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Women's entrepreneurial intentions in an emerging GCC economy: a theory of planned behaviour analysis of GEM data from Oman

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Abstract

Despite growing policy attention to gender-inclusive economic development in Gulf Cooperation Council (GCC) states, women remain underrepresented in entrepreneurship in Oman. Grounded in the Theory of Planned Behavior (TPB), this study examines how attitudinal, social-normative, and perceived-control factors shape women's start-up intentions and how those intentions relate to early-stage entrepreneurial activity. The analysis uses the Global Entrepreneurship Monitor (GEM) 2020 Oman Adult Population Survey and focuses on an unweighted analytical sample of 988 women aged 18-64. Binary logistic regression shows that subjective norms are the strongest predictor of start-up intention (OR = 4.10, $p < 0.001$), followed by perceived behavioral control (OR = 3.46, $p < 0.001$). Fear of failure reduces the likelihood of start-up intention (OR = 0.68, $p < 0.01$), while perceived entrepreneurial capability strongly predicts intention. In contrast, perceived ease of starting a business is more closely associated with actual entrepreneurial activity than with intention. Sequential logistic regression indicates patterns consistent with partial mediation by start-up intention for selected predictors, although the cross-sectional design precludes causal inference. The findings expand the Theory of Planned Behavior (TPB) in the GCC, showing that social legitimacy, capability beliefs, and institutional accessibility influence women's entrepreneurial stages: legitimacy and perceived capability shape intention, while accessibility helps turn intention into action. The study provides data-driven recommendations for policymakers, universities, and organizations to boost women's participation in line with Oman Vision 2040.

Keywords: Entrepreneurial Intentions, emerging economies, women , Theory of Planned Behavior, GEM

1. Introduction

Women's entrepreneurship is a key driver of inclusive growth, job creation, and poverty reduction in both advanced and developing countries (Cardella et al., 2020; Rosca et al., 2020; Meinzen-Dick et al., 2019). GEM data indicate that women start businesses less frequently

than men in many regions, with the largest disparities in the Middle East, North Africa, and South Asia (Bosma et al., 2020; GEM, 2022). In emerging economies, this gap is not solely due to differences in women's education or access to formal labor markets, which have improved in many GCC countries. Instead, psychological, social, normative, and institutional factors also shape whether women view entrepreneurship as appealing, legitimate, and achievable (Dean et al., 2019; Jennings & Brush, 2013).

This issue is particularly significant in the GCC, where regional governments view entrepreneurship, including women's entrepreneurship, as a key to diversifying economies beyond hydrocarbons (Al-Asfour & Tlaiss, 2022). In Oman, Vision 2040 highlights private-sector growth and women's economic empowerment as essential to sustainable socio-economic change (Oman Vision 2040 Implementation Follow-up Unit, 2021). However, despite these policy goals, women's entrepreneurial participation remains low: the SME Development Authority (2020) reports women's involvement at 33.5%, compared with 74.5% for men. This gap persists despite support programs such as Oman Development Bank financing schemes, Injaz Oman, Intilaaqah, Sharakha, and other initiatives.

This gap between policy and practice drives ongoing research. Prior studies on women's entrepreneurship in Oman and the broader GCC mainly focus on structural barriers or offer qualitative insights (Ghouse et al., 2021; Magd & Thirumalaisamy, 2021). While useful, these studies overlook a key question: what psychological and social factors influence Omani women's entrepreneurial intentions, and what conditions help translate these intentions into early-stage entrepreneurial activities? To address this, a grounded intention model is needed—one that reveals motivational factors within the institutional and cultural context of a developing GCC economy.

Beyond entrepreneurship research, this study contributes to interdisciplinary debates in the humanities and social sciences on gendered institutions, social legitimacy, and inclusive development. It examines entrepreneurial intention as shaped by normative and institutional influences, linking individual perceptions to broader issues such as cultural norms, policy implementation, and economic diversification in a post-hydrocarbon economy (Welter, 2011; Scott, 2014).

The theory of planned behavior (TPB), developed by Ajzen (1991), provides a useful framework. It posits that behavior is primarily driven by intention, which is shaped by attitude toward the behavior, subjective norms, and perceived behavioral control. In entrepreneurship research, TPB has shown strong predictive power across contexts (Krueger et al., 2000; Liñán

& Fayolle, 2015). Meta-analyses also indicate that the effects of these factors vary across cultural and institutional settings (Schlaegel & Koenig, 2014; Martínez-González et al., 2021). This context-dependent nature makes TPB particularly valuable for studying women's entrepreneurship in Oman, where family expectations, social legitimacy, and perceived institutional support may influence entrepreneurial decisions.

The study uses the GEM 2020 Oman dataset, a nationally developed survey aligned with international standards to measure entrepreneurial attitudes, intentions, and activities (Bosma et al., 2020). GEM data offer advantages over typical small convenience samples commonly used in GCC entrepreneurship research, including standardized sampling procedures, comparable metrics, sufficient statistical power, and open access via the GEM Data Hub. Because the analysis focuses on an unweighted female sample, interpret the results as associations within this sample rather than as representative of the entire population.

The study makes three contributions. Theoretically, it extends TPB to women's entrepreneurship in a GCC economy by distinguishing between intention formation and intention conversion. Specifically, perceived entrepreneurial capability is associated with the formation of start-up intention, whereas perceived institutional ease is associated with early-stage entrepreneurial activity. Empirically, it applies a TPB-structured analysis to GEM data from Oman, focusing exclusively on adult women, a population that remains underrepresented in entrepreneurship despite rising educational attainment and policy support. It provides evidence-based guidance for Omani policymakers, universities, and entrepreneurship support organizations working to close the intention activity gap through coordinated efforts focused on legitimacy, capability, and institutional access. The study addresses four research questions:

> ***RQ1: To what extent do attitudes toward entrepreneurship affect the entrepreneurial intention of Omani women?***
>
> ***RQ2: To what extent do subjective norms influence Omani women's entrepreneurial intention?***
>
> ***RQ 3: How does perceived behavioral control affect the entrepreneurial intention among women in Oman?***
>
> ***RQ4 4: What are the effects of attitude, subjective norms, and perceived behavioral control on starting a new business through entrepreneurial intention?***

The paper is organized as follows: Section 2 reviews the current literature on women's entrepreneurial intentions. Section 3 outlines the theoretical framework and hypotheses.

Section 4 describes the GEM dataset, variable operationalization, and the analytical methods used. Section 5 presents the results. Sections 6 and 7 examine the implications of these findings from theoretical, practical, and policy perspectives. Sections 8 through 10 address limitations, suggest future research directions, and provide concluding remarks.

2. Literature Review

2.1 Women's entrepreneurship in emerging economies

Women's entrepreneurship has become a central topic in entrepreneurship research because it is often linked to job creation, improved household economic resilience, and broader socio-economic development. From a theory-building perspective, however, the key issue is not only whether women start businesses, but *why* they choose (or do not choose) to move from the motivational stage to entrepreneurial action. Consequently, entrepreneurship research has increasingly emphasized the role of entrepreneurial intention as a proximal determinant of behavior rather than treating observed entrepreneurial activity as a sufficient proxy for motivation.

In the context of emerging and transition economies, gendered patterns in entrepreneurship are often interpreted through structural and cultural explanations. Large-scale evidence from the Global Entrepreneurship Monitor (GEM) indicates that early-stage entrepreneurial participation continues to differ by gender, with particularly pronounced gaps in several regions, including parts of the Middle East and North Africa (and adjacent areas) (e.g., GEM, 2022; Bosma et al., 2020). These disparities motivate theoretical frameworks that can capture both individual-level cognition and the social conditions under which entrepreneurship is considered attainable and legitimate.

A common characterization of women's entrepreneurship in developing economies is that women are "necessity entrepreneurs," implying that they start businesses due to limited alternatives to paid employment. While this interpretation is informative, recent scholarship argues that it may oversimplify women's entrepreneurial agency by emphasizing constraint-driven motives at the expense of motivations rooted in capability, identity, and perceived opportunities. The theoretical implication is that women's entrepreneurship should not be reduced to a survivalist activity; instead, it should be analyzed as a behavior that emerges from a person's beliefs, perceived expectations, and perceived capacity to act.

For this reason, the present study conceptualizes entrepreneurship as a planned behavior. Drawing on the Theory of Planned Behaviour (TPB), entrepreneurial intention is treated as the

immediate antecedent of entrepreneurial behavior and is shaped by three theoretically distinct components: attitudes toward entrepreneurship (whether entrepreneurship is viewed as desirable/valuable), subjective norms (the perceived social pressure or approval of entrepreneurship), and perceived behavioural control (the perceived ease or ability to perform entrepreneurial tasks). Applying TPB to women in an emerging GCC economy specifically Oman provides a theoretically grounded way to examine how gender-relevant social contexts and individual perceptions translate into intentions to start entrepreneurial ventures.

