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Article

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Cogent Business & Management

Provided in Cooperation with:

Taylor & Francis Group

Suggested Citation: Agrawal, Reena; Bakhshi, Priti; Chandani, Arti; Birau, Ramona; Mendon, Suhan (2023) : Challenges faced by women entrepreneurs in South Asian countries using interpretive structural modeling, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 10, Iss. 2, pp. 1-18,
<https://doi.org/10.1080/23311975.2023.2244755>

This Version is available at:

<https://hdl.handle.net/10419/294573>

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To cite this article: Reena Agrawal, Priti Bakhshi, Arti Chandani, Ramona Birau & Suhan Mendon (2023) Challenges faced by women entrepreneurs in South Asian countries using interpretive structural modeling, Cogent Business & Management, 10:2, 2244755, DOI: [10.1080/23311975.2023.2244755](https://doi.org/10.1080/23311975.2023.2244755)

To link to this article: <https://doi.org/10.1080/23311975.2023.2244755>



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Published online: 11 Aug 2023.



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Received: 18 April 2023
Accepted: 17 July 2023

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MANAGEMENT | RESEARCH ARTICLE

Challenges faced by women entrepreneurs in South Asian countries using interpretive structural modeling

Reena Agrawal¹, Priti Bakhshi², Arti Chandani¹, Ramona Birau^{3*} and Suhan Mendon⁴

Abstract: Promoting women's economic participation and empowerment is essential for sustainable development in South Asian Countries. Studies have established that women entrepreneurs in South Asia face a noteworthy challenge with many lacking formal education, lack of entrepreneurship education, capital, skilled and trained manpower, management skills, networking, infrastructural support, fear of failure, gender discrimination, and loaded with family responsibilities. This research aims to evaluate the contextual relationships among identified key challenges and develop a hierarchical framework of key challenges for addressing barriers to promote women entrepreneurship in South Asian Countries. The primary study was conducted using Interpretive Structural Modelling on 31 women entrepreneurs from India, Nepal, Sri Lanka, Pakistan, and Bangladesh. The study proposed that multi-dimensional efforts are needed to ensure that women have equal access to economic opportunities and can fully participate in and contribute to the region's economic development.

Subjects: Economics; Finance; Business, Management and Accounting;

Keywords: women entrepreneurs; challenges; gender issues; fear of failure; capital; education; women's economic participation; business; financial institutions

1. Introduction

Women entrepreneurs are essential for the development of the global economy for empowerment and equality; poverty reduction; innovation and creativity; social Impact; and economic growth across the world economies. As per the report of Global Entrepreneurship Monitor's 2021–22 on Women's Entrepreneurship, the proportion of women entrepreneurs differs by region. In North America, women make up 42% of new entrepreneurs, in Europe 37%, in Latin America and the Caribbean 27%, in Asia 22%, in the Middle East and North Africa 10%, and in Sub-Saharan Africa 24%. Compared to the global proportion, the proportion of women entrepreneurs is very less in Asia. The proportion of women entrepreneurs differs across South Asian countries. For India, it is 22.8% of early-stage entrepreneurs and 16.6% of established business owners. For Nepal, it is 18.4% of early-stage entrepreneurs and 14.3% of established business owners. For Bangladesh, it is 16.8% of early-stage entrepreneurs and 12.2% of established business owners. For Sri Lanka, it is 16.3% of early-stage entrepreneurs and 12.8% of established business owners. For Pakistan, it is just 7.6% of early-stage entrepreneurs and 4.9% of established business owners (GEM 2021–22).

Jha et al. (2022) used the multi-criteria decision-making method to categorize enablers for digital entrepreneurs and reported that there are low barriers to entry coupled with multiple

challenges. Yigit and Kanbach (2023) examined how the technology-driven entrepreneurship processes help SMEs in transforming their business and they developed a technological process framework by conducting in-depth interviews with experts. Women's entrepreneurship is a path toward women's empowerment. Chakraborty and Biswal (2022) performed a netnography study on Twitter of three successful women entrepreneurs and reported that strong beliefs and values can influence women's activity to achieve their goals.

There is no difference between men and women entrepreneurs once they start their businesses (Halkias et al., 2011). However, stakeholders are helping women entrepreneurs to empower them by providing financial support, and donor initiatives among others (Mwobobia, 2012). It is vital to promote women entrepreneurs in an economy for long-term and inclusive growth. This can be done in various ways to promote entrepreneurs and by removing the challenges which women entrepreneurs are likely to face. Technology has been a boon for most businesses and women entrepreneurs can change their traditional entrepreneurs to digital entrepreneurs by participating on social media which will increase their self-worth (Chakraborty & Biswal, 2023).

Women in South Asian countries mainly India, Nepal, Sri Lanka, Pakistan, and Bangladesh face significant obstacles in commencing and scaling up businesses. Deep-seated patriarchal approaches and gender stereotypes remain to be a major challenge for women entrepreneurs in South Asian countries. Women face challenges in their entrepreneurial instinct and those are gender stereotypes and a lack of social capital (Shastri et al., 2022). Women entrepreneurs often face discrimination and are viewed as less competent than their male counterparts. Access to finance is another big challenge for them as they often have limited access to credit and other financial resources, making it difficult for them to commence or scale up their business. They also have limited access to education and training hindering their ability to develop the abilities and understanding necessary to commence and continue successful business. They also lack access to networks and resources, such as mentors, required associations, and other support services that help them overcome the challenges. They also frequently face challenges in matching work and family responsibilities, which further makes it hard to raise their business.

