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Exploring the Demand for Microinsurance among Marginalized Women in Bangladesh

Abstract

Recently, microinsurance has drawn much interest as a possible instrument to shield people experiencing poverty from significant shocks. However, there has been little voluntary demand, which raises questions about whether microinsurance would be effective as a risk management tool. This article aims to pinpoint the elements that affect the demand for microinsurance among Bangladeshi women employed in the informal sector, who are particularly susceptible to a variety of economic risks. On a sample size of 829 from around the country, the authors have conducted a logit analysis and identified fourteen factors classified under four broad categories that affect microinsurance demand for marginalized women. The result of this study will advance the field's understanding of building microinsurance products and regulatory frameworks that consider the needs of disadvantaged women and assist them in obtaining the social protection necessary to sustain them over the long term.

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1. Introduction

Microinsurance is "the protection of low-income people against specific risks in exchange for recurring premium payments suitable to the probability and cost of the risk involved," according to the International Association of Insurance Supervisors (IAIS). Generally, microinsurance provides services to a particular socioeconomic group in nations with developing insurance markets. Low-income individuals in developing nations frequently lack access to healthcare services and reside in hazardous areas with higher rates of illness, mishaps, and theft. They face numerous severe dangers to their fortunes and lives but lack the informal tools to manage such risks. In developing and emerging markets, microinsurance is a crucial tool for safeguarding underserved low-income groups' health and way of life. It offers a way for people experiencing poverty to protect their cattle, crops, and other property against the hazards associated with natural disasters like fires, floods, and droughts. People with low incomes are more susceptible to these risks than the general population, and they can be severely affected by unexpected bad events that have not been planned for or covered by insurance. The potential of microinsurance as a risk management tool for low-income populations has garnered significant interest from both academics and practitioners (Dror and Jacquier, 1999;

Morduch, 2006; Giesbert et al., 2011; Biener and Eling, 2012; De Bock and Gelade, 2012). Despite this recognition, demand for microinsurance products remains relatively low (Cole et al., 2013; Giné et al., 2008; Jowett, 2003; Thornton et al., 2010). This apparent discrepancy between perceived promise and actual uptake highlights the need for further investigation into the factors influencing microinsurance demand among the poor.

Microinsurance functions essentially the same as traditional insurance, except that it is intended for low-income households, particularly the working poor, who have few or no financial reserves and incomes that fluctuate greatly. Microinsurers are increasingly using innovation to create products that are specifically suited to their target market of low-income consumers.

According to the Landscape of Microinsurance report (2021), in Africa, Asia, Latin America and the Caribbean, women made up 45% of microinsurance product policyholders. Poor women with a possible alternative in microinsurance can control risk and better use their resources. However, developing microinsurance schemes that cater to low-income women's needs, cut overhead, and maintain reasonable prices is a challenge. Even though donors and governments are becoming more interested in women's resilience, most commercial insurers must regularly track the number of women they serve or their distinctive needs. Reaching women, who are less likely to use a cell phone or have a bank account in many countries, has significant social and cultural obstacles. Several regulators and insurance associations have recently collaborated with insurers to improve data on women's risk management practices and needs while pressuring insurers to act. There is still much to be done to build a gender-sensitive microinsurance market, which represents a new frontier of development. It is critical to comprehend how women use microinsurance in conjunction with current risk management techniques and how their perspectives on risk differ from those of men. Therefore, there is a need for research to understand the demand for microinsurance among women consumers separately.

Several mainstream insurance companies, a sizable number of microfinance institutions (MFIs), and some professional organizations (e.g., the International Network for Alternative Financial Institutions, INAFI) currently offer products in Bangladesh that are referred to as "microinsurance.". Even a quick examination reveals that the majority of these policies do not provide a sufficient amount of coverage (health or life) that has any prospect of lowering future poverty in the event of the insured's death or long-term disability. Most commercial insurers are eager to participate in the "life" market since it is anticipated to turn a profit quickly. Moral hazards and adverse selection issues are significantly less complicated than health or crop insurance. Nevertheless, several life insurance companies have successfully utilized the low-income market to fuel corporate expansion in recent years due to a lack of significant competition; however, the financial advantages of such life insurance programs for the poor need to be clarified. Moreover, credit-life insurance typically provided by MFIs and eliminating the borrower's debt burden in the event of his or her death, does not offer a significant buffer against vulnerability. Commercial insurers have thus far been hesitant to provide health insurance.

"Micro life insurance," introduced by Delta Life in 1988, was the first microinsurance product made available by commercial life insurance providers. It began by providing Grameen Bima in rural areas and Gono Bima in urban slums in collaboration with Grameen Bank in the late 1980s and 1990s, but the partnership quickly ended. In Bangladesh, Sandhani Insurance Company began providing microlife products in 1996. 2000–2001, numerous other insurers began providing similar plans as its popularity increased.

Today, microinsurance continues to evolve and grow globally, with new products and services being developed to meet the changing needs of low-income individuals and communities. Some challenges facing the microinsurance industry include improving the availability and quality of insurance products, increasing awareness and understanding of insurance among low-income populations, and finding sustainable business models that can support the long-term viability of microinsurance programs. In order to serve the interests of low-income households, particularly the ultra-poor, it is becoming increasingly necessary to develop adequate microinsurance products; moreover, the pertinent design challenges still need to be thoroughly analyzed in the context of Bangladesh. ILO (2003) created a brief inventory of microinsurance activities in Bangladesh, which needs to be updated and mainly describes the types of products, eligibility requirements, and premium structures. International Network of Alternative Financial Institutions (INAFI) conducted a market investigation and described certain microinsurance products' fundamental characteristics once more without doing much analysis (Hasan, 2007).

