



JOURNAL OF SOCIAL SCIENCES DEVELOPMENT



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DIGITAL PLATFORMS, SOCIO-CULTURAL SUPPORT, AND WOMEN'S ENTREPRENEURIAL OUTCOMES: EVIDENCE FROM HUNZA, GILGIT- BALTISTAN, PAKISTAN

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KEYWORDS	ABSTRACT
women entrepreneurship; digital platforms; socio-cultural support; Hunza; Gilgit-Baltistan; market access; digital entrepreneurship	This study explores the influence of socio-cultural support and utilization of digital platforms on entrepreneurial outcomes of women entrepreneurs in Hunza of Gilgit-Baltistan, Pakistan. Data collection was quantitative, and a cross-sectional design was used; 150 women entrepreneurs were selected in Aliabad, Karimabad and Ganish, and a structured questionnaire was used to collect the data. Analysis was done using descriptive statistics, Pearson correlation and Chi-square tests. The results indicate that overall, there is strong support for women entrepreneurship efforts at the family, culture and community levels. Simple and accessible communication technologies are crucial in remote business settings, with WhatsApp being the most popular digital platform. Using digital platforms was strongly correlated with perceived decreases in business barriers ($r = .867$, $p < .001$) and increased customer bases ($r = .719$, $p < .001$). The chi-square analysis also found that there were significant relationships between digital platform use and both entrepreneurial outcomes. The results indicate that the overall socio-cultural context of digital entrepreneurship in Hunza is a context where the family and community play a significant role. Digital technology does not seem to be a catalyst for change, but rather an enabler for access to the market and the mitigation of some of the business constraints faced within the current social systems. The study stresses the importance of context-sensitive digital-skills development and support for women entrepreneurs in the remote area.
ARTICLE HISTORY	
Date of Submission: 22-07-2026 Date of Acceptance: 24-08-2026 Date of Publication: 26-08-2026	
	
	2026 Journal of Social Sciences Development
Corresponding Author	Iraj Iqbal
Email:	Irajiqbal111@gmail.com
DOI	https://doi.org/10.59075/jssd.v5i6.334
Volume/Issue	5(6), 2026, 312-331

Introduction

Women's entrepreneurship has gained importance over the years as part of participation in the economy, household welfare, employment generation and development at the local level. In both developing and developed countries, women's enterprises play a role in diversifying household livelihoods and women's participation in economic decision-making, as well as generating income. However, the circumstances that women entrepreneurs face are quite different from the ones faced by men. The ability to access credit, access to business networks, obligations in the home, limited mobility, and socially constructed expectations about 'appropriate' economic roles for women are often factors influencing their entrepreneurial decisions (Brush et al., 2006; Minniti & Naudé, 2010; Koch, L. H., & Kuckertz, A. 2024). The constraints are especially relevant in developing and geographically remote areas where formal employment opportunities, market support and institutional arrangements are likely to already be less than optimal.

Thus, the entrepreneurial climate of women can be grasped only if both individual entrepreneurial motivation and entrepreneurial ability are taken into account. A focus on the intersection of women's agency and the social, institutional and cultural context in which entrepreneurship is conducted has been growing in the study of women entrepreneurship. For example, Brush et al. (2009) contend that women's entrepreneurial activities are part of a broader family, household, social and institutional context. Gender-biased expectations could constrain the nature, location, size and visibility of the businesses women are able to start, while family support can afford women time, financial resources, encouragement and legitimacy to pursue economic activities. Women are more likely to engage in business activities that can be integrated into household activities and are socially acceptable in their communities, in many developing situations.

The addition of digital technologies to this gender, entrepreneurship and social context relationship has added another level. Digital Entrepreneurship is a broad term that describes entrepreneurial processes using digital technologies in creating, organizing, communicating, marketing or delivering economic value. Nambisan (2017) points out that digital technologies have changed the traditional entrepreneurial processes, as some of the spatial, organizational and transactional constraints of business formation and market participation have been diminished. Social-media sites, messengers, digital-payment apps and online markets enable small businesses to communicate directly with their customers, promote their products, arrange orders, manage business relationships and access markets outside of their local areas.

These characteristics might be significant for women entrepreneurs, who are less mobile, have limited time, or have less access to physical markets. For instance, a woman whose enterprise is based at her home may communicate with customers using a mobile phone, but not have a set-up for commercial use. Likewise, messaging and social-media services can help decrease some of the expenses of traditional advertising and in-person customer acquisition. Digital technologies do not automatically reduce inequalities between women and men socially and economically, but

they can shift the way in which women negotiate existing constraints, as some business activities can happen from within socially acceptable spaces.

It was only during and after the COVID-19 pandemic that digital tools became more apparent in the context of their significance. The pandemic impacted small businesses globally and, at the same time, digital communication, online transactions and technology-based work were accelerated. Bartik et al. (2020) found that small businesses were significantly impacted economically at the onset of the pandemic, and showed how restrictions on normal commercial activities affected smaller enterprises. Such disruptions were more important for women who ran informal or small-scale businesses, who generally had fewer financial resources, less institutional protection and more household responsibilities. As mobile and digital technologies became even more critical, opportunities for business owners with the capacity to move some aspects of their interactions and marketing online emerged.