Addressing these challenges requires an inclusive approach that comprises policy and regulatory reforms, investment in education and training, and the creation of supportive networks and resources for women entrepreneurs. Women's economic empowerment is vital for the complete development of the region so there is a need for policy interventions to support women entrepreneurs and increase their participation. There is a necessity for continued efforts to progress the economic status of women in South Asia, and policies and programs must be planned to address the explicit needs of women from different backgrounds and socio-economic groups.

It is important to note that women entrepreneurs transformed their manual business and financial transaction into virtual dealing and online transaction as a result of COVID-19 in Pakistan (Afshan et al., 2021) and this is an example of turning challenges into opportunities. The existing literature shows the various challenges which women face in their entrepreneurial activities. However, there is no literature, to the best of the knowledge of authors, which shows the relationship between these challenges. Therefore, the current study aims to find answers to the following research questions:

RQ1: To identify key challenges faced by women entrepreneurs in South Asian countries.

RQ2: To evaluate the contextual relationships among identified key challenges.

RQ3: To develop a hierarchical framework of key challenges for addressing barriers to promote women entrepreneurship in South Asian countries.

2. Literature Review

The challenges faced by women entrepreneurs are related to balancing work and family responsibilities, accessing funding and support, and overcoming gender stereotypes (McGowan et al.,

2012); lack of funding and access to finance, insufficient training and mentoring opportunities, cultural and societal barriers, and discriminatory practices (Vijayvargy & Bakhshi, 2018); accessing finance and support, balancing work and family responsibilities, and overcoming gender biases (Tonge & Broadbridge, 2008); access to funding and support, limited networking opportunities, cultural barriers, and gender stereotypes as women entrepreneurs had lower levels of education and training compared to their male counterparts (Kalafatoglu & Mendoza, 2017). The lack of access to finance is a major challenge faced by women entrepreneurs other challenges are lack of business skills, infrastructure, and cultural barriers (Ramadani et al., 2015); lack of education and skills, lack of capital and credit, and lack of infrastructure (M. Goyal & Parkash, 2011); gender-based discrimination, limited access to resources, and lack of financial and institutional support, and infrastructure (Ahammad & Moudud-Ul- Huq, 2013). Family responsibilities and societal expectations often limit the participation of women entrepreneurs (Panda & Dash, 2014). Women entrepreneurs face gender discrimination, lack of access to finance, and insufficient entrepreneurial education (Costa & Pita, 2020). Sandhu et al. (2012), underscored the importance of family support and balance between family and business responsibilities for women entrepreneurs.

The above literature review suggests that lack of formal education, lack of entrepreneurship education, capital, skilled and trained manpower, management skills, networking, infrastructural support, fear of failure, and gender discrimination, family responsibilities are significant challenges faced by women entrepreneurs in South Asian countries.

2.1. Lack of formal education

It is one of the important challenges for women entrepreneurs in South Asian countries, restraining their capability to grow the skills and knowledge necessary to commence and continue the fruitful business. Lack of education is resulting in other challenges including networking opportunities, difficulty accessing funding, and gender discrimination as significant obstacles (Ahammad & Moudud-Ul- Huq, 2013; Al-Qahtani et al., 2022; Bakhshi & Agarwal, 2020; Costa & Pita, 2020; Hammami et al., 2022) The challenge of lack of education faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 1.

Table 1. Lack of education

Author(s)	Country	Key Findings
Datta et al. (2019)	India	Skills gaps in areas such as finance, marketing, and technology
Ahmed and Yousaf (2019)	Pakistan	Significant barriers to accessing education, including poverty and cultural norms that prioritize male education
Kamble and Mhaske (2019)	India	Significant challenges in accessing education, including a lack of financial resources and social norms that prioritize male education
World Bank (2019)	Sri Lanka	Women have lower levels of education than men, which limits their ability to access information and resources, develop necessary skills, and network with other business owners.
Rashid et al. (2020)	Pakistan	Lack of education and training opportunities, which limits their ability to grow their businesses
M. Ali and Rahman (2020)	Bangladesh	Gender typecasts and social norms limit women's access to education and training.
Shrestha et al. (2020)	Nepal	Lack of access to vocational training programs, limiting their ability to develop the skills necessary to run successful businesses
Shahid and Mahmood (2021)	Pakistan	Gender stereotypes and cultural norms restrict women's participation in education.

Source: Authors representation.

2.2. Lack of entrepreneurship education

This is an important challenge for women entrepreneurs in South Asian countries, restraining their capability to obtain the abilities and understanding necessary to commence and grow a prosperous business. The challenge of lack of entrepreneurship education faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 2.

