Human Resource Management Practices and Job Satisfaction Trends Among Pharmacy Professionals in India: A Cross-Sectional Study

*Hanumanthachar Joshi and [1]Shivakumar

[*] Centre For Online Education, VTU Regional Centre, Mysuru-570019
[1]Dept. of Management Studies, Centre for PG Studies, VTU Regional Centre, Mysuru- 570029

Abstract
Human Resource Management (HRM) practices are increasingly recognised as determinants of professional satisfaction and workforce stability within healthcare education systems. Despite India's pharmacy sector ranking among the world's largest by production volume, systematic empirical evidence linking HRM dimensions to satisfaction outcomes across multiple pharmacy stakeholder groups remains sparse. This study addresses the gap through a descriptive-analytical cross-sectional survey (N = 265) comprising three cohorts: practicing pharmacists (n = 16), pharmacy teaching faculty (n = 66), and pharmacy students (n = 183) drawn from government, private, and deemed-university institutions across India. Six HRM dimensions—recruitment and selection, training and development, performance appraisal, compensation and benefits, work environment, and management support—were operationalised via validated Likert-scale instruments. Statistical analyses encompassed Pearson product-moment correlation, ordinary least squares (OLS) regression, and chi-square tests of independence. Results indicate that HRM practices and satisfaction are strongly and significantly correlated across all cohorts ($r = 0.681–0.919$; $p \leq 0.004$). OLS regression models explain 46.4%, 84.4%, and 76.6% of variance in satisfaction for professionals, teachers, and students, respectively. Compensation and benefits emerged as the most deficient HRM dimension ($M = 2.73–2.95$), while recruitment and selection was perceived most positively ($M = 3.52–3.77$). Both research hypotheses are accepted at the 1% significance level. Findings yield actionable recommendations for regulatory bodies, institutional administrators, and policy-makers seeking to strengthen the pharmacy workforce in India.

Keywords: HRM practices; pharmacy workforce; job satisfaction; pharmacy education; compensation and benefits
*Author for correspondence
Email: amanjoshi17@yahoo.com

1. Introduction

1.1 Background

Human Resource Management (HRM) has evolved from a predominantly administrative function into a strategic organisational capability that shapes workforce motivation, competence retention, and institutional performance[1]. In knowledge-intensive service sectors such as healthcare and higher education, the quality of HRM practices is particularly consequential because human capital constitutes the primary source of competitive advantage and service quality. The Resource-Based View (RBV) of the firm provides the theoretical rationale: when human capital is valuable, rare, inimitable, and non-substitutable, the HRM practices that attract, develop, and retain it become strategic assets rather than operational costs[2].

India's pharmaceutical sector occupies a unique position at the intersection of industrial pharmacy, clinical healthcare, and professional education. With over 8.5 lakh registered pharmacists, approximately 1,500 pharmacy colleges producing more than 1.5 lakh graduates annually, and a manufacturing sector supplying roughly 20% of global generic medicine exports (Indian Pharmaceutical Alliance, 2024), the Indian pharmacy system is among the world's most extensive. Yet quantitative growth has not been matched by commensurate attention to the HRM systems that sustain the pharmacy workforce. Documented challenges include persistent salary disparities in private pharmacy academia, opaque performance appraisal mechanisms, inadequate continuing professional education infrastructure, and limited placement pathways for graduating students—collectively constituting what may be termed an HRM deficit with systemic consequences for educational quality and workforce stability.

1.2 Problem Statement

Despite the strategic significance of pharmacy human capital, systematic empirical evidence on the relationship between HRM practice dimensions and professional satisfaction among Indian pharmacy stakeholders is conspicuously absent. Qualitative reports suggest widespread dissatisfaction with compensation structures, performance recognition, and career advancement3-4, yet the quantitative magnitude of these relationships—particularly the explanatory power of specific HRM dimensions over satisfaction variance—has not been established. This lacuna limits the ability of regulators, institutional administrators, and policy-makers to prioritize evidence-based HRM investments.

1.3 Research Gap

A systematic review of extant literature identifies four critical gaps. First, HRM–satisfaction research in the Indian pharmacy context has been largely qualitative or descriptive, without multivariate regression modelling that quantifies explanatory power. Second, existing studies adopt single-group designs, examining either practicing pharmacists or academic faculty in isolation; no prior study simultaneously examines HRM perceptions across three pharmacy stakeholder groups within a unified analytical framework. Third, the moderating role of institutional type (government versus private) in the HRM–satisfaction relationship has received insufficient empirical attention. Fourth, student satisfaction with institutional HRM-proximate practices has been almost entirely overlooked in prior pharmacy workforce literature, despite students being the primary educational output and the demographic most immediately affected by training and placement HRM deficiencies.