Research indicates a persistent gender gap in microinsurance demand, attributed to differing risk attitudes between men and women (Schneider and Diop, 2004; Van, 2005; Jehu-Appiah et al., 2011; Bonan et al., 2012; Clarke and Kumar, 2016; Akter et al., 2016). Bangladesh, with its high vulnerability to health risks and natural disasters, presents a fertile ground for investigating microinsurance uptake among low-income individuals, particularly marginalized women. This study addresses a crucial question: what factors determine the demand for microinsurance among marginalized women in Bangladesh? Our research reveals a significant association between microinsurance demand and various demographic, social, cultural, and structural factors amongst marginalized women in Bangladesh. Notably, the presence of dependent adults, strong religious beliefs toward risk management, lower financial literacy, and perceived service quality negatively influence demand. Conversely, simplified documentation processes, proactive agent engagement, and comprehensive policy information act as positive motivators. Additionally, factors like trust in insurance providers, flexible premium options, and positive peer influence positively correlate with demand. Despite significant progress in microcredit, Bangladesh lacks robust risk management mechanisms like microinsurance. Moreover, an adequate social safety net framework remains absent.

On this context, this article has quite a few contributions to the existing literature as well as in policy making. First, this study fills a critical gap by providing valuable insights for policymakers, enabling them to analyze and address the specific

determinants of microinsurance demand among marginalized women. Second, in midst of absence of adequate data on Bangladesh microinsurance market, the survey data produced in this paper can be a good source of information both for demand and supply side of micro insurance market. Lastly, the research design and results from this study can be used for other emerging economies for measuring demand for microinsurance with specific attention in gender variability.

The rest of the study is structured as follows: section two reviews and discusses relevant literature, section three discusses our experimental design and variable description, and section four consists of findings and implications of this study followed by a conclusion and further research scope in section five.

2. Literature review

Research work in the microinsurance markets has significantly increased recently (Biener and Eling, 2012). Yet, there are still a lot of unanswered concerns, notably those concerning the variables that affect the demand for micro-insurance services. Outreville (2013) identified four major categories of characteristics that can affect the demand for insurance: (a) Price, income, wealth, credit availability, etc. are examples of economic factors; (b) Socio-cultural factors include function utilities; (c) Structural factors include market structure; (d) Personal and demographic factors are age, sex, education level, and family size. The following review section is organized under these major categories:

Economic factors

According to the demand theory of economics, the price of a normal good or service is negatively proportionate to the demand for that good (Eling, Pradhan and Schmit, 2014). Cole (2015) noticed strong price sensitivity on insurance demand in India in light of this relationship. These authors specifically demonstrate that the price elasticity of these services ranges from 1.04 to 1.16. This suggests a 10% decrease in insurance service pricing increased risk coverage demand between 10.4 and 11.6%. According to Mobarak and Rosenzweig (2012), a 50% decrease in costs compared to the actuarial price results in an increase in subscription likelihood of 17.6 percentage points, indicating a somewhat low price elasticity of 0.44. In a study conducted in Kenya, Obura (2014) finds a link between product pricing and demand for microinsurance. Here, product cost is seen as a critical element in the subscription to microinsurance services. Along with the pricing problem, the author also underlines the market targeting problem and points out that a microinsurance company's ability to expand its clientele depends on its ability to communicate with the target market.

Wealth is another apparent economic aspect that affects the demand for microinsurance in addition to pricing. It has been observed that the wealth impact differs from the regular insurance market in the microinsurance market. There is a considerable tendency to purchase insurance plans when there are more potential losses. Contrarily, claimants in the microinsurance market are known for having relatively small wealth, and wealth indicates access to credit. On the one hand, households without access to credit are less able to stabilize their spending in the event of a shock and are thus compelled to use microinsurance more frequently to stabilize their income (Giné et al.,

2008). This shows that the demand for microinsurance is negatively impacted by credit availability.

Social and cultural factors

Studies on the micro-insurance market demonstrate a negative correlation between demand and risk aversion, which is the opposite of what the theory of anticipated utility predicts. More risk-averse households are less likely to purchase insurance, according to studies by Giné et al. (2008) and Cole (2015) on India's rainfall insurance framework, Kouame and Komenan (2012) on crop insurance in Cote d'Ivoire, and Giesbert et al. (2011) on life micro-insurance in Ghana. Understanding the relationship between risk aversion and insurance purchasing decisions in traditional markets is made easier by the advent of the microinsurance setting.

Furthermore, a lot of empirical studies stress the significance of trust in the adoption decision. Giné et al. (2008) highlighted that trust in the insurance provider is a significant factor in determining demand for rainfall insurance in India based on quantitative answers. Similar findings were made by Cole et al. (2013), who discovered that families in India have trouble believing in or comprehending insurance, and when a reputable insurance educator is involved in the purchasing process, demand jumps by 36%. Researchers like Cai et al. (2009) and Zhang et al. (2014) found that one of the biggest obstacles to participation in government-subsidized insurance in China is a lack of trust in it. Patt et al. (2009) assert that there are three types of trust: interpersonal trust between agents, institutional trust, and trust in the product itself. Basaza et al. (2008) acknowledge that a key factor in Uganda's low community health insurance participation rate is a lack of confidence.