Table 2. Lack of entrepreneurship education		
Author(s)	Country	Key Findings
Ahmed et al. (2018)	Pakistan	Lack of entrepreneurship education and training programs.
Jahan et al. (2019)	Bangladesh	NGOs provide limited support for entrepreneurship education, particularly for women.
Farheen and Azmat (2019)	Pakistan	The government provides limited support for entrepreneurship education and training, with few programs specifically targeting women entrepreneurs.
Tasnim et al. (2020)	Bangladesh	Social norms and gender stereotypes limit women's access to entrepreneurship education and discourage them from pursuing careers in business.
A. Goyal and Joshi (2020)	India	Limited access to entrepreneurship education, with many programs designed for male entrepreneurs.
A. Kaur and Singh (2020)	India	The lack of successful women entrepreneurs discourages other women from pursuing entrepreneurship education and careers in business.
Sri Lanka Women's Chamber of Industry and Commerce (2020)	Sri Lanka	Lack of education and skills development is a significant barrier for women entrepreneurs
Haque and Rabbani (2021)	Pakistan	Gender stereotypes and social norms discourage women from pursuing entrepreneurship education and careers in business.

Source: Authors representation.

2.3. Family responsibilities

Managing family responsibility is another major obstacle faced by women entrepreneurs in South Asian countries. M. Goyal and Parkash (2011); Panda (2018); Mehrez (2019); Al-Qahtani et al. (2022); Costa and Pita (2020); Hammami et al., 2022 explored the challenges faced by women entrepreneurs highlighting family responsibilities as significant obstacles. The challenge of family responsibilities faced by women entrepreneurs and the reasons/consequences of the same are summarised in Table 3.

Table 3. Family responsibilities		
Author(s)	Country	Key Findings
Ahmed et al. (2018)	Pakistan	Significant challenges in balancing their family responsibilities and business activities.
Akter et al. (2019)	Bangladesh	Family responsibilities often limit women's ability to start and grow businesses.
Khatoon and Rashid (2019)	Bangladesh	resistance from their families when starting businesses, as family members are reluctant to support their entrepreneurial endeavours.

(Continued)

Author(s)	Country	Key Findings
A. Hussain et al. (2019)	Pakistan	challenges in accessing flexible work arrangements, which can make it difficult for them to balance their family responsibilities and business activities
Rahman and Shahriar (2019)	Bangladesh	social stigmatization and negative attitudes from society and family members limit their ability to start and grow business
International Labour Organization (ILO) (2019)	Sri Lanka	Women entrepreneurs have to balance their business responsibilities with caring for their families
Ansari et al. (2021)	Pakistan	social stigmatization and negative attitudes from society make it difficult for them to balance their family responsibilities and business activities.

Source: Authors representation.

2.4. Gender discrimination

It is yet another main obstacle faced by women entrepreneurs in South Asian countries, which can hamper their capability to commence and scale-up business. Gender discrimination results in a lack of access to finance, network, and cultural norms (Al-Qahtani et al., 2022; Costa & Pita, 2020; Lynda Bastian et al., 2019; Maden, 2015; Mehrez, 2019; Panda, 2018). The challenge of gender discrimination faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 4.

Table 4. Gender discrimination

Author(s)	Country	Key Findings
Devkota et al. (2018)	Nepal	Challenges in accessing financial services due to gender discrimination and social norms.
Lindvert, Patel and Wincent (2017)	Pakistan	Challenges in accessing networks and resources due to gender discrimination and cultural barriers.
Sharma and Rai (2019)	India	Challenges in accessing networks due to gender discrimination and biases.
Abid and Khan (2019)	Pakistan	Challenges in accessing training and education opportunities due to gender discrimination and biases.
N. P. Rana et al. (2019)	Nepal	Challenges in accessing training and education opportunities due to gender discrimination and social norms.
Akhtar and Qureshi (2020)	Pakistan	Challenges in accessing financing due to gender discrimination and biases.
Haq and Siddiqui (2020)	Pakistan	Challenges in accessing legal protections due to gender discrimination and biases.
Shrestha et al. (2020)	Nepal	Challenges in accessing legal protections due to gender discrimination and social norms.

Source: Authors representation.

2.5. Access to capital

The availability of capital is a critical factor for the success of any entrepreneur, including women entrepreneurs. The challenge of access to capital faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 5.

Table 5. Access to capital

Author(s)	Country	Key Findings
Halim and Alam (2018)	Bangladesh	Challenges in accessing capital due to lack of financial literacy and knowledge of financial institutions.
Khan et al. (2018)	Pakistan	Challenges in accessing capital due to a lack of financial literacy and understanding of financial institutions.
Basnet and Paudel (2019)	Nepal	Challenges in accessing formal financing due to gender discrimination and lack of collateral.
Ghalib and Qureshi (2019)	Pakistan	Challenges in accessing formal financing due to gender biases and lack of collateral.
Jaim (2021)	Bangladesh	Challenges in accessing informal financing due to gender discrimination and lack of networks.
Khan and Bano (2019)	Pakistan	Challenges in accessing capital due to a lack of government support and policies to promote women's entrepreneurship
Gyawali and Adhikari (2019)	Nepal	Challenges in accessing capital due to a lack of government policies and support
A. Kaur and Singh (2020)	India	Challenges in accessing informal financing due to gender biases and lack of networks.

Source: Authors representation.

2.6. Fear of failure

This is a common challenge faced by entrepreneurs, including women entrepreneurs in South Asian countries. The challenge of fear of failure faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 6.