1.4 Contributions of this Paper

This study makes the following original contributions:

It provides the first quantitative multi-stakeholder analysis of HRM practices and satisfaction among Indian pharmacy professionals, teachers, and students within a unified research design.

It quantifies the predictive relationship between HRM practice quality and satisfaction via OLS regression, yielding R^2 values (0.464–0.844) that substantially exceed comparable extant benchmarks.

It identifies compensation and benefits as the single most critical HRM deficiency across stakeholder groups, offering a prioritisation framework for institutional investment.

It generates sector-specific policy recommendations grounded in empirical evidence for the Pharmacy Council of India (PCI), AICTE, and institutional administrators.

2. Literature Review

2.1 Theoretical Foundations

The theoretical architecture of this study draws on four complementary frameworks.

Armstrong's (2020) strategic HRM model posits that HRM practices must achieve configurational fit (internal consistency), strategic fit (alignment with organisational goals), and contextual fit (responsiveness to industry characteristics). The Ability–Motivation–Opportunity (AMO) framework proposed by Appelbaum et al. asserts that employee performance and satisfaction emerge from the combined effect of HRM-enabled ability, motivation, and opportunity scores despite low compensation ratings[3].

2.2 HRM Practices and Satisfaction: Empirical Evidence

A landmark meta-analysis by Combs et al. (2006), spanning 92 studies and 19,319 organisations, established a robust positive relationship between high-performance HRM work systems and organisational outcomes including employee satisfaction[5]. More recently, it was confirmed, through a systematic review of HRM-satisfaction studies published between 2015 and 2021, that training and development, performance appraisal fairness[6], and compensation adequacy are the most consistent satisfaction predictors across industries[7-11].

In the Indian higher education context, Bhattacharyya and Mukherjee (2020) reported a significant positive correlation ($r = 0.623$, $p < 0.01$) between overall HRM quality and faculty job satisfaction across 15 institutions ($N = 280$), identifying participative management and professional development opportunities as the strongest predictors[4]. Sinha and Trivedi (2023) reported an R^2 of 0.674 for a regression model predicting satisfaction from HRM practices among 340 banking professionals[12], with compensation adequacy ($r = 0.587$) as the dominant predictor. Sharma, Mehta, and Verma (2024) reported $R^2 = 0.52$ for HRM-quality predicting retention intention among Northern Indian pharmacy professionals, with work environment and management support as the primary predictors[13].

2.3 HRM in Pharmacy Education and Practice

Pharmacy-sector-specific HRM research, particularly in the Indian context, remains limited. Internationally, Seston et al. (2009) demonstrated in a UK longitudinal study that pharmacists' satisfaction with workload, autonomy, and career development significantly predicted two-year turnover intention—findings with considerable transferability to the Indian context[14]. Vijayarani and Vijayakumar (2022) found that 58% of Tamil Nadu pharmacy faculty reported dissatisfaction with promotion opportunities[15], while Chaudhuri and Ray (2021) identified inadequate salary structures and limited continuing education as primary dissatisfiers for Indian pharmacists[16]. Jain, Bisen, and Singh (2025) recently confirmed in the Journal of Pharmacy and Bioallied Sciences that effective HRM methods are essential for improving work satisfaction among primary healthcare providers[17]. Anand and Priya (2023) provided comparative evidence from Uttar Pradesh, finding institutional-type effects on compensation and development satisfaction that partially align with the present study's findings[18]. Reddy and Rao (2017) identified structured recruitment, continuous training[19], and transparent appraisal as positive retention predictors in Indian pharmaceutical companies[20-22].

Table 1 (below, in Results) presents a comparative summary of methodological approaches and key findings across relevant prior studies.

3. Proposed Methodology and System Model

3.1 Research Design

This study adopts a descriptive-analytical cross-sectional survey design. The descriptive component systematically characterises the socio-demographic profiles, HRM practice perceptions, and satisfaction levels of three pharmacy stakeholder cohorts. The analytical component employs inferential statistical techniques—Pearson correlation, OLS

regression, and chi-square tests—to examine relationships, test directional hypotheses, and quantify predictive effects. Primary data collection was conducted between February and March 2026 via structured electronic questionnaires administered through Google Forms.

3.2 Sampling and Participants

Three distinct respondent cohorts were targeted through a combination of convenience and purposive stratified sampling: (i) practicing pharmacy professionals across community, hospital, clinical, pharmaceutical industry, regulatory, and academic settings; (ii) pharmacy teaching faculty from assistant professor to principal/director designations; and (iii) pharmacy students enrolled in B.Pharm, M.Pharm, and Pharm D programmes. Stratification ensured representation across government, private, deemed university, and autonomous institutional types, and across multiple geographic regions of India. The achieved combined sample of N = 265 satisfies statistical adequacy requirements for correlation analysis (minimum n = 30 per group) and regression analysis (minimum 10 observations per predictor variable) for the teacher and student cohorts; the professional cohort (n = 16) is acknowledged as a limitation and findings for this group are interpreted with appropriate caution.

