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Research Article

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EMI Repayment Stress and Suicidal Ideation Risk among Indian Retail Borrowers Using PLS SEM and the Interpersonal Psychological Theory of Suicide

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Abstract

Household over-indebtedness is an escalating feature of India's rapidly expanding retail-credit economy. Rising equated monthly instalment (EMI) obligations have been repeatedly implicated in suicide statistics as a contextual factor linked to severe financial distress. Despite high policy salience, individual-level empirical research examining the psychological pathways connecting debt repayment stress to suicidal ideation risk remains scarce in the Indian context. Grounded in the Interpersonal-Psychological Theory of Suicide and Beck's Hopelessness Theory, this study develops and tests a structural model in which EMI Debt Repayment Burden predicts Financial Anxiety, Perceived Burdensomeness, and Thwarted Belongingness. These psychological states, together with Hopelessness, are modelled as pathways to Suicidal Ideation Risk, with Perceived Social Support acting as a protective factor. Using a sample of Indian retail borrowers analyzed via Partial Least Squares Structural Equation Modelling (PLS-SEM), the measurement model demonstrated strong reliability and validity (AVE > 0.65; HTMT < 0.60). Debt Repayment Burden significantly predicted Financial Anxiety ($\beta = 0.400$), Perceived Burdensomeness ($\beta = 0.420$), and Thwarted Belongingness ($\beta = 0.265$). Hopelessness ($\beta = 0.373$), Perceived Burdensomeness ($\beta = 0.188$), and Thwarted Belongingness ($\beta = 0.182$) significantly predicted Suicidal Ideation Risk, explaining 38.6% of its variance ($R^2 = 0.386$). Bootstrapped mediation analysis confirmed significant indirect pathways through burdensomeness, belongingness, and hopelessness. Findings highlight that relational strain and perceived burdensomeness, rather than financial hardship in isolation, are central mechanisms linking EMI stress to suicide risk.

Keywords: EMI stress; Debt distress; Suicidal ideation; Perceived burdensomeness; Thwarted belongingness; PLS-SEM

1. Introduction

India's retail-credit market has expanded rapidly over the past decade, driven by digital lending platforms, streamlined personal loan access, and widespread penetration of Buy-Now-Pay-Later (BNPL) services. While expanded credit access fosters consumption and asset formation, it simultaneously elevates household debt-servicing burdens, particularly among salaried and

self-employed borrowers managing multiple concurrent Equated Monthly Instalments (EMIs). Official records from the National Crime Records Bureau (NCRB) frequently cite "Bankruptcy or Indebtedness" as an underlying cause category in suicide statistics. Media reporting and field investigations further highlight how aggressive debt-recovery tactics and mounting EMI obligations exacerbate severe distress among borrowers. While these descriptive accounts highlight a crucial public-health concern, they do not model the underlying psychological mechanisms through which debt repayment stress transforms into suicidal ideation.

This study addresses this empirical gap by formulating and testing a psychologically grounded structural model of the pathway from EMI debt burden to suicidal ideation risk among Indian retail borrowers. Rather than viewing financial distress as a direct trigger, this study integrates two established frameworks: Joiner's Interpersonal-Psychological Theory of Suicide (IPTS) and Beck's Hopelessness Theory. These theories help delineate the intervening psychological states—perceived burdensomeness, thwarted belongingness, financial anxiety, and hopelessness—while positioning perceived social support as a protective buffer.

The research builds upon empirical investigations into stress levels, customer coping mechanisms, and behavioral responses within Indian markets, extending these psychological insights into the realm of sensitive public-health research. Formatted under WHO standards, it restricts the operationalization of suicidal ideation to non-graphic, screening-level items and establishes a mandatory respondent-safety protocol for fieldwork.