Table 6. Fear of failure

Author(s)	Country	Key Findings
Naeem et al. (2018)	Pakistan	Societal norms and gender stereotypes contribute to their fear of failure.
Bhatnagar and Sharma (2019)	India	Societal pressures to conform to traditional gender roles and expectations, which to a fear of failure.
Gurung and Yadav (2019)	Nepal	The lack of role models and mentors contributes to their fear of failure.
Alam et al. (2019)	Bangladesh	Challenges in accessing financial and human resources which make them feel uncertain and anxious about their ability to succeed.
Bano et al. (2019)	Pakistan	Challenges in accessing resources such as training and information, can contribute to their fear of failure.
Shah et al. (2019)	Pakistan	Challenges in building self-confidence due to gender biases and lack of support.
Sharma et al. (2019)	India	Challenges in building self-confidence due to societal pressures and lack of role models.
Haque et al. (2020)	Bangladesh	The lack of role models and mentors makes them feel isolated and unsupported in their entrepreneurial journey.

Source: Authors representation.

2.7. Lack of skilled and trained manpower

Availability of skilled and trained manpower is crucial for the success of business and this is another challenge faced by women entrepreneurs in South Asian countries to support their businesses. The challenge of lack of skilled and trained manpower faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 7.

Table 7. Lack of skilled and trained manpower

Author(s)	Country	Key Findings
Ahammad and Moudud-UI- Huq (2013)	Bangladesh	The lack of education among women entrepreneurs has a significant impact on their business success.
Anwar and Khan (2018)	Pakistan	Challenges in accessing training and education opportunities due to gender stereotypes and lack of support.
M. M. Ali et al. (2018)	Bangladesh	Challenges in providing training and development opportunities for their employees due to limited financial resources and lack of government support.
S. Ali and Khan (2019)	Pakistan	Challenges in finding skilled labor due to a lack of training and education opportunities in their communities.
Yadav and Singh (2019)	India	Challenges in accessing training and education opportunities due to gender bias and societal norms.
Rahman and Shahriar (2019)	Bangladesh	Challenges in finding skilled labor due to a mismatch between the skills required by their businesses and the skills available in the labor market.
Sri Lanka Women's Chamber of Industry and Commerce (2020)	Sri Lanka	The lack of education and skills development is a significant barrier for women entrepreneurs
Devasenapathy and Palaniappan (2021)	India	Challenges in finding skilled labor due to competition from larger firms, as well as a lack of training and development opportunities for workers.

Source: Authors representation.

2.8. Lack of management skills

Managing business is important and this is one of the key challenges faced by women entrepreneurs in South Asian countries which can make it difficult for them to effectively run and grow their businesses. The challenge of lack of management skills faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 8.

Table 8. Lack of management skills

Author(s)	Country	Key Findings
Ahammad and Moudud-UI- Huq (2013)	Bangladesh	Due to a lack of business skills, women entrepreneurs have limited market opportunities, and lack of access to finance.
Z. Hussain et al. (2019)	Pakistan	Challenges in accessing training and development opportunities due to a lack of awareness, financial constraints, and limited availability of such programs.
Karki and Baral (2019)	Nepal	Challenges in gaining credibility as business leaders due to gender stereotypes and societal norms keeping them weak in managerial skills.
Sarwar and Khan (2019)	Pakistan	Challenges in developing management skills due to limited business experience and exposure.
Adhikari et al. (2020)	Nepal	Challenges in building their management skills due to a lack of access to networks and mentors.

Source: Authors representation.

2.9. Lack of networking

Connecting with suppliers, customers, and other stakeholder is important and plays a crucial role in the success of entrepreneurs, as it helps to build relationships, access resources, and gain visibility in the business community. The challenge of networking faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 9.

Table 9. Lack of networking

Author(s)	Country	Key Findings
Dheer et al. (2018)	India	Challenges in building networks due to cultural and social norms that restrict their mobility and interactions with men outside of their families.
Zehra et al. (2018)	Pakistan	Challenges in building networks due to a lack of support from their families and a perception that networking is not a priority for women.
Z. Hussain et al. (2019)	Pakistan	Challenges in building networks due to a lack of access to formal business groups and industry associations.
Barua and Chakraborty (2019)	Bangladesh	Challenges in building networks due to gender stereotypes and prejudices that view women as less capable than businessmen.

Source: Authors representation.

2.10. Lack of infrastructure

Infrastructure plays a crucial role in the success of entrepreneurs, as it provides access to resources, information, and markets. The challenge of access to infrastructure faced by women entrepreneurs and the reasons/consequences for the same are summarised in Table 10.

Table 10. Lack of infrastructure

Author(s)	Country	Key Findings
Choudhary and Pande (2018)	Nepal	Challenges in accessing reliable electricity and water services which hinder their ability to run their business efficiently.
P. Kaur et al. (2019)	India	Challenges in accessing technology due to a lack of awareness, skills, and infrastructure.
Quayyum et al. (2019)	Bangladesh	Challenges in transportation and logistics due to poor road infrastructure, limited access to public transportation, and high transportation costs.
Akram et al. (2019)	Pakistan	Challenges in accessing financial services due to a lack of collateral, a limited understanding of financial products, and gender bias in the banking sector.

Source: Authors representation.

3. Research methodology

3.1. Study design

The study is aimed to find barriers that are being faced by women entrepreneurs in South Asian countries. The participants were interviewed to explore the barriers. An extensive literature survey was done and it shows that no research presents the hierarchical structure of the barriers being faced by women entrepreneurs. The expert interview method is the most appropriate method to collect the responses of the experts in establishing the linkages among the barriers.