2.3 Attitude Toward Entrepreneurship

Attitude toward entrepreneurship refers to an individual's overall evaluation of becoming an entrepreneur as desirable, beneficial, and personally worthwhile. Within the Theory of Planned Behaviour, this evaluation is not treated as a generic preference; rather, it reflects the net appraisal of underlying beliefs about entrepreneurship outcomes. Conceptually, an attitude depends on whether a woman expects entrepreneurship to lead to valued benefits (e.g., opportunities to achieve financial or occupational goals, autonomy, identity fulfillment) or anticipates costs that reduce its attractiveness (e.g., insecurity, reputational risk, stress, and uncertainty). Because TPB positions attitudes as a direct determinant of intention, attitudes are expected to translate into stronger entrepreneurial intention when the expected outcomes are evaluated positively (Ajzen, 1991).

In entrepreneurship research using GEM-linked approaches, attitudes are commonly operationalized through evaluations of perceived opportunity and the attractiveness of entrepreneurship as a career pathway, while also accounting for affective and cognitive inhibitors such as fear of failure (Nishimura & Tristán, 2011). This is theoretically consistent: if entrepreneurship is believed to offer worthwhile returns and if anticipated negative consequences are not overwhelming, attitudes become supportive of intention. Conversely, when entrepreneurship is associated with psychological barriers such as anxiety about failure or when entrepreneurship is perceived as an uncertain route to achieving goals, the resulting attitude becomes less favourable, thereby weakening the motivational pathway toward forming an entrepreneurial intention (Ferreira et al., 2012; Roy et al., 2017).

Importantly, TPB also implies that attitude effects are likely to be contextually patterned. Cross-cultural evidence suggests that attitudes are shaped by gender role expectations and by cultural orientations toward uncertainty. In settings characterized by stronger gender differentiation and higher uncertainty avoidance, women may report less favourable

evaluations of entrepreneurial careers, partly because entrepreneurship is appraised as higher risk or less compatible with expected social roles (Iakovleva et al., 2011; Shinnar et al., 2012; Steinmetz et al., 2021). For Omani women, this theoretical reasoning implies that attitudes toward entrepreneurship may be influenced not only by individual beliefs about opportunity but also by socially structured interpretations of risk, legitimacy, and appropriateness.

Empirical TPB-based work in Oman provides additional theoretical support for an attitude-driven intention mechanism. For example, studies using TPB in Omani contexts report that attitude toward entrepreneurship can be a significant predictor of entrepreneurial intention among Omani learners (e.g., students) (Tahir, 2021). Complementing this, broader female-focused GEM-linked evidence indicates that favourable entrepreneurial attitudes are associated with stronger entrepreneurial intention among women (Jabir Ali et al., 2020). Taken together, these findings align with the RQ1 logic: when Omani women form more favourable attitudes toward entrepreneurship evaluating it as attractive and beneficial rather than fear-inducing or unattractive their entrepreneurial intention should increase. **Therefore, consistent with RQ1, the study expects that more favourable attitudes toward entrepreneurship will positively influence entrepreneurial intention among Omani women, while perceptions that entrepreneurship is risky or undesirable will be associated with lower intention**.

2.4 Subjective Norms and Social Influences on Entrepreneurial Intention

ubjective norms refer to an individual's perception of whether important others approve or disapprove of undertaking entrepreneurial activity (Ajzen, 1991). In entrepreneurial settings, "important others" may include family members, peers, mentors, and role models, whose expectations can shape whether entrepreneurship is considered socially acceptable and legitimate. Thus, subjective norms operate as a social-evaluative mechanism: even when a woman views entrepreneurship as desirable, socially transmitted meanings about appropriate gender roles can influence whether she forms (or refrains from forming) an entrepreneurial intention.

Research applying TPB to entrepreneurship indicates that subjective norms do not always exhibit the same strength across contexts; rather, their influence depends on cultural and institutional environments. In collectivist and high-context societies, normative evaluations may carry greater weight because career and status decisions are more tightly embedded in family systems and community expectations (Iakovleva et al., 2011). For Omani women, the practical implication is theoretically clear: perceived approval from socially salient groups

should increase entrepreneurial intention, whereas perceived disapproval, or anticipated social costs, should weaken intention.

Empirically, TPB-based studies in Oman provide supportive evidence that socially grounded perceptions can matter for entrepreneurial intention. For example, findings from TPB research with Omani samples indicate that subjective-norm-related influences can contribute to entrepreneurial intention and may differ across demographic subgroups (e.g., gender-differentiated TPB effects in Oman-based work) (Tahir, 2021; Tahir et al., 2026). Complementing these studies, broader cross-cultural evidence suggests that normative influence can become more salient for women when entrepreneurship is evaluated not only as an economic activity, but also as a socially regulated identity practice (Kautonen et al., 2015; Moriano et al., 2012). **Therefore, aligning with RQ2, the theoretical expectation is that stronger perceived subjective norms should be associated with higher entrepreneurial intention among Omani women.**

2.5 Perceived Behavioural Control, Self-Efficacy and Entrepreneurial Feasibility

Perceived behavioural control (PBC) captures an individual's perception of capability and feasibility i.e., whether starting a business is within one's control (Ajzen, 2002). In TPB terms, PBC is distinct from desirability: it does not primarily reflect whether entrepreneurship is attractive, but whether the individual believes she can successfully initiate and manage entrepreneurial tasks.

TPB further implies that PBC is shaped by both internal resources (e.g., self-efficacy, knowledge, skills) and perceptions of external constraints that may facilitate or hinder action (Armitage & Conner, 2001). Translating this into women's entrepreneurship, PBC becomes a theoretically meaningful construct because gendered institutions and social structures can affect whether entrepreneurship is experienced as feasible. When women perceive limited access to resources, networks, or knowledge needed to operate a business, their PBC declines, weakening entrepreneurial intention. Conversely, when perceived barriers are reduced and capability is recognized, whether through training, information, or more supportive entrepreneurial conditions, PBC increases and intention strengthens.

In Oman, TPB studies focusing on women's entrepreneurial outcomes indicate that perceived behavioural control is often among the key predictors of entrepreneurial intention. For instance, work examining entrepreneurial intention among Omani female students reports that perceived behavioural control is a primary determinant of intention (Echchabi et al., 2020). While

student-based samples are not identical to GEM adult females, such findings are theoretically consistent with TPB: feasibility beliefs and perceived capability are central for translating motivations into intended action. Additional Oman-based TPB evidence similarly supports the relevance of TPB constructs for explaining entrepreneurial intention (Tahir, 2021). Together, these studies reinforce the theoretical expectation that PBC should positively influence entrepreneurial intention among Omani women. **Accordingly, for RQ3, the hypothesis-consistent expectation is that higher perceived behavioural control will increase entrepreneurial intention among Omani women.**

2.6 The Intention–Behaviour Relationship and the Mediating Role of Start-Up Intention

A central proposition of the Theory of Planned Behaviour (TPB) is that entrepreneurial intention is the most proximal determinant of planned behaviour. In TPB, attitudes toward entrepreneurship, subjective norms, and perceived behavioural control influence behaviour primarily through their effects on entrepreneurial intention, which represents an individual's motivational commitment to perform the start-up act (Ajzen, 1991). Thus, TPB provides an explicit intention-based mechanism for entrepreneurship: cognitive evaluations (attitude), perceived legitimacy and approval (subjective norms), and feasibility beliefs (perceived behavioural control) shape intention, and intention is expected to translate into planned entrepreneurial action.

Crucially, longitudinal research supports the robustness of the intention→behaviour link. Kautonen et al. (2015) demonstrate the relevance and robustness of TPB for predicting both entrepreneurial start-up intentions and subsequent behaviour, directly addressing a key gap in earlier work that often-examined intention without adequately studying the translation to action. Building on similar reasoning, entrepreneurship education and related training effects have also been shown to operate through TPB pathways toward intention, with TPB functioning as a mediator between antecedents and entrepreneurial readiness and action orientation (Hassan et al., 2024). While such evidence may not always measure start-up behaviour directly, it supports the broader TPB mechanism that intention is a meaningful intermediate state.

Beyond intention itself, research also indicates that the relative strength and functioning of TPB components can vary by context and group membership. For example, Ruizalba Robledo et al. (2015) apply a TPB perspective and examine gender-relevant patterns, showing that TPB

relationships with entrepreneurial intention can differ, while also highlighting the role of normative and feasibility beliefs in entrepreneurial decision-making. Additional TPB work considering gender in entrepreneurial behaviour further suggests that social norms and feasibility perceptions may contribute differentially to intentions and behavioural outcomes across groups (Ruiz-Alba et al., 2014). Together, these studies reinforce the theoretical view that intentions are not formed in a vacuum but emerge from belief structures that may be differently constrained or enabled for women.

For the present study, these arguments are particularly relevant for Omani women because the progression from motivation to start-up behaviour can be conditioned by opportunity recognition, resource availability, and the institutional feasibility of implementation—factors that TPB conceptualises as constraints interacting with intention (Kautonen et al., 2015). Therefore, although cross-sectional mediation cannot fully establish temporal ordering, the study treats **start-up intention** as the mediating mechanism through which attitudes, subjective norms, and perceived behavioural control affect the likelihood of starting a new business, while interpreting the mediation logic in a theory-guided and cautious manner (Carsrud & Brännback, 2011; Ajzen, 1991).

