Determinants of Academic Motivation among Female College Students in Tiruchirappalli City: An Empirical Investigation

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Abstract

This study examines the determinants of academic motivation among female college students in Tiruchirappalli city, Tamil Nadu, India. Drawing on self-determination theory, social cognitive theory, and ecological systems theory, it tests how family support, teacher support, peer support, learning environment, digital learning, self-efficacy, career goals, financial concerns, and academic stress relate to academic motivation. A cross-sectional, quantitative, and explanatory design was adopted, using a 50-item questionnaire (ten constructs with five items each, rated on a five-point Likert scale) and eight socio-demographic variables. The data were analyzed for $N = 500$ records using reliability analysis, Pearson correlation, multiple linear regression, one-way ANOVA, and the Kruskal–Wallis test. The dataset is simulated and was built to follow the structure of the instrument; it contains no responses from real students, so the results demonstrate the analytical framework rather than describe actual students. The results show that all scales were reliable (Cronbach's $\alpha = .718$–$.782$) and that academic motivation was moderate ($M = 3.02$, $SD = 0.80$). The regression model was significant, $F(9, 490) = 16.33$, $p < .001$, and explained 23.1% of the variance in academic motivation (adjusted $R^2 = .217$). Family support ($\beta = .24$), career goals ($\beta = .18$), and teacher support ($\beta = .16$) were positive predictors, whereas academic stress ($\beta = -.19$) and financial concerns ($\beta = -.16$) were negative predictors. Digital learning was insignificant, and all eight demographic variables produced no significant difference in motivation. The findings point to family engagement, teacher mentoring, career guidance, financial aid, and stress-management services as ways of sustaining students' motivation, and the workflow can be reapplied to primary field data.

Keywords: *academic motivation, female students, higher education, social support, self-efficacy, academic stress, Tiruchirappalli, Tamil Nadu*

1. Introduction

Academic motivation, the energy, direction, and persistence that students bring to learning, is among the most consistent correlates of academic engagement, achievement, and degree completion (Pintrich, 2003; Richardson et al., 2012). In higher education, motivated students attend regularly, set learning goals, persist through difficult material, and recover from setbacks, whereas students with low motivation are more likely to disengage, underperform, or leave. Understanding what shapes motivation is therefore central to institutional efforts to improve retention and learning outcomes.

This question is especially relevant in the case of women in India. Over the past two decades, the enrollment of women in higher education has been steadily increasing. Nationally, women's participation has increased in all disciplines (Ministry of Education, 2022). But more access does not necessarily mean more sustained academic commitment. Women students need to balance their studies with household chores, family expectations around marriage and work, safety and mobility issues, and financial constraints. Such pressures may either erode motivation or, if families and institutions respond in supportive ways, bolster the determination to complete a degree and enter the labor market.

Tiruchirappalli (Trichy) is one of the principal educational centers of central Tamil Nadu, with a long-established cluster of government, government-aided, and self-financing colleges that draw students from the city and surrounding districts. This institutional diversity makes the city a suitable setting to examine how family, institutional, and personal factors jointly relate to motivation among women students. Despite the importance of the topic, much of the available evidence on academic motivation comes from Western or school-level samples, and few studies model family, teacher, and peer support,

learning environment, digital learning, self-efficacy, career orientation, financial concern, and academic stress within a single framework for women in an Indian city college context.

This study addresses that gap. Its objectives are (i) to describe the socio-demographic profile and the level of academic motivation of female college students; (ii) to establish the reliability and distributional properties of the nine determinants and the outcome construct; (iii) to estimate the relative influence of the nine determinants on academic motivation; and (iv) to test whether motivation differs across demographic subgroups. The paper contributes a parsimonious multi-theory model, a transparent measurement and analysis protocol, and a set of practical implications for college administrators and policymakers.

2. Review of Literature

This section reviews the empirical and theoretical literature on academic motivation in higher education, organized around the determinants examined in the study, and then identifies the research gap that the present investigation addresses.

2.1 Academic motivation: concept and measurement

Academic motivation refers to the processes that initiate, direct, and sustain learning-related behavior. Pintrich (2003) argued that motivational science helps explain why students choose, persist in and put effort into academic tasks in different learning contexts. Self-determination theory distinguishes intrinsic motivation, several forms of extrinsic motivation, and amotivation and holds that the quality of motivation depends on whether the social context supports the needs for autonomy, competence, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2000). Vallerand et al. (1992) operationalized this distinction in the Academic Motivation Scale for college students, which has become one of the most widely used instruments. Expectancy–value theory complements this view by locating motivation in students' expectations of success and the value they attach to tasks (Wigfield & Eccles, 2000; Eccles & Wigfield, 2002). Together, these traditions suggest that motivation is not a fixed trait but a state shaped by the social, institutional, and personal conditions in which a student studies, which is the premise of the determinants approach adopted here.

2.2 Family, teacher, and peer support

A large body of research links social support to motivation. Fan and Williams (2010) reported that parental involvement was related to students' academic self-efficacy, engagement, and intrinsic motivation. In a meta-analysis, Hill and Tyson (2009) found that parental involvement that communicates educational expectations and values was among the forms most strongly associated with achievement. For teachers, Roorda et al. (2011) showed in a meta-analysis that positive teacher–student relationships are associated with higher engagement and achievement, while Ryan and Patrick (2001) found that a supportive classroom social environment shaped changes in students' motivation and engagement. Wentzel (1998) demonstrated that perceived support from parents, teachers, and peers each contributes to students' motivation. Most of this evidence, however, comes from school-age samples or Western universities, and it rarely compares the three sources of support within one model for college women.

2.3 Learning environment and digital learning

The institutional context, including facilities, resources, and the structure of academic life, is a recognized correlate of college success (Robbins et al., 2004). The expansion of digital learning has added a further contextual factor whose motivational effect is less clear. Rovai et al. (2007) compared student motivation in traditional classroom and e-learning courses, and Muilenburg and Berge (2005) identified a range of student barriers to online learning, with low motivation among the problems associated with online study. These studies indicate that digital provision can both enable and hinder motivation, which makes its net effect an empirical question rather than an assumption.