In Pakistan, despite significant progress made in the area of women's empowerment, their involvement in the formal sector is still comparatively low, due to gender disparities in employment opportunities, mobility, access to resources, and unpaid household duties. This is also evident from official statistics of labour force participation in Pakistan, where there is a considerable disparity in participation rates between males and females (Pakistan Bureau of Statistics, 2022). National-level labour-market indicators, however, fail to adequately reflect a broad range of female involvement in informal, household-based, micro and digitally-driven economic activities. Women can play a role in their local economy in food production, in handicrafts and tailoring, in agriculture and in activities, services and other micro-businesses related to the tourism sector, even though they do not fall under the formal definition of entrepreneurship.

The case of Hunza in the region of GIBALT, particularly, is therefore an important context for studying these processes. In terms of its geographic isolation, Hunza is far removed from key commercial centres in the country, and land-based transport and market-access costs can be higher due to the mountainous topography. Meanwhile, major social and economic changes in the area have been driven by education, tourism, communication technologies, and other factors affecting the sustainability of livelihoods. In the context of the changing livelihoods and small business activity in Hunza Valley, Karrar (2020) and Bvuma, S., & Marnewick, C. (2020) shows how entrepreneurship is part of the broader economic change. Women are seen in various activities like stitching, food-related business, agriculture, services, handicraft and other types of micro-business activities. Their business ventures are still inseparable from the family and the community's norms and expectations on women's role in business and public activities.

All these factors of geographical isolation, evolving lifestyles, growing access to digital tools and ongoing socio-cultural factors make Hunza a case analytically relevant to the study of women's digital entrepreneurship. The vast body of literature on women's entrepreneurship illustrates the different aspects of women's entrepreneurship, including access to finance, motivation of women, their education status, responsibility for household affairs, social networks, institutional

environment, etc. A parallel – and fast-growing – literature explores the impact of digital technologies on entrepreneurship and market access. The relation of the use of digital platforms with socio-cultural support and entrepreneurial outcomes is less understood in geographically remote locations like Hunza, however.

Specifically, it is important to know if digital technologies just serve as a means to further communication or if there is any linkage between digital technology and useful changes in the practical constraints faced by women entrepreneurs. Just because you have access to a digital platform doesn't mean you are going to be a successful entrepreneur. It could be useful if it is affordable, if very few people are not digitally literate, if they have an internet connection, if they accept digital communication, if families accept women's economic activity and if there is a general legitimacy of this economic activity. The impact of digitalization should hence not be considered separately from the social context women are working in.

The present study aims to tackle this issue by analyzing the women entrepreneurs of Aliabad, Karimabad and Ganish, in the district of Hunza, Gilgit-Baltistan. It highlights specifically the relationship between women's use of digital platforms and two outcomes of entrepreneurship: perceived decrease in the barriers to operating or developing a business and perceived increase in the customer base. The study also takes into account the broader importance of family encouragement, cultural attitudes and community recognition for influencing women's entrepreneurial involvement. In this manner, research mainstreamed the concept of digital entrepreneurship with the socio-cultural context, instead of technological adoption being unrelated to local institutions and gender norms.

The study has three related contributions: First, it offers empirical data from a little-studied area of the mountains of Pakistan where women entrepreneurs are emerging amidst a unique geo-socio-cultural context. Second, it looks at the use of digital platforms within a broader entrepreneurial context where family and community are still significant. Third, it examines whether using digital platforms more is statistically related to perceptions of a decrease in entrepreneurial barriers and an increase in customer access. In so doing, the study makes a contribution to the debate on women's entrepreneurship, digital inclusion and gender-focused economic development in peripheral areas.

Hence, the study aims to gain insights into the determinants of women's growing involvement in entrepreneurial activities in Hunza and how it is facilitated through the use of digital platforms. Special consideration is given to whether women who use digital platforms more often also feel they have fewer entrepreneurship barriers and are expanding their customer base. The study does not assume that a change in gender relations is automatically brought about by digital technology, but rather sees digital entrepreneurship as a process within the family, community and culture.

Problem Statement

While women's entrepreneurship is growing increasingly recognized as an important way to enhance economic participation and livelihood opportunities, in developing contexts, constrained access to markets, mobility, financial resources, household responsibilities and socio-cultural expectations remain constraints for women entrepreneurs (Brush et al., 2009; Minniti & Naudé, 2010; Mroczek-Dąbrowska, K., & Gawel, A. 2020). These barriers could be greater in geographically remote regions where farmers' access to formal markets, business contacts and institutional support is more limited.

The use of the internet has provided new opportunities for small business entrepreneurs due to digital platforms that have reduced costs and facilitated customers to interact with the entrepreneur, as well as the entrepreneur to reach beyond local markets (Nambisan, 2017). These technologies could have special significance for women entrepreneurs as they can assist in matters relating to business activities without having to be present in conventional marketplaces on a regular basis. However, digital technology does not always go hand-in-hand with positive entrepreneurial outcomes. It will rely on family support, cultural acceptance, attitudes of the community, digital literacy and the local business climate.

