

Insurance Awareness and Disaster Risk Management Among Urban Households Evidence from Tamil Nadu

Dr. N. Saranya Devi

Assistant Professor, School of Management Studies, Tamil Nadu Open University, 577, Anna Salai, Saidapet, Chennai – 600015

Abstract—Disaster risk management at the household level is critically dependent on financial preparedness, and insurance represents one of the most accessible risk transfer mechanisms available to urban families. However, insurance penetration in India remains markedly below global benchmarks, and knowledge gaps about disaster-linked insurance products continue to impede adoption among urban households. This study examines insurance awareness levels and their relationship with disaster risk management behaviour among urban households in Tamil Nadu. Primary data were collected from 220 urban household respondents across Coimbatore, Chennai, Tiruppur, Erode, and Tirunelveli using a structured questionnaire. The study investigates five dimensions: (i) levels of general and disaster-specific insurance awareness; (ii) current insurance ownership patterns and product diversity; (iii) perceptions of disaster risk and their relationship to insurance adoption; (iv) knowledge and experience of insurance claims processes during disaster events; and (v) barriers impeding insurance adoption for disaster risk management purposes. Data were analysed using descriptive statistics, Cronbach's reliability testing, factor analysis, correlation analysis, and paired samples t-tests. Findings reveal that while general insurance awareness is moderate, awareness of disaster-specific products (flood insurance, crop loss insurance, home structure insurance) is significantly lower. Risk perception is a significant predictor of insurance adoption, but cost sensitivity, trust deficits in insurers, and procedural complexity of claims remain primary barriers. The study recommends targeted financial literacy interventions, simplified product design, and community-based insurance promotion to enhance disaster resilience among urban Tamil Nadu households.

Index Terms—Insurance Awareness, Disaster Risk Management, Urban Households, Tamil Nadu, Risk Perception, Flood Insurance, Financial Preparedness, Insurance Adoption, Claims Process, Community Resilience.

I. INTRODUCTION

India is among the world's most disaster-prone countries, with economic losses from natural disasters escalating dramatically over recent decades. Tamil Nadu, located along the Bay of Bengal coast, experiences an array of recurrent disaster risks including cyclones, floods, droughts, and heat waves. Urban centres such as Chennai, Coimbatore, and Tirunelveli face particular vulnerability given the concentration of population, economic assets, and critical infrastructure within spatially constrained environments subject to monsoon extremes and climate variability.

Financial preparedness is a cornerstone of household disaster resilience. Insurance represents the most systematic mechanism available to households for transferring financial risks associated with disaster events. Property insurance, life insurance, health insurance, and specialised disaster products such as crop loss insurance and home structure insurance collectively form a safety net that can determine whether a household recovers or falls into sustained economic distress following a disaster. The Chennai floods of 2015 alone caused insured losses estimated at ₹9,000 crore, with total economic losses estimated at over ₹20,000 crore — highlighting the enormous protection gap between disaster losses and insured assets.

Despite a growing domestic insurance sector and government-sponsored schemes such as Pradhan Mantri Fasal Bima Yojana (crop insurance), Pradhan Mantri Gramin Awas Yojana (housing insurance), and various state-level disaster compensation funds, insurance penetration among urban households in Tamil Nadu remains uneven and often insufficient for

effective disaster risk management. Awareness of disaster-specific insurance products is particularly low compared to more familiar products like life or health insurance.

Understanding the determinants of insurance awareness and its relationship with disaster risk management behaviour among urban households is essential for designing effective financial inclusion and disaster resilience policies. This study addresses this need by examining insurance awareness, product knowledge, risk perception, and claims experience among 220 urban households across Tamil Nadu, offering empirical insights that are directly applicable to insurance sector policy, urban disaster management planning, and community-level financial literacy programmes.

The significance of this study extends beyond the insurance industry. As India's urban centres continue to grow and climate-related disaster risks intensify, the financial vulnerability of households that lack adequate insurance coverage represents a systemic risk for urban economies and public finances. Evidence-based understanding of the barriers to insurance adoption and the pathways through which risk perception motivates protective financial behaviour is crucial for closing the protection gap and strengthening the fiscal resilience of urban communities.

II. REVIEW OF LITERATURE

The academic literature on insurance adoption and disaster risk management covers several intersecting themes: the economics of disaster insurance, behavioural determinants of insurance demand, financial literacy and its role in insurance uptake, and institutional frameworks for disaster risk financing. The following review synthesises key streams relevant to the present study.

2.1 Disaster Risk Financing and the Insurance Protection Gap

The insurance protection gap — the difference between total economic losses from disasters and insured losses — is a fundamental challenge in disaster risk management globally. Swiss Re's Sigma reports consistently document that this gap is widest in low- and middle-income countries, including India, where insured losses from natural disasters represent

less than 5 percent of total economic losses in most years. Kunreuther and Michel-Kerjan (2009) demonstrated that even in markets with accessible insurance products, households systematically underinsure against low-probability, high-consequence events such as floods and earthquakes, driven by optimism bias, present-focus bias, and ambiguity aversion.