RQ4 implication. Accordingly, attitude, subjective norms, and perceived behavioural control are expected to increase entrepreneurial intention among Omani women, and stronger entrepreneurial intention is expected to translate into a higher likelihood of starting a new business capturing the core TPB intention→behaviour mechanism.

2.7 Women's Entrepreneurship in the GCC and Oman

The Gulf Cooperation Council (GCC) is characterized by an interplay between state-led economic modernization and gendered expectations regarding women's participation in public and economic life. On the one hand, economic development and diversification strategies have expanded entrepreneurial opportunities and formal support mechanisms. On the other hand, cultural and social norms continue to shape the perceived legitimacy, visibility, and appropriateness of women's engagement in entrepreneurial roles (Al-Asfour & Tlaiss, 2022; Tlaiss, 2015). Within a TPB perspective, this means that women's entrepreneurial decisions are likely to be influenced not only by individual evaluations of entrepreneurship, but also by the social approval embedded in subjective norms and by feasibility perceptions embedded in perceived behavioural control.

In Oman, women's educational attainment has improved markedly; nevertheless, women's entrepreneurial participation remains substantially lower than men's (SME Development Authority, 2020; World Bank, 2022). This persistent gap suggests that differences in human capital alone do not fully explain women's underrepresentation in entrepreneurship. Instead, the evidence is consistent with the theoretical view that psychological beliefs (attitudes toward entrepreneurship), socially transmitted expectations (subjective norms), and perceived feasibility under institutional and resource constraints (perceived behavioural control) jointly condition entrepreneurial intention. Empirical research addressing women's entrepreneurship in Oman has provided valuable qualitative and descriptive insights (Belwal et al., 2014; Ghouse et al., 2021; Magd & Thirumalaisamy, 2021). However, there remains a research gap regarding whether TPB constructs attitude, subjective norms, and perceived behavioural control—can explain women's entrepreneurial intention using nationally comparable evidence. Addressing this gap is important because it shifts the explanation of low female entrepreneurship from static background factors toward measurable cognitive and social mechanisms that can inform targeted policy and interventions.

3. Theoretical Framework

This study is grounded in the Theory of Planned Behaviour (TPB) (Ajzen, 1991). TPB is selected over alternative entrepreneurial-intention frameworks—such as Shapero and Sokol's (1982) entrepreneurial event model and Krueger et al.'s (2000) entrepreneurial potential approach—because (i) its three-construct architecture closely matches the variables available in the GEM 2020 Oman dataset, (ii) TPB has shown strong cross-cultural predictive performance in entrepreneurial-intention research (Schlaegel & Koenig, 2014), and (iii) TPB explicitly conceptualizes intention as the motivational precursor through which cognitive and social antecedents influence planned behaviour.

Accordingly, the conceptual model includes five constructs organized across three analytical layers. At the first layer, TPB antecedents are specified as independent variables: attitude toward entrepreneurship (ATE), subjective norms (SN), and perceived behavioural control (PBC). ATE is operationalized using perceived opportunity (PO) and fear of failure (FF). SN is operationalized through entrepreneurial network exposure (NW), media-based motivation (MOTIV), social respect (RESPC), social welfare orientation (SW), and sense of equality

(SOE). PBC is operationalized using perceived entrepreneurial capability (SECC) and perceived ease of starting a business (ES).

At the second layer, start-up intention (SI) is modelled as the mediating mechanism linking TPB antecedents to entrepreneurial action. Finally, at the third layer, the dependent variable is total early-stage entrepreneurial activity (TEA), consistent with GEM's definition of active involvement in starting or managing a business that is less than 42 months old.

The model specifies the following pathways: ATE → SI → TEA; SN → SI → TEA; and PBC → SI → TEA. Each antecedent may also exert a direct effect on TEA beyond its indirect association via SI, consistent with the possibility of partial mediation in TPB research (Ajzen, 1991; Kautonen et al., 2015). The model is shown in Fig. 1.

3.2 Construct Definitions and hypothesis development

Attitude toward entrepreneurship (ATE) refers to a positive or negative personal evaluation of entrepreneurial behaviour, including perceived opportunity and fear of failure (Ajzen, 1991; Liñán & Chen, 2009). Subjective norms (SN) refer to perceived social pressure from significant others and wider society (Ajzen, 1991; Kautonen et al., 2015). Perceived behavioural control (PBC) refers to perceived capability and feasibility, including self-efficacy and external controllability (Ajzen, 2002; Bandura, 1997). Start-up intention (SI) is a conscious plan or motivation to start a business. TEA is the observed behavioural outcome, defined as involvement in nascent or new entrepreneurial activity.

The GEM SECC item captures whether respondents believe they have the knowledge, skills and experience required to start a business. It is therefore treated primarily as a perceived entrepreneurial capability indicator within PBC. The item does not capture the full multidimensionality of entrepreneurial self-efficacy and should not be read as a direct measure of career attractiveness. This construct-proxy limitation is discussed in Section 8.3.

H1: Attitude toward entrepreneurship significantly predicts start-up intention among Omani women: perceived opportunity increases intention, whereas fear of failure decreases intention.

H2: Subjective norms significantly and positively predict start-up intention among Omani women.

H3: Perceived behavioural control, represented by perceived entrepreneurial capability and perceived institutional ease, significantly and positively predicts start-up intention among Omani women.

H4: Start-up intention shows a pattern consistent with partial mediation between selected TPB antecedents and TEA among Omani women.

H5: Start-up intention significantly and positively predicts TEA among Omani women.

3. Methodology

This study adopts a quantitative, cross-sectional design and a deductive analytical approach. Using secondary survey data, it tests theory-derived hypotheses by examining associations among TPB constructs and entrepreneurial outcomes. This strategy is appropriate for hypothesis testing within entrepreneurial-intention research because it allows structured evaluation of relationships implied by the Theory of Planned Behaviour (Liñán & Fayolle, 2015; Schlaegel & Koenig, 2014). Because the data are cross-sectional, the findings are interpreted as indicative of associations rather than establishing causal effects.

3.1 Data source

Secondary data are drawn from the Global Entrepreneurship Monitor (GEM) 2020 Adult Population Survey (APS) for Oman. GEM is an internationally coordinated program that measures entrepreneurial attitudes, activity, and aspirations across economies using a standardized instrument administered to nationally designed samples of adults aged 18–64 (Bosma et al., 2020). GEM data were selected because they provide harmonized measures, documented sampling protocols, cross-national comparability, and public accessibility via the GEM Data Hub. In the reported analyses, population weights were not applied; therefore, the results should be interpreted as associations within the analytical female sample rather than as population-weighted national prevalence estimates.

3.2 Sample

The analytical sample comprised 988 women aged 18–64 from the GEM 2020 Oman Adult Population Survey (APS). Only female respondents were retained because the study focuses on women's entrepreneurial intentions. To ensure data completeness for model estimation, all variables included in the analysis had complete observations for the retained sample.Because the 2020 survey coincided with the early COVID-19 period, perceptions of opportunity, fear

of failure, and ease of starting may reflect pandemic-related uncertainty; this boundary condition is acknowledged in Section

3.3 Variable Operationalisation

All variables were operationalised using binary GEM items coded 1 (yes) and 0 (else), consistent with GEM APS coding. Table 1 presents the variable operationalisation and TPB construct assignment.

Table 1. Variable operationalisation, GEM item wording, and TPB construct assignment.

Construct	Code	GEM Item	Coding	TPB Role
Dependent Variable				
Start a new business	TEA	Reporting new start-up venture	1=yes; 0=else	Dependent variable
Mediating Variable				
Start-up intention	SI	Do you expect to start a business within 3 years?	1=yes; 0=else	Mediator
A. Attitude toward Entrepreneurship (ATE)				
Perceived opportunity	PO	In the next 6 months, will there be good opportunities for starting a business in the area where you live?	1=yes; 0=else	Attitude (positive)
Fear of failure	FF	Would fear of failure prevent you from starting a business?	1=yes; 0=else	Attitude (inhibitor)
B. Subjective Norms (SN)				
Network	NW	Do you personally know someone who started a business in the past 2 years?	1=yes; 0=else	Descriptive norm

Motivation (media)	MOTIV	In my country, you will often see stories in the public media about successful new businesses.	1=yes; 0=else	Injunctive norm
Respect	RESPC	In my country, those successful at starting a new business have a high level of status and respect.	1=yes; 0=else	Injunctive norm
Social welfare	SW	In my country, you will often see businesses that primarily aim to solve social problems.	1=yes; 0=else	Injunctive norm
Sense of equality	SOE	In my country, most people would prefer that everyone has a similar standard of living.	1=yes; 0=else	Normative context
C. Perceived Behavioural Control (PBC)				
Perceived entrepreneurial capability (SECC)*	SECC	Do you have the knowledge, skills, and experience required to start a new business?	1=yes; 0=else	PBC (capability)*
Ease of starting	ES	In my country, it is easy to start a business.	1=yes; 0=else	PBC (external)

Note. *SECC is treated as a binary proxy for perceived entrepreneurial capability within PBC; see Section 3.4 and Limitation 8.3. TEA = total early-stage entrepreneurial activity; SI = start-up intention; ATE = attitude toward entrepreneurship; SN = subjective norms; PBC = perceived behavioural control.