In the context of a changing local economy, women are getting involved in small businesses in Hunza, GB (Karrar, 2020). To date, however, very little evidence exists to show how family, cultural and community support affect the experience of women entrepreneurs or whether there is an impact on entrepreneurial outcomes as a result of increased access to digital platforms in this geographically marginalised setting. The linkage between using digital platforms, the perception of the reduction of barriers to business and the increase in customer base, in particular, has been under-researched. This study therefore filled this gap by analyzing the socio-cultural support received by the female entrepreneurs in Hunza and the correlation between their use of digital platforms and entrepreneurial outcomes.

Research Objectives

To examine the family, cultural, and community support reported by women entrepreneurs in Hunza, Gilgit-Baltistan.

To examine the association between digital-platform use and entrepreneurial outcomes among women entrepreneurs in Hunza.

Research Questions

RQ1: What levels of family, cultural, and community support are reported by women entrepreneurs in Hunza?

RQ2: What is the relationship between digital-platform use and entrepreneurial outcomes

among women entrepreneurs in Hunza?

Literature Review and Theoretical Framework

Women's Entrepreneurship and the Socio-Cultural Context

Women's entrepreneurship is an area of study that is significant due to its role in providing employment, earning revenue for the household, alleviating poverty and overall economic participation. But entrepreneurial activity does not take place without involving the social context of women's lives. The ability to access economic resources and family responsibilities, community expectations, gender roles and institutional arrangements are all factors that affect women's choices to create and manage businesses. This is especially crucial in developing nations where women are likely to face restrictions that impact not only their ability to become entrepreneurs, but also the expansion of their businesses.

Female entrepreneurship is influenced by both economic development and institutional frameworks, labour-market practices and social norms, and the patterns of women's entrepreneurship are thus very different across countries, argue Minniti and Naudé (2010). As a result, the various factors that affect women's entrepreneurship cannot be attributed to their personal attributes (education, motivation or business skills) only. The social and institutional context is crucial in shaping the opportunities open to women and how they can turn these opportunities into entrepreneurship.

A gender-sensitive perspective also highlights that women's entrepreneurial experiences take place in the context of households, families and institutions as a whole. Conventional approaches to entrepreneurship do not reflect the unique social contexts in which women start and operate businesses, as suggested by Brush et al. (2009). They offer a framework that stimulates entrepreneurial analysis with a focus on the family and social aspects. Household duties, family dynamics, social norms, and community acceptance can affect the household's time, economic resources, business network, and market entry opportunities for women.

There are, then, a number of ways in which family members can be important entrepreneurial resources. The support could be in the form of financial assistance, encouragement, supporting a woman's household duties, and social acceptance of a woman's involvement in business. Where gender roles have significance, family acceptance of women's involvement in business activities, in dealing with customers, in travelling for business, or in investing household resources in an enterprise can all be affected by the acceptability of women's involvement in the family. On the other hand, poor family support can exacerbate the challenge of entrepreneurship, even if there is a market opportunity there.

Some researchers have also highlighted the social and gender aspects of entrepreneurship in Pakistan. Roomi and Harrison (2010), for instance, show that gendered social structures are a significant constraint on women's entrepreneurship in Pakistan, as are the opportunities women

have to learn and receive support in business. The implication is that entrepreneurship is not just a choice of the individual entrepreneurs. Instead, it is a practice that is worked out in family/community contexts.

Economic participation and the overall empowerment difference is also significant. Kabeer (2012) and Amalia, A. M., et.al, (2023) has suggested that it is not enough to participate in income-generating activities to be deemed to be economically empowered. Women's access to economic opportunities may increase women's resources and decision-making ability, but this is taking place in the current institutional and social context. So, it is not a rule that the more people become involved in entrepreneurship, the fewer gender barriers there will be. Women can be brought into the economic mainstream without losing their economic invisibility or being disempowered.

This is particularly applicable to the current research. Women entrepreneurs in Hunza can get a lot of support within their family and community, and at the same time, focus on the business activities which can be undertaken in or around the household. This would suggest that the participation of entrepreneurs and socio-cultural acceptance can go hand in hand, not antagonistically.

Women's Entrepreneurship in Remote and Peripheral Economies

Another level of entrepreneurial activity is the geographical context. Frequent business challenges faced by entrepreneurs in remote areas include access to large consumer markets, formal financial institutions, transport systems, business networks, and specialized services. For smaller companies with limited financial resources to expand, or relying on local demand, this can be a very important constraint.

It is important to study this relation in the context of Hunza. Hunza is situated in the mountainous area of Gilgit-Baltistan, which has experienced a significant socioeconomic shift due to shifts in livelihood, education, tourism, infrastructure and market integration. The role of small enterprises and livelihoods in Hunza Valley has undergone a transformation over the years, as illustrated by Karrar (2020), which shows that entrepreneurship is an important asset for the local economy.