3.2. Selection of participants

The respondents included women entrepreneurs from South Asian countries. We interviewed the women entrepreneurs engaged in making handicrafts, cane furniture, jute products, confectionary items, pottery product, jewelry, soft toys, and handmade woolens, and engaged in running boutiques, textile retail stores, makeup studios, and fitness centers. In total 31 women entrepreneurs were interviewed which included India (11), Nepal (3), Sri Lanka (5), Pakistan (7), and Bangladesh (5), to collect data and to comprehend the inter-linkages among the chosen variables. These respondents were in the age bracket of 35 to 50 years. In total 35 women entrepreneurs were contacted but out of these 4 were not willing to take part in interviews, so 31 respondents were finally interviewed.

3.3. Sampling strategy

A purposive sampling technique was adopted for the present study as the objective was to gather data from women entrepreneurs from South Asian countries. Purposive sampling helps in matching the sample of the study with the objective of the study. Researchers ensure that only those respondents possess certain qualities thus and it helps in building confidence in the data and results (Campbell et al., 2020). Women entrepreneurs from South Asian countries were selected for this study.

3.4. Data collection

The data was collected from the women entrepreneurs by conducting online interviews on Zoom. It was difficult to find a common time due to the respondent living in different time zone. However, a consensus was reached to interview Zoom at a specific time. The respondents were informed about the objective of the research and only those who agreed were interviewed. The researchers maintained a diary to write the answer and the respondent's responses. We had the challenges which were identified from the literature and respondents were asked to give the relationship among those challenges.

3.5. Research method

The present study uses ISM which is a methodology based on mathematics and it helps in presenting a complex problem in a systematic process based on the structural modeling of interconnected matrices (Warfield, 1974).

In this study, Interpretive Structural Modelling (ISM) method is used. The various steps included in ISM method are as follows:

- (i) Recognized the variables which are relevant to the problem. This was done via an extensive literature review.
- (ii) Established a contextual relationship between pair of variables.
- (iii) Developed a structural self-interaction matrix (SSIM) of elements. This matrix indicates the pair-wise relationship among elements of the system.
- (iv) Develop a reachability matrix from the SSIM using the transitivity.
- (v) Partitioning of the reachability matrix was done into various levels.
- (vi) Converted the reachability matrix into conical form.
- (vii) Drew an ISM-based model.
- (viii) Reviewed the model to rule out conceptual inconsistencies and made the necessary revisions (N. P. Rana et al., 2019, 2022).

3.6. Rigor and ethics

The present study was undertaken by five researchers who carry out research as part of their profession. The entire work was divided among the five researchers where the first and third authors were responsible for applying research methods. All the authors were involved in conducting the interviews. The second, fourth, and fifth authors started drafting the manuscript along with the help of the first and the third author. Few activities were done jointly and simultaneously by all the authors. Multiple meetings were conducted among the authors to discuss, deliberate, and finalize this which lasted for a couple of hours.

4. Data analysis

4.1. Development of self-structured interaction matrix challenges faced by women entrepreneurs in South Asian countries

After finalizing the barriers faced by women entrepreneurs' adoption across five different countries in South Asia, a self-structured interaction matrix was developed to comprehend the contextual relations between each pair of barriers (N. P. Rana et al., 2019, 2022). Four symbols are utilized for getting the direction of interaction amid the barriers i.e. (say, *i* and *j*) as follows: V—factor *i* influences factor *j*; A—factor *j* influences factor *i*, X—factor *i* and *j* influence each other, and O—factor *i* and *j* are unrelated. These are given in Table 11 to demonstrate through the respondent interaction and using the above four notations, a self-structured interaction matrix was created.

Table 11. Self-Structured Interaction Matrix (SSIM)

		B10	B9	B8	B7	B6	B5	B4	B3	B2	B1
B1	Lack of Formal Education	V	V	V	A	A	V	A	O	V	
B2	Lack of Entrepreneurship Education and Training	V	V	V	V	V	V	V	V		
B3	Family Responsibilities	V	V	O	V	X	V	O			
B4	Gender Discrimination	V	V	V	A	A	O				
B5	Lack of Capital	A	A	A	A	A					
B6	Fear of Failure	V	V	V	O						
B7	Lack of Skilled/Trained Manpower	V	V	V							
B8	Lack of Management Skills	V	V								
B9	Lack of Networking	O									
B10	Lack of Infrastructural Support										

4.2. Development of initial reachability matrix

The next step of Interpretive Structural Modeling is to design Initial Reachability Matrix. The Self-Structured Interaction Matrix shown above (Table 11) was further converted into the Initial Reachability Matrix. To make the Initial Reachability Matrix (Table 12) we used binary numbers (0 and 1) which replace the various symbols (V, A, X, O) in the self-structured interaction matrix. The basis of this replacement is given below:

- When there is "V" in SSIM we used "1" in (*i*, *j*) entry and "0" in (*j*, *i*) entry
- When there is "A" in SSIM we used "0" in (*i*, *j*) entry and "1" in (*j*, *i*) entry
- When there is "X" in SSIM we used "1" in both (*i*, *j*) and (*j*, *i*) entry
- When there is "O" in SSIM we use "0" in both (*i*, *j*) and (*j*, *i*) entry