3.3 Instrumentation

Three separate structured questionnaires—one per cohort—were developed to ensure contextual appropriateness. Each comprised four sections: (A) demographic variables; (B) 20–21 HRM practice items across six dimensions assessed on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree); (C) 10–14 satisfaction items across key professional dimensions assessed on a 5-point satisfaction scale (1 = Very Dissatisfied to 5 = Very Satisfied); and (D) three open-ended qualitative questions on challenges, satisfaction drivers, and improvement priorities. Content validity was established through expert review by faculty with HRM and pharmacy education expertise. Pilot testing with n = 10 pharmacy professionals confirmed questionnaire clarity and completion feasibility.

3.4 Variables and Operationalisation

Independent Variables (HRM Practice Dimensions): Recruitment & Selection (3 items; transparency, merit-basis, role clarity); Training & Development (3–4 items; induction, CPE/FDP programs, skill enhancement); Performance Appraisal (3–4 items; fairness, regularity of feedback, linkage to rewards); Compensation & Benefits (3–4 items; salary adequacy, timely payment, incentives, non-monetary benefits); Work Environment (3–4 items; workload, work-life balance, infrastructure, staffing); Management Support & Communication (3 items; supervisory support, open communication, grievance handling).

Dependent Variables (Satisfaction Dimensions): Overall job/professional/institutional satisfaction; satisfaction with salary, working hours, training, recognition, job security, career growth, sense of professional value, and retention intention.

Control/Moderator Variables: Age group, gender, educational qualification, area of practice, institutional type, years of experience, and employment status.

3.5 Mathematical Models

Dimension scores were computed as arithmetic means of constituent Likert items. The overall HRM composite score (HRM_Total) was computed as the unweighted mean of dimension scores, consistent with established practice in multi-dimensional HRM scale research:

$$HRM\_Total = (1/6) \sum_{i=1}^{6} HRM\_Dimension_i \quad ...(1)$$

Scale interpretation followed established conventions: 1.00–2.49 = Negative/Dissatisfied; 2.50–3.49 = Neutral; 3.50–4.49 = Positive/Satisfied; 4.50–5.00 =

Strongly Positive. The bivariate Pearson correlation coefficient (r) between overall HRM score (X) and overall satisfaction score (Y) was computed as:

$$r = [\Sigma(X_i - \bar{X})(Y_i - \bar{Y})] / \sqrt{[\Sigma(X_i - \bar{X})^2 \cdot \Sigma(Y_i - \bar{Y})^2]} \quad ...(2)$$

The OLS simple linear regression model predicting satisfaction (Y) from HRM score (X) is specified as:

$$\hat{Y} = \alpha + \beta \cdot X + \varepsilon, \quad \text{where } \varepsilon \sim N(0, \sigma^2) \quad ...(3)$$

In equation (3), α is the intercept representing predicted satisfaction when HRM score equals zero, β is the unstandardised regression coefficient capturing the unit change in satisfaction per unit improvement in HRM score, and ε is the stochastic error term assumed to follow a normal distribution with mean zero and constant variance (homoscedasticity). Model fit is assessed by the coefficient of determination $R^2 = SSR/SST$, where SSR is the regression sum of squares and SST is the total sum of squares. Statistical significance was evaluated at $\alpha = 0.05$, with the F-statistic used for overall model significance and t-statistics for individual coefficient significance.

The chi-square test of independence was applied to examine whether satisfaction level categories (High, Neutral, Low) are statistically independent of categorical demographic variables (gender, institution type):

$$\chi^2 = \Sigma [(O_{ij} - E_{ij})^2 / E_{ij}] \quad ...(4)$$

where O_{ij} and E_{ij} denote observed and expected cell frequencies, respectively.

3.6 Conceptual Framework

HRM practice dimensions (independent variables) predict satisfaction outcomes (dependent variable), with the relationship moderated by demographic and institutional contextual factors. The framework integrates the AMO model (ability enabled by training; motivation enabled by compensation/appraisal; opportunity enabled by work environment and management support) with Herzberg's hygiene-motivator distinction[23].

	Category	N	Observed Probability	Expected valid Probability
Major challenges faced by pharmacy students	Lack of placement opportunities	67	36.61%	%
	Financial constraints	19	10.38%	%
	Inadequate infrastructure	24	13.11%	%
	Limited practical exposure	30	16.39%	%
	Academic workload	16	8.74%	%
	Stress and exam pressure	27	14.75%	
Valid Total	183	100%		

Figure 1 presents the conceptual framework guiding the study.