3.4 Analytical Strategy

Descriptive statistics and bivariate correlations were conducted in IBM SPSS Statistics. Binary logistic regression analyses were conducted in Stata. All tests were two-tailed and interpreted at $\alpha = 0.05$. Odds ratios (ORs), 95% confidence intervals (CIs), Wald statistics, and model-fit indicators are reported where appropriate. Three sequential models were estimated.

For construct-level reporting, the TPB indicators were organized into theory-based blocks corresponding to ATE, SN, and PBC. Composite coefficients reported for ATE, SN and PBC are treated as block-level summary indicators from the original analysis, while item-level coefficients are reported alongside them to preserve transparency. Because all indicators are binary, no latent measurement model is implied, and substantive interpretation prioritizes the item-level pattern where composite construction could affect interpretation.

Model 1: direct effects of TPB antecedents on SI (H1–H3). Three binary logistic regression analyses examined the predictive effects of each TPB antecedent group on SI. Results are reported as ORs with 95% CIs, Wald statistics, and model-fit indices, including the Hosmer–Lemeshow goodness-of-fit test and Nagelkerke R^2.

Model 2: intermediate-pathway patterns (H4-H5). The role of SI as an intermediate pathway between TPB antecedents and TEA was examined through sequential binary logistic regression informed by Baron and Kenny's (1986) causal-steps logic. For each antecedent group, two models were compared: the direct association with TEA and the association with TEA after adding SI as a covariate. A reduction in the antecedent coefficient after adding SI was interpreted as pattern-consistent with mediation. Because this approach does not estimate bootstrapped indirect effects or indirect-effect confidence intervals, the mediation findings are treated as indicative rather than definitive (MacKinnon et al., 2007; Hayes, 2022).

Model 3 directly assesses how PBC indicators influence TEA without including SI, serving as a baseline for evaluating mediation effects.

3.5 Measurement Considerations

Using binary GEM items as proxies for TPB constructs imposes certain measurement limitations. Dichotomising these items may decrease statistical accuracy and oversimplify nuanced constructs (MacCallum et al., 2002). However, previous GEM-based entrepreneurship research has also relied on similar binary indicators to represent TPB constructs (Ahmad et al., 2014; Ali & Jabeen, 2020; Jeon, 2018). Section 8 will revisit the drawbacks of this measurement method.

4.6 Ethical Considerations and Data Availability

This study used anonymized, publicly available secondary data from the GEM APS. The authors collected no primary data and conducted no new participant recruitment. GEM data collection follows standardized procedures administered by national teams (Bosma et al., 2020). The dataset is available from the GEM Data Hub following registration.

4. Results and Discussion

4.1 Overview of Analytical Approach

Results are reported in three stages. Section 5.2 presents descriptive statistics and correlations. Sections 5.3–5.5 report direct effects of each TPB antecedent group on SI (Model 1; H1–H3). Section 5.6 reports the sequential logistic regression analysis examining SI's mediating role (Model 2; H4–H5). Section 5.7 presents the supplementary direct-effect analysis (Model 3). Section 5.8 summarises hypothesis outcomes. In all logistic regression models, the reference category is 0 (no start-up intention; no entrepreneurial activity).

Table 2 reports descriptive statistics for the study variables (N = 988). Of the 988 women, 173 (17.51%) reported TEA and 556 (56.28%) reported start-up intention. Among attitude indicators, 79.86% perceived good entrepreneurial opportunities and 41.80% reported fear of failure. Among subjective norm indicators, 73.18% reported network exposure, 81.28% reported media-based motivation, 81.58% reported respect for entrepreneurs, 38.87% reported social-welfare orientation and 56.07% reported a sense of equality. Among PBC indicators, 72.98% reported perceived entrepreneurial capability and 58.20% perceived ease of starting a business.

Table 2. Descriptive statistics for all study variables (N = 988).

Variable	N	Min	Max	Mean	SD	Construct
TEA	988	0	1	0.18	0.38	Dependent variable
SI	988	0	1	0.58	0.49	Mediator
PO	988	0	1	0.80	0.40	Attitude
FF	988	0	1	0.42	0.49	Attitude
NW	988	0	1	0.73	0.44	Subj. norms

MOTIV	988	0	1	0.81	0.39	Subj. norms
RESPC	988	0	1	0.82	0.39	Subj. norms
SW	988	0	1	0.39	0.49	Subj. norms
SOE	988	0	1	0.56	0.50	Subj. norms
SECC	988	0	1	0.73	0.44	PBC
ES	988	0	1	0.58	0.50	PBC

Note. All variables are binary (1 = yes, 0 = else). SD = standard deviation. TEA = total early-stage entrepreneurial activity; SI = start-up intention; PO = perceived opportunity; FF = fear of failure; NW = network; MOTIV = motivation; RESPC = respect; SW = social welfare; SOE = sense of equality; SECC = perceived entrepreneurial capability; ES = ease of starting.

Table 3 below shows Binary logistic regression results: TPB antecedents predicting start-up intention (Models 1a, 1b, 1c). The inter-variable correlations were generally weak ($r < 0.30$), consistent with the binary measurement format. The SECC–SI correlation ($r = 0.27$) was the strongest bivariate association in the matrix. MOTIV showed meaningful correlations with RESPC ($r = 0.25$) and ES ($r = 0.19$). FF showed negative correlations with SI ($r = -0.10$) and ES ($r = -0.11$). Given the binary format of all variables, the multivariate logistic regression results presented in Sections 5.3–5.7 are the primary basis for interpreting construct-level relationships.

The attitude model was statistically significant ($\chi^2(3) = 29.39$, $p < 0.05$), with adequate calibration indicated by the Hosmer–Lemeshow test ($\chi^2(4) = 1.37$, $p > 0.05$). Nagelkerke R^2 was 0.039. Perceived opportunity was a significant positive predictor of SI (OR = 1.929, 95% CI [1.398, 2.661], $p < 0.001$), while fear of failure was a significant negative predictor (OR = 0.677, 95% CI [0.522, 0.880], $p < 0.01$). SECC was not significant in this attitude-block model ($p = 0.243$), and the composite ATE variable approached but did not reach conventional significance ($p = 0.086$). H1 is therefore partially supported (see table 6) .

The subjective-norms model was statistically significant ($\chi^2(5) = 45.55$, $p < 0.05$), with adequate calibration (Hosmer–Lemeshow $\chi^2(6) = 4.65$, $p > 0.05$) and Nagelkerke R^2 of 0.060. The composite SN variable was the strongest grouped predictor of SI across the antecedent models (OR = 4.102, 95% CI [2.292, 7.341], $p < 0.001$). Among individual indicators, media-based motivation (OR = 2.198, 95% CI [1.564, 3.090], $p < 0.001$) and social-welfare orientation

(OR = 1.799, 95% CI [1.364, 2.373], p < 0.001) were significant. NW, RESPC and SOE were not individually significant. H2 is supported (see table 6) .

The PBC model was statistically significant ($\chi^2(2) = 70.17$, $p < 0.001$), with adequate calibration (Hosmer-Lemeshow $\chi^2(3) = 0.33$, $p > 0.05$). Nagelkerke R^2 was 0.090, the highest among the three antecedent models. The composite PBC variable significantly predicted SI (OR = 3.463, 95% CI [2.358, 5.087], p < 0.001). Perceived entrepreneurial capability (SECC) was the strongest individual predictor of SI in the study (OR = 3.354, 95% CI [2.502, 4.496], p < 0.001), whereas ES was not significant (p = 0.299). H3 is supported (see table 6) .

[Insert Table 3 here] Table 3. Binary logistic regression results: TPB antecedents predicting start-up intention (Models 1a, 1b, 1c).