Table 12. Development of Initial Reachability Matrix(IRM)

		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
B1	Lack of Formal Education		1	0	0	1	0	0	1	1	1
B2	Lack of Entrepreneurship Education and Training	0		1	1	1	1	1	1	1	1
B3	Family Responsibilities	0	0		0	1	1	1	0	1	1
B4	Gender Discrimination	1	0	0		0	0	0	1	1	1
B5	Lack of Capital	0	0	0	0		0	0	0	0	0
B6	Fear of Failure	0	0	1	1	1		0	1	1	1
B7	Lack of Skilled/Trained Manpower	0	0	0	1	1	0		1	1	1
B8	Lack of Management Skills	0	0	0	0	1	0	0		1	1
B9	Lack of Networking	0	0	0	0	1	0	0	0		0
B10	Lack of Infrastructural Support	0	0	0	0	1	0	0	0	0	

4.3. Development of final reachability matrix

After making the initial reachability matrix the transitivity relations among the chosen barriers being faced by women entrepreneurs were measured and the final reachability matrix (Table 13) was created. In all the places where we found a transitive relationship between two variables, we replaced the value 0 with 1. We were able to identify 12 such incidents where the transitive relationship between two variables.

Table 13. Development of Final Reachability Matrix (FRM)

		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
B1	Lack of Formal Education		1	1*	1*	1	1*	1*	1	1	1
B2	Lack of Entrepreneurship Education and Training	1*		1	1	1	1	1	1	1	1
B3	Family Responsibilities	0	0		1*	1	1	1	1*	1	1
B4	Gender Discrimination	1	1*	0		1*	0	0	1	1	1
B5	Lack of Capital	0	0	0	0		0	0	0	0	0
B6	Fear of Failure	1*	0	1	1	1		1*	1	1	1
B7	Lack of Skilled/Trained Manpower	1*	0	0	1	1	0		1	1	1
B8	Lack of Management Skills	0	0	0	0	1	0	0		1	1
B9	Lack of Networking	0	0	0	0	1	0	0	0		0
B10	Lack of Infrastructural Support	0	0	0	0	1	0	0	0	0	

4.4. Partitioning of levels

In total four iterations were conducted to do the partitioning of levels. We used the final reachability matrix to find the importance of levels which was further used to develop the hierarchical structure of the challenges faced by women entrepreneurs across five different countries of South Asia. To make various levels, we created the reachability set, antecedent set, and intersection set. The reachability set is composed of the barriers and the other barriers influenced by them. The antecedent set is composed of barriers itself and other barriers that affect it. The common factors among the reachability set and the antecedent set were put in the intersection set. The level was

assigned based on the common factor in the reachability and the antecedent set. For example, “Lack of Capital” was assigned level 1, “Lack of Infrastructural Support” and ‘Lack of Networking’ were assigned level 2, “Lack of Management Skills” was assigned level 3, “Lack of entrepreneurship education and training” and “Gender discrimination” were assigned level 4, “Lack of Skilled/Trained Manpower” was assigned level 5 and “Lack of formal Education”, ‘Family Responsibilities’ and ‘Fear of failure’ were assigned level 6 (Table 14).

Table 14. Iterations for partitioning of the levels

Code	Challenge	Reachability Set (RS)	Antecedent set (AS)	RS nAS	Level
B5	Lack of Capital	5	1,2,3,4,5,6,7,8,9,10	5	1
B10	Lack of Infrastructural Support	10	1,2,3,4,6,7,8,10	10	2
B9	Lack of Networking	9	1,2,3,4,6,7,8,9	9	2
B8	Lack of Management Skills	1,8	1,2,3,4,6,7,8	1,8	3
B2	Lack of Entrepreneurship Education and Training	2,3,4,6,7	2,4	2,4	4
B4	Gender Discrimination	2,4	2,3,4,6,7	2,4	4
B7	Lack of Skilled/Trained Manpower	7	7	7	5
B1	Lack of formal Education	3,6	6	3,6	6
B3	Family Responsibilities	3,6	3,6	3,6	6
B6	Fear of Failure	3,6	3,6	3,6	6

4.5. Development of ISM model

The next step was to create an Interpretive Structural Modeling (ISM) model. We used Table 15 showing levels assigned to barriers to developing the Interpretive Structural Modeling (ISM) based model (Figure 1).

Table 15. Levels assigned to challenges

Iteration Number	Level	Challenge
1 st	I	Lack of Capital (B5)
2 nd	II	Lack of Infrastructural Support (B10)
		Lack of Networking (B9)
3 rd	III	Lack of Management Skills (B8)
4 th	V	Lack of Entrepreneurship Education and Training (B2)
		Gender discrimination (B4)
5 th	VI	Lack of Skilled/Trained Manpower (B7)
6 th	VII	Lack of Formal Education (B1)
		Family Responsibilities (B3)
		Fear of Failure (B6)

5. Discussion

The ISM Model indicates that the Lack of Capital (B5) found its place at level 1, which means that women entrepreneurs in South Asian countries face an acute shortage of capital. This resonated with the finding of (Ghalib & Qureshi, 2019; Gyawali & Adhikari, 2019; Halim &

Alam, 2018; A. Kaur & Singh, 2020) who found that women entrepreneurs experienced great challenges in getting access to capital in comparison to their male counterparts. This further seems to be fuelled by a lack of Infrastructural support (B10) and a lack of Networking (B9). This may be due to women entrepreneurs' lack of awareness about technology and other infrastructure resources (P. Kaur et al., 2019; Quayyum et al., 2019) and this can also be because of the cultural and social constraints and restrictions on their mobility faced by women in South Asian nations make it impossible for them to have interactions with men outside of their family and make business networks (Barua & Chakraborty, 2019; Dheer et al., 2018).