In the Indian context, the protection gap is exacerbated by limited insurance awareness, distribution challenges in reaching urban and peri-urban households, and distrust of insurance institutions arising from historical claims disputes. Studies by Rao and Bhattacharya (2018) found that only 23 percent of urban households affected by the 2015 Chennai floods had any form of property insurance, and fewer than 8 percent had coverage specifically relevant to flood-related losses. This severe protection gap translated into prolonged financial distress for tens of thousands of households in the aftermath of the disaster.

2.2 Insurance Awareness and Financial Literacy

Financial literacy — encompassing the ability to understand and use financial products effectively — is widely recognised as a prerequisite for meaningful insurance adoption. Lusardi and Mitchell (2014) demonstrated that households with higher financial literacy are more likely to hold insurance products, make more appropriate product choices, and respond more effectively to risk-related information. Studies from India (Tiwari & Rao, 2019; Nair & Menon, 2020) have specifically linked low financial literacy among urban low-income and middle-income households to both low insurance awareness and high levels of product misconception.

Insurance-specific awareness encompasses knowledge of product types, premium structures, exclusions, claim processes, and the role of insurance in financial planning. Research by Sivaramakrishnan et al. (2020) found that while over 70 percent of urban Indians surveyed had heard of life insurance, fewer than 35 percent could accurately describe the claim process, and fewer than 20 percent were aware of government-sponsored disaster insurance schemes. This suggests that insurance awareness is often shallow — encompassing brand familiarity without functional product knowledge.

2.3 Risk Perception and Insurance Demand

Economic theory predicts that higher perceived risk should increase insurance demand. However, empirical evidence from disaster insurance contexts reveals a more complex relationship. Kunreuther et al. (2013) documented in studies across multiple countries that households with higher objective flood risk often fail to purchase flood insurance, a phenomenon attributed to 'probability neglect' — the tendency to dismiss low-probability risks as zero probability — and 'levee effect' — the false sense of security provided by visible flood control infrastructure.

In Indian urban settings, Chakrabarti and Jha (2020) found that direct disaster experience was a significantly stronger predictor of insurance adoption than objective risk measures, suggesting that personalised risk salience — rather than abstract statistical risk — drives insurance-related behaviour. This finding has important implications for awareness programmes: programmes that leverage testimonials and case studies from disaster-affected communities may be more effective than those relying on statistical risk communication.

2.4 Barriers to Insurance Adoption

Literature consistently identifies several key barriers to insurance adoption in urban Indian contexts. Cost barriers — actual or perceived premium unaffordability — are among the most commonly cited. Studies by Mishra and Kumar (2021) found that even among households that reported awareness of relevant insurance products, over 60 percent cited premium costs as a primary adoption barrier, though further analysis revealed that many had overestimated actual premiums by a factor of two to three.

Trust deficits represent a second major barrier. Historical experiences of claim denial, delayed settlements, and complex documentation requirements have generated significant scepticism about insurer reliability, particularly among lower and middle-income urban households. Vasudevan (2019) found that perceived claim complexity was a stronger deterrent to insurance adoption than premium cost among urban Tamil Nadu residents, suggesting that simplifying claims processes could substantially increase uptake.

Distribution and access barriers also play a role. Despite the growth of digital insurance platforms and

aggregator websites, a large proportion of urban households in Tamil Nadu continue to rely on in-person agents for insurance purchase. In areas with limited agent density or where agents primarily target high-value life insurance policies, awareness of property and disaster-specific products remains low.

2.5 Institutional and Policy Dimensions

Government policy plays a significant role in shaping the insurance landscape for disaster risk management. The Sendai Framework for Disaster Risk Reduction (2015–2030) explicitly calls for the expansion of insurance and risk transfer mechanisms as part of a comprehensive disaster risk management strategy. India's National Disaster Management Authority has progressively expanded its emphasis on financial risk transfer mechanisms, including through the National Disaster Risk Finance Strategy (2022). Tamil Nadu's State Disaster Management Policy likewise recognises insurance penetration as a measurable target for disaster resilience improvement.

The Insurance Regulatory and Development Authority of India (IRDAI) has implemented several initiatives to expand insurance accessibility, including mandatory weather-based crop insurance under PMFBY, the BIMA Vahak programme for last-mile distribution, and the Bima Sugam digital insurance platform. However, translation of these policy initiatives into demonstrable improvements in household-level insurance awareness and adoption remains a work in progress, particularly for urban disaster-specific products where regulatory frameworks are still evolving.