Variable	B	SE	Wald	df	p	OR	95% CI Lower	95% CI Upper
Model 1a: Attitude toward entrepreneurship → Start-up intention [$\chi^2(3)=29.39$, $p<0.05$; Nagelkerke $R^2=0.039$; H-L $\chi^2(4)=1.37$, ns]								
ATE (composite)	0.407	0.238	2.941	1	0.086	1.503	0.943	2.394
Perceived opportunity (PO)	0.657	0.164	15.996	1	<0.001	1.929	1.398	2.661
SECC (in Attitude block)	0.158	0.135	1.361	1	0.243	1.171	0.898	1.526
Fear of failure (FF)	-0.389	0.133	8.523	1	0.004	0.677	0.522	0.880
Model 1b: Subjective norms → Start-up intention [$\chi^2(5)=45.55$, $p<0.05$; Nagelkerke $R^2=0.060$; H-L $\chi^2(6)=4.65$, ns]								
SN (composite)	1.411	0.297	22.588	1	<0.001	4.102	2.292	7.341
Network (NW)	-0.076	0.151	0.257	1	0.612	0.926	0.690	1.244
Motivation (MOTIV)	0.788	0.174	20.555	1	<0.001	2.198	1.564	3.090

Respect (RESPC)	0.104	0.175	0.354	1	0.552	1.110	0.788	1.564
Social welfare (SW)	0.587	0.141	17.299	1	<0.001	1.799	1.364	2.373
Sense of equality (SOE)	-0.046	0.137	0.112	1	0.738	0.955	0.730	1.250
Model 1c: Perceived behavioural control → Start-up intention [$\chi^2(2)=70.17$, $p<0.001$; Nagelkerke $R^2=0.090$; H-L $\chi^2(3)=0.33$, ns]								
PBC (composite)	1.242	0.196	40.081	1	<0.001	3.463	2.358	5.087
Perceived entrepreneurial capability (SECC)	1.210	0.150	65.501	1	<0.001	3.354	2.502	4.496
Ease of starting (ES)	0.140	0.135	1.077	1	0.299	1.150	0.883	1.498

*Note. OR = odds ratio; CI = confidence interval; H-L = Hosmer–Lemeshow goodness-of-fit test; ns = non-significant. ATE = composite attitude; SN = composite subjective norms; PBC = composite perceived behavioural control. *p < 0.05; **p < 0.01; ***p < 0.001.*

Table 4 below shows Sequential logistic regression results: TPB antecedents predicting TEA with start-up intention as covariate (Models 2a, 2b, 2c). The intermediate-pathway analyses are interpreted cautiously. They are based on pattern consistency across sequential logistic regression models and do not constitute formal indirect-effect tests.

H5 direct effect of SI on TEA: SI was a statistically significant positive predictor of TEA across all Model 2 analyses (all $p < 0.05$). H5 is supported (see table 6)

Model 2a: attitude antecedents and TEA with SI (Table 4). The model was significant (LR $\chi^2(4) = 80.60$, $p < 0.001$; pseudo-$R^2 = 0.09$). With SI included, ATE remained significant (OR = 2.29, $p = 0.009$), SECC was significant (OR = 4.19, $p < 0.001$) and FF remained significant (OR = 0.47, $p < 0.001$). PO was not significant ($p = 0.690$), a pattern consistent with PO operating through SI.

Model 2b: subjective-norm antecedents and TEA with SI. The model was significant (LR $\chi^2(6) = 35.04$, $p < 0.001$; pseudo $R^2 = 0.04$). With SI included, SN remained significant (OR = 3.00, $p = 0.010$). NW (OR = 2.96, $p < 0.001$) and MOTIV (OR = 1.94, $p = 0.010$) were significant alongside SI. Because NW and MOTIV were not significant individual predictors of SI in Model 1b, this pattern is not consistent with straightforward mediation and is discussed in Section 6.

Model 2c: PBC antecedents and TEA with SI. The model was significant (LR $\chi^2(3) = 27.53$, $p < 0.001$; pseudo $R^2 = 0.03$). With SI included, PBC remained significant (OR = 2.52, p = 0.001). ES was significant alongside SI (OR = 2.48, $p < 0.001$), while SECC was not significant once SI was controlled (p = 0.569), a pattern consistent with SECC operating through SI.

H4 is partially supported on a pattern-consistent, non-causal basis (see Table 6) .

[Insert Table 4 here] Table 4. Sequential logistic regression results: TPB antecedents predicting TEA with start-up intention as covariate (Models 2a, 2b, 2c).

Variable	B	SE	Z	p	OR	95% CI Lower	95% CI Upper
Model 2a: Attitude antecedents → TEA (with SI as covariate) [LR $\chi^2(4)=80.60$, $p<0.001$; Pseudo $R^2=0.09$]							
ATE (composite)	0.83	0.32	2.60	0.009	2.29	1.22	4.31
Perceived opportunity (PO)	0.10	0.24	0.40	0.690	1.10	0.68	1.78
SECC (in Attitude block)	1.43	0.22	6.58	<0.001	4.19	2.74	6.42
Fear of failure (FF)	-0.75	0.19	-3.89	<0.001	0.47	0.32	0.69
Model 2b: Subjective norm antecedents → TEA (with SI as covariate) [LR $\chi^2(6)=35.04$, $p<0.001$; Pseudo $R^2=0.04$]							
SN (composite)	1.09	0.39	2.80	0.010	3.00	1.39	6.49
Network (NW)	1.08	0.24	4.47	<0.001	2.96	1.84	4.76
Motivation (MOTIV)	0.66	0.27	2.48	0.010	1.94	1.15	3.27
Respect (RESPC)	-0.21	0.23	-0.94	0.350	0.81	0.52	1.26
Social welfare (SW)	-0.19	0.18	-1.07	0.290	0.82	0.58	1.18
Sense of equality (SOE)	0.27	0.18	1.52	0.130	1.31	0.92	1.85

Model 2c: PBC antecedents → TEA (with SI as covariate) [LR $\chi^2(3)=27.53$, $p<0.001$; Pseudo $R^2=0.03$]							
PBC (composite)	0.92	0.27	3.43	0.001	2.52	1.48	4.26
Perceived entrepreneurial capability (SECC)	-0.11	0.20	-0.57	0.569	0.89	0.61	1.32
Ease of starting (ES)	0.91	0.19	4.87	<0.001	2.48	1.72	3.57

*Note. OR = odds ratio; CI = confidence interval; TEA = total early-stage entrepreneurial activity; SI = start-up intention included as a covariate in all models. Mediation interpretations are based on pattern consistency and should be treated as indicative. *p < 0.05; **p < 0.01; ***p < 0.001.*

Table 5 below shows the Supplementary analysis: Perceived behavioral control predicting total early-stage entrepreneurial activity without start-up intention covariate (Model 3). The model was significant ($\chi^2(1) = 13.61$, $p < 0.05$; Nagelkerke $R^2 = 0.023$). ES was a significant positive predictor of TEA (OR = 2.49, 95% CI [1.73, 3.58], $p < 0.001$), while SECC was not significant ($p = 0.790$). The PBC composite was also significant (OR = 2.58, $p < 0.01$). ES retained significance whether or not SI was included as a covariate.

[Insert Table 5 here.] Table 5. Supplementary analysis: Perceived behavioural control predicting total early-stage entrepreneurial activity without start-up intention covariate (Model 3).

Variable	**B**	**SE**	**Wald**	**df**	**p**	**OR**	**95% CI**
PBC (composite)	0.95	0.26	12.88	1	<0.001	2.58	1.54–4.34
Perceived entrepreneurial capability (SECC)	-0.05	0.19	0.07	1	0.790	0.95	0.65–1.38
Ease of starting (ES)	0.91	0.19	24.04	1	<0.001	2.49	1.73–3.58

[Insert Table 6 here.] Table 6. Summary of hypothesis outcomes.

H	**Relationship**	**Predicted Direction**	**Key Statistical Result**	**Outcome**
H1	Attitude (ATE) → Start-up intention (SI)	PO: positive FF: negative	PO: OR=1.929, p<0.001 FF: OR=0.677, p<0.01 SECC: p=0.243 (ns) in ATE block	Partially supported

			ATE composite: p=0.086 (ns)	
H2	Subjective norms (SN) → Start-up intention (SI)	Positive	SN composite: OR=4.102, p<0.001 MOTIV: OR=2.198, p<0.001 SW: OR=1.799, p<0.001	Supported
H3	Perceived behavioural control (PBC) → Start-up intention (SI)	Positive	PBC composite: OR=3.463, p<0.001 SECC: OR=3.354, p<0.001 ES: p=0.299 (ns)	Supported
H4	SI mediates ATE/SN/PBC → TEA (partial, selected predictors)	Partial mediation	PO→TEA and SECC→TEA patterns consistent with mediation; SECC (Attitude block) and FF retain direct effects; NW and MOTIV show unexpected direct paths on TEA	Partially supported (pattern-consistent)
H5	Start-up intention (SI) → Total early-stage entrepreneurial activity (TEA)	Positive	SI significant predictor of TEA across all Model 2 analyses, p<0.05	Supported

Note. OR = odds ratio; ns = not significant (p > 0.05); TEA = total early-stage entrepreneurial activity; SI = start-up intention. Mediation findings (H4) are based on pattern consistency across sequential logistic regression models and should be interpreted as indicative rather than formally confirmed. All analyses: N = 988.

4.2 Model-fit

Nagelkerke R^2 values ranged from 0.039 to 0.090 across Model 1 analyses. This modest explanatory power likely results from the binary single-item measurement, sample heterogeneity, unweighted estimation, and the lack of variables such as access to financing, prior entrepreneurial experience, and household constraints. Hosmer-Lemeshow tests were non-significant in all Model 1 analyses, suggesting good calibration. Therefore, odds ratios

should be viewed as indicative of directional and comparative relationships, rather than definitive explanations of women's entrepreneurial intentions. The limited explanatory power is acknowledged as a limitation in Section 8.

