Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Career choice motivations, perceptions, and future intentions among Indian nursing students: a mixed-methods study

Suvashri Sasmal
suvashri.nursing@aiimskalyani.edu.in
All India Institute of Medical Sciences, Kalyani
Asha P. Shetty
All India Institute of Medical Sciences Bhubaneswar
Dipanwita Mondal
Matangini Government College of Nursing
Romena Begum
All India Institute of Medical Sciences, Kalyani
Bharat Pareek
Akal College of Nursing Baru Sahib, Himachal Pradesh
Anita Paul
All India Institute of Medical Sciences, Kalyani
Poonam Joshi
All India Institute of Medical Sciences, Kalyani

Research Article

Keywords: Career choice, Nursing education, Nursing students, Mixed-methods research, Professional identity, India

Posted Date: November 10th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11377501/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Background: Ensuring a sustainable nursing workforce requires both academic capacity building and a deeper understanding of the experiences that nurture students' commitment to the profession. In India, rapid growth in nursing education has intersected with changing societal perceptions and competitive career landscapes. This study sought to explore career choice motivations, professional perceptions, and future career intentions among Indian nursing students.

Methods: A sequential explanatory mixed-methods approach was gently conducted between April 2025 and June 2026. Phase I involved an online cross-sectional survey (N=1544) across multiple geographical zones. Descriptive statistics were used to summarize the data. Group comparison tests, and multiple linear regression modelling were also used. Phase II comprised semi-structured qualitative interviews (N=27) analyzed using Colaizzi's descriptive phenomenological approach to better contextualize the statistical findings. Quantitative and qualitative strands were integrated via joint display and narrative synthesis.

Results: A notable proportion of participants (69.8%) reported considering alternative career choices, most commonly medicine (37.4%) and technical fields (25.8%). Mean domain scores indicated high intrinsic motivation (19.94 ± 4.61) and economic expectations (20.00 ± 4.11), alongside academic stress (20.03 ± 3.90). Multiple regression analysis ($F = 5.085$, $p < 0.001$, $R^2 = 0.103$) showed that female gender ($B = 4.717$, $p < 0.001$) and salary expectations ($B = 1.493$, $p = 0.002$) were positively associated with perception scores, whereas career change intention ($B = -4.659$, $p < 0.001$) and higher secondary examination marks ($B = -1.905$, $p = 0.002$) were negatively associated.

Qualitative findings, organized into seven themes and 27 subthemes, provided explanatory context. Students described how entrance exam setbacks, heavy assignment loads, inconsistent mentorship, and social stigma contributed to uncertainty. In contrast, rewarding patient encounters and the development of clinical confidence fostered a growing sense of professional commitment.

Conclusion: Indian nursing students navigate diverse pathways into the profession, balancing altruistic goals with practical challenges and evolving career preferences. The results tentatively highlight that supportive career counseling, refined academic requirements, enhanced clinical mentorship, and clear role definitions may help strengthen students' professional identity and support long-term commitment to nursing practice.

Introduction

Nurses represent the largest occupational group in the global health workforce and are pivotal to the delivery of essential services [1, 2]. Despite continued growth, shortages and unequal distribution remain pressing concerns, particularly in low- and middle-income countries. The World Health Organization estimates that 4.5 million additional nurses will be required globally by 2030, underscoring the need not only to expand but also to retain the workforce [1, 2]. International initiatives, such as the International

Confederation of Midwives' call for "One Million More Midwives," further highlight the urgency of strengthening health systems [3]. In India, nursing education has expanded rapidly, with 5,310 institutions producing nearly 3.82 lakh graduates annually, yet the nurse-to-population ratio remains 2.23 per 1,000 [4, 5]. Concerns regarding admission standards, grade inflation, and academic preparedness raise questions about sustaining workforce quality, as mismatches between expectations and realities may influence satisfaction and retention [6, 8–12].

Employment prospects strongly shape nursing career choices. Graduates often face competition for limited government posts, contractual work, variable earnings, and delays in securing stable employment [7]. The Nursing Officer Recruitment Common Eligibility Test (NORCET) has introduced standardised recruitment but remains highly competitive, with vacancies far below demand; the first notice in 2020 offered 3,803 posts, while NORCET-11 in July 2026 advertised only 2,218-less than 1% of the graduating cohort [13, 14]. Such disparities in opportunities and remuneration across sectors contribute to job insecurity and encourage migration, with India continuing as a major source of internationally mobile nurses [15–17].

Despite these challenges, nursing continues to attract students because of varied job opportunities, financial security, social mobility, and prospects for overseas recruitment [15–20]. Altruistic motivations, including a desire to help others [18, 19], and family influence [20, 21] also play a role. Yet, nursing is not always a first career preference; some enter after unsuccessful attempts at medicine or other courses, shaping perceptions and long-term commitment. Societal perceptions further influence choices, as stereotypes persist despite growing recognition of nursing as a skilled profession [22–25].

Educational experiences strongly influence nursing students' commitment. Training combines classroom study, clinical duties, emotional involvement in patient care, and adapting to professional expectations [26, 27]. Many students rethink their career choice when they face the realities of practice, and this continues during internship and early work, when responsibilities increase [29]. Concerns about remaining in nursing have been reported among both students and practising nurses. In India, approximately 69% of nurses in a single-centre study reported an intention to quit [32], while a recent survey of nursing students found that 28.9% intended to work abroad and 21.1% considered changing careers [33]. International studies have similarly reported substantial intentions to leave nursing [30, 31].

Although previous studies have examined motivations for entering nursing, professional image, educational experiences, employment conditions, and career intentions, these factors are often considered separately. Evidence from India remains limited on how these influences interact to shape students' perceptions of nursing and their plans for the future. In particular, there is a need to understand both the measurable factors associated with career perceptions and the experiences through which students develop those perceptions.

Therefore, this study aimed to examine career choice motivations, perceptions of the nursing profession, and future career intentions among Indian nursing students to provide a comprehensive understanding of the factors shaping nursing career pathways in India.

Methods

Study design

A sequential explanatory mixed-methods design (quantitative followed by qualitative) was used to explore Indian nursing students' career choices, professional perceptions, and future intentions. Quantitative survey findings on student perceptions were elaborated through qualitative interviews, then integrated to explain their overall experiences. The reporting is adhered to STROBE guidelines for the quantitative phase and COREQ checklists for the qualitative phase. The AIIMS Kalyani Institutional Ethics Committee approved the study (Ref. No.: IEC/AIIMS/Kalyani/certificate/2025/100). Voluntary participation and confidentiality were strictly maintained, with electronic informed consent obtained for the online survey and separate written consent for qualitative interviews.