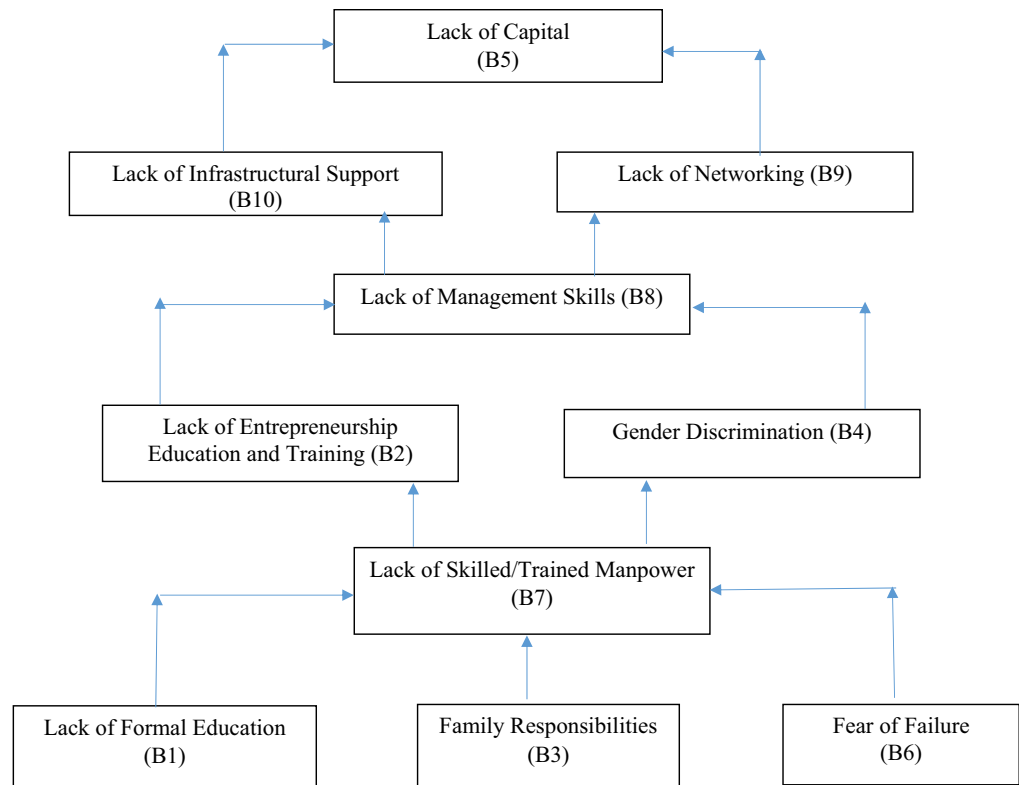
Gender Discrimination (B4) and Lack of Entrepreneurship Education and Training (B2) are found to be the foundation of a lack of Management Skills (B8). This was in consensus with Costa and Pita (2020) and Lynda Bastian et al. (2019) who stated that due to gender discrimination Women in South Asian countries often are not given formal education and the right to work outside. Tasnim et al., (2020) and A. Kaur and Singh (2020) found that in South Asian countries, social norms and gender stereotypes limit women's access to entrepreneurship education and discouraged them from pursuing careers in business. This limited their business experience and exposure and resulted in a lack of management skills (Sarwar & Khan, 2019).

Lack of Management Skills (B8) which was found to be at level 3 became the foundation of Lack of Infrastructural support (B10) and Lack of Networking (B9). Lack of Entrepreneurship Education and Training (B2) and Gender Discrimination (B4) were found to be at level 4. Lack of formal education (B1), Family Responsibilities (B3), and Fear of Failure (B6) seem to be the main foundation for the challenges faced by women entrepreneurs. It is evident that women often lack formal education (Rashid et al., 2020), and due to social stigmatization and social norms, they are expected to render family responsibilities (Costa & Pita, 2020; Hammami et al., 2022) which makes them feel isolated and unsupported in their entrepreneurial instinct and thus have apprehension and fear of failure (Haque and Haque, 2020; Bhatnagar & Sharma, 2019). These three challenges create hurdles for women entrepreneurs to attract a skilled workforce in their entrepreneurial ventures which leads to placing lack of Skilled/ Trained Manpower (B7) at level 5.