Structural factors

In poor nations, informal networks for sharing risks are crucial to risk management (Fafchamps and Lund 2003; Morduch 1999). Therefore, the demand for formal risk-sharing mechanisms like insurance can be significantly impacted by the degree of informal risk sharing in a social network. In Vietnam, Jowett (2003) discovered that residents of densely populated areas have considerably lower rates of public health insurance enrollment. The findings imply that robust informal networks have the power to block official initiatives. Future micro-insurance efforts will also be more sustainable if we have a deeper grasp of the elements that encourage informal system success and shield it from failure. For instance, Landmann, Vollan and Frölich, (2012) note that formal insurance drives solidarity away. Hence, a deeper comprehension of the context is essential to micro insurance's success, both as a business and as a way to provide social benefit.

Yet, De Allegri et al. (2006) contend that the caliber of the medical facility has a significant impact on people's decisions to sign up for community health insurance in rural West Africa. Poor health care in Uganda, as demonstrated by Basaza et al. (2008), is a significant deterrent for people from purchasing insurance. According to Dong et al. (2009), quality of medical care is a significant element in deciding whether to discontinue insurance in addition to health requirements and needs. The opinions of healthcare professionals' matter for households that choose to enroll in Ghana's national health insurance

program, as demonstrated by Jehu-Appiah et al. (2011). Similar findings were made by Nguyen and Knowles (2010), who discovered that in Vietnam, demand for health insurance rises noticeably when expected benefits, as determined by the accessibility and caliber of a provincial hospital, increase. Hence, the likelihood of using microinsurance is highly dependent on prior shocks (Arun, Bendig and Arun, 2012). Cole et al. (2013) and Galarza and Carter (2010), however, found no correlation. According to studies conducted in industrialized economies, people choose to contribute to insurance following a loss, which reflects their demand for accessibility (Johnson et al., 1993).

Personal and demographic factors

The tendency of customers to purchase health insurance or indexed insurance does not appear to be clearly correlated with age. In certain contexts, older people are either more or less likely to obtain insurance than younger people (Gaurav et al., 2011, Cole et al., 2011a, Cao and Zhang, 2011, Chen et al., 2013; Dercon et al., 2011). Arun et al. (2012) discovered that older household heads ask for extra life insurance at a particular age, perhaps as a result of a greater motive to safeguard their families in the event of death. These authors found that having more dependent children in the home is positively correlated with subscribing. This implies that the desire to leave bequests to the family can be the driving force behind participation.

When it comes to proving that gender has an impact on the likelihood of purchasing insurance, the evidence is conflicting. Women are more likely to purchase the product (Jehu-Appiah et al., 2011), but men are more found to embrace it, according to Schneider and Diop (2004) and Bonan et al. (2012). The hazards to which women are particularly vulnerable are also highlighted by Banthia et al. (2009), along with the potential for micro-insurance to address these unique risks to women.

According to a number of empirical research, the more years of education one has, the more likely they are to sign up for insurance (Jowett 2003, Schneider and Diop 2004; and al., 2008; Giné and Yang, 2009; Jehu- Appiah et al., 2011). This finding is in line with the notion that well-informed individuals are more likely to understand the insurance product and purchase it. More specifically, Giesbert, Steiner and Bendig (2011) emphasized that the effect of education on demand may become insignificant once financial literacy is considered because education promotes demand by raising financial literacy. Due to this, neither Giné et al. (2008) nor Bonan et al. (2012) discovered a sizable effect of years of school attendance on adoption. According to answers to particular inquiries about inflation, interest rates, and risk diversification, Gaurav, Cole, and Tobacman (2011) discovered a weak correlation between education and financial literacy. Their research indicates that schooling is not a significant factor in forecasting financial literacy. These authors also demonstrate how respondents' lack of financial literacy lowers their propensity to get rain insurance.

Location, education, gender, household size, and proximity to the medical facility are all key determinants of whether community health micro-insurance is adopted, according to Schneider and Diop's (2004) research. The adoption of micro-optional life insurance is

influenced by a number of characteristics, including risk aversion, immunization, risk perception, age, non-financial assets, remittances, education, and location, according to research by Giesbert et al. (2011). They included disease, property value, dependents, marital status, employer/employee, risk experience, and dependents in their model, which was based on a household survey, but these variables, were not found significant.

To the best of authors' knowledge, this paper is the first attempt to explore the determinants of microinsurance demand in Bangladesh specifically for the marginal women. The closest to the attempt of this research paper is by Clarke and Kumar (2016), who found that men and women respond to shocks differently and allocate resources in various ways based on the evidence from rural areas in Bangladesh. Van (2005) showed the impact of gender on different aspects of microinsurance in emerging countries. Akter et al. (2016) found insurance-averse behavior in women compared to men regarding weather index insurance in Bangladesh. There still exist gap in the literature in identifying the determinants of microinsurance demand among marginalized women in Bangladesh whereas several studies have been found in the similar context for micro credit. In addition, the primary data produced from the survey can supplement to fill the gap in existing literature and create a stepping stone for future researchers to think in a different way for the poor women to innovative financial products well-matched to their needs. The present study contributed to this existing gap and also opened up a horizon of potential future research works.