Phase I: Quantitative phase

Sampling and participants

To ensure geographic representation across India, a multistage sampling approach was used. The country was categorized into four zones (North, South, East, and West) using a modified Employees' State Insurance Corporation (ESIC, Ministry of labour and employment, Govt of India) zonal framework [34]. Four states/union territories were randomly selected from each zone using the web-based tool Research Randomizer (randomizer.org): Punjab, Chandigarh, Haryana, and Delhi (North); Puducherry, Kerala, Telangana, and Karnataka (South); Bihar, Tripura, West Bengal, and Odisha (East); and Gujarat, Madhya Pradesh, Rajasthan, and Maharashtra (West). Nursing institutions in the selected states/union territories were identified using the Indian Nursing Council registry. Four colleges were initially selected randomly from each selected state/union territory using Research Randomizer. Institutional heads were approached through official communication and personal contact to seek permission for participation. If responses were unavailable from the initially selected colleges, additional colleges were randomly selected and approached. Following institutional approval, principals were requested to circulate the Google Forms questionnaire among all eligible fourth-year nursing students in their respective institutions. Participation was voluntary.

Data were collected between April and December 2025 using Google Forms. A total of 1,605 responses were received, of which 61 were excluded because they were incomplete or contained non-informative responses (e.g., "don't know," "college knows," and "what to say"). The final analysis included 1,544 responses.

Sample size

Sample size was estimated using the single population proportion formula:

$n = Z^2P(1 - P)/d^2$

Assuming a 95% confidence level, 50% expected prevalence in the absence of national estimates, and a 5% margin of error, the minimum required sample size was calculated as 385 participants. After adjusting for a 10% non-response rate, the target sample size increased to 424 participants. However, a larger sample was obtained to improve statistical precision and geographical coverage.

Data collection tools

Data were collected using a structured self-administered questionnaire consisting of two sections.

Tool I: Sociodemographic and academic profile questionnaire

An investigator-developed questionnaire was used to collect information related to participants' demographic, socioeconomic and academic characteristics. Variables included age, gender, year of study, place of residence, parental education and occupation, family income, motivations for selecting nursing, preferred specialty, expected salary, and future career plans including intention to change.

A 40-item, five-point Likert scale (1 = Strongly disagree to 5 = Strongly agree) was initially developed to assess students' perceptions, motivations, and concerns about nursing. Negatively worded items were reverse-scored before analysis.

Content validity was established through expert review (n = 7), with item-level CVIs ranging from 0.86 to 1.00 and a scale-level CVI/Ave of 0.95. Construct validity was examined using exploratory factor analysis. For the 30-item refined scale, sampling adequacy was excellent (KMO = 0.924), and Bartlett's test confirmed factorability [χ^2 (435) = 18,385, $p < .001$].

The final instrument comprised 30 items across six domains—intrinsic motivation and altruism, societal/family influence, academic and occupational stress, professional confidence and educational satisfaction, career incentives, and institutional dissatisfaction—explaining 55.96% of the variance. Reliability was strong (Cronbach's $\alpha = 0.871$). Supplementary Table S1 provides detailed psychometric results.

Phase II: Qualitative phase

The qualitative phase was conducted between February and June 2026, following preliminary quantitative analysis. Participants were purposively recruited from three types of nursing institutions in West Bengal: an Institute of National Importance (INI), state government nursing colleges, and private nursing institutions. These settings were selected to capture diverse student perspectives while allowing feasible access for interviews.

A total of 27 nursing students participated in semi-structured, in-depth interviews. Data were collected using an investigator-developed semi-structured interview guide designed specifically for this study. The guide explored participants' motivations for entering nursing, their academic and clinical experiences during training, career aspirations, and recommendations for improving the nursing workforce. The interview guide had not been published previously (Supplementary File 2).

The final interview was conducted to assess data saturation, and no new codes or themes emerged. Interviews were held in private, quiet rooms at participants' convenience to promote comfort and confidentiality. An investigator-developed semi-structured interview guide explored motivations for entering nursing, professional awareness, academic experiences, challenges, career intentions, and recommendations for the nursing workforce.

Interviews lasted 15–22 minutes and were audio-recorded with participants' consent. Recordings were transcribed verbatim within 24 hours and anonymised. Participants were invited to review their transcripts within 24 hours to verify transcription accuracy.

Data analysis

Quantitative analysis

Quantitative data were analysed using IBM SPSS Statistics version 26.0 and Jamovi. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarise participants' characteristics and career choice perception scores. Multiple linear regression was conducted to identify factors independently associated with career choice perception scores. Variables showing statistically significant bivariate associations or considered relevant on theoretical grounds were considered for inclusion in the regression model. Regression coefficients, standard errors, standardised beta coefficients, *t*-statistics, *p*-values, and 95% confidence intervals were examined. All statistical tests were two-tailed, and $p < 0.05$ was considered statistically significant.

Qualitative analysis

Qualitative data were analysed using Braun and Clarke's six-phase approach to thematic analysis. The researchers familiarised themselves with the interview transcripts through repeated reading, generated initial codes, grouped related codes into candidate themes, and reviewed and refined the themes. The themes were subsequently defined and named, and the findings were organised for reporting. Microsoft Excel was used to organise the data and support the coding and analysis. The research team (SS, DM, RB, and AP) discussed the developing codes and themes and reviewed the final thematic structure.

Mixed-methods data integration

Quantitative and qualitative findings were integrated using a sequential explanatory approach (Quantitative to qualitative). Qualitative narratives were used to contextualize and elaborate upon the quantitative predictors. Joint displays and narrative synthesis were utilized to integrate findings and

draw overarching meta-inferences. Reporting adhered to STROBE guidelines for the quantitative phase and the COREQ checklist for the qualitative phase.

Result

Characteristics of participants

Of the 1,544 participants, most were female (77.5%), aged 19–22 years (81.6%), Hindu (76.0%), and were residents of rural areas (42.4%). Over one-third were first-year students (36.3%), 60.2% studied in private institutions, and 45.1% entered nursing without a gap year. Admission delays (54.9%) were mainly due to NEET medical entrance preparation (57.6%). While 72.2% chose nursing of their own, family influence was common (80.9%). Notably, 69.8% intended to change careers, with medicine (37.4%) and engineering (25.8%) as leading alternatives (Table 1).

