled for *top manager experience*, which is measured as the number of years of industry experience of the highest-ranking manager (Tang, 2015).

Additionally, we controlled for institutional-level factors that influence entrepreneurial outcomes (Hechavarría & Ingram, 2019). We included the *Gender Gap Index* that was published by the World Economic Forum (2018) and was used in recent research (Griffin, Li, & Xu, 2021), to control for the effect of country-level gender disparity. The index benchmarks national gender parity on a scale from 1 (parity) to 0 (disparity). The index was reverse scored so that larger values indicate higher levels of gender disparity (i.e., the gender gap that exists in a country).

Additionally, our statistical models, which are described in the following section, account for variation between country- and industry-level factors (Moore, Bell, & Filatotchev, 2010).

4.3 | Analytical method

Two focal issues guided our choice of analytical method: namely, our data are multilevel and our dependent variables are binary. Therefore, we utilized generalized linear multilevel models (GLMMs) following the process outlined by Zachary, Moore, and Ballinger (2019). GLMMs combine mixed or multilevel effects with generalized linear models to correctly account for multilevel effects for non-normally distributed dependent variables. Since H2a, H2b, H3a, and H3b require models that fit binary responses (i.e., product and process innovation), we specified GLMMs with a Bernoulli distribution and logit link function (i.e., a logistic regression model) for each dependent variable (Moore, Bell, Filatotchev, & Rasheed, 2012). Testing the relationship between female-led SMEs and female representation (H1) requires a model that fits a normally distributed response variable; therefore, we specified a GLMM with a Gaussian distribution and identity link function.

In addition, our data are multilevel: firm-level observations are nested in industries, which are nested in countries. Multilevel models are regression models that correct biased parameter estimates caused by heteroscedastic and non-independent errors in clustered data (Zachary et al., 2019). Specifically, country-level effects accounted for 6.5–7.0% of the variance in product and process innovation. Industry-level effects accounted for an additional 4.5–6.0% of the variance in product and process innovation. Thus, these random effects, coupled with the Gender Gap Index, control for the geographic effects on innovation outcomes, including European Union membership (cf., Alhorr, Moore, & Payne, 2008; Moore et al., 2012).

5 | RESULTS

Table 1 provides frequency distributions and statistics by country. Table 2 reports descriptive sample statistics and pairwise correlations. In our sample, 58% of the SMEs introduced product innovations and 37% introduced process innovations. Consistent with data indicating women are underrepresented in economic participation in emerging markets (International Labour Organization, 2018), and in support of the contextual assumption guiding our theorizing, the data indicate the following: (a) the emerging markets in our sample have, on average, a 30% gender gap between women and men in economic participation; (b) female-led SMEs represent 33% of the sample; and (c) the mean values across the four items used to construct our measure of female representation are 12% of SMEs have a female top manager, and women represent 43% of managers, 23% of production employees, and 33% of all employees. An examination of correlations suggests no significant issues with multicollinearity. As expected, female-led SMEs have a significantly positive correlation with female representation ($r = .12, p < .001$), and female representation has significantly positive correlations with both product ($r = .11, p < .01$) and process ($r = .10, p < .01$) innovation. The Gender Gap Index has significantly negative correlations with female-led SMEs ($r = -.14, p < .001$) and female representation ($r = -.17, p < .001$), further demonstrating the likelihood of gender-related barriers to women's entrepreneurial opportunity and participation.

Table 3 reports the results of our multilevel regression model to test H1 and the multilevel logistic models to test the other hypotheses. In H1, we hypothesized that in emerging markets, female-led SMEs have a greater level of female representation in their workforces than male-led SMEs. In support of H1, results from Model 1b indicate a significantly positive relationship between female-led SMEs and female representation ($\beta = .158, p < .05$).

We hypothesized that female representation is positively related to product innovation (H2a) and process innovation (H2b). Model 2b indicates a significantly positive relationship between female representation and product innovation (odds ratio = 1.203, $p < .05$). Model 3b indicates a significantly positive relationship between female