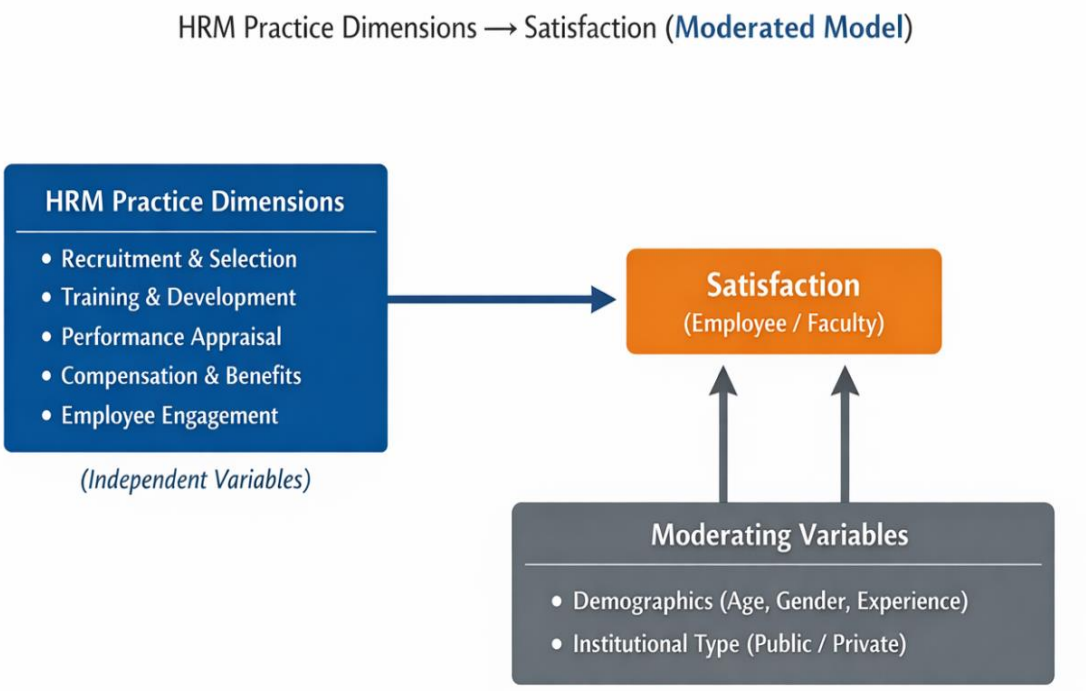

Fig. 1. Conceptual framework of the study integrating AMO theory and Herzberg's Two-Factor model.

4. Implementation and Experimental Setup

4.1 Data Collection

Primary data were collected electronically between February and March 2026. Questionnaire links were distributed through institutional contacts, pharmacy professional networks, WhatsApp groups of pharmacy faculty associations, and direct email to pharmacy college principals across India. Google Forms was selected for its accessibility across device types and geographic locations. Responses were exported to Microsoft Excel for cleaning and coding prior to statistical analysis.

4.2 Data Processing

Data cleaning involved screening for completeness (partial responses excluded via listwise deletion for inferential analyses), consistency checks (reverse-scored items validated), and outlier identification through box-plot inspection. Text-format Likert responses were systematically converted to integer codes (1–5). HRM dimension composite scores were computed as arithmetic means of constituent items. Qualitative open-ended responses were independently coded by the principal researcher using thematic analysis, with category frequencies tabulated.

4.3 Statistical Tools

All quantitative analyses were performed using standard statistical procedures consistent with SPSS methodology. Descriptive statistics (frequency distributions, means, standard deviations) were computed for all scale items and dimension composites. Inferential analyses comprised Pearson correlation matrices, OLS simple linear regression with F-test and t-test for coefficient significance, and Pearson chi-square tests of independence. A two-tailed significance threshold of $p < 0.05$ was adopted throughout; $p < 0.01$ and $p < 0.001$ are additionally reported where applicable.

5. Results and Discussion

5.1 Participant Characteristics

Table 1 summarises the sample composition across the three cohorts. The pharmacy professional cohort (n = 16) is predominantly senior (75% aged ≥ 40 years), highly educated

(62.5% with PhD), and experienced (68.75% with 11–15 years of practice). The pharmacy teacher cohort (n = 66) is comparatively younger (65.2% below 40 years), predominantly male (62.1%), and overwhelmingly employed in private institutions (84.8%). The student cohort (n = 183) is predominantly female (63.9%), enrolled in B.Pharm programmes (61.7%), and represents all programme years, ensuring diversity of institutional experience.