III. RESEARCH GAP

While disaster insurance and financial preparedness have received growing attention in the academic and policy literature, several significant gaps persist. First, most existing studies focus on rural agricultural insurance (particularly crop insurance) or metropolitan elites, leaving the middle-income urban household segment — which constitutes the majority of Tamil Nadu's urban population — relatively underexamined. Second, studies that specifically examine the relationship between disaster risk perception and insurance adoption within the urban Tamil Nadu context are virtually absent from the peer-reviewed literature.

Third, while barriers to insurance adoption are well-documented in aggregate national studies, their specific configuration within Tamil Nadu's urban socioeconomic environment — shaped by distinct cultural attitudes toward risk, specific patterns of flood and cyclone exposure, and state-specific insurance distribution infrastructure — has not been empirically investigated. Fourth, the experience of insurance claims during disaster events — a critical determinant of future adoption behaviour and policy renewal — has not been systematically studied among Tamil Nadu's urban households. This study addresses all four identified gaps through original primary data collection across five Tamil Nadu urban centres.

IV. STATEMENT OF THE PROBLEM

Despite recurring and intensifying disaster events in Tamil Nadu, insurance penetration among urban households for disaster risk management purposes remains critically low. The disconnect between growing disaster risk awareness — partly driven by media coverage and personal experience — and actual insurance adoption for disaster risk management represents a significant household financial vulnerability and a policy implementation failure. Understanding the specific dimensions of this disconnect requires empirical investigation into the levels and quality of insurance awareness, the role of risk perception in motivating adoption, the practical experience of claims processes, and the specific barriers that prevent motivated households from translating awareness into action.

This study is driven by the recognition that generic financial literacy programmes and conventional insurance marketing approaches have not been sufficient to close the urban insurance protection gap in Tamil Nadu. Evidence-specific to the urban Tamil Nadu context is needed to design culturally appropriate, practically accessible, and financially realistic insurance promotion strategies that meaningfully strengthen household disaster risk management capability.

V. OBJECTIVES OF THE STUDY

1. To assess the current levels of general and disaster-specific insurance awareness among urban households in Tamil Nadu.

2. To examine the insurance ownership pattern — including product diversity, coverage types, and renewal behaviour — among urban respondents.
3. To measure the level of disaster risk perception and analyse its relationship with insurance adoption for disaster risk management.
4. To evaluate respondents' knowledge and experience of insurance claim processes and their impact on attitudes toward disaster insurance products.
5. To identify the key barriers preventing urban households from adopting insurance as a disaster risk management strategy.
6. To recommend practical interventions for improving insurance awareness and adoption for disaster risk management among urban Tamil Nadu households.

VI. HYPOTHESES

- H₁: Disaster risk perception is positively and significantly associated with disaster-specific insurance adoption among urban households.
- H₂: Higher financial literacy (measured by insurance awareness scores) is positively associated with greater insurance product diversity at the household level.
- H₃: Prior negative experience with insurance claims is negatively associated with future insurance adoption intentions for disaster risk management.
- H₄: Sociodemographic factors (income, education, occupation) significantly influence levels of insurance awareness and adoption behaviour.
- H₅: Perceived premium affordability and trust in insurers are the primary barriers to disaster-specific insurance adoption among urban households.

VII. RESEARCH METHODOLOGY

7.1 Research Design

A descriptive and analytical research design was employed. The study uses primary data collected through a structured questionnaire to examine insurance awareness levels, risk perceptions, ownership patterns, and adoption barriers across urban households in Tamil Nadu.

7.2 Study Population and Area

The study was conducted across five cities: Coimbatore, Chennai, Tiruppur, Erode, and

Tirunelveli. These cities were selected to represent diverse economic profiles (industrial, commercial, coastal), varying disaster exposure levels (cyclone-prone coastal vs. flood-prone inland), and different urban size categories across Tamil Nadu. The study population comprised adult members (18 years and above) of urban households who are either primary financial decision-makers or are involved in household financial planning.

7.3 Sampling Method and Sample Size

Stratified purposive sampling was used, with strata defined by city. A total of 250 questionnaires were distributed, yielding 220 complete and usable responses — a response rate of 88.0 percent. The city-wise distribution was: Coimbatore 52 respondents, Chennai 58, Tiruppur 44, Erode 34, and Tirunelveli 32. The sample of 220 meets the minimum requirements for both factor analysis (Hair et al., 2014) and multiple regression analysis.

7.4 Data Collection Instrument

The questionnaire was developed by adapting validated instruments from Kunreuther et al. (2013), Tiwari and Rao (2019), and Chakrabarti and Jha (2020). Items were reviewed by three subject matter experts — one each from insurance academia, urban disaster management, and financial literacy — prior to pilot testing with 28 respondents. The final instrument comprised 38 items across six construct sections plus demographic items. Items were measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). A Tamil-language version was made available to respondents preferring it.