TABLE 1 Frequency distribution and statistics by country

Country	Frequency # (%)	Gender Gap Index ^a	Product innovation (%)	Process innovation (%)	Comm. Freq.	Female-led SMEs (%)	Female representation score	SMEs with female top managers (%)	Female % of managers (%)	Female % of production employees (%)	Female % of all employees (%)
Azerbaijan	4 (0.5)	0.320	50	25	2.50	0	-0.830	0	22	9	14
Belarus	29 (3.9)	0.253	83	52	2.97	45	0.244	10	46	32	45
Bosnia and Herzegovina	13 (1.8)	0.288	69	46	3.15	8	0.036	8	54	27	39
Bulgaria	18 (2.4)	0.244	67	65	3.56	39	0.380	11	47	43	49
Croatia	12 (1.6)	0.288	67	33	2.92	8	-0.319	17	55	17	28
Czech Republic	61 (8.2)	0.307	64	56	3.52	31	-0.231	11	40	20	31
Egypt	26 (3.5)	0.386	27	19	2.42	12	-0.802	0	26	9	15
Estonia	22 (3.0)	0.266	86	50	3.41	41	0.108	32	39	31	40
Georgia	10 (1.3)	0.323	70	40	3.60	20	-0.172	0	30	22	32
Greece	47 (6.3)	0.304	40	21	3.34	43	-0.241	21	39	21	31
Hungary	34 (4.6)	0.326	50	26	3.03	44	-0.235	9	46	20	31
Jordan	1 (0.1)	0.395	100	0	3.00	100	-0.905	0	10	10	12
Kazakhstan	34 (4.6)	0.288	41	29	2.88	18	-0.109	12	46	23	35
Kyrgyz Republic	17 (2.3)	0.309	82	71	3.53	47	-0.333	12	43	18	27
Latvia	26 (3.5)	0.242	69	69	3.23	27	0.078	19	47	27	41
Lebanon	17 (2.3)	0.405	41	29	2.88	6	-0.193	0	57	19	33
Lithuania	12 (1.6)	0.251	67	36	3.58	50	-0.431	8	44	15	26
Malta	8 (1.1)	0.314	75	71	3.38	25	-0.305	0	29	23	30
Moldova	14 (1.9)	0.267	29	21	3.00	36	0.110	0	42	30	43
Mongolia	9 (1.2)	0.286	89	78	3.44	89	0.670	67	51	43	56
Montenegro	4 (0.5)	0.294	25	25	2.75	50	0.122	50	51	14	42

(Continues)

TABLE 1 (Continued)

Country	Frequency # (%)	Gender Gap Index ^a	Product innovation (%)	Process innovation (%)	Comm. Freq.	Female-led SMEs (%)	Female representation score	SMEs with female top managers (%)	Female % of managers (%)	Female % of production employees (%)	Female % of all employees (%)
Morocco	9 (1.2)	0.393	22	11	2.56	22	0.315	22	33	36	46
North Macedonia	6 (0.8)	0.293	67	50	3.33	17	1.010	17	62	60	67
Poland	11 (1.5)	0.272	73	27	3.00	9	-0.614	18	44	12	20
Portugal	47 (6.3)	0.268	60	21	2.38	49	-0.329	6	42	19	28
Republic of Cyprus	7 (0.9)	0.316	43	0	3.71	71	-0.215	0	38	17	32
Russia	38 (5.1)	0.299	37	11	2.53	16	-0.203	8	40	22	32
Serbia	7 (0.9)	0.270	86	57	3.14	29	-0.174	57	54	21	32
Slovak Republic	12 (1.6)	0.307	17	9	2.75	33	0.036	17	59	28	39
Slovenia	34 (4.6)	0.216	91	61	3.21	53	-0.374	15	37	15	28
Tajikistan	4 (0.5)	0.362	75	25	3.50	0	-0.385	0	46	18	26
Turkey	67 (9.0)	0.372	30	11	2.70	27	-0.631	6	32	13	20
Ukraine	81 (10.9)	0.292	73	53	3.02	37	0.134	6	55	31	42

Note: n = 741 emerging-market SMEs.

^aReverse-scored (larger values = larger gap).

TABLE 2 Descriptive statistics and pairwise correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Full-time employees													
2 ln(revenues) ^a	0.13***												
3 ln(firm age)	0.16***	-0.03											
4 R&D	-0.02	-0.02	0.04										
5 ln(number of competitors)	-0.04	-0.02	0.01	-0.01									
6 Formal strategy	0.06	0.01	0.04	0.14***	0.03								
7 Top manager experience	0.04	0.00	0.39***	-0.02	0.09**	0.00							
8 Gender Gap Index ^b	0.02	0.34***	0.02	-0.17***	0.17***	-0.05	0.16***						
9 Female-led SMEs	0.04	-0.09*	0.18***	0.07	-0.01	-0.01	0.12***	-0.14***					
10 Female representation	0.04	-0.07	0.01	0.02	-0.01	0.01	-0.08*	-0.17***	0.12***				
11 Communication frequency	-0.06	-0.05	-0.04	0.05	-0.08*	-0.05	-0.07	-0.11**	0.06	-0.01			
12 Product innovation	-0.05	-0.09*	0.02	0.20***	-0.16***	0.02	-0.07	-0.28***	0.05	0.11**	0.11**		
13 Process innovation	-0.06	-0.01	-0.02	0.16***	-0.05	0.10***	-0.07	-0.23***	0.12***	0.10***	0.19***	0.36***	
Mean	119.39	17.73	3.07	0.58	4.51	0.73	23.11	0.30	0.33	0.00	3.04	0.58	0.37
SD	57.18	2.18	0.67	0.49	3.57	0.44	12.49	0.04	0.47	1.00	1.06	0.49	0.48

Note: $n = 741$ emerging-market SMEs.

^aCost in local currencies.

^bReverse-scored (larger values = larger gap).