3. Design of the study

3.1 Data Collection: The technique and data utilized for the study are covered in this section. This is a survey-based research where data is collected through the use of questionnaires which included thirty questions. The pilot study has been conducted on fifty participants from nearby villages of Dhaka city and some aspects were modified before going for the full-length survey. Determining the appropriate sample size for a survey of marginalized women presents a unique challenge due to the absence of readily available information about the target population's size and characteristics. Balancing resource limitations with statistical rigor, the authors targeted a sample size of 1,000 respondents, considering it adequate for ensuring both internal and external validity in this study. Therefore, our target was collecting data from eight divisions of the country which are Barisal, Chattogram, Dhaka, Khulna, Rajshahi, Rangpur, Mymensingh and Sylhet. A total of 1,000 questionnaires were distributed across eight divisions in Bangladesh, representing two districts from each of the country's eight divisions. Later, 829 were ultimately included in the study due to incomplete responses in the remaining questionnaires. The survey took two and half months from September, 2022 to middle of December 2022 to complete the entire data collection. The probability proportional to size (PPS) sampling method is used to choose the villages. With this strategy, there is a greater probability that villages with larger populations will be included in the sample. Because it ensures that those in larger sites

have the same chance of being included in the sample as those in smaller sites, and vice versa, it is most beneficial when the sampling units vary significantly in size.

Table 1: Data Collection

Division	District	Upazila	Union	Number of Respondent
Dhaka	Shariyatpur	Bhedarganj	North Tarabuniya	60
	Faridpur	Alfadanga	Alfadanga	60
Chittagong	Cumilla	Barura	Jhalam	60
	Cumilla	Cumilla Adarsha Sadar	Jagannathpur	60
	Noakhali	Begumganj	Begumganj	40
Rajshahi	Shirajganj	Belkuchi	Belkuchi Sadar	60
	Pabna	Sathiya	Gourigram	60
Rangpur	Rangpur	Pirgacha	Pirgacha	60
	Lalmonirhat	Kaligonj	Chandrapur	60
Khulna	Jessore	Jhikargacha	Jhikargacha	60
	Kustia	Kumarkhali	Koya	60
Mymensing	Maymensing	Muktagacha	Kheruajani	60
	Maymensing	Sreebardi	Jalkata	60
Sylhet	Habigonj	Habiganj Sadar	Laskarpur	60
	Sylhet	Kompaniganj	Telikhal	60
Barishal	Vola	Chorfashion	Rasulpur	60
	Patuakhali	Patuakhali Sadar	Itbaria	60

Forty homes in the chosen villages are selected for survey purpose. Ideally, respondents should be chosen randomly from a complete house list of the chosen villages. In reality, due to time and resource limitations, a method of picking families is used that tries to maintain as much unpredictability as feasible. The village was divided into four sections as per the field investigators' instructions. This is done because villages frequently contain hamlets and selecting households at random from a central position risks leaving out households in the village's outer reaches. Investigators are instructed to pick every fifth household in each of the four sections starting at a central point until ten households have been chosen.

3.2 Statistical Tools: The logistic model and the probit model can both be used to model the factors that influence demand (Potrich et al., 2015). These models are based on discrete choice models, which link each person's decision to their personal characteristics as well as those of the options they had. The models calculate the likelihood that a person will select a specific option which is the demand for microinsurance for our intended study. Logit and probit models are comparable in most applications (Gujarati, 2006). Although the models are similar, the calculated coefficients cannot be directly compared (Gujarati, 2006).

3.3 Model Specification:

$$\text{Microinsurance Demand } \hat{y}_i = A_o + \sum_{i=1}^{27} \beta_i X_i$$

y_i = 1 if person i demands for microinsurance and 0 otherwise

Where, Prob (y_i) = 1 if Prob (y_i^*) > o

Table 2: Description of the Independent Variables

Independent Variables	Categories	Descriptions
	Demographics	
X_1	Age	Age of the participant
X_2	Marital Status	Whether a person is single, married, divorced or widowed
X_3	Number of Adult Dependents (>18)	Number of people over age of 18 living in the same household
X_4	Number of Young Dependents (<18)	Number of children under age of 18 living in the same household
	Economic Factors	
X_5	Income	Monthly income of the participant
X_6	Employment	Source of income for the respondent
X_7	Involvement in Financial Decision	How much active the participant is in making financial decision for her family
X_8	Location	Present address of the respondent
X_9	Reasonable Policy Premium	How much affordable the premium payment is
X_{10}	Premium Payment Flexibility	Level of customization of time or amount in paying the premium
X_{11}	Access to Credit	Whether she can borrow in case of an unexpected event
X_{12}	Access to Liquidity	Amount of asset the family can liquidate in case of emergency
	Social and Cultural Factors	
X_{13}	Education	The level of formal education of a respondent
X_{14}	Financial Literacy	Level of knowledge in different financial terms
X_{15}	Micro-Insurance Awareness	Level of microinsurance knowledge

X_{16}	Trust	Level of trust the participant has on product and agent and measured on a five point Likert Scale
X_{17}	Religious Belief	Whether her religious faith supports buying microinsurance measured on a five point Likert Scale
X_{18}	Peer Effects	Influence that individuals in a society have on one another in purchasing microinsurance measured on a five point Likert Scale
X_{19}	Family Encouragement	Level of support from family members in buying microinsurance
X_{20}	Recommendations	Whether my friends and family suggest me buying microinsurance
X_{21}	Risk Aversion	Risk appetite of the respondent
	Structural Factors	
X_{22}	Disaster Exposure	How frequently she faces catastrophic events
X_{23}	Quality of Service	Level of customer service and support provided by the microinsurance provider to its clients
X_{24}	Agent's Effort	How much helpful the microinsurance agent is
X_{25}	Documentation	Level of ease in the documentation process of microinsurance
X_{26}	Policy Information	Whether the participant have all relevant policy details before buying the microinsurance
X_{27}	Accessibility to get Policy	Whether microinsurance products are easily available to purchase

4. Findings and Analysis

4.1. Diagnostic Test: A goodness of fit test is conducted to observe whether the chosen logistic model is suitable for the analysis or not. As shown in the Table p-value (0.0631) is more than 05 percent and shows that there is no deviation between the observed probabilities and the predicted probabilities. Therefore, the binomial distribution correctly predicts the probabilities in the form of a logistic model.