The economic changes for women can be an opportunity for them to be involved in food production, stitching, agriculture, handicrafts, services related to tourism and other small businesses. However, the geographic isolation of the area can make the value of methods which minimise reliance on physical markets greater. For companies in less congested areas, it can be challenging to draw customers in from beyond the immediate area using traditional marketing tactics. These restrictions present a valuable justification for studying digital platforms as a possible tool to help spread entrepreneurship.

Geographical and socio-cultural constraints should also be taken into consideration. Restrictions on transport and the distance of markets from small businesses can impact all small businesses,

while women can have further restrictions due to domestic duties or restricted mobility. Under these conditions, technology that allows communication and provides a way for customers to contact entrepreneurs without having to travel frequently could be especially relevant for women entrepreneurs.

Digital Platforms and Entrepreneurial Activity

Digitalization is transforming the process of identifying, developing and exploiting entrepreneurial opportunities. Some of the traditional separations between producers, consumers, markets and locations have been eliminated by digital technologies. Nambisan (2017) argues that digital technologies change the nature of entrepreneurial processes due to their flexibility, accessibility and the facilitation of multiple economic actors. Digital platforms can thus shape entrepreneurs' products or services, their interactions with customers, the way they coordinate transactions, how they market the product and how they access markets.

If you're a small business, you don't always need a complicated e-commerce platform to be the most critical digital technology. Simple digital communication tools, mobile messaging apps and social media platforms offer low-cost advertising options, answering customer questions, sharing photos, ordering products and keeping customers up-to-date. They are important characteristics of micro and home-based businesses, which may not have the means to run formal websites or retail businesses.

The impact of digital technologies has only been more pronounced during the COVID-19 pandemic. The movement restrictions and the usual business activity were among the most severely affected for small businesses. Bartik et al. (2020) reported significant disruptions for small businesses in the early pandemic, underscoring the fragility of smaller businesses to possible abrupt shifts in market conditions. Meanwhile, the crisis also gave a boost to digital communication and tech-mediated business practices.

Digital tools can help minimise some practical limitations for women entrepreneurs. Mobile communications can reduce the need for regular travel to the customer, and social media marketing can bring in new customer groups that are not in the neighbourhood or immediate circle of family and friends. Digital communication can also enable the entrepreneurs to work more flexibly on family matters. These benefits are particularly important in areas where businesses are operating on a small scale and/or where mobility has socio-cultural, geographical or financial consequences.

But digitalization does not have to be seen as the "one and the same" solution to entrepreneurial inequality. Having a smartphone and/or social media account doesn't automatically lead to increased business. The advantages of digital platforms are contingent on the availability of internet access, digital competence, affordability, customers' access to the technology, trust in digital transactions and the competency of the entrepreneur to turn digital interactions into economic exchanges. In this regard, digital entrepreneurship is still in the context of broader

institutional and social frameworks.

Digital Platforms, Business Barriers, and Market Access

Reducing some of the barriers faced when operating a small business is one of the key arguments for promoting digital entrepreneurship. Traditional entrepreneurship may involve opening business offices, going to the markets, promoting the business in person, and serving as an investor carrying out traditional advertising. These needs can be significant financial and logistical challenges for micro enterprises.

Some of these costs can be minimised by the use of digital platforms and the direct communication of the entrepreneur with their customers, as well as direct marketing. This is particularly relevant for women involved in home-based businesses, as it may help to minimize the need for them to attend markets. Digital platforms can thus serve as an additional infrastructure for the business, not just a communication technology.

Concepts of barrier reduction should be used with caution, however. Structural impediments, like limited access to technology, household workload, limited financing, and poor transportation infrastructure, are unlikely to be resolved through digital platforms. Their job is more likely to be that of alleviating some of the operation- and market-related problems that have been selected. An entrepreneur could, for instance, have a more difficult time accessing capital but could communicate with customers or market products via a messaging software application more easily.

The second entrepreneurial outcome related to customer base expansion is a potentially important one. Business expansion can be limited by the number of customers that an enterprise is able to reach when the market is geographically limited. With digital communication, product and service information can be delivered beyond the confines of the business enterprise. The customers can view the products, ask any question, place an order or suggest the business to others without going to the entrepreneur.

This expectation is theoretically supported by Nambisan's (2017) conception of 'digital entrepreneurship', which suggests that some of the spatial limitations of entrepreneurship have been reduced by digital technologies. This relationship could be significant in the region of Hunza, as it is also located some distance from the major commercial centres, and connectivity to markets is thus a key issue.

The present study thus considers not just the question of whether women have access to digital technologies or use them, but rather whether more frequent use of a digital platform is related to two key entrepreneurial outcomes: feeling less constrained in their business and feeling their business has grown its customer base.

Family, Community Support, and Digital Entrepreneurship

Digital entrepreneurship should also be interpreted in relation to the social environment of women entrepreneurs. Women need adequate social and practical space to participate in entrepreneurship and effectively utilize technological opportunities. Women might be able to leverage digital technologies for business if the family is helpful, provides support with household chores, helps finance the use of these tools, and has positive attitudes toward gender equality in work. Positive attitudes toward women's work, financial resources to use digital technologies, support in household tasks, and encouragement from family members can facilitate women's ability to use digital technologies for business activities.