*** $p < .001$. ** $p < .01$. * $p < .05$.

TABLE 3 Multilevel mixed-effects models

Variables	Female representation ^a		Product innovation ^b			Process innovation ^b		
	Model 1a	Model 1b	Model 2a	Model 2b	Model 2c	Model 3a	Model 3b	Model 3c
Intercept	1.981**	1.908*	17.691*	16.894*	20.916*	0.911	0.590	0.334
Full-time employees	0.000	0.000	0.998	0.998	0.998	0.998	0.997	0.997
ln(revenues)	0.007	0.008	1.011	0.993	1.015	1.131*	1.110**	1.130*
ln(firm age)	0.043	0.028	1.111	1.134	1.109	0.871	0.977	0.875
R&D	0.001	-0.006	2.020***	2.015***	2.033***	1.516**	1.552**	1.523**
ln(number of competitors)	0.000	0.000	1.001**	0.926**	1.001**	1.000	1.000	1.000
Formal strategy	-0.047	-0.041	0.965	1.005	0.942	1.654**	1.672**	1.702**
Top manager experience	-0.002	-0.003	0.997	0.996	0.998	1.003	0.996	1.003
Gender Gap Index	-3.471***	-3.217**	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
Female-led SMEs		0.158* (H1)	1.004	0.999	0.999	1.412*	1.415*	1.344
Female representation				1.203* (H2a)	0.683		1.171* (H2b)	2.127*
Communication frequency					0.926			1.866***
Female representation × communication frequency					1.208*** (H3a)			0.819* (H3b)
<i>Random effects</i>		Coef. (SE)				Coef. (SE)		
Country-level intercept		0.001 (0.001)				0.271 (0.443)		
Industry-level intercept		0.229 (0.798)				0.034 (0.059)		
<i>Model fit statistics</i>								
-2 log likelihood (-2LL)	11	1,778.80***	12	1,772.51***	12	909.33***	13	846.20***
Degrees of freedom (df)								
Δ in -2LL								
Δ in df	1		1		2		1	2

Note: n = 741 emerging-market SMEs.

^aFemale representation analyses are multi-level mixed-effects regression models; results are reported as regression coefficients.

^bProduct and process innovation analyses are multi-level mixed-effects logistic regression models; results are reported as odds ratios.

***p < .001. **p < .01. *p < .05.

representation and process innovation (odds ratio = 1.171, $p < .05$). These results suggest that for a one-unit increase in female representation, which is equal to an increase of one standard deviation, we expect a 20% increase in the odds of product innovation and a 17% increase in the odds of process innovation. Thus, results indicate that a relatively conservative increase in female representation significantly improves the likelihood of process and product innovation, thereby supporting H2a and H2b.

We hypothesized that communication positively moderates the relationship that female representation has with product innovation (H3a) and process innovation (H3b). Model 2c indicates that communication strengthens the positive effect of female representation on product innovation (odds ratio = 1.208, $p < .001$), supporting H3a. Figure 2 illustrates this result, showing that when communication is frequent, the relationship between female representation and product innovation is stronger in our sample of SMEs. Regarding process innovation, Model 3c indicates that communication does not strengthen the positive effect of female representation on process innovation since the odds ratio is less than 1.00 (odds ratio = 0.819, $p < .05$); thus, we reject H3b. Figure 2b illustrates this unexpected result, and we offer potential explanations for this finding in the discussion section.

5.1 | Post hoc analyses

In addition to the analyses reported above, we conducted several post hoc analyses to provide more detailed insight into our findings and to strengthen our gendered and contextualized framework of SME innovation. These supplementary analyses further unpack the effects of women on SME innovation in emerging markets.

5.1.1 | Women in ownership

We theorized and found that in emerging markets, female-led SMEs have greater levels of female representation in their workforce than male-led SMEs. We assessed post hoc whether these results hold at each level of the SME workforce. As shown in Table 4, female-led SMEs, compared to male-led SMEs, have significantly more women represented in top manager, manager, production, and employee positions. This result offers further evidence that in emerging markets, if a woman is represented in ownership, the SME is more likely to provide job opportunities for other women. Additionally, we assessed whether differences exist in the level of communication and innovation based on gender and SME ownership. Results indicate that female-led SMEs have significantly more frequent communication than male-led SMEs, suggesting that communication is important for women engaging in entrepreneurial tasks in this context. Results also indicate that female-led SMEs have an equally high level of product innovation and a significantly higher level of process innovation than male-led SMEs.

Although the differences in means and proportions suggest important distinctions between female-led and male-led SMEs, our theoretical framework suggests that ownership does not directly influence innovation. Rather, our theorizing suggests that women in ownership indirectly influence innovation through the level of female representation in the SME. To confirm this, we performed a mediation analysis using generalized structural equation modeling (VanderWeele, 2015).⁵ Results indicate that female-led SMEs have a significant indirect effect on product and process innovation that is mediated through female representation ($est_{product} = 0.012$, $p < .01$; $est_{process} = 0.009$, $p < .01$). Thus, in support of our theoretical framework, the results of this post hoc analysis suggest that the effect of women in ownership on innovation is transmitted (i.e., mediated) through female representation rather than having a direct influence on innovation outcomes in our sample of emerging-market SMEs.