Table 1
Characteristics of participants and career-related factors (N = 1544)

Variable	Category	n (%)
Geographical zone	North	330 (21.4)
	South	90 (5.8)
	East	1078 (69.8)
	West	46 (3.0)
Age (years)	≤ 18	80 (5.2)
	19–20	654 (42.4)
	21–22	605 (39.2)
	≥ 23	205 (13.3)
Gender	Female	1197 (77.5)
	Male	347 (22.5)
Religion	Hindu	1174 (76.0)
	Muslim	202 (13.1)
	Sikh	85 (5.5)
	Christian	48 (3.1)
	Others	35 (2.3)
Place of residence	Rural	654 (42.4)
	Urban	491 (31.8)
	Semi-urban	399 (25.8)
Monthly family Income (INR)	< 20,000	548 (35.5)
	20,000–40,000	384 (24.9)
	40,000–60,000	276 (17.9)
	60,000–1,00,000	221 (14.3)
	1,00,000	115 (7.4)
Father's Education	Illiterate (Can't sign own name)	11 (0.7)
	No formal education (Can sign own name)	36 (2.3)

*Source of influence calculated among those reporting influence (n = 429). Calculated among participants willing to change career (n = 1077). Calculated among participants who had a delay (n = 847), INI (Institute of national importance)

Variable	Category	n (%)
	Primary education (Up to Class 5)	74 (4.8)
	Secondary education (Class 6–10)	321 (20.8)
	Higher secondary (Class 11–12/incomplete college)	409 (26.5)
	Undergraduate degree (Diploma/Bachelor)	497 (32.2)
	Postgraduate degree	191 (12.4)
	Doctorate	5 (0.3)
Mother's Education	Illiterate (Can't sign own name)	34 (2.2)
	No formal education (Can sign own name)	73 (4.7)
	Primary education (Up to Class 5)	103 (6.7)
	Secondary education (Class 6–10)	432 (28.0)
	Higher secondary (Class 11–12/incomplete college)	440 (28.5)
	Undergraduate degree (Diploma/Bachelor)	355 (23.0)
	Postgraduate degree	103 (6.7)
	Doctorate	4 (0.3)
Father's Occupation	Unemployed/None	60 (3.9)
	Professional	450 (29.1)
	Clerical/support staff	69 (4.5)
	Workers (skilled/ unskilled)	101 (6.5)
	Self-employed (Business/ agriculture)	809 (52.4)
	Pensioner	55 (3.6)
Mother's Occupation	Homemaker	1250 (81.0)
	Professional	175 (11.3)
	Clerical/support	24 (1.6)
	Self-employed (Business/ Agriculture)	70 (4.5)
	Workers (Skilled/ Unskilled)	8 (0.5%)

*Source of influence calculated among those reporting influence (n = 429). Calculated among participants willing to change career (n = 1077). Calculated among participants who had a delay (n = 847), INI (Institute of national importance)

Variable	Category	n (%)
	Pensioner	17 (1.1%)
	Yes	336 (21.8)
Family member in healthcare	No	1067 (69.1)
	Yes	477 (30.9)
Year of Study	First	560 (36.3)
	Second	418 (27.1)
	Third	395 (25.6)
	Final	171 (11.1)
Marks obtained in 12th standard (%)	< 60	61 (4.0)
	60–70	315 (20.4)
	70–80	416 (26.9)
	≥ 80	752 (48.7)
Type of Nursing Institute	Private	930 (60.2)
	Govt (Central/INI)	422 (27.3)
	State govt	192 (12.4)
Approximate course fee (INR/year)	< 10,000	449 (29.1)
	10,000–50,000	82 (5.3)
	50,000–1,00,000	218 (14.1)
	1,00,000–1,50,000	478 (31.0)
	1,50,000	317 (20.5)
Year gap after 12th standard	None	697 (45.1)
	1–2 years gap	681 (44.1)
	3–4 years gap	135 (8.7)
	≥ 5 years gap	31 (2.0)
Cause of delay in admission *	NEET preparation	488 (57.6)
	Other courses	164 (19.4)

*Source of influence calculated among those reporting influence (n = 429). Calculated among participants willing to change career (n = 1077). Calculated among participants who had a delay (n = 847), INI (Institute of national importance)

Variable	Category	n (%)
	Not disclosed	170 (20.1)
	Started working	25 (2.9)
Choice of Nursing	Own decision	1115 (72.2)
	Influenced by others	429 (27.8)
Main Influencer*	Family	347 (80.9)
	Social/professional	45 (10.5)
	Situational factors	37 (8.6)
Hostel Status	Day scholar	542 (35.1)
	Hostel	1002 (64.9)
Scholarship received	No	1050 (68.0)
	Yes	494 (32.0)
Preferred field of work after course completion	Clinical	1056 (68.4)
	Community health	170 (11.0)
	Teaching/Admin	27 (1.7)
	No preference	291 (18.8)
Expected monthly Salary (INR)	< 20K	150 (9.7)
	20K–30K	440 (28.5)
	30K–40K	316 (20.5)
	40K	638 (41.3)
Intention to change career	Yes	1077 (69.8)
	Undecided	418 (27.1)
	No	49 (3.2)
Willingness to attend an alternative course*	Yes	483 (44.9)
	Not sure	355 (32.9)
	No	239 (22.2)
Alternative career choice	Doctor	578 (37.4)

*Source of influence calculated among those reporting influence (n = 429). Calculated among participants willing to change career (n = 1077). Calculated among participants who had a delay (n = 847), INI (Institute of national importance)

Variable	Category	n (%)
	Engineering/technical	399 (25.8)
	Artist	229 (14.8)
	Government job	211 (13.7)
	Other medical	22 (1.4)
	Not clear	105 (6.8)

*Source of influence calculated among those reporting influence (n = 429). Calculated among participants willing to change career (n = 1077). Calculated among participants who had a delay (n = 847), INI (Institute of national importance)

Factor reliability and structure

Exploratory factor analysis of the 30-item Career Choice Scale identified a six-factor structure accounting for 55.96% of the variance, with strong overall reliability (Cronbach's α = 0.871). The highest domain means were observed for academic stress burden (20.03 ± 3.90), economic incentives (20.00 ± 4.11), and intrinsic motivation (19.94 ± 4.61), each within a 5–25 range. Societal and familial pressures averaged 18.85 ± 8.08 (range 8–40), while institutional dissatisfaction was lowest at 9.25 ± 3.24 (range 3–15). Supplementary Tables S1–S2 provide detailed factor loadings, reliability estimates, and item-level distributions.