4.3 Discussion

This study explored the factors influencing women's entrepreneurial intentions and how these intentions relate to early entrepreneurial activity in Oman, using TPB and GEM 2020 data from 988 women. The results confirm the usefulness of TPB in this setting, although they reveal that the importance of its components varies from the typical patterns observed in Western-focused studies.

The findings largely endorse TPB's relevance to women's entrepreneurial intentions in Oman. All three antecedent composites predicted SI, which in turn predicted TEA. This aligns with TPB (Ajzen, 1991) and aligns with previous GEM-based studies in emerging economies (Ahmad et al., 2014; Ali & Jabeen, 2020). The relatively low Nagelkerke R^2 values should not be viewed as a model failure; instead, they indicate the limitations of single-item binary proxies and suggest that unmeasured contextual factors may also influence intention.

The key finding is that subjective norms are the most significant predictor of SI, with an OR of 4.102. Unlike many Western TPB studies, where attitude and PBC typically have greater influence (Krueger et al., 2000; Schlaegel & Koenig, 2014), this result supports the idea that social approval becomes more prominent in collectivist and high-uncertainty-avoidance environments (Iakovleva et al., 2011; Martínez-González et al., 2021). Additionally, cross-cultural data indicating larger gender differences in entrepreneurial attitudes in high uncertainty-avoidance settings further underpin this contextual explanation (Steinmetz et al., 2021).

In Oman, this pattern may reflect family-oriented decision-making and community-based legitimation norms associated with GCC social organisation (Al-Asfour & Tlaiss, 2022; Tlaiss, 2015). However, this interpretation should be treated cautiously because the GEM data do not allow subgroup analyses by family structure, education, governorate or age cohort. Within the subjective-norms block, media-based motivation and social-welfare orientation were the significant individual drivers, suggesting that public narratives of entrepreneurial success and social value may be especially relevant to Omani women's start-up intentions.

Fear of failure was a significant negative predictor of SI (OR = 0.677, $p < 0.01$), and 41.80% of respondents reported it as a barrier. This finding is consistent with studies identifying fear of failure as a robust inhibitor of entrepreneurial intention in uncertain environments (Cacciotti & Hayton, 2015; Shinnar et al., 2012; Youssef et al., 2021). Fear of failure also retained a direct negative association with TEA (OR = 0.47), suggesting that it may suppress both intention formation and the movement from intention to action.

The key theoretical contribution of the study is the distinction between SECC and ES. Perceived entrepreneurial capability (SECC) was the strongest predictor of SI but did not forecast TEA when SI was accounted for. Conversely, ES did not influence SI but showed a strong link to TEA. This difference aligns with Ajzen's (2002) differentiation between self-efficacy and controllability within perceived behavioral control (PBC). Beliefs about internal capability influence women's intentions to start a business, while perceptions of institutional accessibility impact whether they follow through on those intentions. This insight advances the understanding of the intention-behavior gap (Carsrud & Brännback, 2011; Kautonen et al., 2015) by showing a stage-specific mechanism in an emerging GCC economy: capability fosters intention formation, and institutional ease facilitates action. However, the interpretation is tentative because SECC is based on a single GEM measure and does not capture the full complexity of entrepreneurial self-efficacy.

The sequential logistic regression results align with SI acting as an intermediate step for certain antecedent-TEA links. PO predicted SI but not TEA after controlling for SI, and SECC predicted SI but not TEA when SI was included. These findings support earlier GEM-based evidence and the TPB's idea that intention is a proximal predictor (Ali & Jabeen, 2020; Kautonen et al., 2015). However, since the analysis did not calculate bootstrapped indirect effects and relies on cross-sectional data, these results should be considered exploratory. The unexpected discovery that NW and MOTIV predicted TEA but not SI indicates that network exposure and media motivation might influence entrepreneurial action via social capital or informational resources rather than through intention alone (Nahapiet & Ghoshal, 1998).

5. Theoretical Contributions

The study provides three main theoretical contributions. First, it outlines a stage-specific PBC mechanism: perceived entrepreneurial capability influences intention formation, while perceived institutional ease impacts actual action. Second, it broadens TPB evidence to include women's entrepreneurship within a GCC economy, highlighting how the importance of

antecedents varies by context, especially emphasizing the increased significance of subjective norms. Third, it proposes that TPB could be enhanced by incorporating perspectives on institutional and social capital to better explain the progression from entrepreneurial intention to activity.

6. Implications

The divergence from SECC to SI and from ES to TEA inspires stage-specific TPB models that differentiate between factors influencing intention formation and those affecting venture implementation. Different implications of this research as shown in Table 7. First, the prominence of subjective norms also underscores that cultural and institutional contexts shape TPB relationships, as noted by Martínez-González et al. (2021). Future research should therefore incorporate TPB alongside institutional theory and social capital theory to better explain how legitimacy, capability, and access interact throughout the entrepreneurial journey (Nahapiet & Ghoshal, 1998; Scott, 2014).

Initially, perceived entrepreneurial capability (SECC) was the strongest predictor of SI (OR = 3.354). This indicates that entrepreneurship training for Omani women should concentrate on enhancing capability beliefs through mastery experiences, gradually increasing task difficulty, and exposure to successful female entrepreneurs (Bandura, 1997). Support organizations, such as government-linked incubators and programs like Injaz Oman, should assess capability beliefs as a key training outcome, rather than just tracking participation.

Second, the distinction between SECC and ES suggests a two-phase support approach. The first phase emphasizes fostering intention via capability building and social-norm legitimation. The second phase concentrates on implementing ventures through institutional navigation, regulatory assistance, and resource access. The difference between SI (56.28%) and TEA (17.51%) shows that many who hold intentions need further support to turn their plans into actual actions.

Third, emphasizing media-driven motivation and social-welfare focus indicates that entrepreneurship campaigns could be more impactful if they present women-led businesses as not only economically valuable but also socially beneficial. These campaigns ought to spotlight Omani women entrepreneurs who generate employment, address community issues, and support the goals of Vision 2040.

Fourth, since fear of failure inhibits both SI and TEA, mentorship programs should incorporate structured conversations about risk, recovery, and lessons from unsuccessful ventures. Peer mentoring by seasoned women entrepreneurs can help normalize entrepreneurial setbacks and diminish the personal stigma associated with failure.

Initially, ES forecasts TEA but not SI, indicating that simplifying institutions is particularly crucial during the venture-execution phase. The Ministry of Commerce, Industry and Investment Promotion along with the SME Development Authority should focus on streamlining registration processes, lowering compliance costs for micro-enterprises, and providing accessible start-up financing for women. These initiatives should be assessed regularly by monitoring women's perceptions of how easy it is to start a business, as outlined by the Oman Vision 2040 Implementation Follow-up Unit (2021).

Secondly, interventions centered on financing should be combined with structured skill development. Evaluation frameworks ought to track changes in perceived entrepreneurial skills and start-up intentions before and after the intervention, in addition to assessing financial or business plan results.

Third, since subjective norms strongly influence SI, the organizations tasked with implementing Vision 2040 should raise awareness of successful Omani women entrepreneurs via media, educational programs, and community platforms. The notable MOTIV effect indicates that public stories can serve as motivational signals.

Fourth, universities should incorporate experiential entrepreneurship education, peer networks, and interactions with successful women entrepreneurs into their curricula. Partnering with the SME Development Authority would enable universities to monitor start-up intentions, perceived entrepreneurial skills, and initial entrepreneurial activities as results of their programs.

Fifth, the negative effect of fear of failure points to a policy gap. Policymakers should explore business-failure recovery mechanisms, including clearer micro-enterprise insolvency procedures, graduated liability frameworks and re-entry support that reduce the personal cost of unsuccessful entrepreneurial attempts.

[Insert Table 3 here.] Table 7. Evidence-based implications for strengthening women's entrepreneurial participation in Oman.

Empirical finding	Recommended intervention	Primary actors

Subjective norms and media motivation predict start-up intention.	Increase the visibility of credible Omani women entrepreneurs through media, community and university platforms.	SME Development Authority; universities; media organisations; Vision 2040 bodies
Fear of failure inhibits intention and activity.	Provide mentoring, risk-literacy training, failure-recovery guidance and second-chance support for early-stage ventures.	Incubators; banks; entrepreneurship centres; policymakers
Perceived entrepreneurial capability predicts intention.	Use mastery-based training, venture simulations and role-model exposure; evaluate changes in capability beliefs, not only attendance.	Universities; training providers; government-linked programmes
Ease of starting predicts early-stage activity.	Simplify registration, licensing, compliance and access to micro-enterprise finance, especially at the launch stage.	Ministry of Commerce, Industry and Investment Promotion; SME Development Authority

Taken together, the findings support an integrated framework for action. Theoretically, they extend TPB by identifying stage-specific mechanisms and amplified social-norm effects. In practice, they support a two-phase model of intention-building followed by venture-execution support. At the policy level, Oman's women's entrepreneurship agenda is most likely to advance when interventions address psychological barriers, normative barriers and institutional barriers simultaneously, while recognising that these barriers operate at different stages of the entrepreneurial process.