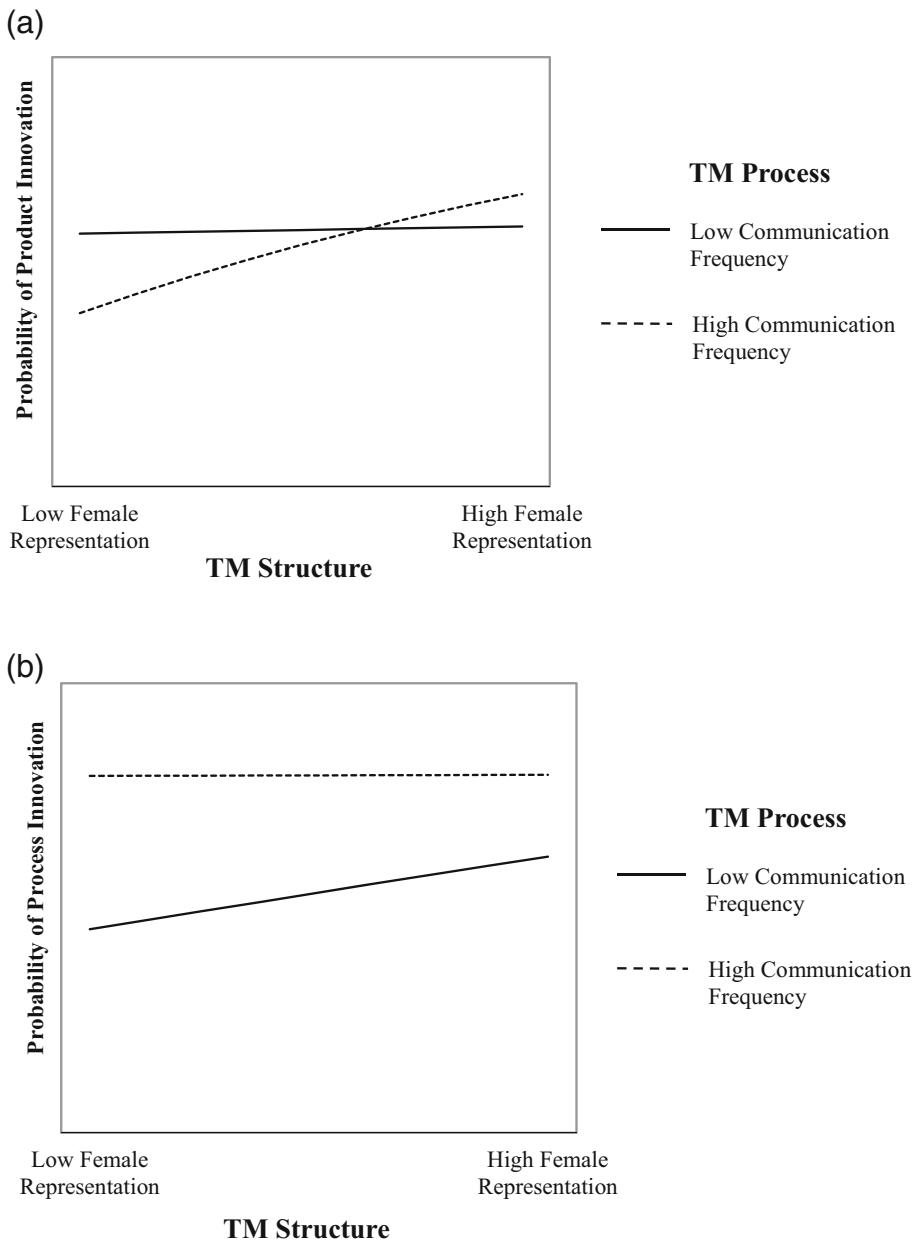


FIGURE 2 Effects of the transactive memory system on (a) product innovation and (b) process innovation

5.1.2 | Women in the SME's workforce

We theorized and found that greater female representation in emerging-market SMEs increases the likelihood of innovation. Recognizing that some research indicates that greater female representation may only be beneficial for innovation to an extent because too much gender diversity can deter coordinated action and knowledge sharing (Fernández, 2015; Sastre, 2015), we assessed post hoc whether female representation has a curvilinear relationship with innovation. Our results did not support a curvilinear relationship with either product or process innovation, lending support to similar findings in recent research (e.g., Xie et al., 2020; Zouaghi, Garcia-Marco, &

TABLE 4 Post hoc mean comparisons of gender and SME ownership

Means comparisons	Female-led SMEs	Male-led SMEs	Difference	SE	p
Two-sample t tests					
Female representation	1.45	1.24	0.21	0.08	**
Female % of managers	47.62	44.11	3.50	1.92	*
Female % of production employees	39.27	32.53	6.74	2.52	**
Female % of all employees	41.02	35.27	5.74	1.95	**
Communication frequency	3.15	2.98	0.17	0.08	*
Two-sample test of proportions					
Female top manager	0.22	0.07	0.15	0.03	***
Product innovation	0.61	0.56	0.05	0.04	
Process innovation	0.45	0.34	0.11	0.04	**

Note: $n = 246$ female-led SMEs and 495 male-led SMEs in emerging markets.

*** $p < .001$. ** $p < .01$. * $p < .05$.

Martinez, 2020). Although our results do not suggest a “tipping point” at which female representation shifts from a positive to a negative relationship with innovation, further analysis of these models suggests that the largest change in the marginal effect of female representation on product or process innovation in our sample occurs around the mean value of female representation and remains stable at above-average levels of female representation. Thus, in emerging markets, where institutional factors tend to create gender disparity in labor force participation (International Labour Organization, 2018), our findings suggest that even modest levels of female representation can increase the likelihood of SME innovation.