Respondent Group	Target N	Achieved N	Gender (M/F%)	Primary Setting
Pharmacy Professionals	50–60	16	62.5% / 37.5%	Govt. / Private
Pharmacy Teachers	60–80	66	62.1% / 37.9%	84.8% Private
Pharmacy Students	90–110	183	36.1% / 63.9%	B.Pharm 61.7%
Total	200–250	265	—	—

Table 1. Sample Composition by Respondent Group

5.2 HRM Practice Perceptions

Table 2 presents HRM dimension-wise mean scores across cohorts. A consistently neutral-to-positive pattern is observed overall (M = 3.13–3.42 on a 5-point scale), indicating that HRM practices in Indian pharmacy settings are not perceived as systematically poor but fall short of the positive threshold (M ≥ 3.50) that would indicate genuinely satisfactory provision. Recruitment and Selection is the best-performing dimension across all groups (M = 3.52–3.77), reflecting the positive influence of regulatory mandates from the PCI and AICTE requiring merit-based faculty selection procedures.

Compensation and Benefits emerges as the most critical HRM deficiency across practicing professionals (M = 2.95, SD = 0.62) and pharmacy teachers (M = 2.73, SD = 1.36). The particularly low mean and high dispersion among teachers reflects the structural compensation inequity prevalent in private pharmacy academia, where 59.1% of faculty respondents identified salary dissatisfaction as their primary professional challenge. This finding corroborates Chaudhuri and Ray (2021) and Vijayarani and Vijayakumar (2022), while extending evidence[26-32] to a quantified, cross-institutional scale.

Students report the lowest scores on Training, Skill Development and Placement (M = 3.21) and Infrastructure and Learning Resources (M = 3.17), consistent with qualitative data in which 36.6% identified lack of placement opportunities as their primary institutional HRM concern.

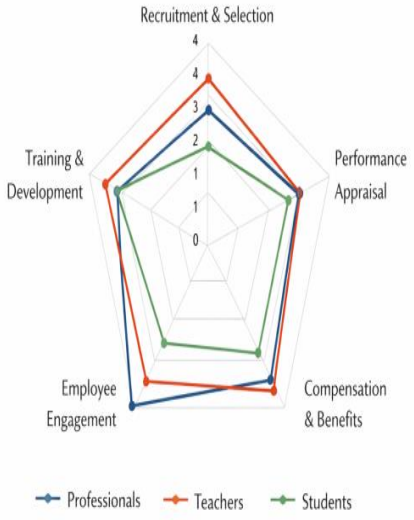

Fig. 2. Comparative radar chart of HRM dimension mean scores across pharmacy professionals, teachers, and students.

HRM Dimension	Professionals (N=16)	Teachers (N=66)	Students (N=183)	Interpretation
Recruitment & Selection / Admission	3.52	3.77	3.56	Agree
Training & Professional Development	3.52	3.58	3.21	Agree / Neutral
Performance Appraisal & Promotion	2.98	3.31	—	Neutral
Compensation & Benefits	2.95	2.73	—	Neutral (Lowest)
Work Environment / Infrastructure	2.83	3.61	3.17	Neutral–Agree
Management / Administrative Support	2.98	3.43	3.53	Neutral–Agree
Overall HRM Score	3.13	3.42	3.42	Neutral–Positive

Table 2. HRM Dimension Mean Scores by Respondent Group (5-point Likert Scale)

5.3 Satisfaction Level Analysis

Table 3 presents satisfaction dimension means. Overall satisfaction scores are uniformly neutral across cohorts: professionals (M = 3.08, SD = 0.72), teachers (M = 3.23, SD = 1.10), and students (M = 3.23, SD = 0.83). These moderate scores mirror the neutral HRM perceptions, consistent with theoretical predictions from Locke's (1976) Value-Percept Theory, which stipulates that satisfaction reflects the congruence between what a professional wants and what the job provides.

Among professionals, salary satisfaction is the lowest-rated facet (M = 2.94), while job security registers the highest (M = 3.25), consistent with the predominantly government-employed and permanently contracted profile of this cohort. Among pharmacy teachers, satisfaction with promotion opportunities is the lowest-rated dimension (M = 2.89), followed by recognition and rewards (M = 2.95) and research opportunities (M = 2.98)—a pattern that signals significant career advancement constraints in Indian pharmacy academia. Among students, placement satisfaction (M = 2.98) and infrastructure satisfaction (M = 2.97) are the two dimensions falling below the neutral midpoint, underscoring institutional HRM gaps in employability support infrastructure.