The work of Brush et al. (2009) offers a useful way of grasping this connection, as the framework is sensitive to gender, with the family and social context as a key part of women's entrepreneurial context. In this context, technology is not genderless and gender-neutral. Rather, how women have access to economic resources and legitimate business opportunities affects its entrepreneurial utility.

The connection can be especially crucial in the context of digital entrepreneurship, where women are able to engage economically while not significantly challenging the norm of physical mobility. For example, home-based enterprises that are supported using WhatsApp or other platforms could increase women's customer relationships and keep most of the enterprise processes within the socially acceptable spheres. Digital technologies can thus provide opportunities for incremental economic involvement, through changes in the practical aspects of market access, without an immediate overhaul of social structure.

The concept of economic participation and empowerment as multidimensional and context-dependent processes is in line with Kabee's (2012) argument. Enhancing market access can provide additional economic opportunities for women, but the impact on broader gender relations will depend on the domestic and institutional context.

Theoretical Framework

The gender-aware understanding of women's entrepreneurship by Brush et al. (2009) and the digital entrepreneurship view of Nambisan (2017) are the two key viewpoints that are utilized in the present study.

The gender-aware framework is the basis for understanding the first dimension of the study: family, cultural and community support. From this view, one cannot understand women's entrepreneurship without taking into account the family or social context where entrepreneurship decisions are taken. Thus, the encouragement of the family, the acceptance of the culture, and the recognition of the community can be considered as part of the entrepreneurial context and not as external factors.

The second dimension is explored using Nambisan's (2017) digital entrepreneurship perspective. Digital technologies can change the nature of entrepreneurial processes by adding connectivity, reducing some transaction and communication costs and removing geographical barriers to market interaction. For women entrepreneurs, digital platforms can be a means to interact with their customers, promote their products and connect with consumers outside their immediate physical surroundings of Hunza.

All these perspectives imply that women's entrepreneurial outcomes are the result of a combination of social embeddedness and technological opportunity. Family and community dynamics shape the context in which women work, and digital platforms offer tools for navigating some barriers to operations and helping women reach more markets. The conceptual relationship guiding the study can therefore be expressed as:

- a) Socio-cultural support → Women's entrepreneurial environment
- b) Digital-platform use → Perceived reduction in business barriers
- c) Digital-platform use → Customer-base expansion

The study is not based on the premise that digital technologies are the sole means by which entrepreneurial success is achieved. It rather explores the relationship between increased use of the digital platforms and more favourable entrepreneurial outcomes in the specific social and geographic environment of Hunza.

Hypothesis Development

Digital technologies can reduce some of the constraints around communication, marketing and accessing markets, as entrepreneurs are able to communicate with customers and reach them in ways other than solely through physical business environments (Nambisan, 2017). These are especially pertinent in the context of women entrepreneurs of small and home-based businesses in geographically remote locations. It is therefore not surprising that an increase in the use of digital platforms would be correlated with an increase in the perception that barriers are fewer in business.

H1: There is a positive relationship between H1: Greater use of digital platforms and H1: Perceived reduction in business barriers among women entrepreneurs in Hunza.

Digital platforms can also help entrepreneurs reach out to their customers outside their geographical area. Increased use of digital platforms could be linked to broader market penetration and customer base because of the ability to eliminate geographical barriers to information sharing and customer interaction.

H2: Women entrepreneurs in the hunza region show a positive relationship with the expansion of the customer base due to using digital platforms.

Materials and Methods

The present study adopted a quantitative research approach (XS) to explore the relationship between the use of digital platforms and the entrepreneurial outcomes of women entrepreneurs in Hunza District, Gilgit-Baltistan. The reasons behind the selection of Hunza as a study area were: relatively high Female literacy, changing livelihood patterns, and the growing role of women in small-scale entrepreneurial activities. Aliabad, Karimabad and Ganish were chosen as the three localities of Hunza District for the study. These areas are significant commercial and residential settlement areas where women are involved in various aspects of entrepreneurship.

The target population were women entrepreneurs who were involved in the operation of small- and medium-scale business units in the selected localities. A total of 150 women entrepreneurs participated in the study. Representativeness was achieved by simple random sampling of different types of business activities and geographical locations within the study area. The initial sampling frame comprised women engaged in the tourism sector, handicrafts, food-related activities, services and work through the internet. The last sample, however, included a representative sample of enterprises prevalent in the area such as stitching, food business, dairy farm, agriculture, clothing, laundry and beautician services. This variety enabled the capture of entrepreneurial experiences from various types of small-scale economic activity.

The data were gathered using a structured questionnaire to gather information on the socio-demographic characteristics, business profile, family support, community support, usage of digital platforms, and perceived entrepreneurial outcomes of respondents. The questionnaire consisted of categorical questions and statements that were measured on a 5-point Likert scale. The response categories varied based on the construct, from "strongly disagree" to "strongly agree" or from "never" to "always. Special emphasis was placed on how respondents felt their families encouraged them, financial and household support, cultural acceptance, community attitudes, the use of digital platforms, and how their businesses were affected by barriers in their community being reduced and their customer base increasing.