2.4 Self-efficacy and career goals

Self-efficacy is among the most consistent motivational correlates of academic outcomes. Pajares (1996) reviewed evidence that beliefs in efficacy influence effort, persistence, and achievement in academic settings, and Zimmerman (2000) described self-efficacy as an essential motive to learn. Meta-analyses have found that college grades are most strongly associated with, and predicted by, academic self-efficacy and achievement motivation (Richardson et al., 2012; Robbins et al., 2004). Social cognitive career theory extends this idea, connecting self-efficacy, outcome expectations, and personal goals with academic interest and performance (Lent et al., 1994). Husman and Lens (1999) discovered that students who view their studies as a way to reach future goals are more likely to be motivated. Few studies, however, test

self-efficacy and career goals alongside social and institutional factors in the same regression model, so their unique contribution after controlling for context remains unclear.

2.5 Financial concerns and academic stress

Academic stress and negative academic emotions can erode motivation and self-regulated learning (Pekrun et al., 2002), and Robotham (2008) argued that stress among higher education students warrants a dedicated research agenda. Financial strain adds a structural barrier: Jury et al. (2017) reviewed the psychological and practical obstacles that low-income students face in higher education and the interventions that may reduce inequality. Although both strains are plausible threats to motivation, they are seldom modelled jointly with supportive factors, so the relative weight of removing barriers versus adding supports is poorly documented.

2.6 Evidence from the Indian context

Indian research on academic motivation is growing but is still fragmented. Singh et al. (2012) compared 351 undergraduates in traditional and open education systems in Allahabad and found that motivation was significantly higher in the traditional system, with family and social-environment factors influential among students there; within each system, differences between male and female students were not significant, with women scoring slightly higher. A study conducted in Bangalore on college students (n = 256) discovered that academic achievement was positively correlated with grit and intrinsic motivation, while academic achievement was negatively correlated with amotivation (Stephen & Murugesan, 2024). Deka (2024) investigated the correlation between academic motivation and academic achievement among university students in Northeast India. Sankar and Krishnan (2023) investigated the impostor phenomenon, academic motivation, and learning engagement among 186 Indian college students through an online survey. Taken together, these studies enrich the Indian evidence base, but they largely treat motivation as a predictor of achievement or as a correlate of a single psychological construct, use convenience or mixed-gender samples, and are not located in the colleges of Tiruchirappalli or specifically concerned with the circumstances of women students.

2.7 Research gap

Based on the sources reviewed, five gaps can be identified:

- **Contextual gap:** Evidence specific to female college students in Tiruchirappalli, a city with government and government-aided and private colleges, was not found in the literature reviewed. Findings from other cities and from mixed-gender samples cannot be assumed to hold for women in this setting.
- **Conceptual gap:** Many studies treat academic motivation as a predictor of achievement. Fewer treat motivation itself as the outcome and ask what shapes it.
- **Integration gap:** Social support, learning environment, digital learning, self-efficacy, career goals, financial concerns, and academic stress are usually studied one or two at a time. Their relative importance within one model and their unique contribution after controlling for the others are rarely reported.
- Population gap: Gender often tends to be a background variable rather than the focus, so the particular pressures of family expectation, finances, and career aspiration among women students are under-examined.
- Methodological gap: There is often little detail in reports on reliability, assumptions for regressions, and effect sizes, which prevents replication and comparison.

The present study responds to these gaps by (i) (i) (i) (i) focusing on women students in Tiruchirappalli, (ii) treating academic motivation as the dependent variable, (iii) estimating a single model with nine determinants drawn from complementary theories, (iv) testing demographic differences with parametric and non-parametric methods, and (v) reporting reliability, assumption checks, and effect sizes transparently. The following sections develop the theoretical framework and hypotheses that guide this investigation.

3. Theoretical Framework and Hypotheses Formulation

3.1 Theoretical framework

The study is organized in three complementary perspectives. According to self-determination theory, motivation is maintained when the basic psychological needs of autonomy, competence, and relatedness are supported by the social

environment (Ryan & Deci, 2000). Relatedness and competence are supported primarily by supportive families, teachers, and peers. According to social cognitive theory (Bandura, 1997; Schunk & DiBenedetto, 2020; Zimmerman, 2000), self-efficacy, or one's belief in their capability to perform actions required to achieve goals, is a proximal motivation of effort and persistence. *Expectancy–value theory* adds that motivation depends on the value students attach to tasks and on expectations of success, which links career goals to study effort (Eccles & Wigfield, 2002). Finally, *ecological systems theory* reminds us that students are embedded in nested environments (family, college, peer group, and wider economic conditions) whose influences operate simultaneously (Bronfenbrenner, 1979).

Integrating these perspectives yields the conceptual framework in Figure 1: social support, institutional context, and personal resources are expected to raise motivation, whereas financial and stress-related strains are expected to lower it.