7.5 Constructs Measured

The questionnaire captured data on six core constructs: (a) General Insurance Awareness — knowledge of common insurance products and regulatory framework; (b) Disaster-Specific Insurance Awareness — knowledge of flood, property, and government disaster insurance schemes; (c) Disaster Risk Perception — perceived likelihood and severity of disaster events for the household; (d) Insurance Ownership and Product Diversity — current coverage held and policy types; (e) Claims Process Experience and Perception — actual and anticipated experience of disaster-related claims; and (f) Barriers to Insurance

Adoption — financial, trust, accessibility, and informational barriers.

7.6 Statistical Analysis

Data were analysed using SPSS version 26. Descriptive statistics (frequency, percentage, mean, standard deviation) characterised demographic and construct-level data. Cronbach's Alpha assessed instrument reliability. Exploratory factor analysis (EFA) using Principal Component Analysis with Varimax rotation identified underlying dimensions of insurance awareness. Pearson correlation analysis examined bivariate relationships between constructs. Multiple regression analysis determined predictors of disaster-specific insurance adoption. Paired samples t-tests compared general vs. disaster-specific insurance awareness scores. Independent samples t-tests and one-way ANOVA examined demographic group differences.

7.7 Ethical Standards

All participation was voluntary and anonymised. Informed consent was obtained prior to questionnaire administration. No data were collected that could identify individual respondents or households.

VIII. DATA ANALYSIS AND INTERPRETATION

This section presents the statistical analysis of primary data collected from 220 urban household respondents across Tamil Nadu. All tables are derived from original primary data and are interpreted in context.

Table 1: Demographic Profile of Respondents (N = 220)

Variable	Category	Frequency	Percentage (%)
Gender	Male	132	60.0
	Female	88	40.0
Age Group	18–30 years	64	29.1
	31–45 years	94	42.7
	46–60 years	46	20.9
	Above 60 years	16	7.3

Variable	Category	Frequency	Percentage (%)
Education	Higher Secondary	28	12.7
	Undergraduate	88	40.0
	Postgraduate	78	35.5
	Doctorate/Professional	26	11.8
Occupation	Private Employed	96	43.6
	Government Employed	52	23.6
	Self-employed/Business	44	20.0
	Homemaker/Retired	28	12.7
Monthly HH Income	Below ₹25,000	38	17.3
	₹25,001–₹50,000	76	34.5
	₹50,001–₹75,000	62	28.2
	Above ₹75,000	44	20.0
City	Chennai	58	26.4
	Coimbatore	52	23.6
	Tiruppur	44	20.0
	Erode	34	15.5
	Tirunelveli	32	14.5
Disaster Experience	Directly affected	118	53.6
	Indirectly affected	68	30.9
	Not affected	34	15.5
	Life Insurance only	78	35.5

Variable	Category	Frequency	Percentage (%)
Current Insurance Held	Life + Health Insurance	62	28.2
	Life + Health + Property	32	14.5
	No Insurance	48	21.8

The demographic profile reflects a predominantly middle-income, working-age, educated urban sample. Over 77 percent belong to the 31–60 age group, suggesting respondents are primarily household financial decision-makers. Critically, 21.8 percent reported holding no insurance of any kind, and only 14.5 percent hold property insurance as part of their portfolio — underscoring the protection gap central to this study.

Table 2: Reliability Test — Cronbach's Alpha Coefficients

Construct	No. of Items	Cronbach's Alpha	Interpretation
General Insurance Awareness	6	0.824	Highly Reliable
Disaster-Specific Insurance Awareness	6	0.851	Highly Reliable
Disaster Risk Perception	5	0.812	Reliable
Claims Process Experience/Perception	5	0.797	Acceptable-Reliable
Barriers to Insurance Adoption	7	0.869	Highly Reliable
Insurance Ownership Intention	4	0.836	Highly Reliable

All six constructs demonstrate Cronbach's Alpha coefficients between 0.797 and 0.869, comfortably exceeding the 0.70 threshold for acceptable reliability in social science research. This confirms strong internal consistency across all measurement scales and validates the use of composite construct scores in subsequent analyses.

Table 3: General Insurance Awareness — Descriptive Statistics

Item	Mean	SD	Interpretation
I understand the basic concept and purpose of insurance	3.84	0.82	High Agreement
I am aware of the different types of insurance products available (life, health, property, vehicle)	3.72	0.89	High Agreement
I know the name and contact details of my insurance provider(s)	3.58	0.94	High Agreement
I understand the concept of insurance premium and policy period	3.46	0.97	Moderate-High Agreement
I am aware of government-sponsored insurance schemes (PMJJBY, PMSBY, PMFBY)	2.94	1.12	Moderate Agreement
I regularly review my insurance coverage to	2.71	1.08	Below Moderate

Item	Mean	SD	Interpretation
ensure it matches my current needs			

General insurance awareness is moderately high at the product familiarity level (Mean range 3.46–3.84) but declines significantly for government scheme awareness (Mean = 2.94) and active coverage review behaviour (Mean = 2.71). This pattern suggests that awareness is predominantly passive and brand-level rather than active and functionally comprehensive.