Table 2
Subgroup comparisons of career choice perception scores by sociodemographic and academic variables (N = 1544)

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
Geographical zone	North	102 ± 16.2	Welch's F(3,150) = 4.35	0.006*	η² = 0.029 (very small)
	South	103 ± 14.5			
	East	102 ± 16.9			
	West	119 ± 32.2			
Age group	≤ 20	104.17 ± 18.1	Welch's F(2,574.4) = 4.50	0.012	η² = 0.006 (very small)
	21–22	101.33 ± 16.8			
	≥ 23	102.26 ± 17.3			
Gender	Female	101 ± 15.6	Welch's F(1, 452) = 30.6	< .001*	Cohen's d = 0.37 (small–moderate)
	Male	108 ± 22.0			
Religion	Hindu	103.0 ± 17.6	$\chi^2(4, N = 1544) = 11.5$	0.022*	φ = 0.086 (small)
	Muslim	104.0 ± 18.3			
	Others (Sikh, Christian, Others)	97.6 ± 15.1			
Residence	Rural	102.50 ± 17.0	Welch's F(2,949.5) = 0.73	0.484	η² = 0.001 (negligible)
	Urban	103.41 ± 18.1			
	Semi-urban	102.16 ± 17.3			

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ^2 = Chi-square test statistic, *p* = (significance at < 0.05), η^2 = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε^2 = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η^2), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at p < 0.05. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
Family income	< 20K	104.11 ± 18.4	Welch's F(4,530.2) = 1.37	0.244	η² = 0.0035 (very small)
	20-40K	102.64 ± 17.3			
	40-60K	101.83 ± 18.4			
	60-100K	101.74 ± 15.4			
	100K	101.45 ± 15.0			
Number of family members	2–3 members	103 ± 17.0	Welch's F(2, 550) = 0.186	0.830	η² ≈ 0.001 (negligible)
	4–5 members	103 ± 17.2			
	≥ 6 members	103 ± 18.9			
	Yes	103 ± 17.5			
Father's education	Illiterate (Can't sign own name)	102 ± 23.4	Welch's F(7, 52.8) = 0.862	0.542	η² ≈ 0.004 (very small)
	No formal education (Can sign own name)	101 ± 24.7			
	Primary education (Up to Class 5)	102 ± 20.2			
	Secondary education (Class 6–10)	105 ± 17.4			
	Higher secondary (Class 11–12/incomplete college)	103 ± 18.9			
	Undergraduate degree (Diploma/Bachelor)	102 ± 15.1			
	Postgraduate degree	103 ± 16.9			
	Doctorate	100 ± 35.3			

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ² = Chi-square test statistic, *p* = (significance at < 0.05), η² = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε² = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η²), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at p < 0.05. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
Mother's education	Illiterate (Can't sign own name)	107 ± 20.5	Welch's F(7, 53.0) = 1.33	0.254	$\eta^2 \approx 0.007$ (very small)
	No formal education (Can sign own name)	106 ± 23.8			
	Primary education (Up to Class 5)	104 ± 20.3			
	Secondary education (Class 6–10)	103 ± 16.8			
	Higher secondary (Class 11–12/incomplete college)	103 ± 17.6			
	Undergraduate degree (Diploma/Bachelor)	101 ± 15.7			
	Postgraduate degree	101 ± 15.6			
	Doctorate	109 ± 28.7			
Birth Order	Firstborn	102 ± 16.3	Welch's F(1, 1241) = 2.63	0.105	$\eta^2 \approx 0.002$ (negligible)
	Later born (middle/last)	104 ± 19.1			
Number of siblings	1 sibling	102.0 ± 16.2	$\chi^2(2) = 7.49$	0.024	$\varepsilon^2 = 0.0049$
	2 siblings	102.0 ± 19.5			
	≥ 3 siblings	105.0 ± 19.9			
Presence of chronic disease in family	No	103 ± 18.2	Welch's t(734) = 1.45	0.159	d = 0.07 (negligible)
	Yes	102 ± 14.9			
Family member in healthcare	No	135 ± 23.3	Welch's t(940) = −0.297	0.766	d = 0.02 (negligible)
	Yes	135 ± 22.6			

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ^2 = Chi-square test statistic, *p* = (significance at < 0.05), η^2 = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε^2 = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η^2), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at $p < 0.05$. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
Hospitalized ever for personal health issues	No	135 ± 23.3	Welch's t(734) = 1.45	0.149	d = 0.07 (negligible)
	Yes	136 ± 22.5			
Have been part of social work before joining nursing	No	135 ± 23.1	Welch's t(403) = − 1.37	0.170	d = 0.08 (negligible)
	Yes	137 ± 23.2			
Year of study	First	103.67 ± 16.0	Welch's F(3,616.5) = 3.46	0.016*	η² = 0.0063 (small)
	Second	103.76 ± 21.4			
	Third	101.99 ± 15.1			
	Final	99.47 ± 16.7			
Marks obtained in 12th standard	≤ 70%	106 ± 21.1	Welch's F(2, 763) = 15.7	< .001*	η² ≈ 0.020 (small)
	70–80%	104 ± 17.5			
	≥ 80%	100 ± 15.0			
Institute type	Private	100.01 ± 13.8	Welch's F(2,520.96) = 15.41	< 0.001*	η² = 0.018 (small)
	Govt	99.78 ± 16.4			
	State	104.69 ± 19.0			
Same state of college as residence	No	103 ± 16.9	Welch's t(1435) = − 0.229	0.819	d = 0.01 (negligible)
	Yes	103 ± 18.2			
Course Fee (yearly)	Low (< 50K)	99.4 ± 15.3	Welch's F(2, 800) = 16.9	< .001*	η² ≈ 0.0186 (small)

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ² = Chi-square test statistic, *p* = (significance at < 0.05), η² = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε² = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η²), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at p < 0.05. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
	Medium (50K–1.5 Lakh)	104.5 ± 18.0			
	High (1.5 Lakh)	104.6 ± 19.1			
Year gap after 12th standard	None	104.19 ± 18.8	Welch's F(3,127.2) = 4.35	0.006*	η^2 = 0.0082 (small)
	1–2 years gap	101.20 ± 15.7			
	3–4 years gap	102.54 ± 18.4			
	≥ 5 years gap	107.84 ± 17.5			
Cause of delay in admission	Academic preparation (NEET/further study)	103.0 ± 17.1	χ^2(4, N = 1544) = 12.6	0.014*	φ = 0.090 (small)
	Personal (undisclosed)	103.0 ± 17.7			
	Employment	99.0 ± 24.8			
Main influencer	Family influence (parents, siblings, relatives, healthcare relatives)	103.0 ± 17.7	χ^2(4, N = 1544) = 13.6	0.009*	φ = 0.094 (small)
	Social/Professional influence (mentors, neighbours)	101.0 ± 15.2			
	Situational/External factors (NEET failure, job security, no option, life events)	98.9 ± 17.9			
Hostel status	Day scholar	104 ± 18.1	Welch's t(1048) = 2.28	0.017*	d = 0.13 (small)
	Hostel	102 ± 17.1			