5.1.3 | Gender configurations of the SME

To better understand the overall relationship between women and innovation in emerging-market SMEs, we conducted a latent profile analysis (LPA). Following the procedure outlined by Stanley, Kellermanns, and Zellweger (2017), our sample of SMEs were classified into homogenous groups (i.e., profiles) based on our focal variables. By comparing models that contained a varying number of profiles (the number of unique profiles ranged from one to five), the LPA results indicate that a four-profile model demonstrated the best fit to our data based on sample-adjusted Bayesian information criteria and bootstrapped likelihood ratio tests. Figure 3 presents a plot of the four latent profiles with standardized means for women in ownership, female representation, communication frequency, product innovation, and process innovation; accordingly, bars below 0 indicate a below-average level, and bars above 0 indicate an above-average level. We label these four profiles based on their level of SME innovation, and we describe interesting patterns revealed within and across the profiles.

Approximately one-fourth of our sample is represented in Latent Profile 1 ($n = 195$), which consists of *Below-Average Innovators*. Profile 1 also consists of below-average levels of female-led SMEs, female representation, and communication frequency, which underscores the relevance of these characteristics to innovation in emerging markets. Latent Profile 2 ($n = 314$) consists of *Average Innovators*. Similar to Profile 1, SMEs in Profile 2 have below-average levels of female-led SMEs and female representation; but, in contrast, they have above-average levels of communication frequency. Thus, these results indicate that frequent communication may explain why the level of innovation is higher in Profile 2 than in Profile 1.

Interesting patterns are revealed from Latent Profile 3 ($n = 151$), which consists of *Above-Average Innovators*. SMEs in Profile 3 generally reflect our theorizing regarding the TM system components (Figure 1): the presence of

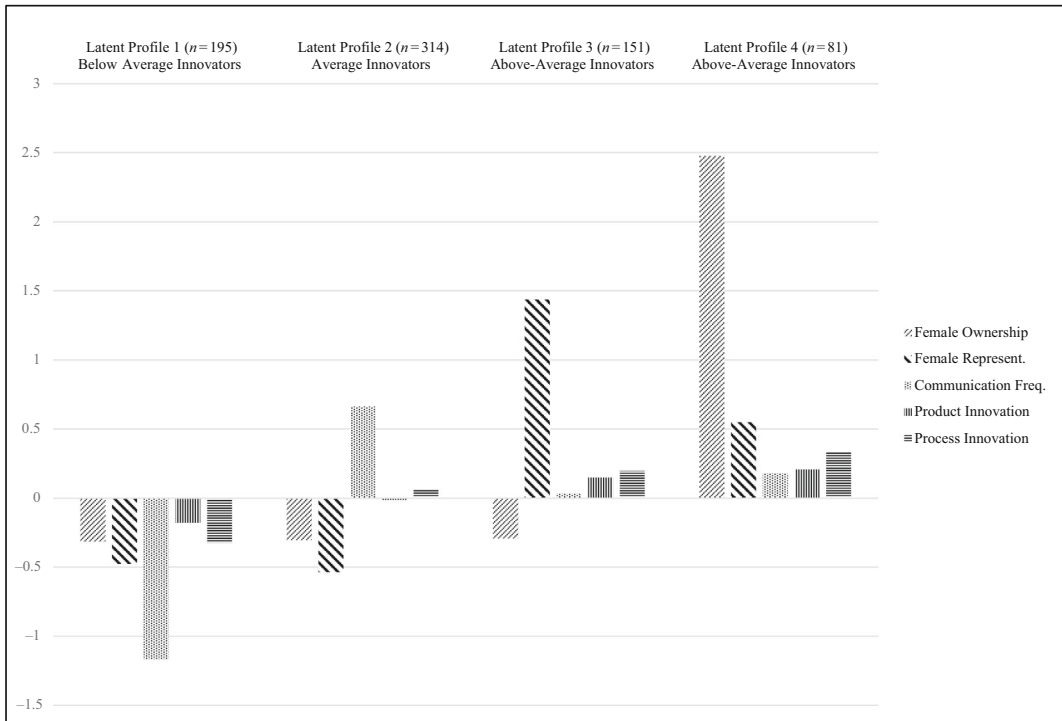


FIGURE 3 Latent profiles

both female representation (TM structure) and communication (TM process) yield high levels of innovation outcomes. Notably, Profile 3 shares the same below-average level of female-led SMEs with Profile 1 and Profile 2 (i.e., Profiles 1, 2, and 3 consist of below-average levels of female-led SMEs, indicating they consist of more male-led SMEs); however, Profile 3 has the only configuration among the first three profiles with above-average levels of product and process innovation. Thus, looking across these first three profiles, a potential interpretation is that a high level of female representation in the SME's workforce is beneficial for innovation, even in male-led SMEs.