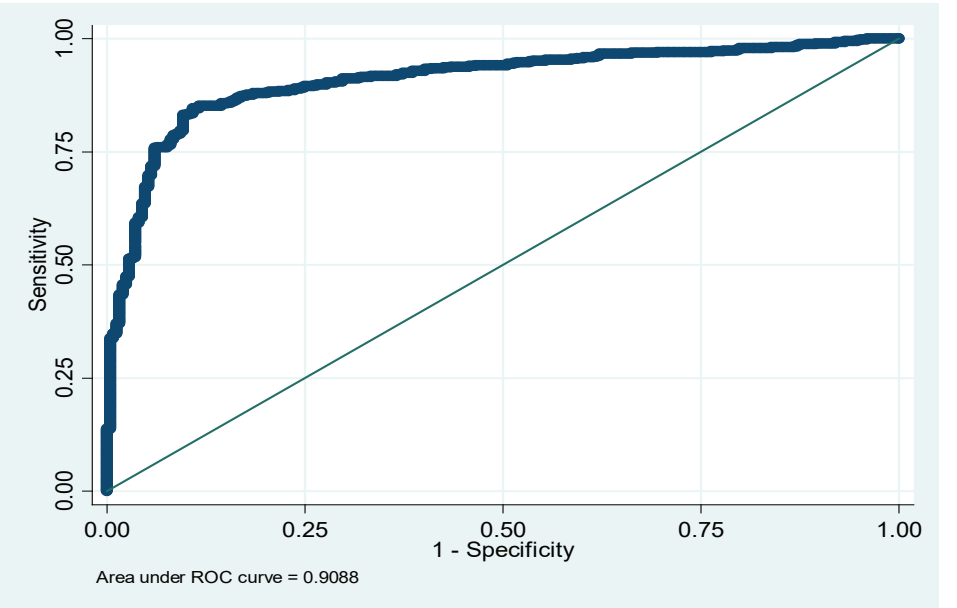
Table 3 : Goodness of Fit Test

Number of observations	829
Number of covariate patterns	822
Pearson chi2(794)	855.82
Prob > chi2	0.0631

Source: Stata Output

Additionally, to measure the predictive ability of the logistic model this paper has used Receiver Operating Characteristics (ROC) or ROC curve by plotting the probability of detecting a true signal (sensitivity) and false signal (1-sensitivity) for the entire range of cut points.

Figure 1: Receiver Operating Characteristics (ROC)



Source: Stata Output

According to Hosmer-Lemeshow area under the curve (AUC) 0.5 indicates failure to discriminate, AUC between 0.7 to 0.8 stands for acceptable discrimination, AUC between 0.8 to 0.9 stands for excellent discrimination and AUC exceeding 0.90 means outstanding discrimination. Therefore, AUC of 0.9088 as shown in Figure 1 depicts that the Logistic model has outstanding predictive power to discriminate. In addition, the explanatory power of the Logit model (results shown in table 6) as depicted by Pseudo R^2 was 0.4266 and it can be stated that 42.66% of the variations in the dependent variable can be explained by the independent variables.

4.2 Respondents Profile: The demographic profiles of the respondents are shown in Table 4 based on the responses from the survey questionnaire. Table 4 shows that, 3.86% of the respondents were less than 20 years old and 10.01% were more than 50 years old. The highest percentage (42.94%) of respondents belongs to age 31 to 40 years group.

Table 4: Profile of Sample Households

Variables	Categories	Frequency	Percent
Age	<20 (1)	32	3.86
	20-30 (2)	188	22.65
	31-40 (3)	356	42.94
	41-50 (4)	170	20.51
	>50 (5)	82	10.01
	Total	**829**	**100**
Marital Status	Single (1)	16	1.93
	Married (2)	741	89.38
	Divorced (3)	16	1.93
	Widowed (4)	56	6.76
	Total	**829**	**100**
Number of Children	0	202	24.37
	1	283	34.14
	2	263	31.72
	3	66	7.96
	4	10	1.21
	5	2	0.24
	6	1	0.12
	8	1	0.12
	9	1	0.12
	Total	**829**	**100**
Number of Dependent Family Member (Adult)	0	23	2.77
	1	159	19.18
	2	275	33.17
	3	181	21.83
	4	125	15.08
	5	37	4.46
	6	23	2.77
	8	6	0.72
	Total	**829**	**100**

Education	No Formal Education (1)	145	17.49
	Primary (2)	440	53.08
	Secondary (3)	209	25.21
	College (4)	31	3.74
	Graduate/Diploma (5)	4	0.48
	Total	**829**	**100**
Employment	Housewife (1)	651	78.53
	Business (2)	50	6.03
	Farming (3)	75	9.05
	Others (4)	53	6.39
	Total	**829**	**100**
Income	6000-9000 (1)	140	16.89
	9001-11,000 (2)	266	32.09
	11,001-14,000 (3)	218	26.30
	14,001-17,000 (4)	145	17.49
	17,001-20000 (5)	60	7.24
	Total	**829**	**100**
Financial Decision	Herself (1)	171	20.63
	Husband (2)	498	60.07
	Herself and Other Family Members (3)	108	13.03
	Someone Else Except Her (4)	52	6.27
	Total	**829**	**100**

Source: Authors' own compilation based on Stata Output

In particular, 89.38 % of the respondents were married at the time of the survey and 6.76% were widowed. Moreover, a small percentage of women were single (1.93%) and divorced (1.93%).