7. Limitations

The GEM APS uses a cross-sectional design, limiting causal conclusions. Longitudinal studies are needed to explore the evolving relationships among antecedents, intentions, and activities over time, as outlined by the Theory of Planned Behavior (Kautonen et al., 2015). All variables were measured with binary GEM items, which may restrict construct detail and reduce the accuracy of statistical analysis (MacCallum et al., 2002). The SECC assesses respondents' perceptions of the knowledge, skills, and experience required to start a business, functioning

as a binary indicator of perceived entrepreneurial capability within perceived behavioral control (PBC), but it does not cover all aspects of entrepreneurial self-efficacy. The sequential logistic regression used does not examine indirect effects or provide confidence intervals for mediating pathways; future research should consider bootstrapped mediation analysis or structural equation modeling with categorical indicators (Hayes, 2022; MacKinnon & Dwyer, 1993). Data were collected in 2020 during the early COVID-19 pandemic, which may have affected perceptions of opportunities, fear of failure, and institutional ease. Since the study focuses on Oman, caution is advised when generalizing results to other Gulf Cooperation Council (GCC) countries. The GEM dataset lacks variables relevant to women's entrepreneurship in Oman, such as access to finance, prior entrepreneurial experience, household responsibilities, education, marital status, and sector-specific opportunities. Population weights were not applied, so results should be viewed as associations within the overall female sample rather than population-weighted estimates for all Omani women. The manuscript shows separate antecedent-block models and odds ratios. Including a comprehensive model with all predictors and calculating marginal effects and predicted probabilities would improve clarity and robustness, but this would require reanalyzing the original GEM data.

9. Future Research

Future research should track TPB antecedents, intentions, and activities over multiple time points to understand causal links and the durability of the intention–activity connection. Using tools like the Entrepreneurial Intent Questionnaire (Liñán & Chen, 2009) or Kolvereid's (1996) TPB scales can overcome binary measure limitations and differentiate self-efficacy from career attractiveness. Comparative studies based on GEM can assess if subjective norms' influence remains consistent across GCC and MENA economies and identify contextual moderators. Future work should use bootstrapped or Bayesian SEM with categorical indicators to improve mediation analysis (Hayes, 2022). Interviews with women who intend to start businesses but haven't can reveal barriers to acting on intentions. Additionally, GEM-based research should estimate all TPB predictors, including demographic controls, and report marginal effects or predicted probabilities to clarify logistic regression results for interdisciplinary audiences. Lastly, future efforts should examine whether interventions improving social legitimacy, capability development, and institutional ease effectively support women's transition from intention to early entrepreneurship over time.

10. Conclusion

Women's entrepreneurial participation in Oman remains below men's despite policy commitments under Vision 2040 and a growing support infrastructure. Applying TPB to GEM 2020 data from an unweighted analytical sample of 988 women, this study shows that subjective norms are the strongest grouped predictor of start-up intention, while media-based motivation and social-welfare orientation are key individual normative drivers. Perceived opportunity increases intention, fear of failure reduces it, and perceived entrepreneurial capability strongly predicts intention. Yet the conversion of intention into TEA appears to depend more on perceived ease of starting a business.

The study contributes to entrepreneurial intention research by extending TPB to a GCC emerging-economy context and identifying a stage-differentiated PBC mechanism. The findings support a two-phase intervention model: build intention through perceived capability and normative legitimation, then support venture execution through institutional navigation and access to resources.

For Oman, the findings suggest that women's entrepreneurship policy should move beyond finance alone. Effective support requires coordinated action that strengthens capability beliefs, increases social legitimacy, reduces fear of failure and simplifies the institutional pathway from intention to business creation. Such action would help translate women's human capital into entrepreneurial participation and support Oman's broader economic-diversification agenda.

Data availability

The data analyzed in this study are publicly available from the Global Entrepreneurship Monitor (GEM) Data Hub. The GEM 2020 Adult Population Survey dataset for Oman can be accessed after free registration at the GEM platform. The authors did not create or collect any new data.

Code availability

No custom software was developed for this study. Statistical analyses were conducted using standard procedures in IBM SPSS Statistics and Stata. The authors should retain the analysis syntax and make it available upon reasonable request, where possible.

Ethics approval and consent to participate

The study used anonymized, publicly available secondary data from GEM. The authors did not collect primary data or recruit participants; therefore, no additional ethics approval or participant consent was required for this secondary analysis.

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Author contributions

The authors contributed to the conception and design of the study, data analysis and interpretation, manuscript drafting, critical revision and approval of the final version.

References

Ahmad, S. Z., Xavier, S. R., & Bakar, A. R. A. (2014). Examining entrepreneurial intention through cognitive approach using Malaysia GEM data. Journal of Organizational Change Management, 27(3), 449–464. https://doi.org/10.1108/JOCM-01-2013-0009

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. Journal of Applied Social Psychology, 32(4), 665–683. https://doi.org/10.1111/j.1559-1816.2002.tb00236.x

Al-Asfour, A., & Tlaiss, H. A. (2022). Women's leadership development in the Arab world. Human Resource Development International, 25(3), 245–267. https://doi.org/10.1080/13678868.2021.1873540

Ali, J., & Jabeen, Z. (2020). Understanding entrepreneurial behavior for predicting start-up intention in India: Evidence from Global Entrepreneurship Monitor (GEM) data. Journal of Public Affairs, 20(3), Article e2399. https://doi.org/10.1002/pa.2399

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. British Journal of Social Psychology, 40(4), 471–499. https://doi.org/10.1348/014466601164939

Armuña, C., Ramos, S., Juan, J., Feijóo, C., & Arenal, A. (2020). From stand-up to start-up: Exploring entrepreneurship competences and STEM women's intention. International Entrepreneurship and Management Journal, 16(1), 69–92. https://doi.org/10.1007/s11365-019-00627-z

Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Belwal, S., Belwal, R., & Al Saidi, F. (2014). Characteristics, motivations, and challenges of women entrepreneurs in Oman's Al Dhahira region. Journal of Middle East Women's Studies, 10(2), 135–151. https://doi.org/10.2979/jmiddeastwomstud.10.2.135

Bosma, N., Hill, S., Ionescu-Somers, A., Kelley, D., & Guerrero, M. (2020). GEM 2020/2021 women's entrepreneurship report. Global Entrepreneurship Research Association. https://www.gemconsortium.org/report

Cacciotti, G., & Hayton, J. C. (2015). Fear and entrepreneurship: A review and research agenda. International Journal of Management Reviews, 17(2), 165–190. https://doi.org/10.1111/ijmr.12052

Cardella, G. M., Hernández-Sánchez, B. R., & Sánchez-García, J. C. (2020). Women entrepreneurship: A systematic review to outline the boundaries of scientific literature. Frontiers in Psychology, 11, Article 1557. https://doi.org/10.3389/fpsyg.2020.01557

Carsrud, A., & Brännback, M. (2011). Entrepreneurial motivations: What do we still need to know? Journal of Small Business Management, 49(1), 9–26. https://doi.org/10.1111/j.1540-627X.2010.00312.x

Dean, H., Larsen, G., Ford, J., & Akram, M. (2019). Female entrepreneurship and the metanarrative of economic growth: A critical review of underlying assumptions. International Journal of Management Reviews, 21(1), 24–49. https://doi.org/10.1111/ijmr.12172

Ferreira, J. J., Raposo, M. L., Rodrigues, R. G., Dinis, A., & do Paço, A. (2012). A model of entrepreneurial intention: An application of the psychological and behavioral approaches. Journal of Small Business and Enterprise Development, 19(3), 424–440. https://doi.org/10.1108/14626001211250144

Ghouse, S. M., Durrah, O., & McElwee, G. (2021). Rural women entrepreneurs in Oman: Problems and opportunities. International Journal of Entrepreneurial Behavior & Research, 27(7), 1674–1695. https://doi.org/10.1108/IJEBR-09-2020-0643

Global Entrepreneurship Monitor. (2022). GEM 2021/2022 global report: Opportunity amid disruption. Global Entrepreneurship Research Association. https://www.gemconsortium.org/report

Hayes, A. F. (2022). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (3rd ed.). Guilford Press.

Hofstede Insights. (2023). Country comparison: Oman. https://www.hofstede-insights.com/country-comparison/oman/

Iakovleva, T., Kolvereid, L., & Stephan, U. (2011). Entrepreneurial intentions in developing and developed countries. Education + Training, 53(5), 353–370. https://doi.org/10.1108/00400911111147686

Jena, R. K. (2020). Measuring the impact of business management students' attitude towards entrepreneurship education on entrepreneurial intention: A case study. Computers in Human Behavior, 107, Article 106275. https://doi.org/10.1016/j.chb.2020.106275

Jennings, J. E., & Brush, C. G. (2013). Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature? Academy of Management Annals, 7(1), 661–713. https://doi.org/10.5465/19416520.2013.782190

Jeon, S. (2018). What influences entrepreneurial intentions? An empirical study using data from the Global Entrepreneurship Monitor. Academy of Entrepreneurship Journal, 24(3), 1–15.

Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. Entrepreneurship Theory and Practice, 39(3), 655–674. https://doi.org/10.1111/etap.12056

Kolvereid, L. (1996). Prediction of employment status choice intentions. Entrepreneurship Theory and Practice, 21(1), 47–57. https://doi.org/10.1177/104225879602100104

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. Journal of Business Venturing, 15(5–6), 411–432. https://doi.org/10.1016/S0883-9035(98)00033-0

Liñán, F., & Chen, Y.-W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. Entrepreneurship Theory and Practice, 33(3), 593–617. https://doi.org/10.1111/j.1540-6520.2009.00318.x

Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: Citation, thematic analyses, and research agenda. International Entrepreneurship and Management Journal, 11(4), 907–933. https://doi.org/10.1007/s11365-015-0356-5

MacCallum, R. C., Zhang, S., Preacher, K. J., & Rucker, D. D. (2002). On the practice of dichotomization of quantitative variables. Psychological Methods, 7(1), 19–40. https://doi.org/10.1037/1082-989X.7.1.19

MacKinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. Evaluation Review, 17(2), 144–158. https://doi.org/10.1177/0193841X9301700202

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. Annual Review of Psychology, 58, 593–614. https://doi.org/10.1146/annurev.psych.58.110405.085542

Magd, H., & Thirumalaisamy, R. (2021). Women entrepreneurship in Oman: Possibilities and challenges. Global Business & Management Research, 13(3), 1–15.

Mahfud, T., Triyono, M. B., Sudira, P., & Mulyani, Y. (2020). The influence of social capital and entrepreneurial attitude orientation on entrepreneurial intentions: The mediating role of psychological capital. European Research on Management and Business Economics, 26(1), 33–39. https://doi.org/10.1016/j.iedeen.2019.12.005

Martínez-González, J. A., Kobylinska, U., & Ribeiro-Soriano, D. (2021). Contradictions between theory of planned behavior components and entrepreneurial intention. Journal of Business Research, 132, 357–367. https://doi.org/10.1016/j.jbusres.2021.04.032

Meinzen-Dick, R., Quisumbing, A., Doss, C., & Theis, S. (2019). Women's land rights as a pathway to poverty reduction: Framework and review of available evidence. Agricultural Systems, 172, 72–82. https://doi.org/10.1016/j.agsy.2018.01.025

Moriano, J. A., Gorgievski, M., Laguna, M., Stephan, U., & Zarafshani, K. (2012). A cross-cultural approach to understanding entrepreneurial intention. Journal of Career Development, 39(2), 162–185. https://doi.org/10.1177/0894845310384481

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. Academy of Management Review, 23(2), 242–266. https://doi.org/10.5465/amr.1998.533225

Nishimura, J. S., & Tristán, O. M. (2011). Using the theory of planned behavior to predict nascent entrepreneurship. Academia Revista Latinoamericana de Administración, 46, 55–71.

Oman Vision 2040 Implementation Follow-up Unit. (2021). Oman Vision 2040. Government of Oman. https://www.omanvision.gov.om

Rosca, E., Agarwal, N., & Brem, A. (2020). Women entrepreneurs as agents of change: A comparative analysis of social entrepreneurship processes in emerging markets. Technological Forecasting and Social Change, 157, Article 120067. https://doi.org/10.1016/j.techfore.2020.120067

Roy, R., Akhtar, F., & Das, N. (2017). Entrepreneurial intention among science and technology students in India: Extending the theory of planned behavior. International Entrepreneurship and Management Journal, 13(4), 1013–1041. https://doi.org/10.1007/s11365-017-0434-y

Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. Entrepreneurship Theory and Practice, 38(2), 291–332. https://doi.org/10.1111/etap.12087

Scott, W. R. (2014). Institutions and organizations: Ideas, interests and identities (4th ed.). SAGE.

Shinnar, R. S., Giacomin, O., & Janssen, F. (2012). Entrepreneurial perceptions and intentions: The role of gender and culture. Entrepreneurship Theory and Practice, 36(3), 465–493. https://doi.org/10.1111/j.1540-6520.2012.00509.x

SME Development Authority. (2020). Annual report 2020. Government of Oman.

Steinmetz, H., Isidor, R., & Bauer, C. (2021). Gender differences in the intention to start a business: An updated and extended meta-analysis. Zeitschrift für Psychologie, 229(1), 70–84. https://doi.org/10.1027/2151-2604/a000435

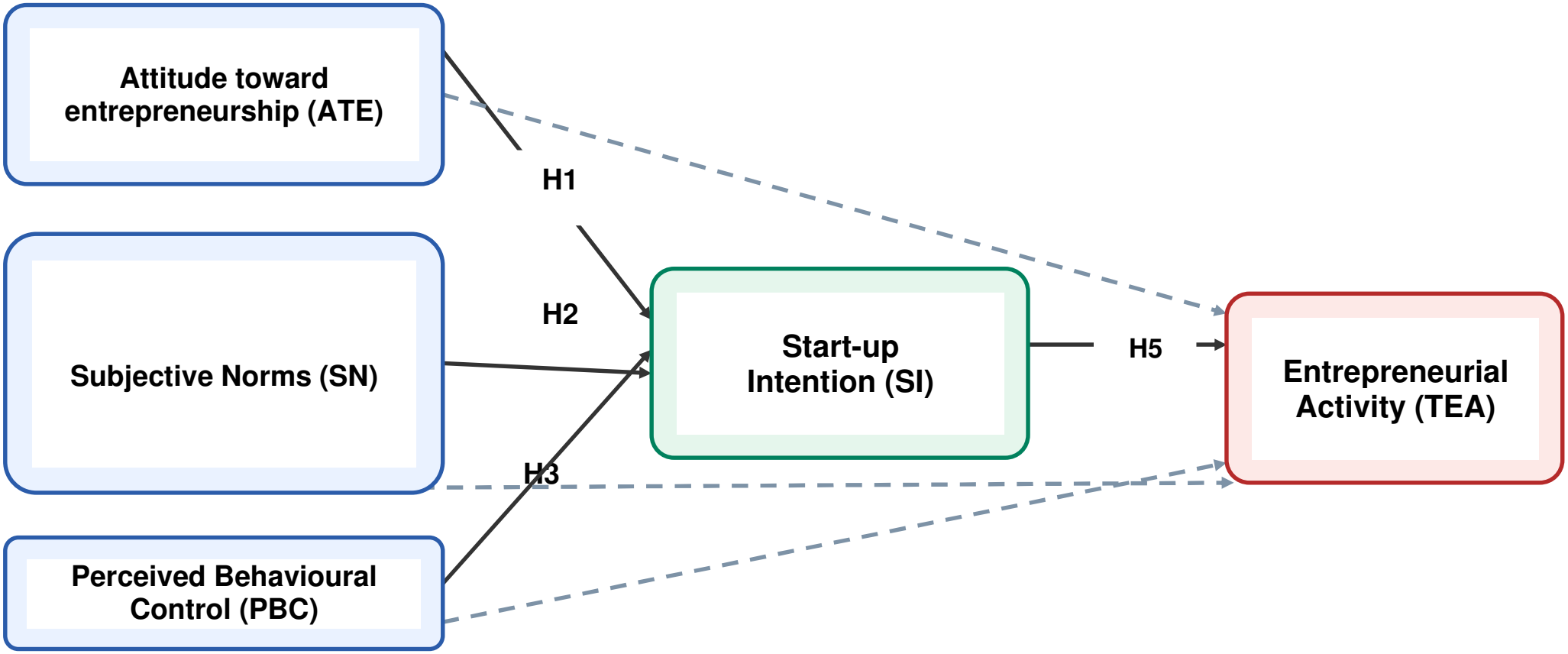
Tlaiss, H. A. (2015). How Islamic business ethics impact women entrepreneurs: Insights from four Arab Middle Eastern countries. Journal of Business Ethics, 129(4), 859–877. https://doi.org/10.1007/s10551-014-2138-3

Welter, F. (2011). Contextualising entrepreneurship: Conceptual challenges and ways forward. Entrepreneurship Theory and Practice, 35(1), 165–184. https://doi.org/10.1111/j.1540-6520.2010.00427.x

World Bank. (2022). World development indicators: Gender and education. https://data.worldbank.org/indicator

Shapero, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. A. Kent, D. L. Sexton, & K. H. Vesper (Eds.), Encyclopedia of entrepreneurship (pp. 72–90). Prentice-Hall.

Youssef, A. B., Boubaker, S., & Omri, A. (2021). Entrepreneurship and sustainability: The need for innovative and institutional solutions. Technological Forecasting and Social Change, 173, Article 121073. https://doi.org/10.1016/j.techfore.2021.121073.


Attitude toward entrepreneurship (ATE)
Subjective Norms (SN)
Perceived Behavioural Control (PBC)
H1
H2
H3
Start-up Intention (SI)
H5
Entrepreneurial Activity (TEA)

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