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ^2 = Chi-square test statistic, *p* = (significance at < 0.05), η^2 = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε^2 = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η^2), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at p < 0.05. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
Scholarship received	No	103 ± 17.2	Welch's t(1435) = −0.229	0.819	d = 0.01 (negligible)
	Yes	103 ± 18.1			
Choice of nursing field	Clinical	103.0 ± 16.9	Kruskal–Wallis $\chi^2(3) = 18.7$	< .001*	$\varepsilon^2 \approx 0.012$ (small)
	Community health officer	106.0 ± 21.1			
	Teaching/Administration	101.0 ± 13.7			
	No preference	99.8 ± 17.2			
Expected monthly salary	< 20K	99.8 ± 18.4	Welch's F(3, 539) = 1.87	0.133	$\eta^2 \approx 0.003$ (very small)
	20K–30K	103.4 ± 17.2			
	30K–40K	102.1 ± 17.7			
	40K	103.4 ± 17.4			
Willingness to change career	Yes	104.69 ± 18.1	Welch's F(2,126.9) = 24.41	< 0.001*	$\eta^2 = 0.029$ (small)
	Undecided	98.98 ± 14.6			
	No	93.86 ± 20.1			
Willingness to do alternative course	No	103 ± 17.2	Welch's F(1, 1247) = 0.006	0.938	$\eta^2 \approx 0.000$ (negligible)
	Yes	103 ± 18.9			
	Not sure	102 ± 15.7			
Alternative career choice	Doctor	104.0 ± 16.1	Welch's F(5, 185) = 1.74	0.127	$\eta^2 \approx 0.005$ (very small)
	Other medical profession	99.6 ± 13.5			

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ^2 = Chi-square test statistic, *p* = (significance at < 0.05), η^2 = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε^2 = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η^2), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at p < 0.05. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Variable	Categories	Mean perception score ± SD	Test statistic	p-value	Effect size
	Engineer/technical	103.0 ± 18.7			
	Artist	101.0 ± 15.5			
	Govt official	102.0 ± 20.4			
	Not clear	99.8 ± 18.5			

Note: *F* = Welch's ANOVA test statistic, *t* = Independent samples *t*-test statistic, χ^2 = Chi-square test statistic, *p* = (significance at < 0.05), η^2 = Eta squared (effect size for ANOVA; 0.01 small, 0.06 medium, 0.14 large), *d* = Cohen's *d* (effect size for *t*-tests; 0.2 small, 0.5 medium, 0.8 large), φ = Phi coefficient (effect size for Chi-square; 0.1 small, 0.3 medium, 0.5 large), ε^2 = Epsilon squared (effect size for Kruskal–Wallis; interpretation similar to η^2), *N* = Sample size, *SD* = Standard deviation, *SE* = Standard error, * = Statistically significant at p < 0.05. TOTAL SCORE values are reported for continuous variables; recoded perception scores of low, moderate, and high scores (scale mean ≈ 2.0) are reported for categorical variables.

Table 2 shows significant variation in the perception scores of students across state/zone (p = 0.006), age (p = 0.012), gender (p<.001; d = 0.37), religion (p = 0.022), siblings (p = 0.024), year of study (p = 0.016), 12th-grade marks (p<.001), institute type (p<.001), course fee (p<.001), gap year (p = 0.006), admission delay (p = 0.014), influencer (p = 0.009), hostel status (p = 0.023), nursing field choice (p<.001), and career change intention (p<.001). Other sociodemographic and academic variables were not significant. Other sociodemographic and academic variables were not significant. Assumption checks indicated non-normality (Shapiro–Wilk W = 0.702, p<.001) but homogeneity of variances (Levene's F(2,1541) = 0.113, p = 0.893). Welch's ANOVA was applied, with results consistent on non-parametric testing.

Regression analysis

The multiple regression model was statistically significant (F = 5.085, p < .001) and explained 10.3% of the variance in perception scores (R^2 = 0.103; Adj. R^2 = 0.083) presented in Table 3. Significant positive predictors included geographical zone (B = 0.038, β = 0.067, p = .009), expected salary (B = 1.507, β = 0.090, p = .002), and female gender (B = 4.717, β = 0.112, p < .001). Negative predictors were career change intention (B = − 4.778, β = −0.146, p < .001), religion (B = − 2.215, β = −0.082, p = .002), and higher 12th-grade marks (B = − 1.730, β = −0.081, p = .005). Other demographic and institutional variables listed in Table 1 were tested in the model but did not show significant associations with perception scores.

Table 3
Multiple linear regression analysis predicting career choice perception scores among nursing students (N = 1544)

Predictor Variable	B	SE	β	t	p-value	95% CI for B
Zone	0.038	0.014	0.067	2.63	0.009*	0.010 to 0.066
Gender (Female)	4.717	1.189	0.112	3.97	< 0.001*	2.383 to 7.050
Religion	−2.215	0.706	−0.082	−3.14	0.002*	−3.600 to − 0.830
Mother's education	−1.344	0.667	−0.062	−2.01	0.044*	−2.653 to − 0.035
Marks in 12th standard	−1.905	0.607	−0.089	−3.14	0.002*	−3.095 to − 0.715
Institute type	2.772	1.302	0.078	2.13	0.033*	0.219 to 5.325
Expected monthly salary	1.493	0.477	0.089	3.13	0.002*	0.558 to 2.428
Career change intention	−4.659	0.860	−0.142	−5.42	< 0.001*	−6.346 to − 2.972
Alternative career choice	−1.235	0.593	−0.054	−2.08	0.038*	−2.400 to − 0.071

$R = 0.321$; $R^2 = 0.103$; Adjusted $R^2 = 0.083$; $F = 5.085$; $p < 0.001$.

Note:

B = unstandardized regression coefficient; SE = standard error; β = standardized beta coefficient; CI = confidence interval.

Statistically significant at $p < 0.05$.

Qualitative analysis

In the qualitative phase from the 27 interviews, initially 410 codes were identified. The coding framework was systematically collapsed into 7 major themes, 27 subthemes, ensuring analytic rigor and clarity in reporting. These themes identified the entry pathways into nursing, adjustment and identity formation issues, academic experiences, clinical encounters, and perceived image of the profession, to future career aspirations and guidance for juniors. The demographic profile of qualitative participants is provided in Supplementary Table S3. The thematic framework collapsed into 7 major themes and 27 subthemes (Fig. 1; exhaustive verbatim quotes are detailed in Supplementary Table S4)

Integration of quantitative and qualitative findings

This integrated table demonstrates how quantitative results were triangulated with qualitative narratives from all 27 participants, yielding 13 consolidated domains (Table 4). It highlights the interplay between

motivation, stress, institutional factors, hierarchy, adaptation, and career aspirations, ensuring analytic rigor and comprehensive representation across the dataset. The overall trajectory of nursing student career perception and professional identity consolidation is synthesized in the Integrated Conceptual Model (Fig. 2).