As shown in Table 4, 34.14% of respondents have at least one dependent child while 31.72% answered they have two dependent children at their house. On the other hand, almost one-fourth of the respondents don't have any dependent children. However, 1.81 percent of respondents had more than 3 children during the survey. In the case of adult dependency, 2.77% of the respondents said they don't have any dependent adult family members in their house while 7.95% of the respondents have more than 4 dependent adult family members. 33.17% of the women reported they have at least two dependent family members aged above 18.

In the household profile, it is seen that more than half (53.08%) of the women received primary education and nearly one-fourth (25.21%) of the respondents have completed a secondary level of education. However, 17.49% of the respondents don't have any formal education and a very nominal percentage (0.48%) of the women finished their graduation or diplomas but belong to the poor class category. The table also shows that 78.53% of the respondents were housewives while 9.05% were engaged in farming. On the other hand, 6.03% of the respondents said they have their own small business while 6.39% replied none of the three mentioned here.

Table 4 also depicts that 16.89% of the women earn between BDT 6000 to 9000 per month while 7.24% of the respondents earn nearly BDT 20,000 in a month. In a male-dominated society, it's not surprising to see that 60.07% mentioned their husband as key financial decision maker while 20.63% replied they make major financial decisions by themselves. On the other hand, 13.03 percent admitted their involvement with other family members in major financial decision-making.

4.2. Descriptive Study: The descriptive study of the variables is shown in Table 5. The mean for micro-insurance demand is 69.96% where the standard deviation is 0.4587 which means that on average around 70% of the 829 respondents have shown interest in buying micro-insurance products. Further, 52.06% of the positive response holders have shown interest in buying credit micro-insurance In Bangladesh it has been seen that credit micro insurance is linked with micro credit products.

Table 5: Micro Insurance Demand

Micro Insurance Demand	Frequency	Percent
Yes (1)	580	69.96
No (0)	249	30.04
Total	**829**	**100**

Source: Stata Output

As shown in Table 4 and Table 6, the median value 3 for age indicates that most of the respondents fall between age group of 31-40 which is mostly treated as the productive years in terms of earnings. Further, the median value of marital status (2) stands that most of the respondents were married, and they would demand micro-insurance to secure their future of the family. 33.17% of the respondents have at least 2 dependent adults in their household. Moreover, 34.14% of the respondents have one child and 31.72% have two children. In employment category most of the respondents are housewife and among them 74.65 % have shown interest for micro-insurance products. Involvement in decision makings shows that around 60% cases husband is the primary decision makers while 20% take their decision by themselves.

Table 6: Descriptive Study

Variable	Mean	N	Median	Sd	Skewness	Kurtosis	Max	Min
MI Demand	0.699638	829	1	0.458692	-0.8709923	1.758628	1	0
MI Product	2.147766	582	3	1.101784	0.5866308	4.207442	7	1
Age	3.101327	829	3	0.988758	0.1788569	2.644184	5	1
Marital Status	2.135103	829	2	0.539355	2.682859	10.18937	4	1
Adult Dependency	2.560917	829	2	1.384949	4.036449	0.8125684	8	0
Children	1.302774	829	1	1.050077	1.16338	8.06136	9	0
Income	2.661037	829	3	1.16083	0.313562	2.251595	5	1
Employment	1.433052	829	1	0.900573	1.88823	5.112983	4	1
Financial Decision	2.049457	829	2	0.76532	0.7573927	3.694927	4	1
Location	0.657419	829	1	0.474859	-0.6634116	1.440115	1	0
Reasonable Premium	3.150784	829	3	1.415985	-0.2906423	1.798685	5	1
Premium Flexibility	4.086852	829	4	1.015428	3.318981	-1.02608	5	1
Access To Credit	3.442702	829	4	1.492545	-0.5018047	1.826238	5	1
Access To Liquidity	3.290712	829	4	1.496751	-0.3370175	1.697583	5	1
Education	2.166466	829	2	0.770084	0.4523849	3.362263	5	1
Financial Literacy	3.176116	829	3	1.578955	-0.1421938	1.443376	5	1
MI Awareness	0.651387	829	1	0.476819	-0.6353718	1.403697	1	0
Trust	4.166466	829	4	0.847722	-1.025521	4.07096	5	1
Religious Belief	2.987937	829	3	1.424373	-0.2647925	1.661523	5	1
Peer Effects	3.04222	829	3	1.404583	0.1421863	1.652307	5	1
Family Encouragement	2.829916	829	2	1.412085	0.3465779	1.789807	5	1
Recommendation	3.427021	829	3	1.279169	-0.176775	1.860312	5	1
Risk Aversion	4.115802	829	4	0.853299	-0.8066705	3.315039	5	1
Disaster Exposure	4.107358	829	4	0.89243	-1.017449	4.034293	5	1
Quality of Service	2.463209	829	2	1.214907	0.453749	2.247326	5	1
Agents Effort	3.622437	829	4	1.306257	-0.30584	1.627132	5	1
Documentation	3.746683	829	4	1.210264	-0.4218701	1.975189	5	1
Policy Information	2.978287	829	3	1.245091	-0.1429828	1.884025	5	1
MI Accessibility	3.844391	829	4	1.11258	-0.7172648	2.682238	5	1

Source: Stata Output

The median of variables shows a value of four which indicates that most of the respondents agree that these variables premium flexibility, wealth (access to

credit, access to liquidity), trust, risk aversion, disaster exposure, agents' efforts, simple documentation, and micro-insurance accessibility are significant in inducing respondent's decision regarding purchase of micro-insurance products. While reasonable premium, financial literacy, religious belief, peer effects, recommendation, and policy information have a median value of three which infers an indecisive influence on the decision of micro-insurance demand. Besides family encouragement and quality of service (perception) have a median value of 2 means most of the respondents disagreed that these variables affect micro-insurance demand.