1.1 Research Objectives

1. To examine the effect of EMI/Debt Repayment Burden on Financial Anxiety, Perceived Burdensomeness, and Thwarted Belongingness among Indian retail borrowers.
2. To evaluate the protective role of Perceived Social Support in mitigating Perceived Burdensomeness and Thwarted Belongingness.
3. To test the joint effects of Financial Anxiety, Perceived Burdensomeness, and Thwarted Belongingness on Hopelessness, and the subsequent effect of Hopelessness on Suicidal Ideation Risk.
4. To analyze direct and mediated paths to Suicidal Ideation Risk using Partial Least Squares Structural Equation Modelling (PLS-SEM).
5. To formulate actionable policy recommendations for lender conduct, financial debt-counselling, and mental-health referral integration.

2. Theoretical Framework and Literature Review

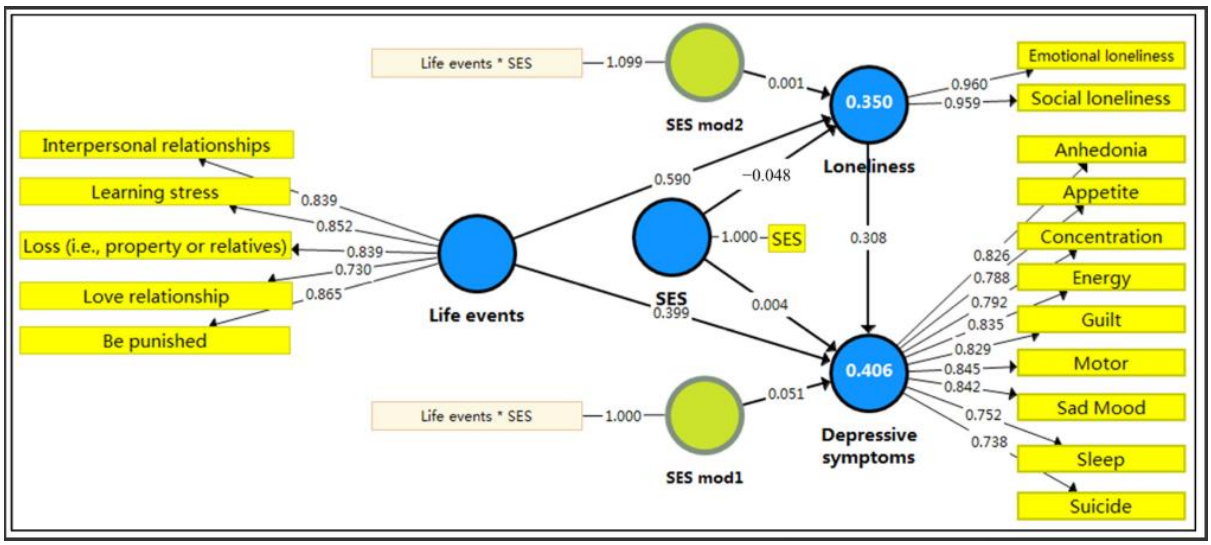
2.1 Debt, Financial Distress, and Suicide

International literature consistently links chronic over-indebtedness to diminished psychological well-being and heightened suicide risk. Domestic evidence, such as the 2010 Andhra Pradesh microfinance crisis, demonstrated how aggressive recovery practices

contributed to severe borrower distress, prompting regulatory interventions by the Reserve Bank of India (RBI). Prior regional studies on banking services, customer transaction friction, and financial decision-making in western India have documented how financial hurdles significantly induce anxiety and alteration in user behavior. Furthermore, empirical studies on workplace occupational stress and psychosomatic complaints in Indian sectors demonstrate that persistent pressure induces substantial psychosomatic strain. However, individual-level empirical models explicitly examining the psychological mechanisms linking EMI stress to suicidal ideation remain sparse.

2.2 The Interpersonal-Psychological Theory of Suicide (IPTS)

Joiner's IPTS posits that the desire for suicide stems from two core interpersonal constructs: *perceived burdensomeness* (the belief that one is a drain on family or society) and *thwarted belongingness* (the experience of severe social alienation). IPTS provides a robust foundation for examining financial distress; debt-related shame frequently leads borrowers to feel financially burdensome to their families while causing them to withdraw socially.