Table 4
Joint display of quantitative and qualitative findings

Sl. No.	Quantitative domain & statistical result	Integrated qualitative subtheme	Representative verbatims	Integrated interpretation
1	Intrinsic Motivation & Altruism (Mean = 19.94 ± 4.61; α = 0.861; 68.4% prefer clinical career)	Emergent professional identity through patient care	"When I retrospect what I have done entire day I feel happy… it gives satisfaction to me." (P4); "The more we handled patients, the more we got motivated to stay in nursing." (P9); "An old man could recognize me after a year…it felt very nice." (P15)	High intrinsic motivation explained by patient care as a source of satisfaction and professional identity.
2	Academic Achievement Mismatch ($p < .001$; higher achievers dissatisfied)	Regret over missed medical career	"I was preparing for becoming doctor… I dropped 2 years for it." (P1); "I already tried for NEET for 3 years but failed…" (P9); "I appeared for MBBS twice but failed and it was my dream." (P5)	Dissatisfaction among high achievers in board exams linked to regret over MBBS entrance failure.
3	Economic Aspiration (Mean = 20.00 ± 4.11; α = 0.790; 41.3% expect ₹40,000; salary predictor $p = 0.002$)	Nursing as financial security	"I don't have good financial backup, so I continued nursing." (P7); "I will go for securing the job as my father has retired already." (P1); "After passing I want to join a job as soon as possible… I wish to open my own restaurant." (P26)	Economic motivation reinforced by financial necessity and job stability.
4	Societal & Familial Influence (Mean = 18.85 ± 8.08; α = 0.850; 80.9% influenced by family)	Negotiated identity under social hierarchies	"My elder brother who is a doctor suggested me to be in the profession." (P6); "My mother thinks she won't let me suffer… marriage proposals." (P3); "My aunt faced rejection of marriage proposals many times because she was a nurse." (P16); "People think we are just servants of doctors." (P11)	Moderate scores reflect stigma and family influence consistent with qualitative verbatims.
5	Career Shift Intention (69.8% want change; Doctor 37.4%, Engineering 25.8%)	Aspirational drift & MBBS idealization	"I always felt very low because my other batchmates got MBBS but I couldn't." (P12); "I appeared for MBBS twice but failed and it was my dream…" (P5); "I was inclined towards engineering… got admitted in a private engineering college." (P3)	High career change intention explained by MBBS idealization in the society and associated regret.

Sl. No.	Quantitative domain & statistical result	Integrated qualitative subtheme	Representative verbatims	Integrated interpretation
6	Academic & Psychosocial Stress Burden (Mean = 20.03 ± 3.90; α = 0.749; subgroup variation)	Academic overload and emotional exhaustion	"Assignments are so much that at times we don't get time to study at all." (P15); "Too much load of assignments… we are simply copying from others." (P12); "I cried a lot when the physician shouted at me in front of others." (P14); "During internship… night shifts of 8 nights/month." (P17)	High stress scores explained by workload, copying practices, homesickness, and emotional vulnerability.
7	Institutional Dissatisfaction (Mean = 9.25 ± 3.24; α = 0.627; p < .001 by institute type)	Practice gap & poor mentorship	"We can do IV cannulation maybe once in a month…" (P16); "Few teachers simply read out the PPTs." (P12); "Mentor–mentee meetings didn't happen regularly." (P13); "Variation in procedures across teachers made it difficult." (P9)	Low scores reflect dissatisfaction with institutional quality and limited exposure.
8	Professional Hierarchy & Role Constraint (Regression β = −0.142)	Hierarchical constraint & limited autonomy	"I feel nurses are below doctors as if there is a hierarchy." (P14); "Doctors project their anger on us even if we are not at fault." (P14); "Nurses follow the doctors' order only." (P12); "Recently some doctors were also saying… they don't know anything." (P20)	Career change predictors explained by hierarchy and lack of autonomy.
9	Adaptation & Identity Consolidation (45.1% entered after gap; p = 0.016 by year of study)	Progressive adaptation and acceptance	"After coming here I have never looked back for NEET." (P1); "Now if someone says that I have to change the career I don't want change it." (P11); "Initially nervous… now I don't have such problems." (P18); "Over 4 years of listening have made me habituated." (P23)	Adaptation improves across years, explained by narratives of gradual acceptance and confidence building.
10	Future Career Intent (18.8% unsure; teaching preferred)	Strategic reorientation for safety, status, stability	"Teaching is more acceptable in society and not that risk prone." (P3); "I want to become a teacher; this is my childhood dream." (P11); "I feel I am not a good teacher, so I will like to remain in clinicals." (P10); "I plan to work for clinical	Uncertainty explained by teaching as safer, more acceptable, and status enhancing.

Sl. No.	Quantitative domain & statistical result	Integrated qualitative subtheme	Representative verbatims	Integrated interpretation
			experience then do M.Sc. and go to teaching." (P23)	
11	Gender Differences ($p < .001$; $d = 0.37$)	Gendered stigma and social expectations	"My mother still doesn't like my career choice… rejected because that girl had night shifts." (P3); "My aunt also felt problem in getting married… rejected many times because of her profession." (P16)	Gender differences explained by stigma in marriage and social acceptance.
12	Religion Differences ($\chi^2 = 11.5$, $p = 0.022$)	Cultural and religious constraints	"Principal madam told me that I am backdated because of wearing Burqa." (P13); "Society doesn't have that much acceptance about nursing… why my daughter should suffer." (P3)	Religious subgroup differences explained by cultural stigma and undervaluation.
13	Hostel & Admission Delay Effects ($p = 0.023$; $p = 0.014$)	Adjustment challenges and homesickness	"I was feeling homesick very much as I didn't stay out of home… the basic hygienic procedures shown to us I didn't like at all." (P12); "I requested our clinical supervisor not to change group… I went into depression." (P24)	Subgroup differences explained by hostel stress and difficulty adapting after admission delays.

The integrated conceptual model (Fig. 2) developed from the study illustrates how diverse entry pathways into the profession, academic and clinical experience and professional realities interact over time to shape professional identity and multiple career trajectories. This process is dynamic and is influenced by contextual factors at every stage by negotiation between motivation, stress, stigma, and aspirations. Together, it offers a holistic view of how nursing students adapt and plan their future careers.

Discussion

This mixed-methods study examined why Indian nursing students enter the profession, how they perceive it, and whether they intend to remain. Altruistic motives were evident, yet a notable mismatch between initial career aspirations and nursing emerged, with 69. % reporting consideration of a career change. Qualitative findings clarified this pattern, highlighting the influence of examination setbacks, family expectations, social pressures, financial concerns, and experiences during training. At the same time, meaningful clinical exposure fostered confidence, self-worth, and professional interest, suggesting that career commitment may evolve during education.