Latent Profile 4 ($n = 81$), similar to Profile 3, also consists of *Above-Average Innovators*. However, SMEs in Profile 4 generally reflect our overall theoretical framework that includes women in ownership in addition to the TM system (Figure 1): this profile has the highest level of female-led SMEs, combined with above-average female representation and communication frequency, and this configuration yields the highest level of product and process innovation of all the profiles examined. While LPA results offer further support that emerging-market SMEs with women in ownership, above-average levels of female representation, and frequent communication have high levels of innovation (Profile 4), the results also highlight that SMEs with above-average levels of female representation, even with a lack of women in ownership, also achieve high levels of innovation (Profile 3). Overall, these results imply that women are catalysts of innovation: different configurations of women in ownership and women in workforce composition contribute to SME innovation in emerging markets.

6 | DISCUSSION

Due to an over-reliance on a masculine lens of entrepreneurship in the literature, there is a general perception that men are more innovative than women (Alsos et al., 2013; Nählinder, 2010). There is empirical evidence—in the context of developed markets—that seems to lend support to these perceptions. For example, studies find that male-led

firms are more innovative than female-led firms; however, these studies attribute the gender gap in innovation to differences between male and female entrepreneurs in their academic field of study (Marvel et al., 2015; Strohmeier et al., 2017), workplace interruptions (i.e., childbirth; Strohmeier et al., 2017), industry and venture size (Strohmeier & Tonoyan, 2005), and whether there are country-level institutions that support work-life balance (Thébaud, 2015). Thus, a noteworthy implication of these findings is that when women are “equipped with comparable endowments,” they can be as innovative as men (Marvel et al., 2015, p. 565). Importantly then, these studies provide evidence-based knowledge of the systematic gender differences that impact innovation so that policy makers and higher education programs can take meaningful steps to increase gender parity (Marvel et al., 2015; Strohmeier et al., 2017). However, these studies also illuminate the important need to examine the relationship between women and innovation in contexts where institutional-level change that can equip women with “comparable endowments” may be less likely or may occur more slowly due to gender-related societal norms, cultural values, and biases (Brush et al., 2009; Gimenez-Jimenez et al., 2022; Tonoyan, Strohmeier, & Jennings, 2020). This begs the question: how do women influence SME innovation given the gender inequities that exist in emerging markets?

Thus, our study seeks to provide initial insights into this question by addressing two critical research gaps in the literature: an over-reliance on a masculine perspective and an under-consideration of context in studies of women and innovation. To address these gaps, we developed and tested a gendered and contextualized framework of SME innovation by integrating insights from TM theory—a theory rooted in the psychology of interdependent cognition—to reveal gender-related sources of empowerment internal to the SME (i.e., women in ownership, female representation in the SME, and frequent communication) that influence the likelihood of innovation in gender-restrictive contexts.

Our findings indicate that in emerging markets, women in ownership and women in the SME's workforce likely influence innovation in different ways. Regarding women in ownership, our theorizing and findings align with the “women as hero” perspective (Corwin, Loncarich, & Ridge, 2021, p. 2). Through this perspective, women at the top of an organization are likely to advocate for other women, serve as mentors and role models, and weaken stereotype threats associated with working in male-dominated contexts, thereby positively influencing the number and abilities of women at lower levels in the organization (Gould, Kulik, & Sardeshmukh, 2018; Kurtulus & Tomaskovic-Devey, 2012). Regarding women in the SME's workforce, our theorizing and findings align with the “critical mass” perspective (Kanter, 1977), suggesting that even a small increase in female representation can make innovation more likely (Torchia et al., 2011). Our results suggest that with greater representation, women are empowered to leverage their competencies because they have more social support, which lessens feelings of isolation, work-related stress, and stereotype threat (Torchia et al., 2011; von Hippel et al., 2015). Indeed, our post hoc findings indicate that there is an increased likelihood of product and process innovation once an emerging-market SME reaches the threshold of being “average” with respect to their level of female representation, implying that women's unique innovation-related capabilities are activated as they gain strength in numbers. Overall, our study reveals that women in ownership and women in the SME workforce are particularly salient for innovation in emerging markets where women—as entrepreneurs, as managers, as employees, and as individuals—have historically experienced institutionalized gender bias.

Our study also provides interesting insight regarding the impact of communication on SME innovation. We theorized and found that frequent communication strengthens the positive effect of female representation on product innovation. This finding potentially suggests that as the SME's workforce becomes more gender balanced, frequent communication may be needed (Zouaghi et al., 2020) to reduce the potential coordination costs of gender diversity (Fernández, 2015; Sastre, 2015) in order to enhance product innovation. This finding also may indicate that in contexts where women are marginalized, women leverage their innovation-related capabilities when they communicate with each other because communication among women enhances relationships, social support, trust (Vokić, Bilušić, & Najjar, 2021), and empowers women to use their competencies rather than hide them (Hacker, 1981). Thus, our study reveals that communication may provide women with a *gender advantage* in product innovation. Recent research demonstrates that women's communication style can be a “gender penalty” in securing entrepreneurial

funding (Huang et al., 2020); however, we extend this conversation by recognizing that women's communication can be advantageous, rather than penalizing, depending on the entrepreneurial activity considered. Moreover, and consistent with our theorizing, Figure 2a suggests that the presence of both high communication frequency and low female representation results in a low probability of product innovation, perhaps indicating that when there are fewer women (i.e., greater levels of male representation), communication in the SME could likely reflect the communication style of men. That is, communication may become less about developing relationships and more about social dominance (Basow & Rubenfeld, 2003), and may produce stereotype threat (Hoyt et al., 2010) or communication apprehension for women (Jones, 2009), which is likely to reduce women's motivation and ability to innovate.