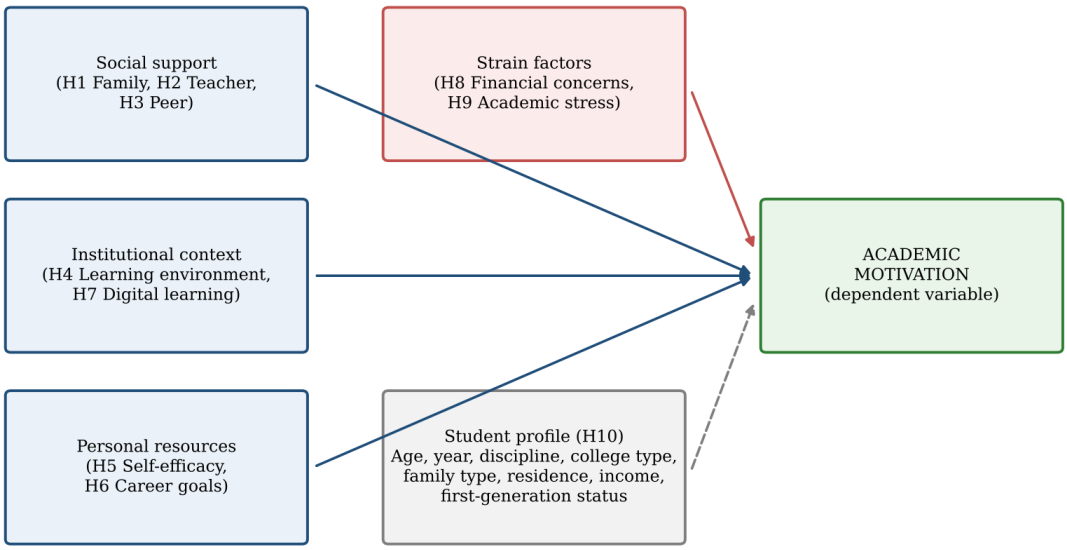

Figure 1. Conceptual framework and hypotheses of the study.

3.2 Hypotheses on social support

Parental involvement and encouragement have been linked to students' academic self-efficacy, engagement, and intrinsic motivation (Fan & Williams, 2010). In collectivist contexts, where educational decisions are family decisions, family endorsement of a daughter's studies is likely to be particularly consequential. Teachers also shape motivation through explanation, feedback, and approachability; a meta-analysis of affective teacher–student relationships found reliable associations with engagement and achievement (Roorda et al., 2011). In educational contexts, peers provide encouragement, academic exchange, and a sense of belonging and motivation, all of which are jointly related to parents, teachers, and peers (Wentzel, 1998). Therefore:

- H1: Academic motivation has a positive relationship with family support.
- H2: Academic motivation is positively related to teacher support.
- **H3:** Peer support is positively related to academic motivation.

3.3 Hypotheses on learning environment and digital learning

Institutional conditions such as facilities, learning resources, timetable flexibility, and a supportive climate are well-recognized correlates of student engagement and success (Robbins et al., 2004). Digital resources can raise interest and flexibility, yet they can also distract; the effect on motivation is therefore an empirical question. We hypothesize:

- **H4:** A supportive learning environment is positively related to academic motivation.
- **H7:** Digital learning is positively related to academic motivation.

3.4 Hypotheses on self-efficacy and career goals

Students who believe they can master difficult content and manage their time invest more effort and persist longer (Bandura, 1997; Zimmerman, 2000). Future-oriented goals also provide instrumentality to present tasks. The current study is meaningful in terms of expected careers (Husman & Lens, 1999). So:

- H5: Self-efficacy positively relates to academic motivation.
- H6: Career goals are positively associated with academic motivation.

3.5 Hypotheses of financial concern and academic stress

Negative academic emotions such as anxiety and feeling overwhelmed can undermine motivation and self-regulated learning (Pekrun et al., 2002), and workload and examination pressure are common stressors in college. Financial insecurity and the need to combine paid work with study can similarly divert attention and weaken commitment to studying. We therefore expect:

- **H8:** Financial concerns are negatively related to academic motivation.
- **H9:** Academic stress is negatively related to academic motivation.

3.6 Hypothesis on demographic differences

Motivation may vary with age, stage of study, discipline, type of college, family structure, place of residence, family income, and first-generation status because these characteristics shape resources, expectations, and exposure to academic demands. The study therefore tests **H10:** academic motivation differs significantly across demographic subgroups.

4. Research Methodology

4.1 Research design

The study follows a positivist, quantitative, cross-sectional, and explanatory design. A structured questionnaire was used to measure latent constructs, and a multivariate model was estimated to explain variation in academic motivation (dependent variable) from nine determinants (independent variables). Descriptive, reliability, correlational, regression, and group-comparison analyses were conducted in sequence. All statistical procedures were implemented in Python (pandas, NumPy, SciPy), and the analysis is fully reproducible from the item-level data.

4.2 Study area and target population

The study area is Tiruchirappalli city in Tamil Nadu, India. The target population comprises female students enrolled in undergraduate (I–III year) and postgraduate programs in arts, science, commerce, management, and other disciplines in government and government-aided and private colleges of the city. Female gender is a design criterion of the instrument and population; it is not recorded as a separate variable in the item-level file.

4.3 Sampling design and sample size

A multistage stratified sampling plan is proposed for the field study: colleges are stratified by management type (government, government-aided, private), and within each college, students are sampled proportionately by year of study and discipline. The analyzed sample size is $N = 500$. This exceeds the minimum of 384 suggested for a large population at 95% confidence and ±5% margin of error (Krejcie & Morgan, 1970), meets the ratio of ten cases per questionnaire item (50 items), and gives ample power for the regression model; with nine predictors and $\alpha = .05$, a sample of 500 can detect a small effect (Cohen's f^2 of about 0.03–0.04) with 80% power (Cohen, 1988).

4.4 Research instrument and measurement

Data are collected through a structured questionnaire in two parts. Part A captures eight socio-demographic variables: age group, year of study, discipline, type of college, family type, residence, family monthly income, and first-generation learner status. Part B contains 50 statements measuring ten constructs with five items each (Table 1). Responses are recorded on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree; Likert, 1932). The motivation items (AM1–AM5) capture interest in learning, effort under difficulty, goal setting, regular attendance, and degree-completion

drive, in line with the broader conceptualization of academic motivation in the literature (Vallerand et al., 1992; Pintrich, 2003).

Table 1. Structure of the measurement instrument.