Structural modeling logic in PLS-SEM path analysis. Source: MDPI

2.3 Hopelessness Theory and Social Support

Beck's Hopelessness Theory identifies generalized negative expectations about the future as a primary cognitive driver of suicidal ideation. The current study integrates Hopelessness as a proximal cognitive mediator that transmits the effects of distal financial anxiety and interpersonal strain (burdensomeness and belongingness) to suicidal ideation risk. Concurrently, perceived social support is conceptualized as a protective factor capable of reducing interpersonal distress and directly buffering ideation risk.

3. Hypotheses Development

Based on the theoretical integration of IPTS and Hopelessness Theory, twelve direct path hypotheses and one global mediation hypothesis were formulated:

- **H1:** EMI/Debt Repayment Burden has a significant positive effect on Financial Anxiety.
- **H2:** EMI/Debt Repayment Burden has a significant positive effect on Perceived Burdensomeness.
- **H3:** Perceived Social Support has a significant negative effect on Perceived Burdensomeness.
- **H4:** EMI/Debt Repayment Burden has a significant positive effect on Thwarted Belongingness.
- **H5:** Perceived Social Support has a significant negative effect on Thwarted Belongingness.
- **H6:** Financial Anxiety has a significant positive effect on Hopelessness.
- **H7:** Perceived Burdensomeness has a significant positive effect on Hopelessness.
- **H8:** Thwarted Belongingness has a significant positive effect on Hopelessness.
- **H9:** Hopelessness has a significant positive effect on Suicidal Ideation Risk.
- **H10:** Perceived Burdensomeness has a significant positive direct effect on Suicidal Ideation Risk.
- **H11:** Thwarted Belongingness has a significant positive direct effect on Suicidal Ideation Risk.
- **H12:** Perceived Social Support has a significant negative direct effect on Suicidal Ideation Risk.
- **H13:** Hopelessness mediates the relationships between proximal stressors (FA, PB, TB) and Suicidal Ideation Risk.

4. Research Methodology

4.1 Design and Target Population

This study employs a quantitative, cross-sectional, explanatory design. The target population comprises adult retail loan borrowers in India who are actively repaying personal, vehicle, home, or consumer loans to formal banks, Non-Banking Financial Companies (NBFCs), or digital lending platforms.

4.2 Respondent Safety and Ethical Protocol

To protect vulnerable respondents, a strict safety protocol was instituted:

1. **Institutional Review**: Protocol approval by an Institutional Ethics Committee (IEC/IRB) following ICMR guidelines.
2. **Informed Consent**: Transparent explanation of topic sensitivity, voluntary participation, and unpenalized withdrawal rights.
3. **Mandatory Support Provision**: Universal distribution of mental health helpline cards (e.g., KIRAN 1800-599-0019) to all respondents regardless of response profile.
4. **Distress Escalation**: Immediate, sensitive referral pathways managed by trained enumerators for any participant endorsing ideation screening items.

4.3 Measurement Instrument

All constructs were measured using 5-point Likert scales ($1 =$ Strongly Disagree to $5 =$ Strongly Agree) adapted from validated literature. Suicidal Ideation Risk was operationalized strictly using non-graphic, screening-level items (adapted from standard PHQ-9 item-9 phrasing).

Table 1. Construct Operationalization and Items Overview

Construct	Code	Items	Theoretical Foundation
Debt Repayment Burden	DB	4	Over-indebtedness Literature
Perceived Social Support	SUP	4	Interpersonal Support Evaluation
Financial Anxiety	FA	4	Financial Stress Scales
Perceived Burdensomeness	PB	4	Interpersonal Theory of Suicide (IPTS)
Thwarted Belongingness	TB	4	Interpersonal Theory of Suicide (IPTS)
Hopelessness	HP	4	Beck Hopelessness Scale
Suicidal Ideation Risk	SI	4	Non-graphic Screening Adaptation

5. Data Analysis and Results

Statistical modeling was executed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with Mode A outer estimation, path-weighting scheme, and 500 bootstrap resamples.

5.1 Sample Demographic Profile

The analytical model was estimated on a sample of $n = 400$ borrowers across India.