4.4 Regression Output: This paper has preferred the Logit model over other possible alternatives for analysis and interpreting the result. The Logit model's ability to handle binary choices, non-linear relationships, multiple explanatory variables, its probabilistic output, interpretability, and computational efficiency make it a powerful tool for demand analysis in this regard.

Table 7 shows that fifteen variables out of twenty seven variables specifically adult dependency, reasonable premium, premium payment flexibility, access to credit, financial literacy, peer effects, quality of services, agents' efforts, easy documentation, policy information, micro-insurance accessibility and so on are significant under Logit model.

Under the demographic category, only adult dependency is significant at a 5% level and signifies that demand for micro-insurance will reduce by 15% by the respondents having one more dependent adult in their household. This can be due to the increasing cost of living which decreases the need for managing financial shocks in the household. Among the economic factors income, reasonable premium, premium payment flexibility, and access to credit variables are found significant and all have positive associations with the demand for micro-insurance among the marginalized women in Bangladesh. Respondents in the higher income category will demand 1.17 times more than those having the lower income category. Further, respondents who prefer economically feasible premiums and flexibility in premium payments are 1.28 times and 1.39 times more likely to own micro-insurance policies than those who don't prefer reasonable premiums and flexible payment options. While wealthier respondents having access to credit facilities are 1.23 times more concerned about buying micro-insurance policies to protect their assets. Wealthier households are more likely to obtain rainfall insurance, according to Giné et al. (2012) and Cole et al. (2014). These four variables are showing positive association with insurance demand because wealthier women have lofty eagerness to keep their assets safe and flexibility in premium payment options and reasonable premium helps them to decide to buy insurance which helps them manage their exposure to health hazards and natural calamities in Bangladesh.

Table 7: Logit Regression

MI Demand	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]	Probability
Age	1.067506	0.130367	0.53	0.593	0.840272	1.356192	0.51632547
Marital Status	0.826882	0.179311	-0.88	0.381	0.540579	1.264817	0.45261927
Dependent Adult	0.847155	0.07125	-1.97	**0.049****	0.718409	0.998973	0.45862686
Children	0.998101	0.104792	-0.02	0.986	0.812467	1.226148	0.49952472
Income	1.170241	0.111478	1.65	**0.099*****	0.970933	1.410463	0.53922168
Employment	1.059587	0.124616	0.49	0.623	0.841451	1.334272	0.51446576
Financial Decision	1.092388	0.164613	0.59	0.558	0.813034	1.467726	0.52207717
Location	1.30159	0.337613	1.02	0.31	0.782861	2.164031	0.56551775
Reasonable Premium	1.283947	0.145785	2.2	**0.028****	1.027774	1.60397	0.56216147
Premium Flexibility	1.391353	0.170026	2.7	**0.007***	1.095012	1.767891	0.58182669
Access To Credit	1.233429	0.117754	2.2	**0.028****	1.022942	1.487228	0.55225799
Access To Liquidity	1.104976	0.110076	1	0.316	0.908986	1.343224	0.5249352
Education	1.107195	0.184003	0.61	0.54	0.799401	1.5335	0.52543547
Financial Literacy	0.814823	0.08299	-2.01	**0.044****	0.667372	0.994853	0.44898211
MI Awareness	1.167231	0.272333	0.66	0.507	0.738854	1.843974	0.53858172
Trust	1.427827	0.232214	2.19	**0.029****	1.038104	1.963859	0.58810904
Religious Belief	0.75113	0.087966	-2.44	**0.015****	0.597076	0.944933	0.4289402
Peer Effects	1.329967	0.156084	2.43	**0.015****	1.056682	1.67393	0.57080937
Family Encouragement	0.992307	0.112348	-0.07	0.946	0.794829	1.238849	0.49806927
Recommendation	1.082646	0.123779	0.69	0.487	0.865303	1.35458	0.51984159
Risk Aversion	1.183536	0.199954	1	0.319	0.849913	1.648119	0.54202724
Disaster Exposure	1.158783	0.177551	0.96	0.336	0.858183	1.564677	0.53677604
Quality of Service	0.793836	0.100659	-1.82	**0.069*****	0.619153	1.017804	0.44253553
Agents Effort	1.479627	0.171937	3.37	**0.001***	1.178258	1.858079	0.59671354
Documentation	1.457837	0.192772	2.85	**0.004***	1.125001	1.889142	0.59313819
Policy Information	1.269732	0.151016	2.01	**0.045****	1.005712	1.603061	0.55941935
MI Accessibility	1.324499	0.158748	2.34	**0.019****	1.047202	1.675223	0.56979977
_cons	0.000183	0.00024	-6.57	0	1.41E-05	0.002383	0.00018317