Construct	Items	Sample item	Role in the model
Family Support (FS)	5	My family encourages me to continue higher education.	Predictor
Teacher Support (TS)	5	My teachers motivate me to perform well academically.	Predictor
Peer Support (PS)	5	My friends encourage me to learn.	Forecaster
Learning Environment (LE)	5	The college has a good learning environment.	Predictor
Self-Efficacy (SE)	5	I am able to do academic work even when it is hard.	Predictor
Career Goals (CG)	5	I study regularly because I have career ambitions.	Forecaster
Digital Learning (DL)	5	Online educational videos help me to understand the topics of the course.	Predictor
Financial Concerns (FC)	5	Financial uncertainty affects my motivation to study.	Predictor (strain)
Academic Stress (AS)	5	Examination pressure reduces my motivation to learn.	Predictor (strain)
Academic Motivation (AM)	5	I set academic goals and work towards achieving them.	Dependent variable

4.5 Scoring, interpretation, and treatment of item wording

Construct scores are computed as the arithmetic mean of the five constituent items so that higher scores indicate more of the construct. Mean scores are interpreted as low (1.00–2.33), moderate (2.34–3.66), or high (3.67–5.00), the equal-interval cut-offs for a five-point scale. Three items are worded in the opposite direction to their constructs (DL5, FC5, and AS5). The codebook does not specify reverse scoring, and empirical checks showed that these items correlate positively with the remaining items of their scales (item–total $r = .49$ to $.53$), while reverse-coding them lowers Cronbach's α for the three scales from about .72–.75 to about .20–.26. The items were therefore analyzed as recorded. In a field study these wordings should be reviewed in the pilot phase, and reverse scoring applied if respondents' answers support it.

4.6 Data source and transparency statement

The 500 records analyzed in this paper are synthetic (simulated). They were generated to follow the structure of the 50-item instrument and carry fictional participant labels; they are not responses from real students. The results below, therefore, illustrate the analytical workflow and the form of the findings and must not be read as empirical evidence about female college students in Tiruchirappalli. Before any submission for publication, the same procedure must be applied to primary data collected from real respondents with ethical clearance, and all numerical results, tables, figures, and interpretations must be regenerated.

4.7 Reliability and validity

Internal consistency is assessed with Cronbach's α (Cronbach, 1951), using .70 as the minimum acceptable value (Nunnally & Bernstein, 1994), together with corrected item–total correlations (acceptable above .30). Content validity rests on the theory-based item pool and expert review of wording; construct validity should be established in the field study using exploratory and confirmatory factor analysis (for example, KMO and Bartlett's tests, factor loadings above .50,

composite reliability above .70, and average variance extracted above .50; Hair et al., 2019). Because all constructs are self-reported at a single time point, common-method bias is a potential concern (Podsakoff et al., 2003).

4.8 Statistical techniques

- **Descriptive statistics:** frequencies, percentages, means, standard deviations, skewness, and kurtosis.
- **Reliability analysis:** Cronbach's α and corrected item–total correlations.
- **Pearson correlation:** bivariate association among the ten constructs.
- **Multiple linear regression (OLS):** academic motivation regressed on the nine determinants; assumptions checked by variance inflation factors (VIF), the Durbin–Watson statistic, the Breusch–Pagan test, and normality of the dependent variable (Tabachnick & Fidell, 2019).
- **One-way ANOVA and Kruskal–Wallis tests:** differences in motivation across demographic groups, with η^2 as the effect size.

The significance level was set at $\alpha = .05$ (two-tailed). Effect sizes are interpreted using Cohen's (1988) benchmarks.

4.9 Ethical considerations

For a field study, institutional ethics committee approval, written informed consent, voluntary participation, anonymity of responses, and secure data storage are essential, and participants may withdraw at any time. The present analysis used simulated data and involved no human participants.

5. Data Analysis and Results

5.1 Profile of respondents

Figure 2 summarizes the profile of the 500 respondents. The largest age group was 20–21 years (41.2%), followed by 22–23 years (25.8%), 18–19 years (24.8%), and 24 years and above (8.2%). The largest group by year of study was third-year undergraduates (34.6%), with postgraduates being 17.2%. By discipline, science (26.6%), commerce (23.0%), and arts (22.6%) were most common. Half of the respondents studied in private colleges (50.6%), with 25.8% in government and 23.6% in government-aided colleges. Most came from nuclear families (66.6%) and lived at home (65.8%) rather than in hostels (30.2%). Family monthly income was most often Rs. 15,001–30,000 (29.4%), and 45.2% reported being first-generation learners (47.4% not; 7.4% not sure).

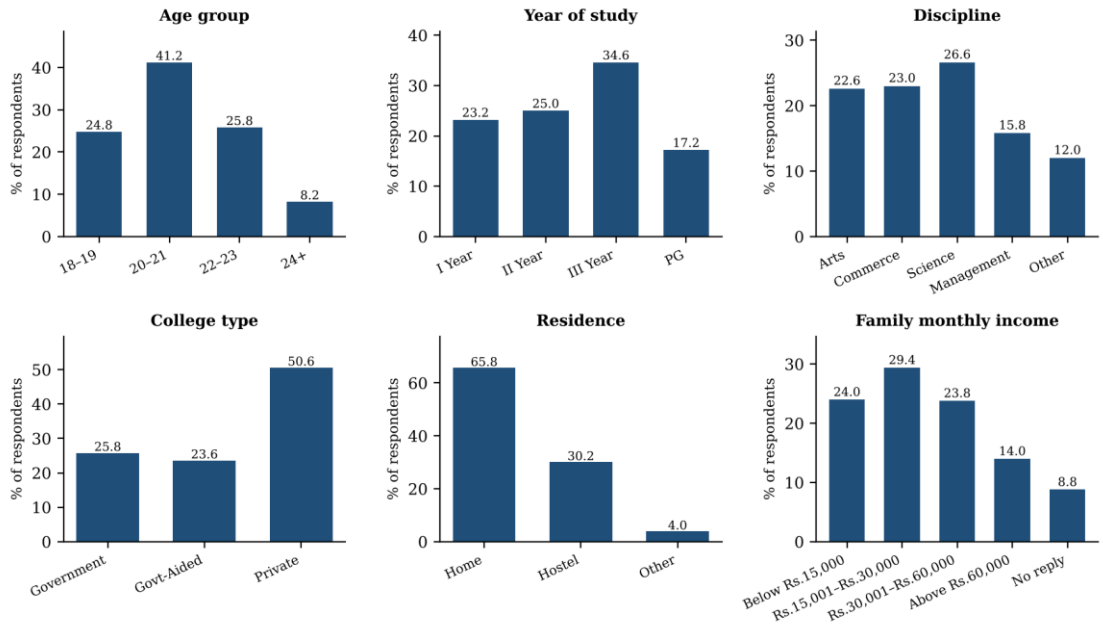

Figure 2. Socio-demographic profile of respondents (N = 500).