Intrinsic and altruistic motivation remained central. The Intrinsic Motivation and Altruistic Orientation domain scored 19.94 ± 4.61 out of 25, indicating that helping others and contributing to society continued to resonate even when nursing was not the first preference. Comparable findings have been reported internationally: Ait Ali et al. identified altruism among Moroccan students [18], McKenna et al. in Australia highlighted caring, personal calling, and the desire to work with the ill [19], while Lommi et al. noted that Italian Generation Z students combined passion and altruism with practical considerations [20]. These parallels reinforce the global relevance of intrinsic and altruistic drivers in shaping nursing career pathways.

Family influence formed a central pathway in career choice. In this study, 80.9% of students reported being guided by relatives or significant others. Prior work has similarly highlighted the role of family and social networks: McLaughlin et al. demonstrated the importance of significant others in motivating nursing students [21], while Lindberg et al. found that family and social influences shaped expectations of nursing [46]. Similar findings by Özcan and Sarıoğlu Kemer further confirm the strong impact of family opinion on student career decisions [44]. Our qualitative findings, however, revealed that family influence was not uniformly supportive. Some families provided encouragement and healthcare role models, whereas others reinforced doubts about nursing as a less desirable career. In certain cases, students even described being compelled to choose or remain in nursing despite personal reluctance. Thus, family influence may act as a double-edged factor-facilitating entry into the profession while simultaneously contributing to uncertainty about long-term retention.

The contrast between intrinsic motivation and actual career preference is also noteworthy. In Spain, 76.4% of students had nursing as their first choice [35], whereas in Istanbul, 65.8% reported another dream profession, with employment opportunities driving their choice of nursing [37]. Our findings aligned more closely with the latter, as many students described nursing as an alternative after unsuccessful attempts at medicine or as a practical, family-influenced decision, consistent with the multifactorial pathways identified by Macdiarmid and colleagues in their mixed-methods scoping review [36].

Expected salary was positively associated with career perception, indicating that financial security and employment prospects remain relevant alongside altruistic motives. Yet the regression model explained only 10.3% of the variance, suggesting that perceptions are shaped by a wider interaction of personal motivation, social recognition, educational experiences, and career opportunities. The most concerning finding was that 69.8% of students reported an intention to change career, with medicine most frequently identified as an alternative. Willingness to change career was also the strongest negative predictor of perception ($B = -4.778$, $\beta = -0.146$, $p < 0.001$). Qualitative accounts revealed that uncertainty often stemmed from unrealised aspirations, social expectations, and experiences within nursing education. Some students even admitted being “clueless” about what they would do after graduation, while others hoped to earn enough in nursing to later pursue a different career. At the same time, several described gradually developing appreciation for nursing through patient care and clinical learning. Teresa-Morales et al. similarly noted that reasons for completing nursing education may differ from initial choice [35].

Retention concerns extend beyond students. Kalal et al. reported 21.1% of Indian nursing students considering career change and 28.9% intending to work abroad [33], while Bhatia et al. found nearly 69% of practising nurses planned to quit which aligns with similar regional findings among outgoing nursing students in Delhi regarding career continuation [32, 50].. Internationally, intention to leave has been reported in Ethiopia (61.3%) [31] and Spain (43%) [30]. Together, these findings highlight that uncertainty during education may precede later workforce attrition due to associated job satisfaction.

Students' narratives highlighted persistent concerns about the social status and image of nursing. Gender was positively associated with career perception in the regression model, while qualitative accounts suggested that expectations concerning night duty, marriage, and social acceptance continued to shape how nursing was viewed. The public image of nursing has long been linked to professional identity and career perceptions [22–25]. Chmielewski et al., in a recent qualitative study from Poland, similarly reported that some students faced negative reactions from family members and acquaintances due to persistent stereotypes [38].

The association between higher 12th-standard marks and lower career perception also warrants attention. This should not be interpreted as evidence that academically stronger students are unsuitable for nursing. Rather, it may reflect unmet aspirations to pursue medicine or other competitive programmes, a concern heightened by grade inflation and changing admission standards in Indian higher education [8–12]. If students enter nursing primarily because their preferred programme was inaccessible, career uncertainty may be more likely. Importantly, this interpretation remains exploratory and requires longitudinal investigation. Gender findings also deserve caution: although male students comprised 22.5% of the sample, social expectations continued to influence perceptions. Kalal et al. likewise reported gender differences among Indian nursing students [33]. Together, these findings suggest that improving the image of nursing requires addressing both gender stereotypes and broader social perceptions of the profession.

The qualitative findings indicated that students' perceptions of nursing were strongly shaped by their educational experiences. Excessive assignments, limited opportunities to practise skills, inconsistent mentorship, scolding in clinical areas, and restrictions on autonomy were repeatedly described. Similar concerns have been reported internationally: Soerensen et al. found that difficult clinical and educational experiences contributed to attrition in Denmark [26], while Canzan et al. noted problems with placements, limited psychological support, and negative teacher interactions among Italian students who left nursing programmes [39].

An important contextual finding was the perceived hierarchy between B.Sc. and GNM-prepared nurses. Students described differences in status, authority, and recognition, and many reported rivalry and "pinching" comments from seniors that undermined their confidence and willingness to remain in nursing. These experiences intersected with wider issues of autonomy and interprofessional relationships. Hong et al. showed that abusive supervision increased intention to leave through

emotional exhaustion [28], and our participants similarly described humiliating interactions that made clinical practice feel unsafe or “risky.”

The transition towards internship further intensified these pressures, with students managing examinations, assignments, and full-shift responsibilities simultaneously. Comparable challenges have been reported among newly graduated nurses in Turkey and China [29, 45]. Importantly, not all accounts were negative: meaningful patient interactions and supportive supervision fostered confidence and competence, reinforcing that the clinical environment can either strengthen or weaken professional commitment depending on its quality. High rates of student attrition and late dropout during nursing training remain a major concern for education databases and professional bodies [40–43].

Students’ recommendations closely reflected the challenges they described. Career counselling prior to admission was seen as essential to help applicants understand the scope, responsibilities, and pathways of nursing before making an informed choice, particularly for those entering after unsuccessful attempts at medicine. They also called for reduced assignment burden and better integration of theory with clinical practice. Rather than lowering academic requirements, programmes could prioritize clinically relevant assignments, bedside clinics, and protected time for skills practice. Improved mentorship and stronger teacher–student relationships were emphasized, as supportive supervision was described as transforming difficult experiences into opportunities for learning.