Unexpectedly, our results did not support the hypothesized moderating effect of communication on the relationship between female representation and process innovation. Instead, and as illustrated in Figure 2b, when high communication frequency exists, the likelihood of process innovation does not change based on the level of female representation. Specifically, SMEs with high communication frequency *and* high female representation have a higher likelihood of process innovation (compared to similar representation levels with low communication frequency) as our theorizing suggests. However, SMEs with high communication frequency *and* low female representation also have a higher likelihood of process innovation (compared to similar representation levels with low communication frequency). A potential explanation may be that process innovations tend to occur in male-dominated occupations and industries, implying that men are likely to have more exposure and work experience implementing process innovations than women (Strohmeier & Tonoyan, 2005). Thus, when men have a high level of representation in the SME (i.e., a low level of female representation), coupled with frequent communication that is likely to relay a broad vision (i.e., abstract speech typical of men) (Joshi et al., 2020), their acquired entrepreneurial skills can be leveraged for process innovation. Although unexpected, this result potentially underscores the importance of communication as the TM process that facilitates the exchange of knowledge resources in the TM structure so that the resources can be effectively utilized for innovation. Interestingly, though, Figure 2b reveals another communication-related finding: when low communication frequency exists, the relationship between female representation and process innovation is strengthened. A potential explanation may reside in the strength of the TM structure when female representation is high. In other words, the enhanced task coordination and trust among women may be enough to activate their process innovation capabilities *without* requiring the TM process of communication as an enabling facilitator of knowledge exchange. Taken together, these results suggest a potential trade-off rather than a mutually beneficial condition: perhaps there is an increased likelihood of process innovation when communication is frequent *or* when female representation is greater in emerging-market SMEs.

6.1 | Contributions

By considering gender and context, our study makes two noteworthy contributions to the women and innovation literature. First, we advance the literature by broadening the focus of women in innovation. Studies of gender and innovation tend to focus on the differences between male and female entrepreneurs, for example, in their level of education or experience, entrepreneurial perceptions, or access to resources (e.g., Marvel et al., 2015; Strohmeier et al., 2017; Tonoyan et al., 2020), uncovering systematic disparities that create variance in innovation outcomes. Our study builds from this research and offers novel insights into the relationship between women and innovation. Our research suggests that, as SME owners, women may overcome these gender-related disparities through making incremental changes in the gender composition of their SME's workforce. Specifically, as SMEs become more gender balanced across all levels of the workforce, they have a higher likelihood of innovation. Interestingly, based on post hoc results, the positive effects of gender parity in the SME's workforce on innovation are also found in male-led SMEs. Where we find differences is in the relationship between ownership and workforce composition: female-led SMEs tend to have more gender parity in their workforce compared to male-led SMEs. Thus, an important

implication of this finding is that comparisons of female-led SMEs and male-led SMEs on entrepreneurial outcomes may be incomplete without a consideration of the gender composition of the SME's workforce.

Second, by contextualizing our research, we advance the theoretical discourse in the women and innovation literature. Although a variety of theoretical perspectives have been considered in the literature (Crittenden et al., 2019), our knowledge is limited by a lack of theorizing that considers the socially embedded nature of women and entrepreneurship in emerging-market SMEs (Hughes et al., 2012; Rashid & Ratten, 2020). Thus, our research advances the literature by leveraging TM theory and focusing on internal SME resources to offer novel insights that illuminate the socially embedded nature of innovation. Our theoretical framework considers the social structure (i.e., gender composition) and social processes (i.e., communication) that are salient to SME innovation in the socially restrictive contexts in which emerging-market women are embedded. Importantly, our study suggests that women in emerging markets are stronger together: women in ownership advocate for and support other women by employing them in their SMEs, and in turn, with greater female representation in SMEs, women can be their authentic selves and use their endowed resources for innovation rather than trying to emulate the masculine characteristics typified of entrepreneurs (Lewis, 2015). Thus, our study underscores the importance of gendered and contextualized considerations in innovation research.

6.2 | Limitations and future research

Notwithstanding the contributions to the women and innovation literature, our study's findings should be interpreted in light of its limitations. Although we use a robust dataset that includes SMEs from an array of emerging markets, we are limited by its cross-sectional design. Thus, we cannot infer causality from the data even though the directional relationships in our framework are theoretically derived. We are also limited by the use of secondary data and, thus, our use of proxies to assess TM system components and notions of empowerment, and our use of an SME ownership measure that fails to capture precision in ownership structure (e.g., entrepreneurial team versus solo entrepreneurs). Although extant research indicates that the majority of SMEs are owned by two or more people (i.e., entrepreneurial team; Schlosser, 2015; Tihula, Huovinen, & Fink, 2009) and that there are no significant differences in performance or strategic decisions between SMEs owned by entrepreneurial teams and those owned by solo entrepreneurs (Pasanen & Laukkanen, 2006), a more precise ownership structure measure could provide assessments of gender-related nuances in SME ownership, such as the level of gender (dis)parity of the entrepreneurial team. We also theorize about the influence of gender-related similarities among women (and men) but acknowledge that heterogeneity exists. To overcome these limitations, we encourage research that offers an advanced research design by using longitudinal and primary data that incorporates ownership structure, TM system, and gender-identity measures to more fully assess female representation and its causal relationship with innovation.