5.2 Descriptive statistics and reliability

Table 2 presents descriptive statistics and reliability coefficients. All construct means lay within a narrow band around the scale midpoint (2.97–3.05), and each construct fell in the moderate category. Academic motivation had a mean of 3.02 (SD = 0.80); 58.0% of respondents were moderately motivated, 21.2% had low motivation, and 20.8% had high motivation (Figures 3 and 4). Skewness (|skew| ≤ 0.17) and kurtosis (|kurtosis| ≤ 0.64) were well within the ±1 range commonly accepted for approximate normality, although the Shapiro–Wilk test was significant for academic motivation (W = .988, p < .001), which is common in samples of this size and is handled by corroborating parametric tests with non-parametric ones.

Reliability was satisfactory throughout. Cronbach's α ranged from .718 to .782, above the .70 threshold, and corrected item–total correlations ranged from .42 to .59, all above .30.

Table 2. Descriptive statistics and reliability of the constructs (N = 500).

Construct	*M*	*SD*	Skew	Kurt.	Cronbach's α	Item–total *r*	Level
Family Support	2.99	0.78	-0.06	-0.49	.745	.48–.55	Moderate
Teacher Support	3.00	0.83	-0.10	-0.64	.782	.53–.58	Moderate
Peer Support	3.05	0.79	-0.10	-0.38	.748	.48–.54	Moderate
Learning Environment	3.00	0.77	-0.04	-0.48	.742	.48–.53	Moderate
Self-Efficacy	3.04	0.79	-0.17	-0.46	.758	.46–.56	Moderate
Career Goals	2.97	0.77	-0.06	-0.24	.737	.45–.53	Moderate
Digital Learning	3.02	0.74	-0.00	-0.49	.718	.42–.53	Moderate
Financial Concerns	3.01	0.78	0.11	-0.51	.748	.48–.57	Moderate
Academic Stress	2.97	0.75	-0.09	-0.41	.726	.45–.51	Moderate
Academic Motivation	3.02	0.80	-0.06	-0.60	.760	.46–.59	Moderate

Note. Scale 1–5; Kurt. = excess kurtosis; level categories: low 1.00–2.33, moderate 2.34–3.66, high 3.67–5.00.

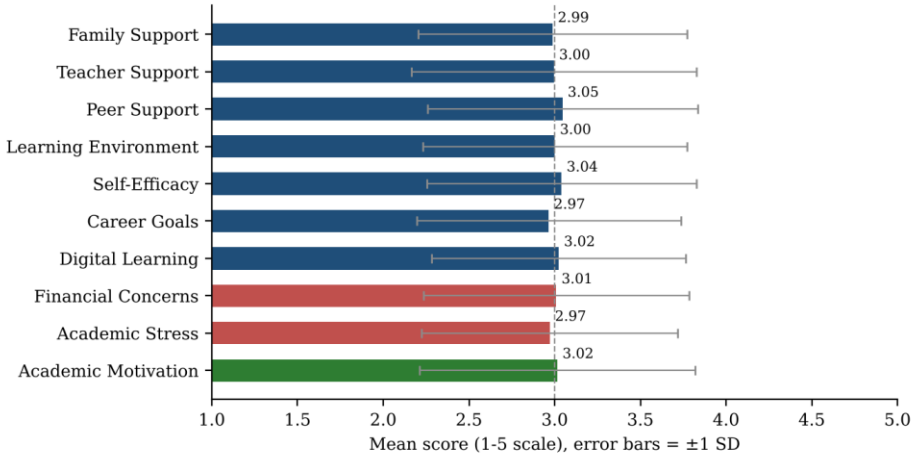

Figure 3. Mean construct scores (error bars show ±1 SD).

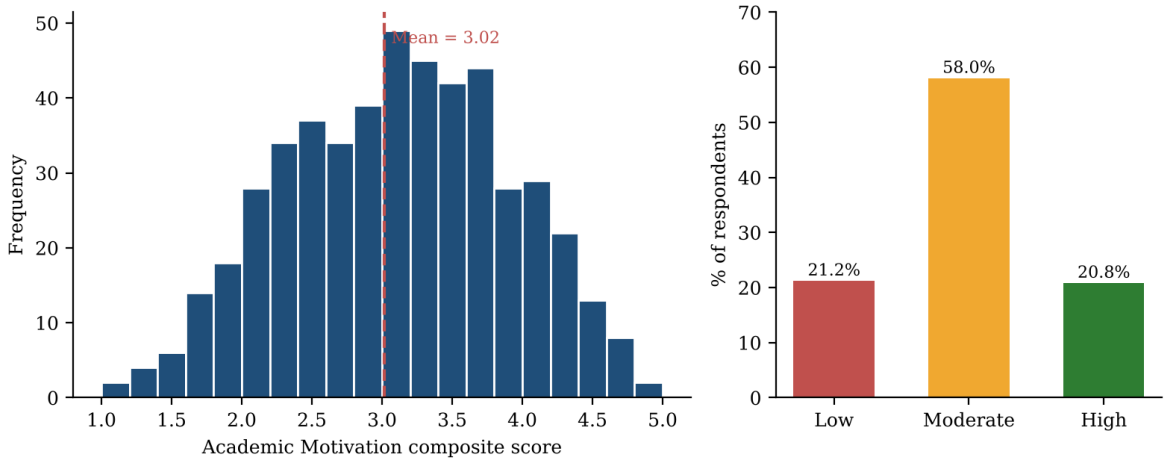

Figure 4. Distribution and levels of academic motivation.