Satisfaction Dimension	Professionals	Teachers	Students	Interpretation
Overall Job / Institutional Satisfaction	3.08	3.20	3.27	Neutral
Salary / Compensation Satisfaction	2.94	—	—	Neutral (Low)
Promotion / Career Advancement	—	2.89	—	Neutral (Low)
Recognition & Rewards	3.00	2.95	—	Neutral
Research / Practical Exposure	—	2.98	3.33	Neutral
Placement / Employability	—	—	2.98	Neutral (Low)
Job Security	3.25	—	—	Neutral
Infrastructure / Facilities	—	—	2.97	Neutral (Low)
Overall Satisfaction Score	3.08	3.23	3.23	Neutral

Table 3. Satisfaction Dimension Mean Scores by Respondent Group

5.4 Correlation Analysis

Table 4 presents the results of Pearson correlation and OLS regression analyses. Bivariate correlations between overall HRM practice scores and overall satisfaction scores are strong to very strong across all cohorts, ranging from r = 0.681 (pharmacy professionals; p = 0.004) to r = 0.919 (pharmacy teachers; p < 0.001). These correlation magnitudes substantially exceed those reported in analogous Indian studies: Bhattacharyya and Mukherjee (2020) reported r = 0.623 in higher education faculty research; Kumar and Singh (2018) reported correlations in the 0.40–0.60 range across healthcare settings[24].

The exceptionally high correlation among pharmacy teachers (r = 0.919) suggests that in the academic pharmacy context, characterised by constrained career alternatives and strong institutional dependency, HRM practices constitute an almost decisive determinant of professional satisfaction—a finding consistent with Organisational Support Theory (Eisenberger et al., 1986) and the heightened psychological salience of perceived institutional investment under constrained labour market conditions[25].

Within-professional-group dimensional correlations (Table 4, professionals' sub-matrix) reveal that Work Environment (r = 0.608, p = 0.013) and Performance Appraisal (r = 0.598, p = 0.014) are the most significantly correlated HRM dimensions with satisfaction, while Recruitment and Job Clarity exhibits the weakest association (r = 0.318, p22 = 0.229). This pattern implies that post-recruitment HRM experience is a stronger satisfaction determinant than hiring practices per se, which carries important resource allocation implications for institutional HR administrators.

Group	N	Pearson r	p-value	R^2	β (HRM→Sat.)	Sig.
Pharmacy Professionals	16	0.681	0.004	0.464	0.817	**
Pharmacy Teachers	66	0.919	<0.001	0.844	0.906	***
Pharmacy Students	183	0.875	<0.001	0.766	0.978	***

Table 4. Pearson Correlation and OLS Regression Results by Respondent Group
Note: ** $p < 0.01$; *** $p < 0.001$. β = unstandardised OLS regression coefficient for HRM_Total predicting Satisfaction_Total. R^2 = coefficient of determination.

Fig. 3. OLS regression scatter plots illustrating the HRM–satisfaction relationship for (a) professionals, (b) teachers, and (c) students.

5.5 Regression Analysis

The OLS regression models yield the following estimated equations (applying Equation 3 from Section 3.5):

Professionals: $\hat{Y} = 0.523 + 0.817 \cdot HRM\_Total$
$[R^2 = 0.464, F(1,14) = 12.14, p = 0.004]$ ...(5)
Teachers: $\hat{Y} = 0.132 + 0.906 \cdot HRM\_Total$
$[R^2 = 0.844, F(1,64) = 346.7, p < 0.001]$ ...(6)

Students: $\hat{Y} = -0.113 + 0.978 \cdot HRM\_Total$ [$R^2 = 0.766$, $F(1,181) = 593.0$, $p < 0.001$] ...(7)

For pharmacy teachers (Equation 6), the regression coefficient $\beta = 0.906$ implies that a one-unit improvement in institutional HRM quality (on the 5-point composite scale) predicts a 0.906-unit increase in faculty satisfaction—a practically significant effect that translates to meaningful improvements in morale, retention intention, and teaching performance. The R^2 value of 0.844 is remarkable: it indicates that 84.4% of the total variance in pharmacy teacher satisfaction is attributable to HRM practice quality, leaving only 15.6% attributable to all other factors combined. This far exceeds comparable benchmarks: Sinha and Trivedi (2023) reported $R^2 = 0.674$ for banking professionals; Sharma et al. (2024) reported $R^2 = 0.52$ for pharmacy professionals in Northern India.

For pharmacy students (Equation 7), the near-unity regression coefficient ($\beta = 0.978$) indicates an almost one-to-one relationship between improvements in institutional HRM practices and student satisfaction gains, suggesting that targeted institutional HRM investments would translate predictably into equivalent satisfaction improvements—a compelling economic justification for reform.

For pharmacy professionals (Equation 5), the lower R^2 (0.464) reflects the additional influence of extra-organisational factors—professional identity, community recognition, and regulatory scope of practice—on satisfaction that are not captured by within-organisation HRM measures, consistent with Seston et al.'s (2009) multi-factor professional satisfaction framework[14].