Table 4: Disaster-Specific Insurance Awareness — Descriptive Statistics

Item	Mean	SD	Interpretation
I am aware that specific flood/disaster insurance products exist for home structures	2.84	1.14	Moderate Agreement
I know whether my existing home insurance policy covers flood damage	2.46	1.18	Below Moderate
I am aware of government compensation schemes for disaster-affected property owners	2.68	1.09	Moderate Agreement
I understand how weather-based crop/property index insurance works	2.23	1.16	Low Agreement
I know how to file an insurance claim after a natural disaster event	2.57	1.14	Below Moderate
I have received information about disaster insurance from an insurer or agent	2.38	1.11	Low-Moderate Agreement

Disaster-specific insurance awareness is substantially lower than general awareness across all items. Knowledge of disaster insurance product existence

(Mean = 2.84), claim filing procedures (Mean = 2.57), and government compensation schemes (Mean = 2.68) all fall below the scale midpoint of 3.0 or only modestly above it. Understanding of index insurance products (Mean = 2.23) is particularly low. These findings confirm the awareness gap between general and disaster-specific insurance knowledge.

Table 5: Paired Samples T-Test — General Insurance Awareness vs. Disaster-Specific Insurance Awareness

Paired Construct Pair	Mean (General)	Mean (Disaster-Specific)	Mean Difference	t-value	p-value
1 General vs. Disaster Awareness (Overall Scale)	3.38	2.53	+0.85	12.47	0.000**
2 Product Knowledge (General vs. Disaster)	3.72	2.84	+0.88	9.82	0.000**
3 Claim Process Knowledge	3.46	2.57	+0.89	8.94	0.000**
4 Govt. Scheme Awareness	2.94	2.68	+0.26	3.14	0.002**

Significant** at 0.01 level. All four paired comparisons reveal statistically significant differences between general and disaster-specific insurance awareness, with general awareness consistently higher. The largest gap is observed in claims process knowledge (Mean Difference = 0.89, t = 8.94, p <

0.001), confirming that disaster-specific procedural knowledge represents the most critical awareness deficit among urban households.

Table 6: Disaster Risk Perception — Descriptive Statistics

Item	Mean	SD	Interpretation
I believe my household faces a significant risk of being affected by floods in the future	3.48	0.98	Moderate-High Agreement
I am concerned about the financial consequences of a disaster on my household	3.86	0.84	High Agreement
The intensity and frequency of flood events in Tamil Nadu has increased in recent years	4.04	0.76	High Agreement
A major disaster event could cause severe financial hardship to my household	3.92	0.81	High Agreement
I feel adequately financially protected against disaster-related losses	2.41	1.13	Low Agreement

Risk perception is generally high, with strong agreement that disaster frequency is increasing (Mean = 4.04) and that disaster events could cause severe financial hardship (Mean = 3.92). Crucially, perceived financial adequacy of current protection is very low (Mean = 2.41), suggesting that urban households recognise their vulnerability but have not yet taken effective protective financial action — precisely the

perception-behaviour gap that this study seeks to understand.

Table 7: Barriers to Disaster Insurance Adoption — Descriptive Statistics

Item	Mean	SD	Interpretation
Insurance premiums for property/disaster coverage are too expensive for my budget	3.76	0.88	High Agreement (Barrier)
I do not trust insurance companies to settle disaster-related claims fairly	3.64	0.92	High Agreement (Barrier)
The process for claiming insurance after a disaster is too complicated	3.82	0.84	High Agreement (Barrier)
I lack sufficient information about which disaster insurance products are right for me	3.54	0.97	High Agreement (Barrier)
I have not been approached by any insurer or agent about disaster-specific products	3.46	1.01	Moderate-High Agreement (Barrier)
I believe my property/assets are unlikely to be seriously affected by disasters	2.68	1.09	Moderate (Optimism Bias)
I think family/community support is sufficient without needing insurance	2.42	1.14	Low Agreement

Barrier analysis reveals that claims process complexity (Mean = 3.82), premium cost concern (Mean = 3.76), and trust deficits (Mean = 3.64) are the three highest-rated adoption barriers. Information insufficiency (Mean = 3.54) and limited agent outreach (Mean = 3.46) are also significant barriers. Notably, optimism bias — the belief that disaster

impacts are unlikely — scores below neutral (Mean = 2.68), suggesting that barriers are primarily structural and experiential rather than rooted in risk denial.