5.3 Correlation analysis

Table 3 and Figure 5 show the Pearson correlations. Academic motivation was positively and significantly correlated with family support (r = .24), career goals (r = .16), learning environment (r = .16), teacher support (r = .15), peer support (r = .14), and self-efficacy (r = .12), while it was negatively correlated with academic stress (r = -.23) and financial concerns (r = -.18). Digital learning was unrelated to motivation (r = .00, p = .959). By Cohen's benchmarks, these are small-to-moderate associations. Intercorrelations among the nine determinants were weak (largest $|r|$ = .09), indicating no multicollinearity concerns and that each determinant carries largely distinct information.

Table 3. Pearson correlation matrix of study constructs.

	1	2	3	4	5	6	7	8	9
1. FS	—								
2. TS	-.02	—							
3. PS	-.05	.07	—						
4. LE	.09	-.09*	.02	—					
5. SE	.03	.08	-.03	.07	—				
6. CG	-.03	-.03	.00	-.02	-.04	—			
7. DL	-.05	-.07	-.03	.02	.04	-.04	—		
8. FC	.01	.01	-.07	-.00	-.06	.01	.03	—	
9. AS	-.06	-.01	.03	-.07	-.03	-.02	-.08	.04	—
10. AM	.24***	.15***	.14**	.16***	.12**	.16***	.00	-.18***	-.23***

Note. FS = Family Support; TS = Teacher Support; PS = Peer Support; LE = Learning Environment; SE = Self-Efficacy; CG = Career Goals; DL = Digital Learning; FC = Financial Concerns; AS = Academic Stress; AM = Academic Motivation. * p < .05, ** p < .01, *** p < .001.

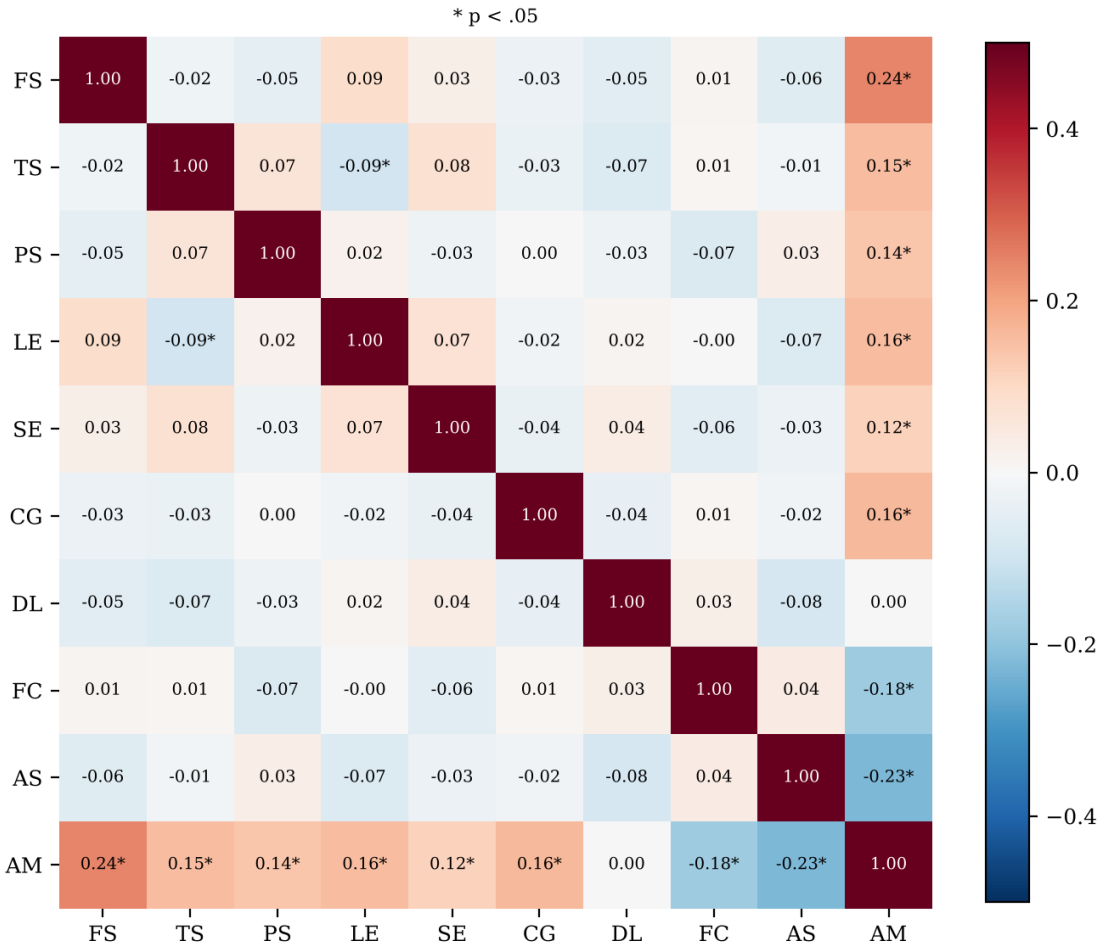

Figure 5. Correlation heatmap of the study constructs.

5.4 Multiple regression analysis

Multiple regression tested H1–H9 (Table 4). Assumption checks were satisfactory: VIF values were between 1.01 and 1.03 (well below 5), the Durbin–Watson statistic was 2.12 (close to 2, indicating independent errors), and the Breusch–Pagan test did not indicate heteroscedasticity (p = .172). The model was statistically significant, $F(9, 490) = 16.33$, $p <$ .001, explaining 23.1% of the variance in academic motivation (R^2 = .231, adjusted R^2 = .217, $RMSE$ = 0.71). This corresponds to Cohen's $f^2 = 0.30$, a medium-to-large effect.