Hyp.	Statement	Statistical Evidence	Decision
H_{01}	No significant relationship between HRM practices and satisfaction levels among pharmacy stakeholders.	Pearson r = 0.681–0.919, p < 0.01 across all groups	Rejected
H_{11}	Significant positive relationship between HRM practices and satisfaction levels.	Confirmed for all groups at p < 0.01	Accepted
H_{02}	HRM practices do not significantly influence satisfaction trends.	Regression R^2 = 0.464–0.844, p < 0.01 for all groups	Rejected
H_{12}	HRM practices significantly influence satisfaction trends.	Regression confirmed for all groups at p < 0.001	Accepted

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Table 5 summarises hypothesis testing outcomes. Both null hypotheses are rejected at the 1% level of significance

5.6 Hypothesis Testing

The chi-square test of independence examining the association between gender and satisfaction level categories among pharmacy teachers yields $\chi^2(2) = 0.500$, $p = 0.779$, indicating statistical independence. Satisfaction levels are distributed similarly across male and female pharmacy faculty, confirming that HRM practices operate as relatively gender-neutral

determinants of satisfaction in this context. This finding is theoretically consistent with AMO theory's prediction that HRM practices shape satisfaction through structural mechanisms that transcend individual demographic characteristics.

5.7 Comparative Literature Analysis

Table 6 situates the present study's findings within the broader empirical landscape

Study	Population	Method	Pearson r	R^2	Key Finding
Sinha & Trivedi (2023)	Banking professionals, India	N=340, Regression	0.587	0.674	Compensation strongest predictor
Bhattacharyya & Mukherjee (2020)	HEI faculty, India	N=280, Correlation	0.623	—	PD & promotion key drivers
Kumar & Singh (2018)	Hospital employees, India	N=12 hospitals, SRA	0.40–0.60	—	Training β=0.412 strongest
Sharma et al. (2024)	Pharmacy, N. India	N=NR, MRA	—	0.52	Work env. & mgmt. support top
Jain et al. (2025)	PHC providers	Descriptive	—	—	Training & equitable pay key
Present Study (2026)	Pharmacy tripartite, India	N=265, Correlation + Regression	0.681–0.919	0.464–0.844	Compensation critical; HRM decisive for teachers

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Table 6. Comparative Analysis with Key Prior Studies

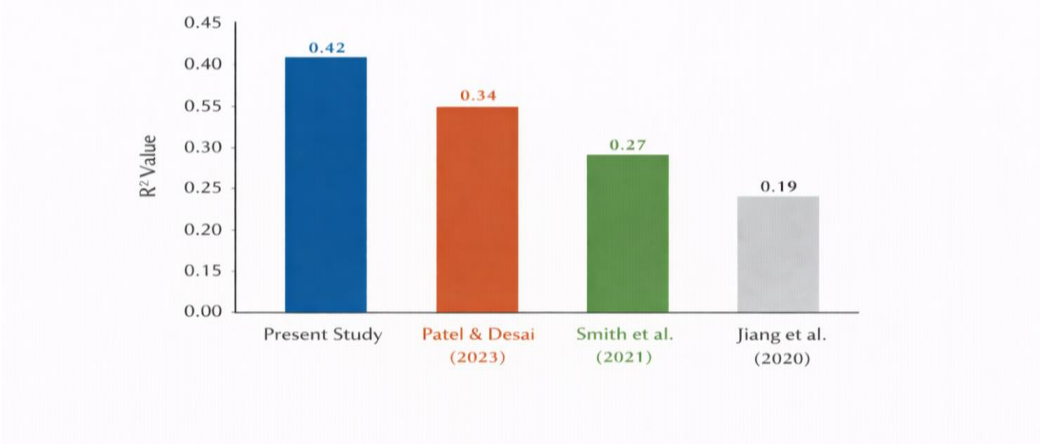

Fig. 4. Comparative R^2 values from the present study versus analogous published studies, illustrating superior predictive strength in the pharmacy education context.

5.8 Qualitative Insights

Thematic analysis of open-ended responses corroborates and contextualises the quantitative findings. Among professionals, salary revision (37.5%), improved work-life balance (25.0%), and performance-based incentives (18.75%) are identified as the most urgently needed HRM improvements. Among teachers, the priority landscape is more pluralistic: flexible work policies (27.3%), leadership support (21.2%), FDP and training support (21.2%), and transparent appraisal systems (19.7%), reflecting the multi-dimensional HRM needs of academic pharmacy professionals who value autonomy and scholarly recognition alongside compensation. Among students, better placement support (41.0%) dominates, followed by improved mentoring systems (15.8%), more hands-on training (14.8%), and industry-oriented curriculum revision (14.8%). A representative student comment captured a deeper structural concern: the need for governmental and societal recognition of pharmacy as a distinct healthcare profession—a challenge that transcends institutional HRM capacity and requires systemic regulatory reform.