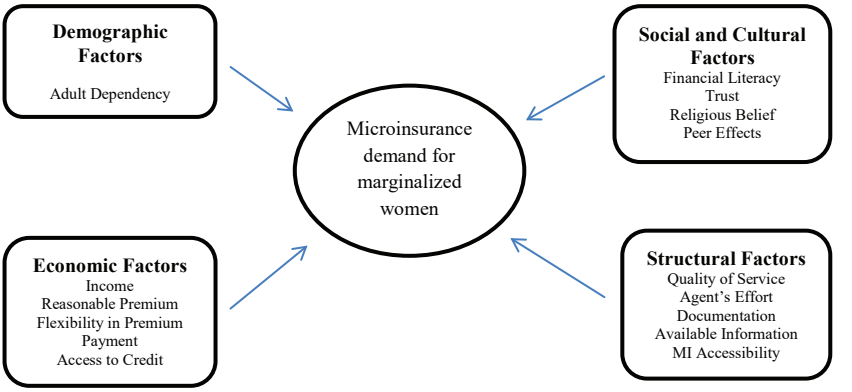
Source: Authors' own compilation based on Stata Output
(*Significant at 1%; **Significant at 5%; ***Significant at 10%)

Financial literacy, trust, peer effects, and religious belief are found significant under socio and cultural factors where financial literacy and religious belief have a negative association and the rest of the two variables have a positive relation with demand for micro-insurance. Respondents with financial literacy are less likely to buy micro insurance and this result contradicts the findings in previous studies (Cai et al., 2015; Gaurav et al., 2011; Giné et al., 2012). The underlying reason might be even if people understand the importance of microinsurance; they may not have access to affordable or convenient microinsurance options. Respondents with higher levels of trust and peer effects are 1.43 and 1.33 times more likely to demand micro-insurance respectively. Cai et al. (2015) and Zhang et al. (2006) found that an absence of trust is a significant barrier to participation in microinsurance in China. Giné et al. (2011) discover that financial literacy resources effectively promote take-up when farmers' social contacts are involved. On the other hand, results show respondents having belief that buying microinsurance is against their fundamental religious faith will demand 0.75 times less micro-insurance than non-believers. According to a study by Park and Lemarie (2013), the use of non-life insurance is negatively impacted in nations where most of the populace practices Islam. Gitau and Sile (2016) also found that religious belief has a negative impact on insurance demand.

Quality of service, documentation, agents' effort, policy information, and micro-insurance accessibility are found significant under structural factors and all of the variables except quality of service maintain a positive association with the demand for micro-insurance. Agents' efforts and Easy documentation process with fewer requirements regarding the policy enrollment as well as claim settlement are found to positively influence the demand for micro-insurance among marginalized women in Bangladesh. Respondents who agreed on agents' efforts and easy documentation were 1.48 times and 1.45 times more interested in having micro-insurance policies than those who disagreed. Policy information is significantly associated with the demand as information dissemination in relation to policy bearing in mind the unique needs and background can bring 1.27 times more positive attitudes towards purchasing microinsurance. While respondents who have a negative attitude towards the quality of service are 1.6 times less likely to demand a micro-insurance policy because negative perception brings down the demand for microinsurnace.

The insurance providers have a great role in improving the structural factors that have been found significant in determining demand for microinsurance for marginalized women. The rest of the demographic, social, and cultural factors need to be acknowledged by the policymakers and regulators of the microinsurance industry.

Figure 2: Authors' proposed conceptual framework



5. Conclusion

Poor women living in urban and rural areas in Bangladesh are susceptible to various catastrophe risks, which, in most cases, negatively impact their health and standard of living. Accordingly, microinsurance can be used as a risk management tool that people with low incomes might employ to compensate for the absence of suitable state-sponsored social security programs in countries like Bangladesh. In contrast, others, specifically the financial service providers, see it as a chance to offer financial services to the low-income sector profitably. Whatever the objective, all microinsurance programs should strive to become financially viable because donor or government subsidies are nonexistent or temporary. All of these would only be possible if they could identify the factors responsible for product uptake by the target customers. Therefore, this research paper conducted Logit regression analyses on a sample size of 829 nationwide and found fourteen factors, grouped into four major groups that influence the demand for microinsurance among underprivileged women. Policymakers in Bangladesh can utilize the findings regarding the demand for microinsurance among marginalized women in several ways to create a more inclusive and resilient society. It is expected to capture the underserved market if they can improvise the identified factors in offering microinsurance services. They can simplify regulations and reduce administrative burdens for microinsurance providers to encourage them to offer products catering to marginalized women. Insurance providers can align product features and coverage with the specific risks and needs of marginalized women. Overall they can turn insights about microinsurance demand into concrete actions that empower marginalized women, improve their access to financial security, and foster a more equitable and prosperous Bangladesh. There is a vast scope of research in this field. Here, the result shows an overall view. Further study can be conducted by segregating areas based on the frequency of catastrophic events. Longitudinal studies would help track the impact of microinsurance participation on women's lives over time to assess its long-term benefits and potential drawbacks. By investing

in research on microinsurance demand, Bangladesh can unlock the true potential of this tool to empower its vulnerable population, build resilience, and promote inclusive economic growth.

Author Contribution Statement

The authors confirm contribution to the paper as follows:

Study conception and design: Sabiha Farzana Moonmoon and Benazir Imam Majumder

Data collection: Sabiha Farzana Moonmoon and Benazir Imam Majumder

Analysis and interpretation of the result: Benazir Imam Majumder

Draft manuscript preparation: Sabiha Farzana Moonmoon

All authors reviewed the results and approved the final version of the manuscript

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