Eight of the nine predictors were significant. Family support had the strongest positive effect (β = .236, $p <$ .001), followed by career goals (β = .178), teacher support (β = .162), peer support (β = .133), and learning environment (β = .130). Self-efficacy had a small effect that was only just significant (β = .082, p = .042). Academic stress (β = -.191) and financial concerns (β = -.163) were significant negative predictors; academic stress was the second-strongest predictor in absolute terms. Digital learning was not significant (β = .021, p = .605). Figure 6 displays the standardized coefficients with 95% confidence intervals. In unstandardized terms, a one-point increase in family support is associated with a 24-point rise in motivation, holding other determinants constant.

Table 4. Multiple regression results: determinants of academic motivation.

Predictor	*B*	SE	β	*t*	*p*	VIF
(Constant)	1.247	0.389	—	3.20	.001	—
Family Support	.242	.041	.236	5.89	< .001	1.02

Predictor	*B*	SE	β	*t*	*p*	VIF
Teacher Support	.156	.039	.162	4.02	< .001	1.03
Peer Support	.136	.041	.133	3.33	< .001	1.02
Learning Environment	.136	.042	.130	3.24	.001	1.03
Self-Efficacy	.083	.041	.082	2.04	.042	1.02
Career Goals	.186	.042	.178	4.48	< .001	1.01
Digital Learning	.023	.043	.021	0.52	.605	1.02
Financial Concerns	-.168	.041	-.163	-4.07	< .001	1.01
Academic Stress	-.205	.043	-.191	-4.76	< .001	1.02

Note. R^2 = .231; adjusted R^2 = .217; $F(9, 490) = 16.33$, $p < .001$; Durbin–Watson = 2.12. *B* = unstandardized coefficient; β = standardized coefficient.

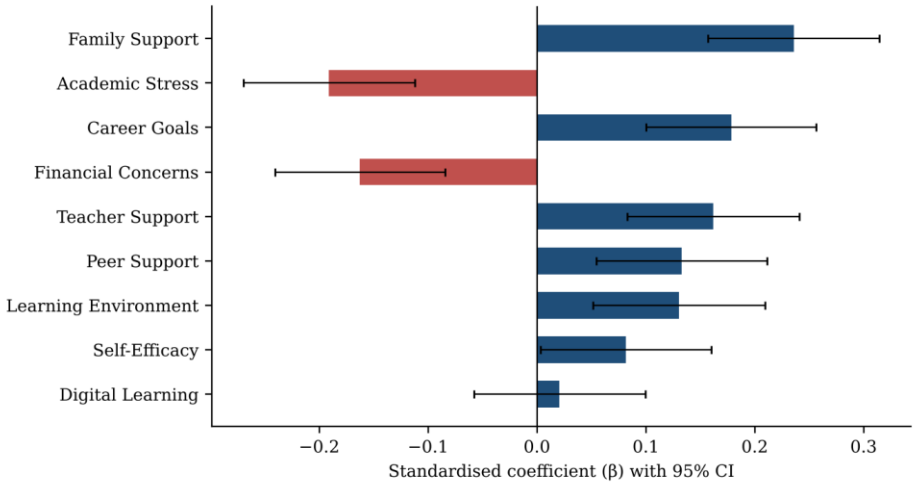

Figure 6. Standardized regression coefficients (β) with 95% confidence intervals.

5.5 Differences across demographic groups

Table 5 reports ANOVA and Kruskal–Wallis tests of motivation across the eight demographic variables. None was significant at the .05 level, and all effect sizes were negligible ($\eta^2 \leq .012$), so H10 was not supported. Government-college students had a slightly higher mean ($M = 3.13$) than students in government-aided ($M = 2.98$) and private colleges ($M = 2.97$), and commerce students scored highest by discipline ($M = 3.13$), but these differences fell within sampling variation (Figure 7). Parametric and non-parametric tests agreed in every case.

5. Differences in academic motivation by demographic variables.

Grouping variable	Groups	ANOVA *F*	*p*	K–W *H*	*p*	η^2
Age group	4	0.43	.735	0.94	.817	.003
Year of study	4	1.13	.336	3.49	.322	.007
Discipline	5	1.50	.202	6.26	.181	.012

Grouping variable	Groups	ANOVA *F*	*p*	K–W *H*	*p*	η²
College type	3	1.77	.171	3.79	.150	.007
Family type	2	0.16	.690	0.16	.686	.000
Residence	3	0.76	.467	1.93	.380	.003
Family monthly income	5	0.67	.616	2.23	.694	.005
First-generation learner	3	0.85	.430	2.05	.359	.003

Note. K–W = Kruskal–Wallis; η² = eta-squared effect size. No test was significant at $p < .05$.

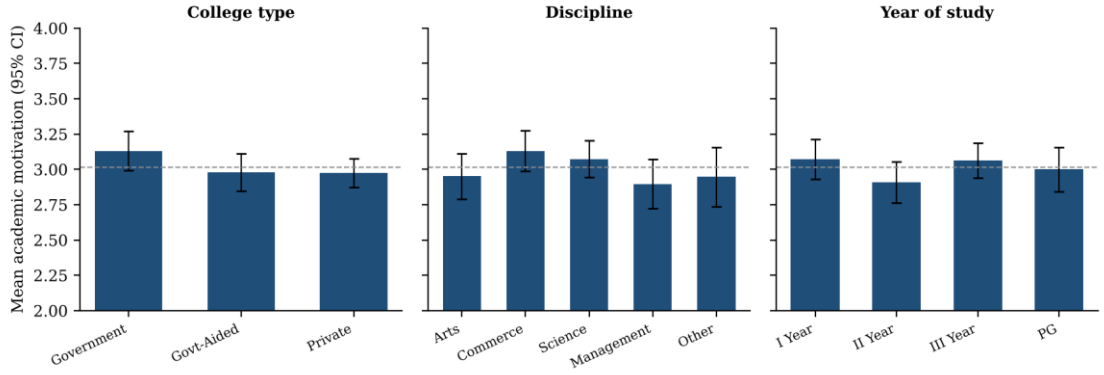

Figure 7. Mean academic motivation by college type, discipline, and year of study (95% CI).

5.6 Summary of hypothesis testing

Table 6. Summary of hypothesis testing.