All the collected data were coded and analyzed using IBM SPSS version 22. The socio-demographic and business characteristics of the respondents were summarized using descriptive statistics, which were presented in the form of frequencies and percentages. Descriptive statistics were also used to describe the patterns of family, cultural and community support and digital-platform adoption. The relationship between the two main entrepreneurial outcomes and digital-platform use was analysed using inferential statistical techniques. The direction and strength of the associations between the use of digital platforms and perceived reduction in barriers to business and between digital-platform use and expanded customer base were determined using Pearson's correlation coefficient. Furthermore, the chi-square test of independence was employed to determine if there was a significant relationship between any categories of digital-platform use and any entrepreneurial outcomes. A conventional p-value of less than .05 was used to determine statistical significance.

Ethical guidelines were taken into account during data collection. Consent was obtained, and assurances were given regarding the confidentiality and anonymity of respondents' information. Identifying information was not included in the analysis. The items for the questionnaire were also checked for clarity, the suitability of the wording and cultural sensitivity to minimize possible misunderstandings or bias in the answers given by the respondents.

Results

Socio-Demographic and Business Profile of Respondents

In this study, 150 women entrepreneurs from Aliabad, Karimabad and Ganish were taken into consideration from Hunza district. Most respondents belonged to the 20-40-year age range, with 40.0% aged 20-30 years and 44.7% aged 31-40 years. Aliabad (36.7%), Ganish (39.3%) and Karimabad (24.0%) had the highest share of respondents, respectively. The majority of the respondents did not have higher education (48.0%) or intermediate education (36.7%), and 76.0% were married.

The most predominant entrepreneurial activity mentioned was stitching, accounting for 51.3% of the sample. Smaller proportions were represented by food businesses, dairy farming, and agriculture, among others, but clothing, laundry, and beautician services were also represented. The socio-demographic and business profile of the respondents is given in Table 1.

Table 1. Socio-Demographic and Business Profile of Respondents (N = 150)

Variable	Category	n	%
Age	20-30 years	60	40.0
	31-40 years	67	44.7
	41-50 years	18	12.0
	51-60 years	5	3.3
Locality	Aliabad	55	36.7
	Karimabad	36	24.0
	Ganish	59	39.3
Education	Primary	14	9.3
	Secondary	72	48.0
	Intermediate	55	36.7
	Bachelor's degree	9	6.0
Marital status	Married	114	76.0
	Unmarried	36	24.0
Business type	Stitching	77	51.3
	Food business	23	15.3
	Dairy farming	22	14.7
	Agriculture	18	12.0
	Clothing	5	3.3

Laundry	3	2.0
Beautician	2	1.3

The distribution shows that the sample was somewhat skewed towards the younger and middle-aged females who were involved in relatively small businesses. Yet, the descriptive patterns should not be taken as a sign of a correlation between age or education and the likelihood of being an entrepreneur because the study did not include a comparison group of non-entrepreneurs.

Digital-Platform Adoption

The respondents were generally familiar with digital technologies for business use, but these were mostly technologies that were relatively simple and accessible, such as communication technologies. The predominant platform was WhatsApp, used by 60.7% of the respondents. The second most common medium used was SIM-based mobile communication, followed by Facebook, Instagram, YouTube and TikTok, which were significantly smaller.

Table 2. Digital Platforms Used for Business Purposes (N = 150)

Digital platform	N	%
WhatsApp	91	60.7
SIM-based mobile communication	24	16.0
Facebook	12	8.0
Instagram	12	8.0
YouTube	6	4.0
TikTok	5	3.3
Total	150	100.0

The results indicate that women's digital entrepreneurship is mainly dependent on the use of mobile communication technologies that are easily available, not on complex e-commerce technologies. The dominance of WhatsApp also suggests the significant role of direct communication with customers in women's business enterprises in the study area.

Family, Cultural, and Community Support

Overall, the level of support for the entrepreneurial activities reported by respondents was high. Eighty-eight percent of participants said their families encouraged them to engage in this activity, and 78.7% reported getting financial support from their family. Likewise, 78.6% reported that they had adequate time to run their businesses due to assistance with household tasks.

There were also positive perceptions noted at the community and cultural levels. Over three-quarters said that they were encouraged by the attitudes of community members, and 81.3% felt

that there was cultural support for women entrepreneurs and that society valued women entrepreneurs.

Table 3. Reported Family, Cultural, and Community Support

Support indicator	Agree/Strongly Agree (%)
Family encouragement to establish a business	88.6
Financial support from family	78.7
Household support enabling time for business	78.6
Encouragement from community attitudes	76.6
Cultural support for women's entrepreneurship	81.3
Social appreciation of women entrepreneurs	81.3
Perceived increase in women entrepreneurs in the community	76.6
Women participating in profit-making businesses	71.3

Note. Percentages represent respondents who selected “agree” or “strongly agree” for the respective statements.