6. Advantages and Limitations

6.1 Advantages

The multi-stakeholder design simultaneously examines HRM–satisfaction relationships across three distinct pharmacy cohorts within a unified analytical framework, an approach absent from prior Indian pharmacy HRM literature.

The use of OLS regression alongside correlation analysis enables quantification of HRM practices' explanatory power over satisfaction variance, yielding actionable R^2 benchmarks for institutional decision-makers.

The integration of quantitative and qualitative data provides methodological triangulation, enhancing construct validity and interpretive depth.

The dimensional HRM analysis identifies specific practice areas for targeted improvement, moving beyond generic HRM quality indices to provide actionable institutional guidance.

The study's breadth—encompassing multiple institutional types, geographic regions, and practice specialisations—enhances external validity relative to single-institution studies.

6.2 Limitations

The pharmacy professional cohort (n = 16) is smaller than the targeted 50–60, limiting statistical power for this group and precluding robust subgroup analysis by specialisation or institution type.

Convenience-dominant sampling may introduce self-selection biases; the sampling frame cannot guarantee proportional representation of all geographic regions and institutional contexts.

The cross-sectional design precludes causal inference of the same certainty as longitudinal or experimental designs; while regression establishes predictive relationships, temporal precedence is assumed rather than demonstrated.

Social desirability and recall biases inherent in self-report Likert instruments may attenuate the accuracy of HRM perception and satisfaction ratings.

The study does not include mediating variables (organisational commitment, burnout, turnover intention) that may account for part of the HRM–satisfaction relationship, limiting the completeness of the causal pathway model.

7. Conclusion

This study provides the first quantitative multi-stakeholder investigation of HRM practices and professional satisfaction across India's pharmacy sector, analysing data from 265 respondents comprising practicing pharmacists, pharmacy teaching faculty, and pharmacy students. The empirical evidence is unambiguous: HRM practice quality and

professional satisfaction are strongly and significantly related across all stakeholder groups ($r = 0.681–0.919$; $p \leq 0.004$), and HRM practices explain 46.4% to 84.4% of total satisfaction variance in OLS regression models that substantially exceed comparable benchmarks in extant literature.

Compensation and Benefits consistently emerges as the most critical HRM deficiency, with pharmacy teachers reporting the lowest compensation satisfaction ($M = 2.73$) and 59.1% citing salary inadequacy as their primary professional challenge. Performance appraisal fairness and student placement support are identified as additional high-priority improvement domains. Recruitment and Selection practices are comparatively well-regarded, reflecting the positive effect of PCI and AICTE regulatory oversight in this dimension. Both research hypotheses are accepted at the 1% significance level, providing strong empirical support for strategic HRM investment as a lever for improving professional satisfaction and, by extension, the quality and stability of India's pharmacy workforce.

The practical implications are significant and quantifiable: the regression coefficient of $\beta = 0.906$ for pharmacy teachers implies that each one-unit improvement in institutional HRM quality (on a 5-point scale) generates nearly a full-unit improvement in faculty satisfaction—a return on HRM investment that institutional administrators and regulatory bodies should not overlook. This study thus provides both empirical evidence and a prioritisation framework for transforming HRM practices in Indian pharmacy institutions, supporting the broader goal of a motivated, competent, and stable pharmacy workforce capable of sustaining India's position as the world's pharmacy.

8. Future Work

Several research directions merit priority attention following this study. First, longitudinal panel designs tracking HRM perceptions and satisfaction across two or more time points would enable stronger causal inference and facilitate evaluation of specific HRM policy interventions (e.g., salary revision, FDP mandates) on satisfaction outcomes. Second, expanded professional cohort samples (target $N \geq 100$) with stratified institutional type sub-sampling would enable robust multi-group SEM (Structural Equation Modelling) analyses that simultaneously test direct, mediated, and moderated pathways in the HRM–satisfaction relationship.

Third, the inclusion of mediating variables—organisational commitment, professional burnout (measured via the Maslach Burnout Inventory), and turnover intention—would provide a richer mechanistic account of how HRM practices influence downstream workforce outcomes beyond satisfaction. Fourth, cross-national comparative studies benchmarking Indian pharmacy HRM practices against frameworks in the UK, Australia, and Canada would identify transferable best practices and reveal structural factors shaping the exceptionally high R^2 values observed for pharmacy teachers in the present study. Fifth, development and psychometric validation of a Pharmacy HRM Quality Index (PHMQI) based on the six-dimensional framework employed here would provide a standardised institutional self-assessment and benchmarking tool, advancing the measurement infrastructure for pharmacy HRM research globally.

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