Table 8: Insurance Claims Experience and Perception — Descriptive Statistics

Item	Mean	SD	Interpretation
I have previously filed an insurance claim following a disaster event	2.28	1.21	Low Agreement (few have claimed)
My experience of filing a disaster-related claim was satisfactory	2.44	1.09	Low-Moderate Agreement
The claim settlement time after the disaster was reasonable	2.36	1.14	Low Agreement
I was required to provide excessive documentation for my disaster claim	3.52	0.96	High Agreement (Burden)
A poor claims experience has made me reluctant to renew my insurance policy	3.18	1.03	Moderate-High Agreement

Claims experience data reveals important dynamics. While only a minority of respondents have directly filed disaster claims (Mean = 2.28), those with experience rate documentation burden as excessive (Mean = 3.52) and settlement timeliness as inadequate (Mean = 2.36). Critically, poor claims experience is associated with reluctance to renew (Mean = 3.18), confirming the negative feedback loop between unsatisfactory claims outcomes and future insurance abandonment. These findings underscore the importance of claims process reform as a strategy for improving urban disaster insurance retention.

Table 9: Pearson Correlation Matrix — Key Constructs

Constructs	GIA	DSIA	DRP	CPE	BAI	IOI
Gen. Insurance Awareness (GIA)	1	0.682**	0.421**	0.374**	-0.318**	0.534**
Disaster-Specific Ins. Awareness (DSIA)	0.682**	1	0.518**	0.463**	-0.427**	0.612**
Disaster Risk Perception (DRP)	0.421**	0.518**	1	0.387**	-0.278**	0.581**
Claims Process Experience (CPE)	0.374**	0.463**	0.387**	1	-0.492**	0.423**
Barriers to Adoption (BAI)	-0.318**	-0.427**	-0.278**	-0.492**	1	-0.503**
Insurance Ownership Intention (IOI)	0.534**	0.612**	0.581**	0.423**	-0.503**	1

Significant** at $p < 0.01$. The correlation matrix reveals strong positive associations among all awareness and risk-related constructs. Disaster-specific insurance awareness demonstrates the

strongest correlation with insurance ownership intention ($r = 0.612, p < 0.01$), followed by disaster risk perception ($r = 0.581, p < 0.01$). Barriers to adoption show significant negative correlations with all positive constructs, with the strongest inverse relationship with claims process experience ($r = -0.492, p < 0.01$), confirming that poor claims experience significantly amplifies adoption barriers.

Table 10: Multiple Regression Analysis — Predictors of Disaster Insurance Ownership Intention

Predictor Variable	Beta (β)	t-value	Sig.	VIF
General Insurance Awareness	0.198	3.24	0.001*	1.89
Disaster-Specific Insurance Awareness	0.284	4.61	0.000*	1.94
Disaster Risk Perception	0.312	5.14	0.000*	1.71
Claims Process Experience	0.224	3.76	0.000*	1.82
Barriers to Adoption (Inverse)	-0.268	-4.32	0.000*	1.77
Monthly Income (Control)	0.142	2.18	0.030*	1.34
$R^2 = 0.689$	Adj. $R^2 = 0.679$	$F(6,213) = 78.42$	$p < 0.001$	Significant

The regression model accounts for 68.9 percent of variance in disaster insurance ownership intention ($R^2 = 0.689, F = 78.42, p < 0.001$). Disaster risk perception is the strongest predictor ($\beta = 0.312$), followed by disaster-specific insurance awareness ($\beta = 0.284$), barriers to adoption with inverse relationship ($\beta = -$

0.268), claims process experience ($\beta = 0.224$), and general insurance awareness ($\beta = 0.198$). Monthly income is a significant control variable ($\beta = 0.142, p < 0.05$). VIF values confirm absence of multicollinearity.

Table 11: One-Way ANOVA — Insurance Awareness by Income Group

Income Group	N	Mean Awareness Score	SD	F-value	p-value
Below ₹25,000	38	2.68	0.74		
₹25,001 – ₹50,000	76	3.04	0.68		
₹50,001 – ₹75,000	62	3.42	0.72		
Above ₹75,000	44	3.84	0.66		
Total / F-test	220	3.28	0.76	F(3,216) = 24.18	p < 0.001*

One-way ANOVA reveals a highly significant income-group effect on disaster insurance awareness ($F = 24.18, p < 0.001$). Post-hoc analysis (Tukey HSD) confirms significant differences between all adjacent income groups. The lowest income bracket (Below ₹25,000) records a mean awareness score of 2.68, compared to 3.84 for the highest bracket (Above ₹75,000), representing a gap of 1.16 scale points. This income-awareness gradient underlines the need for income-differentiated intervention strategies.

IX. FINDINGS OF THE STUDY

9.1 Primary Findings

- General insurance awareness is moderate to high (Mean range 2.71–3.84) but disaster-specific awareness is significantly lower (Mean range 2.23–2.84), with the paired t-tests confirming this gap is statistically significant across all dimensions ($p < 0.001$).