The results answer the first research question, which addresses the level of perceived family, cultural and community support among the women entrepreneurs who were included in the study. Given that the sample was limited to current entrepreneurs, the results presented here reflect perceived support and not whether it actually led to entrepreneurship for women.

Perceived Role of Digital Platforms

Market extension was also made with the help of digital platforms. Overall, 55.4% said that they used digital media to reach their customers outside their local market “often” or “always”, while only 2.7% said they never used digital media in this way. The questionnaire also explored the perceptions of the respondents with regard to dependence on physical markets, marketing costs, working from home and communication with customers through digital platforms.

The data presented in the manuscript is not complete in terms of the distribution of responses for all categories of these items and thus is not presented in a complete frequency table.

Relationship Between Digital-Platform Use and Entrepreneurial Outcomes

Digital platform use was significantly and positively correlated with the perceived decrease in barriers to business $r = .867, p < .001$) for Pearson correlation analysis. The use of the digital platform was also positively and highly correlated with an increase in the customer base ($r = .719, p < .001$).

Table 4. Correlation Between Digital-Platform Use and Entrepreneurial Outcomes

Variables	Pearson's r	p -value	Interpretation
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	r	value		
Digital-platform use and perceived barrier reduction	.867	< .001	Strong association	positive
Digital-platform use and customer-base expansion	.719	< .001	Strong association	positive

The results in this study suggest that more positive entrepreneurial outcomes were reported with greater use of digital platforms.

In addition, two entrepreneurial outcomes were analyzed using chi-square tests for associations with each of the categories of digital-platform use. The results are presented in Table 5.

Table 5. Chi-Square Tests of Association Between Digital-Platform Use and Entrepreneurial Outcomes

Outcome variable	Pearson χ^2	df	p-value	Likelihood ratio	Linear-by-linear association
Perceived business-barrier reduction	110.07	4	< .001	115.49 (p < .001)	84.35 (p < .001)
Customer-base expansion	83.54	4	< .001	85.14 (p < .001)	66.97 (p < .001)

Note. N = 150 for both tests. No expected cell count was below five; therefore, the assumptions of the chi-square test were satisfied.

The results of the cross-tabulation were similar. Respondents who used digital platforms at a high level had a high level of barrier reduction (75.5%), while respondents who used digital platforms at a low level had a low level of barrier reduction (79.0%). Likewise, 75.5% of those respondents who possess a high level of digital-platform use said they have a high level of customer growth, and 72.0% of the respondents in the low use category said they have a low level of customer growth.

Therefore, the results of H1 were supported, as more use of digital platforms was positively related to a reported decrease in business barriers. H2 was also supported because higher use of digital platforms was positively linked to an increase in customers. The findings are based on statistical associations and may not be considered evidence of causal effects due to the cross-sectional design of the research.

Discussion

Based on the results of this study, it can be concluded that women's entrepreneurship in Hunza is influenced by socio-cultural support and utilization of digital platforms. The findings suggest that family encouragement, family assistance, cultural acceptance and community recognition are important aspects of the entrepreneurial environment faced by women entrepreneurs in the study area. Concurrently, digital platforms seem to offer tangible assistance, such as better customer

communication, in decreasing selected business barriers and in increasing market access.

The first research question was about the support that comes from the family, culture and community. The results revealed that the majority of respondents were encouraged by their families, and many respondents reported that they had financial support from family and support in household responsibilities. The attitude of the people in the community and acceptance of women's entrepreneurship were also mentioned positively. The results obtained are consistent with Brush et al. (2009)'s gender-sensitive approach that highlights the role of women's entrepreneurial role within the family, household and broader social context. In this context, family support can give women time, as well as the legal and financial resources they need, plus encouragement to engage in business activities.

The results also corroborate previous studies, which found that gender inequalities at the social and institutional levels have a significant impact on women's entrepreneurship in Pakistan. Roomi and Harrison (2010) argue that the social environment is crucial in determining the opportunities available to women to become entrepreneurs. In the present study, the attitude of women entrepreneurs towards their immediate social environment is extended to Hunza, which shows that generally women entrepreneurs consider their immediate social environment as supportive. But, it should be taken with a pinch of salt as only women entrepreneurs were in the study. It does not mean that women supported more in their families and culture are more inclined to be entrepreneurs than women supported less in their families and culture.

It is also useful to have some context of the distribution of business activities. A significant proportion of the respondents were engaged in stitching activities, food businesses, and dairy farming activities in terms of numbers, constituting a significant proportion of the rest of the enterprises. Most of these activities are local and small-scale. This trend may be due to the local economy's practicality of such businesses. However, these data do not directly prove that cultural expectations and/or mobility restrictions were factors in the choice of these sectors. As a result, care should be taken when making any interpretation of occupational concentration.

The second key learning is about digital-platform adoption. WhatsApp was the most frequently used platform for business use, followed by SIM-based mobile communication, and then Facebook, Instagram, YouTube and TikTok to a lesser extent. It is obvious that women entrepreneurs from Hunza use basic, easy-to-access and comparatively less expensive digital technologies, as WhatsApp is the dominant option.