We see promise in research that builds from our study's findings regarding the effects of gender in ownership and workforce composition. Recent research indicates that sex-segregation (e.g., when women are underrepresented in managerial positions or overrepresented in certain jobs and industries) restricts women's exposure to entrepreneurial resources and experience, and thus weakens women's perceptions of how easy it would be to start her own business (Tonoyan et al., 2020). Future research can build from these insights to expand our understanding of whether gender parity within the firm, and in which levels of the firm, might change the perceptions of women and men, relative to themselves and each other. For instance, does gender parity strengthen women's perceptions of their own entrepreneurial aptitudes but weaken their perceptions of men's entrepreneurial capabilities? Scholars will also benefit from research that considers the impact of gender parity on the behavior and dynamics within the firm. As an example, a gendered faultline (i.e., a fracture of the group that causes men and women to align themselves into their own gender's subgroup) has the potential to thwart essential innovation processes and outcomes (Pearsall, Ellis, & Evans, 2008). Thus, what is the relationship between changes in the firm's gender composition and the emergence (or disappearance) and strength of a gendered faultline? Additionally, we see promise in investigations that

can assess the recursive nature of firm-level gender parity and institutional change. We know that supportive institutional factors can foster women's participation in entrepreneurial activities (Audretsch et al., 2022), but questions remain as to how, when, and at what level women's participation changes institutionalized gender-based beliefs and expectations.

Additionally, we look forward to research that extends our communication-related insights. We reveal communication's different effects on product and process innovation when simultaneously considered with the SME's gender composition. Moreover, our findings imply that there might be communication advantages in women's entrepreneurship, whereas other research reveals communication disadvantages (e.g., Huang et al., 2020). Thus, by contextualizing communication research, especially in the context of emerging markets, and examining the impact of communication on innovation and other critical entrepreneurial outcomes, scholars are better able to offer precise prescriptions for practitioners. In addition to investigating outcomes, potential exists for research to explore antecedents of effective communication. For example, studies can examine the origins of SME communication by applying a human science perspective. Family communication patterns theory—the prominent theoretical approach in human communication research—suggests that families develop stable and enduring patterns of communicating (Ritchie & Fitzpatrick, 1990). It seems likely that these family patterns of communication could transfer to the SME and create a communication culture that ultimately impacts innovation (Sciascia, Clinton, Nason, James, & Rivera-Algarin, 2013), especially if gendered differences in communication are embedded within the family.

7 | CONCLUSION

We seem to be witnessing progress toward gender parity in innovation. Based on data from the Global Entrepreneurship Monitor Report on Women's Entrepreneurship, the authors conclude that, "Overall, innovation is the indicator with the greatest female-to-male gender ratio; across all 74 economies, women entrepreneurs have a 5% greater likelihood than men entrepreneurs to report that they are innovative" (Kelley et al., 2017, p. 51). In a recent study, Audretsch et al. (2022) theorize and provide empirical evidence that in contexts where women have access to financial resources, female-led firms are more innovative than male-led firms. Similarly, in contexts with narrower gender gaps, women are more likely to be included on boards of directors, which in turn, leads to stronger innovative cultures and higher innovation outcomes (Griffin et al., 2021). Foss et al. (2021) find that the presence of at least one woman in the team of top and middle managers increases the likelihood of product innovation because of women's leadership style and ability to deal with complexity. Moreover, gender studies focused at other levels in the firm indicate that the inclusion of more women in R&D teams enhances innovation efficiency (Xie et al., 2020) and product and process innovation (Zouaghi et al., 2020). Thus, recent empirical evidence starts to refute perceptions that men are more innovative than women (Audretsch et al., 2022). In light of recent research and findings, our study provides an initial contextualized framework of how women influence innovation in emerging markets—either through their status as SME owners or from their strength in numbers within the SME—that we hope will inspire future research and give a new impetus to societal change.

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ENDNOTES

- ¹ In line with previous research, we refer to female-led SMEs as SMEs with a female owner (Dissanayake, 2016; Pergelova, Manolova, Simeonova-Ganeva, & Yordanova, 2019; Strohmeier et al., 2017). In contrast, male-led SMEs are SMEs without a female owner.
- ² Due to confidentiality concerns, specific respondent information is not made available in the surveys.
- ³ Additional details on the EBRD-EIB-WB Enterprise Survey's stratified-sampling methodology are available at <http://www.ebrd.com/country/sector/econo/surveys/beeps.htm>.
- ⁴ Item loadings: female top manager (0.468), percentage of female managers (0.536), percentage of female production employees (0.923), and percentage of female employees (0.968).
- ⁵ Generalized structural equation modeling was utilized to test mediation as a post hoc analysis because our mediator is normally distributed while our innovation outcomes are binary.

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