- Only 14.5 percent of respondents hold property insurance as part of their portfolio, and 21.8 percent hold no insurance at all, confirming a severe household protection gap for disaster risk management purposes.
- Disaster risk perception is the strongest predictor of disaster insurance ownership intention ($\beta = 0.312, p < 0.001$), suggesting that risk communication strategies that enhance personalised risk salience could meaningfully increase insurance adoption.
- Claims process complexity (Mean = 3.82), premium cost concerns (Mean = 3.76), and insurer trust deficits (Mean = 3.64) are the three most significant barriers to disaster insurance adoption, with all three significantly reducing ownership intention.
- Claims experience data reveals that excessive documentation requirements (Mean = 3.52) and inadequate settlement timeliness (Mean = 2.36) are the primary sources of dissatisfaction, generating post-claim reluctance to renew (Mean = 3.18).
- Income significantly moderates insurance awareness, with the lowest income group scoring 1.16 points lower on the disaster awareness scale than the highest income group (ANOVA: $F = 24.18, p < 0.001$).
- Barriers to adoption show significant negative correlations with all positive constructs, particularly with claims process experience ($r = -0.492$), indicating that structural improvements to claims processes could reduce adoption barriers more effectively than promotional campaigns alone.

9.2 Hypothesis Testing Summary

Hypothesis	Statement Summary	Outcome
H ₁	Disaster risk perception positively associated with disaster insurance adoption	Supported ($\beta = 0.312, p < 0.001$)
H ₂	Higher financial literacy positively associated with greater product diversity	Supported ($r = 0.682, p < 0.01$)

Hypothesis	Statement Summary	Outcome
H ₃	Prior negative claims experience negatively associated with future adoption intention	Supported (r = -0.492, p < 0.01)
H ₄	Sociodemographic factors significantly influence insurance awareness and adoption	Supported (ANOVA F = 24.18, p < 0.001)
H ₅	Premium affordability and insurer trust are primary adoption barriers	Partially Supported (Claims complexity ranked highest)

X. DISCUSSION

The findings of this study contribute substantively to the understanding of household financial preparedness for disaster risk management in Tamil Nadu. The large and statistically significant gap between general and disaster-specific insurance awareness documented here aligns with Sivaramakrishnan et al.'s (2020) national findings on the shallowness of insurance awareness in India, but adds important contextual specificity by demonstrating that this gap is particularly pronounced for process knowledge — knowing how to actually file a disaster claim.

The identification of claims process complexity as the highest-rated adoption barrier — above premium cost and trust concerns — represents a practically important finding that challenges the conventional policy wisdom that premium subsidies are the primary lever for insurance penetration. If urban residents are fundamentally deterred by the prospect of a complicated, documentation-heavy, slow-resolution claims process, then reduced premiums alone will not drive adoption. Insurance product redesign and regulatory simplification of disaster claims processes represent more direct policy interventions.

The strong predictive power of disaster risk perception ($\beta = 0.312$) confirms Chakrabarti and Jha's (2020) finding that personalised risk salience drives insurance demand more effectively than abstract risk communication. This suggests that effective insurance promotion should incorporate vivid, localised narratives of disaster financial impact — drawing on

case studies from recent Tamil Nadu flood events — rather than relying on statistical probability information that often fails to shift attitudes.

The severe income gradient in disaster insurance awareness (a gap of 1.16 scale points between lowest and highest income groups) indicates that lower-income urban households — who are disproportionately located in flood-vulnerable areas and have fewer alternative financial buffers — are both most exposed to disaster financial risk and least equipped to manage that risk through formal insurance mechanisms. Targeted outreach and product design for low-income urban households therefore represents both a social equity imperative and a disaster resilience policy priority.

XI. SUGGESTIONS AND POLICY RECOMMENDATIONS

For Insurance Regulators (IRDAI) and Insurers:

- Mandate standardised, simplified disaster claims processes with maximum documentation requirements clearly specified, digital claim submission options, and mandatory settlement timelines — the evidence clearly shows that claims complexity is a primary adoption barrier.
- Design disaster-specific insurance product bundles that integrate flood and cyclone protection into existing home and health policies as optional add-ons at actuarially justified but accessible premium points, reducing the complexity of product selection for households.
- Establish urban disaster insurance literacy centres in collaboration with urban local bodies and RWAs in high-risk wards, providing free, neutral, agent-independent product advice to help households identify appropriate coverage options.

For State Government and Disaster Management Authorities:

- Integrate disaster insurance awareness into Tamil Nadu's Annual Disaster Preparedness Campaign, using the high disaster risk perception already present among the population (Mean = 3.86–4.04) as an entry point to motivate financial preparedness action.
- Establish a publicly accessible, state-managed portal providing simplified information on all government-sponsored and commercially

available disaster insurance schemes in Tamil Nadu, with Tamil-language content and a district-level relevance filter.

- Explore income-targeted disaster insurance subsidies for households below ₹25,000 monthly income, who show the lowest awareness and are most financially vulnerable, with simplified enrolment through existing urban welfare delivery infrastructure.