No.	Relationship	Expected sign	Decision
H1	Family support → academic motivation	Positive	Supported
H2	Teacher support → academic motivation	Positive	Supported
H3	Peer support → academic motivation	Positive	Supported
H4	Learning environment → academic motivation	Positive	Supported
H5	Self-efficacy → academic motivation	Positive	Supported (marginal)
H6	Career goals → academic motivation	Positive	Supported
H7	Digital learning → academic motivation	Positive	Not supported

No.	Relationship	Expected sign	Decision
H8	Financial concerns → academic motivation	Negative	Supported
H9	Academic stress → academic motivation	Negative	Supported
H10	Demographic profile differences in motivation	Differences	Not supported

Note. H5 is supported at $p = .042$ and should be interpreted cautiously.

6. Discussion

This section interprets the pattern of results produced by the analytical framework. Because the dataset analyzed here is simulated, the discussion considers what the pattern would imply and how it relates to earlier research if it were replicated with field data.

6.1 Social support as the central resource

Family support emerged as the strongest determinant, which is consistent with evidence that parental involvement and encouragement are linked to students' self-efficacy, engagement, and intrinsic motivation (Fan & Williams, 2010; Wentzel, 1998). If found in real data, this result would be especially meaningful for female students, for whom family approval of continued education can be decisive. Teacher support and peer support also contributed independently, in line with self-determination theory's claim that relatedness and competence support from significant others sustain motivation (Ryan & Deci, 2000) and with the meta-analytic evidence on teacher–student relationships (Roorda et al., 2011). The learning environment contributed similarly, matching the role of institutional context in student success reported in meta-analytic work (Robbins et al., 2004). The near-absence of correlation among these predictors suggests that supports operate additively: a deficit in one source is not automatically offset by another.

6.2 Personal resources: career goals and self-efficacy

Career goals were the third-strongest predictor, supporting expectancy-value and future-time-perspective arguments that students work harder when study is instrumental to valued future roles (Eccles & Wigfield, 2002; Husman & Lens, 1999). Self-efficacy had a significant but modest unique effect and a lower zero-order correlation than meta-analyses typically report (Richardson et al., 2012; Robbins et al., 2004). A plausible reading is that, once social and goal-related factors are controlled, self-efficacy adds comparatively little in this model; an alternative is that the weaker association reflects measurement or sampling characteristics. Both explanations should be examined with real data, for instance by testing whether self-efficacy mediates the effects of support.

6.3 Strain factors: academic stress and financial concerns

Academic stress was the second-strongest predictor in absolute size, and financial concerns were also significant and negative, which fits research showing that anxiety and feeling overwhelmed undermine self-regulated learning and motivation (Pekrun et al., 2002). The combined influence of the two strain factors was comparable in size to the combined influence of teacher and peer support, indicating that reducing barriers can matter as much as adding supports. The finding that income group was unrelated to motivation, while financial concern was related, implies that subjective financial pressure rather than income level per se may be the more relevant condition.

6.4 Digital learning and demographic characteristics

Digital learning showed no unique relationship with motivation, which is consistent with the mixed role of technology: resources and videos can raise interest, while digital distractions erode it, so the two effects may cancel out in aggregate. The result suggests that technology adoption is not by itself a motivational intervention; its effect probably

depends on how it is integrated into teaching. Demographic characteristics, including college type, discipline, and first-generation status, did not differentiate motivation. In an ecological perspective (Bronfenbrenner, 1979), this implies that proximal social and psychological processes may matter more than background labels, although with real data and unequal group sizes (for example, the small 'other' residence group) such null results need to be confirmed.

6.5 Implications

If confirmed in field data, the results suggest the following actions for colleges and policymakers in Tiruchirappalli:

- **Engage families.** Parent orientation programs, regular progress communication, and first-generation family outreach to strengthen the most influential determinant.
- **Strengthen teacher mentoring.** Structured mentor-mentee programs; positive feedback practices; open-door consultation hours.
- Promote peer learning. Inclusive classroom communities, peer tutoring, and study circles.
- Connect study to careers. Career counseling, internships, and alumni interaction from the first year.
- Reduce the strain. Counseling and stress-management services, scheduling assessments to avoid overloading, and scholarships, fee installments, and earn-while-you-learn opportunities for students under financial pressure.
- **Use technology purposefully.** Integrate digital resources into pedagogy and address distraction rather than assuming that access alone raises motivation.

7. Limitations and Future Research

First and most important, the dataset analyzed is simulated, so the substantive findings cannot be generalized to real students; the contribution at this stage is the model, instrument, and analytical protocol. Second, the design is cross-sectional, and the regression coefficients indicate association, not causation; longitudinal or experimental designs would allow stronger causal inference. Third, all measures are self-reported and subject to common-method bias (Podsakoff et al., 2003). Fourth, the constructs were measured with five items each, and construct validity was not tested with factor analysis; the unusual behavior of the opposite-wording items (DL5, FC5, and AS5) should be investigated in a pilot. Fifth, gender is a population criterion rather than a recorded variable, so no gender comparison was possible. Future studies should collect primary data from a stratified sample of colleges in Tiruchirappalli, validate the measurement model with confirmatory factor analysis, test mediation (for example, support → self-efficacy → motivation) and moderation (for example, first-generation status), compare male and female students, and extend the model to other cities of Tamil Nadu.

8. Conclusion

This paper developed and applied a multi-theory model of the determinants of academic motivation among female college students in Tiruchirappalli. The nine-determinant model explained about 23% of the variance in motivation in the analyzed dataset, with family support, academic stress, career goals, financial concerns, and teacher support as the leading predictors, while digital learning and demographic characteristics showed no significant effect. Methodologically, the study provides a transparent and reproducible protocol: a theory-based 50-item instrument, reliability and assumption checks, and complementary parametric and non-parametric tests. Substantively, the results, once validated with real respondents, point to a combined strategy of strengthening social supports and career orientation while reducing financial and academic strain. Applying the protocol to primary field data is the essential next step before the findings can inform policy or practice.

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