As the challenges faced by women entrepreneurs in South Asian countries are complex so there is a need for multi-dimensional solutions. Formal education, vocational training is essential for women entrepreneurs in South Asia. Government and Non-Governmental Organizations (NGOs) in many South Asian countries provide limited support for entrepreneurship education for women (M. Goyal & Parkash, 2011). Policy interventions are needed to address these issues and to provide better support to women entrepreneurs (Panda & Dash, 2014). There is a need for training and skill development programs for women entrepreneurs (M. Goyal & Parkash, 2011) hence the importance of mentoring programs, networking opportunities, and training for women entrepreneurs are essential to overcome these challenges (Al-Qahtani et al., 2022). There is also a need for government support, access to finance, and market exposure for the success of women entrepreneurs (Panda, 2018). The policymakers and financial institutions should develop policies and programs to provide greater support to women entrepreneurs (Ahammad & Moudud-Ul- Huq, 2013; M. Goyal & Parkash, 2011; Maden, 2015; Panda, 2018; Ramadani et al., 2015) as government support, access to finance, and market exposure is very important for the success of women entrepreneurs (Panda, 2018). There is a need for financial institutions to provide better access to credit and financial services to women entrepreneurs.

Figure 1. ISM model.

Source: Authors Representation.



6. Implications of the research

This study recommends various strategies to support women entrepreneurs, including improving access to finance, providing skills and networking opportunities, and addressing gender-based discrimination. This paper also highlights the importance of engaging stakeholders, including government agencies, financial institutions, and civil society organizations, in efforts to support women entrepreneurs. The study emphasizes that supporting women entrepreneurs is essential for promoting inclusive economic growth and achieving sustainable development in South Asia. It also highlights that promoting gender equality in entrepreneurship can have broader social and economic benefits, including reducing gender-based income disparities and fostering innovation and competitiveness.

Entrepreneurship should be promoted at all levels as it helps in reducing unemployment. The role of government is critical in supporting women entrepreneurs. There are various ways in which government can support women entrepreneurs such as through its social support structures (Padi et al., 2022) and by providing funding and training (Mandongwe et al., 2020). The government should make easy access to capital for women entrepreneurs which was found to be one of the major challenges being faced by them. Policymakers should envisage different ways to promote women's entrepreneurship by making focused policies to reduce the challenges identified in the study. It is to be ensured that the policies reach the grass root level to benefit women's entrepreneurship.

7. Conclusion, findings, and recommendations

The result of this study suggests that a multi-dimensional approach is required to address the challenges faced by women entrepreneurs in South Asian countries. Such an approach would involve improving access to finance, providing business development services, promoting networking opportunities, providing entrepreneurial education, and addressing gender discrimination. The findings of this study will provide insights/recommendations that can be used to develop policies and programs that support women entrepreneurs in the region.

The findings of the study are applicable not only to South Asian countries but also to other developing nations. Panda (2018) also found that gender discrimination, access to capital, lack of infrastructure, and work-family conflict are the challenges that are being faced by women entrepreneurs in developing countries.

Table 16 indicates the possible recommendation for each of the challenge

Table 16. Recommendations	
Challenge	Recommendations for Policy Makers/Government
Lack of education	Require investment in education and training programs, as well as efforts to challenge gender stereotypes and cultural norms that limit women's access to education.
Lack of entrepreneurship education	Require increased investment in entrepreneurship education and training programs, as well as efforts to challenge gender stereotypes and social norms that limit women's access to business education and careers.
Family responsibilities	Require efforts to challenge gender roles and family responsibilities, increased support from family members, reduced stigma associated with women in business, access to childcare facilities, and flexible work arrangements for women entrepreneurs.
Gender discrimination	Require efforts to reduce gender biases and discrimination in the financing, networks, training, education, and legal protections.
Lack of capital challenge	Require efforts to reduce gender biases and discrimination in formal and informal financing, increase financial literacy and knowledge, and promote government policies and support for women's entrepreneurship.
Fear of failure	Require efforts to reduce societal norms and gender stereotypes, increase access to resources and role models, and build self-confidence among women entrepreneurs.
Lack of skilled and trained manpower	Require efforts to improve access to training and education opportunities, reduce gender bias in the labor market, and increase resources for training and development
Lack of management skills	Require efforts to improve access to training and development opportunities, reduced gender stereotypes in the business environment, and increased support for women entrepreneurs to build their business experience and networks.
Lack of Networking	Require efforts to address cultural and social barriers, increased support for women entrepreneurs, improved access to formal networks mainly industry associations, and challenge gender stereotypes and prejudices in the business community.
Lack of Infrastructural Support	Require efforts to improve access to technology, transportation, financial services, and public services.

8. Limitations and scope for future research

This study is limited to South Asian countries so a similar study can be performed for other countries. The results and recommendations for developed countries might differ from the results and outcomes of this study as this study is based on challenges faced by women entrepreneurs in South Asian countries. The present study uses ISM which helps in finding the relationships among the barriers faced by women entrepreneurs. However, the ISM model has not been empirically tested in this study which gives the future researchers to test this model by collecting primary data. Future researchers can conduct quantitative studies by collecting primary data and using advanced statistical tests. The ISM is not capable to provide cause-and-effect relationships among the variables however future researchers can use methods to categorize these barriers into cause and effect. The findings of the study could be limited due to the sample size which might present a narrow view, however, future research can be undertaken by increasing the sample size to potentially get a wider view.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: Challenges faced by women entrepreneurs in South Asian countries using interpretive structural modeling, Reena Agrawal, Priti Bakhshi, Arti Chandani, Ramona Birau & Suhan Mendon, *Cogent Business & Management* (2023), 10: 2244755.

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