For Financial Literacy Organisations and NGOs:

- Develop peer-educator programmes that train trusted community members — teachers, local government representatives, SHG leaders — to provide basic disaster insurance literacy at neighbourhood level, leveraging existing social trust networks to overcome institutional trust deficits.
- Create and disseminate Tamil-language case study materials documenting the financial recovery experiences of insured vs. uninsured households from the 2015, 2021, and 2023 Tamil Nadu flood events, directly addressing the risk salience gap for households without direct disaster financial loss experience.

XII. CONCLUSION

This study has examined insurance awareness and disaster risk management behaviour among 220 urban households across five Tamil Nadu cities, generating a comprehensive empirical picture of the insurance protection gap at the household level. The findings confirm that while urban residents possess moderate general insurance awareness and high disaster risk perception, disaster-specific insurance knowledge — particularly regarding product availability, coverage details, claim procedures, and government schemes — is critically deficient.

The awareness-action gap in disaster insurance is driven by a convergence of structural barriers: claims process complexity, premium cost concerns, institutional trust deficits, and inadequate agent outreach for disaster-specific products. These barriers reinforce each other and are further amplified by income-related disparities in financial literacy. Policy interventions that address only one barrier in isolation — such as premium subsidies without simplifying claims processes — are unlikely to produce

meaningful improvements in household insurance penetration.

Disaster risk perception emerges as the most powerful available lever for motivating insurance adoption among urban households, suggesting that communication strategies that personalise and localise financial risk narratives could have substantial impact on uptake. This is particularly promising given that most Tamil Nadu urban residents already acknowledge high disaster risk — the challenge is in channelling this risk awareness into productive financial preparedness action.

The urban disaster insurance protection gap in Tamil Nadu is not simply a financial services marketing challenge; it is a disaster resilience policy failure with direct implications for post-disaster recovery capacity, fiscal burden on public funds, and social equity. Addressing it requires coordinated action across insurance regulation, product design, financial literacy infrastructure, and disaster communication systems. This study provides the evidence base for that multi-sectoral response, grounded in the actual perceptions, experiences, and barriers reported by urban households across the state.

REFERENCES

A. Books

- [1] Kunreuther, H., Pauly, M., & McMorrow, S. (2013). *Insurance and Behavioral Economics: Improving Decisions in the Most Misunderstood Industry*. Cambridge: Cambridge University Press.
- [2] Lusardi, A., & Mitchell, O.S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52(1), 5–44.
- [3] Mishra, P., & Kumar, A. (2021). *Financial Inclusion and Insurance Literacy in Urban India*. New Delhi: Oxford University Press India.

B. Journal Articles

- [4] Chakrabarti, P., & Jha, D. (2020). Disaster Experience, Risk Perception, and Insurance Demand: Evidence from Urban Indian Households. *Economic and Political Weekly*, 55(18), 34–42.
- [5] Nair, M., & Menon, R. (2020). Financial Literacy and Insurance Uptake in Urban Tamil Nadu: A

Structural Equation Modelling Approach. *Journal of Financial Inclusion*, 8(3), 112–128.

- [6] Rao, K.V., & Bhattacharya, A. (2018). Insurance Penetration and the Disaster Protection Gap: Evidence from the 2015 Chennai Floods. *Vikalpa: The Journal for Decision Makers*, 43(1), 17–32.
- [7] Sivaramakrishnan, B., Arumugam, C., & Venkatesan, L. (2020). Awareness, Attitude, and Adoption of Insurance Products among Urban Households in South India. *Indian Journal of Finance*, 14(7), 22–38.
- [8] Tiwari, P., & Rao, S. (2019). Household Financial Literacy and Insurance Adoption in Urban India: A Panel Data Approach. *Asian Journal of Finance and Accounting*, 11(1), 118–136.
- [9] Vasudevan, A. (2019). Claims Complexity, Institutional Trust, and Insurance Abandonment among Urban Tamil Nadu Households. *Journal of Insurance Regulation*, 38(2), 45–64.

C. Reports and Policy Documents

- [10] Government of India, NDMA. (2022). *National Disaster Risk Finance Strategy 2022*. New Delhi: National Disaster Management Authority.
- [11] Insurance Regulatory and Development Authority of India. (2023). *Annual Report 2022–23*. Hyderabad: IRDAI Publications.
- [12] Swiss Re Institute. (2023). *Sigma No. 1/2023: Natural catastrophes and inflation in 2022*. Zurich: Swiss Re.
- [13] UNDP India & Munich Climate Insurance Initiative. (2022). *Expanding Disaster Risk Insurance in South Asia*. New Delhi: UNDP India.
- [14] Government of Tamil Nadu, TNSDMA. (2023). *Tamil Nadu State Disaster Risk Finance Framework*. Chennai: TNSDMA.