This is in line with Nambisan's (2017) digital entrepreneurship perspective, which relates to how digital technology can potentially transform entrepreneurial processes through the minimisation of communication and space barriers. Digital tools can serve as a vital tool to connect entrepreneurs with customers, especially in remote areas like Hunza, where it is difficult to reach the big markets even by car and takes a lot of effort. Focusing on Hunza, Karrar (2020) also notes the changing nature of livelihoods and small-business activity in the region, offering wider context to the importance of entrepreneurship in the region.

The results of the statistics indicate good support for the relationship between the use of digital platforms and entrepreneurial outcomes. There was a positive correlation between the use of digital platforms and the perception of the reduction of business barriers ($r = .867$, $p < .001$). Chi-square also verified that there was a significant association between these two variables, $\chi^2(4, N = 150) = 110.07$, $p < .001$. The results of this section of the paper provide support for the initial hypothesis and indicate that women who indicated high use of digital platforms also tended to indicate high levels of reduction in barriers to their businesses.

The same was seen when it came to expanding customer base. The use of digital platforms was also associated with an increase in customers, with an $r = .719$, $p < .001$, and the chi-square analysis yielded a statistically significant result, $\chi^2(4, N = 150) = 83.54$, $p < .001$. The results for the second hypothesis are presented. They are also consistent with the descriptive result, which indicated that over 50% of respondents often or always contact customers outside of their local market via digital media.

This indicates that digital technologies have great potential in the field of small business women entrepreneurs, as they help them to be less dependent on physical markets. Women can communicate with customers, provide information on products, arrange orders and operate business relationships via messaging and social media without having to travel to the office on a regular basis. It may be particularly crucial in geographically remote areas like Hunza.

The results are not to be taken as proof that the use of digital technology is a standalone strategy for changing women's economic status, however. Kabeer (2012) and Amalia, A. M., et.al, (2023) has indicated that economic participation and empowerment are complex phenomena and that household and social structures are still affecting the process of economic participation and empowerment. The results of the present study confirm this view. Digital platforms seem to be embedded in, rather than replacing, the current family and community contexts.

In a general sense, the study indicates that the phenomenon of women's entrepreneurship in digital aspects in Hunza can be explained as a socially embedded phenomenon. Family and community support fosters an enabling social environment, and digital platforms offer an effective means of communication and market access. Considering these two dimensions together provides a better explanation of women's entrepreneurial experiences than considering them as two separate dimensions.

Limitations of the Study

The study has a number of drawbacks. The first is the cross-sectional research design, which makes it difficult to draw causal inferences. Digital-platform use was positively correlated with the reduced perception of barriers and increased customer base, but the study does not prove that increased platform use is directly responsible for these increases.

Secondly, the study was dependent on self-reporting via questionnaires. Recall bias and social

desirability might affect perceptions of family support, cultural acceptance, barriers to business, or increases in customer growth. Third, the sample consisted of 150 women entrepreneurs of Aliabad, Karimabad and Ganish. It is therefore suggested that the findings shouldn't be generalized to all women entrepreneurs of Gilgit-Baltistan or Pakistan.

A drawback is that only females who were already entrepreneurs participated in the study. Thus, it is not possible to compare entrepreneurs with non-entrepreneurs and be able to say if family support and digital access have an effect on the initial decision to become an entrepreneur. Furthermore, the study was largely directed at perceived problems and the expansion of the customer base, not at objective criteria such as revenue, profit, business survival, long-term growth, etc.

Conclusion

In this study, socio-cultural support and usage of digital platforms among women entrepreneurs in Hunza, Gilgit-Baltistan were explored. The results showed that most women entrepreneurs had a generally high level of support from their families, cultures and communities, implying that they are relatively surrounded by a supportive social environment for their economic activities.

Digital platforms were also seen as an important component of women's business practices. The overwhelming platform was WhatsApp, indicating that technologies that are simple and accessible are especially relevant to the small-scale entrepreneurs in remote regions. Digital-platform use is positively associated with a perceived decrease in business barriers and an increase in customers.

The research findings indicate that digital entrepreneurship in Hunza cannot be considered an exclusively technological process. It is closely associated with the social environment women work in. Selected business constraints seem to be mitigated by digital platforms, which are believed to enhance market access, and family and community support, which are believed to create the social conditions where women can engage in entrepreneurial activities.

Recommendations

Based on the results, programs that support entrepreneurship should involve practical training for women on how to use digital technologies, such as WhatsApp, Facebook, Instagram and other platforms, to communicate with customers, market and promote their products. These programs should concentrate on tools that women are already using and not only on high-tech e-commerce tools.

Women entrepreneurs must also be assisted by local institutions and development organisations to market their products and services to their target consumers outside the local market using digital marketing, business networking and better access to online markets. Access to the Internet and digital literacy should also be considered, especially in rural settings.

Further studies could involve increased and more diverse samples and a comparison between women entrepreneurs and non-entrepreneurs. Longitudinal studies would be beneficial to ascertain whether the use of digital platforms has a long-term impact on business performance. More objective indicators like income, profitability, business survival and growth, and wider outcomes of women's decision-making and economic autonomy should also be explored in future studies.

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