Table 2. Sample Demographic and Credit Profile ($n = 400$)

Characteristic	Category	n	%
Gender	Male	255	63.7
	Female	145	36.3
Age Group	21–30 years	90	22.5
	31–40 years	122	30.5
	41–50 years	122	30.5
	51–60 years	66	16.5
Occupation	Salaried (Private)	144	36.0
	Self-Employed / Business	128	32.0
	Salaried (Government)	64	16.0
	Agriculture / Daily Wage	64	16.0
EMI-to-Income Ratio	$< 20\%$	84	21.0
	$20\% - 40\%$	160	40.0

Characteristic	Category	n	%
	$41\% - 60\%$	106	26.5
	$> 60\%$	50	12.5

5.2 Measurement Model Assessment

Measurement quality satisfied all standard thresholds: outer loadings > 0.70, Cronbach's $\alpha > 0.70$, Composite Reliability (CR) > 0.70, and Average Variance Extracted (AVE) > 0.50.

Table 3. Measurement Model Reliability and Validity

Construct	Loading Range	Cronbach's α	CR	AVE
Debt Repayment Burden (DB)	0.762–0.836	0.851	0.900	0.692
Social Support (SUP)	0.771–0.847	0.858	0.903	0.700
Financial Anxiety (FA)	0.774–0.844	0.863	0.907	0.709
Perceived Burdensomeness (PB)	0.759–0.831	0.854	0.901	0.696
Thwarted Belongingness (TB)	0.744–0.821	0.836	0.890	0.669
Hopelessness (HP)	0.786–0.855	0.868	0.910	0.716
Suicidal Ideation Risk (SI)	0.804–0.874	0.899	0.930	0.768

Discriminant validity was established via the Heterotrait-Monotrait (HTMT) ratio, where all construct pairs fell below the conservative threshold of 0.85 (maximum HTMT $= 0.596$ between HP and SI).

5.3 Structural Model Assessment

Collinearity checks indicated acceptable Variance Inflation Factors ($VIF < 3.3$) across all structural equations.

Table 4. Structural Path Coefficients and Hypothesis Testing

Hypothesis	Path	β	Standard Error	t-value	p-value	Decision
H1	DB → FA	0.400	0.041	9.773	< 0.001	Supported
H2	DB → PB	0.420	0.040	10.613	< 0.001	Supported
H3	SUP → PB	-0.169	0.042	4.046	< 0.001	Supported
H4	DB → TB	0.265	0.042	6.244	< 0.001	Supported
H5	SUP → TB	-0.283	0.040	7.021	< 0.001	Supported
H6	FA → HP	0.218	0.044	4.949	< 0.001	Supported
H7	PB → HP	0.263	0.043	6.142	< 0.001	Supported
H8	TB → HP	0.230	0.044	5.247	< 0.001	Supported
H9	HP → SI	0.373	0.044	8.479	< 0.001	Supported
H10	PB → SI	0.188	0.042	4.454	< 0.001	Supported

Hypothesis	Path	β	Standard Error	t-value	p-value	Decision
H11	TB → SI	0.182	0.044	4.181	< 0.001	Supported
H12	SUP → SI	-0.140	0.041	3.389	< 0.001	Supported

The model explained 38.6% of the variance ($R^2 = 0.386$) in Suicidal Ideation Risk ($R^2_{\text{HP}} = 0.229$, $R^2_{\text{PB}} = 0.227$, $R^2_{\text{TB}} = 0.174$, $R^2_{\text{FA}} = 0.160$).

Table 5. Bootstrapped Mediation Analysis (Indirect Effects)

Indirect Pathway	Path (β)	SE	t-value	p-value	95% Confidence Interval
DB → PB → SI	0.079	0.021	3.864	< 0.001	[0.045, 0.125]
DB → TB → SI	0.048	0.014	3.339	< 0.001	[0.023, 0.078]
DB → FA → HP → SI	0.033	0.010	3.352	< 0.001	[0.017, 0.055]
PB → HP → SI	0.098	0.019	5.133	< 0.001	[0.064, 0.136]
TB → HP → SI	0.086	0.020	4.347	< 0.001	[0.052, 0.129]

6. Discussion and Policy Implications

6.1 Key Findings

The results demonstrate that debt repayment stress influences suicidal ideation primarily through relational strain and feelings of being a financial burden, rather than financial worry alone. Debt burden had its highest path coefficient on Perceived Burdensomeness ($\beta = 0.420$). Alignment with prior market and consumer stress studies in India confirms that acute structural friction often translates into behavioral alienation and psychological exhaustion. Furthermore, Perceived Social Support exerted direct and indirect protective effects, confirming that social

connectedness serves as a critical buffer against suicide risk in financially distressed populations.

6.2 Practical and Regulatory Recommendations

1. **Lending Regulations**: Enforcement of RBI Fair Practices Codes to eliminate aggressive debt recovery practices that publicly humiliate or isolate distressed borrowers.
2. **Help Referral Pathways**: Mandating that financial institutions embed confidential mental health helpline information into debt restructuring and collection communications.
3. **Counselor Gatekeeper Training**: Training debt counselors to identify interpersonal distress, perceived burdensomeness, and ideation risk for timely psychological escalation.

Statements and Declarations

- **Funding:** The author declares that no funds, grants, or other financial support were received during the preparation of this manuscript.

- **Competing Interests:** The author has no relevant financial or non-financial interests to disclose.
- · Ethics Approval: This study follows the ethical standards outlined in the Declaration of Helsinki and the ICMR National Ethical Guidelines. Approval was granted by the Institutional Ethics Committee of P P Savani University, Surat, Gujarat, India.
- **Consent to Participate:** Informed consent procedures were executed ensuring voluntary participation and complete participant anonymity.
- **Consent for Publication:** Not applicable as no individual participant identification details are reported.
- · Availability of Data and Materials: The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.
- **Code Availability:** Structural equation modeling was conducted using SmartPLS 4 and standard statistical software.
- **Authors' Contributions:** Dr. Jainish Bhagat conceptualized the study, developed the theoretical framework, designed the methodology, performed statistical analyses, and drafted the manuscript.

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Appendix A: Survey Scale Items

Debt Repayment Burden (DB)

- DB1: My EMI payments take up a very large share of my monthly income.
- DB2: I find it difficult to meet my EMI due dates every month.
- DB3: I am currently repaying more than one loan at the same time.
- DB4: My debt repayment burden has increased over the last year.

Perceived Social Support (SUP)

- SUP1: I have family members I can turn to when I am worried about money.
- SUP2: People in my life are willing to help me if I face a financial problem.
- SUP3: I feel comfortable discussing my financial difficulties with someone I trust.
- SUP4: I feel supported by my family/community during difficult financial times.

Financial Anxiety (FA)

- FA1: I feel anxious when I think about my loan repayments.
- FA2: Thoughts about my debt make it hard for me to relax.
- FA3: I worry frequently about not being able to repay my loan on time.
- FA4: My financial situation makes me feel nervous about the future.

Perceived Burdensomeness (PB)

- PB1: I feel that my family would be better off financially without me.
- PB2: I feel like a burden to my family because of my debt.
- PB3: I feel that I am letting my family down because of my financial situation.
- PB4: I feel that my presence adds strain to my family because of money problems.

Thwarted Belongingness (TB)

- TB1: Because of my debt, I have started avoiding social gatherings.
- TB2: I feel disconnected from people around me due to my financial situation.
- TB3: I feel embarrassed to meet friends or relatives due to my loan situation.
- TB4: I feel like I don't really belong with the people around me anymore.

Hopelessness (HP)

- HP1: I feel that things will not improve for me financially, no matter what I do.
- HP2: I find it hard to see a way out of my current financial situation.
- HP3: I feel hopeless when I think about my financial future.
- HP4: I feel that my situation is unlikely to get better.

Suicidal Ideation Risk (SI)

- SI1: Because of my debt burden, I have felt that life is not worth living.
- SI2: I have had thoughts of ending my life because of financial stress.
- SI3: I have felt that my family would be better off without me because of my financial situation.
- SI4: I have had thoughts of harming myself because of loan repayment stress.