Students further requested greater use of nursing skills, increased clinical exposure, and enhanced autonomy, reflecting their desire to experience nursing as a skilled professional role rather than task-oriented work. These concerns align with evidence that perceptions of instructor caring and academic satisfaction can be assessed using structured instruments [47, 48]. Suggestions also included separating internship from coursework, revising semester structures. Finally, participants strongly emphasized the need for greater public visibility of nursing through media and professional communication. Without clear job descriptions, nurses’ risk being perceived as “jack of all trades,” a view that undermines professional identity. Students felt that only sustained media visibility and awareness could counter the social prejudices they experienced within families and society. Reviews have similarly highlighted the influence of media representation on the public image of nursing and the potential role of targeted awareness strategies [22, 49]. Improving visibility should therefore involve nurses themselves in communicating the complexity, expertise, and contribution of nursing practice.

Strengths and Limitations

The sample substantially exceeded the planned target of 100 students per zone, with particularly strong participation from the East Zone. This reflects an overwhelming response rather than intentional oversampling, though uneven distribution limits national generalizability. The validated 30-item Career Choice Scale provided a structured assessment of career perceptions, while qualitative data added valuable context to the statistical findings.

Several limitations should be acknowledged. The cross-sectional design prevents assessment of how career intentions evolve during education or after graduation; longitudinal follow-up would therefore be valuable. Nearly 69.8% of students expressed an intention to switch careers, raising concerns about future satisfaction and implications for patient care. Self-reported responses may be affected by recall or social desirability bias. Although all zones were represented, participation was uneven, and the qualitative component included only 27 voluntary participants, predominantly from government institutions, with no male students. As such, some perspectives may have been underrepresented, and certain aspects of student experience may not have been fully revealed. Finally, the regression model explained only 10.3% of the variance, indicating that important determinants remain to be explored.

What This Study Adds

This study highlights three insights. First, nursing entry and retention are distinct decisions: students may enter due to altruism, family influence, or practical considerations while retaining aspirations for other professions. Second, educational and clinical experiences can reshape these initial positions, either strengthen identity or increase the desire to leave. Third, modifiable areas—career counselling, mentorship, assignment burden, clinical learning, autonomy, and public visibility—could improve students' experiences and longer-term commitment.

Conclusion

Nursing students in this study entered the profession through diverse pathways, often combining altruistic motives with family, academic, and practical influences. Yet the high proportion expressing an intention to change career reflects substantial uncertainty about remaining in nursing. Qualitative findings suggest that this uncertainty is shaped not only by initial aspirations but also by social perceptions, academic workload, clinical experiences, professional hierarchy, and the quality of supervision. At the same time, meaningful patient care and supportive learning environments were described as strengthening confidence and professional identity. Strengthening career counselling, mentorship, clinical learning, and professional autonomy may therefore be critical for improving students' perceptions of nursing and supporting future workforce retention.

Declarations

Ethics approval and consent to participate

This study was approved by the Institutional Ethics Committee of AIIMS Kalyani (Ref. No.: IEC/AIIMS/Kalyani/certificate/2025/100). The study was conducted in full accordance with the Ethical Guidelines for Biomedical and Health Research on Human Participants formulated by the Indian Council of Medical Research (ICMR) and the Declaration of Helsinki. Voluntary participation, privacy, and confidentiality were strictly maintained. Electronic informed consent was obtained from all participants

prior to their completion of the online survey in Phase I. Separate written informed consent was obtained from all participants prior to conducting the audio-recorded in-depth qualitative interviews in Phase II.

Consent for publication

Not applicable. No individual participant identifying details, images, or direct personal identifiers are presented in this manuscript.

Availability of data and materials

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

This research received no specific grant or financial support from any funding agency in the public, commercial, or non-profit sectors. (Self-funded)

Authors' contributions

SS conceptualized the study design, led the primary data collection, and curated the overall dataset. SS, APS, DM, RB, BP, coordinated data collection and quantitative data curation. SS, DM, RB, and AP prepared the initial manuscript draft. APS, BP, and PJ critically revised the manuscript for important intellectual content. All authors reviewed, provided feedback on, and approved the final manuscript for submission.

Acknowledgements

The authors express their sincere gratitude to all the nursing students who voluntarily participated in this study and shared their valuable experiences and insights. We also extend our gratitude to the heads of participating nursing institutions for facilitating data collection.

Use of Generative AI and AI-Assisted Technologies in the Writing Process During the preparation of this work, the author(s) used Nanobanana AI to assist in generating the graphical layout and visual formatting (Figure 1 and 2). After generating the visual layout, the authors reviewed, curated, and edited the content to ensure accuracy against the qualitative analysis, and take full responsibility for the content of the publication.

References

1. World Health Organization. State of the World’s Nursing 2025. Geneva: World Health Organization. 2025. Available from: https://www.who.int/publications/i/item/9789240110236

2. World Health Organization. State of the world's nursing 2020: investing in education, jobs and leadership [Internet]. Geneva: World Health Organization. 2020 [cited 2026 Jun 9]. Available from: https://apps.who.int/iris/handle/10665/331677
3. International Confederation of Midwives. The Theme for International Day of the Midwife: One Million More Midwives. The Hague: International Confederation of Midwives; 2026.
4. Indian Nursing Council. Annual report 2024–2025. New Delhi: Indian Nursing Council. 2025. pp. 9–18. Available from: https://indiannursingcouncil.org/uploads/annualreports/17561126777499.pdf
5. Ministry of Health and Family Welfare (IN). Update on health workforce availability in public health facilities [Internet]. New Delhi: Press Information Bureau; 2026 Feb 10 [cited 2026 Jun 4].Available from: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2225755®=1‹=1.
6. Nair R, Sarin J. Genesis of professional nursing education in India. J Datta Meghe Inst Med Sci Univ. 2024;19(4):639–42. 10.4103/jdmimsu.jdmimsu_537_22.
7. Seth K. Heterogeneity in the background and earnings of nurses in India: evidence from a cross-sectional study in Gujarat. *Health Policy Plan*. 2017;32(9):1285-93. 10.1093/heapol/czx086. PMID: 28981659.
8. Commission A, Sankar D, Shah A. *The great Indian exam debacle: Assessment standards and grade inflation in Indian board examinations*. New Delhi: Observer Research Foundation; 2017 Jul. Issue Brief No.: 188. Available from: https://www.orfonline.org/research/great-indian-exam-debacle
9. Ministry of Human Resource Development, Government of India. *National Education Policy 2020*. New Delhi: Ministry of Human Resource Development; 2020 [cited 2026 Aug 9]. Available from: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
10. Indian Nursing Council. Indian Nursing Council (Revised Basic B.Sc. Nursing Course Regulations - Corrigendum) Regulations, 2022. *The Gazette of India: Extraordinary*. New Delhi: Controller of; 2022 Apr. p. 19. (Part III-Sec. 4, No. 205).
11. Times of India. Eligibility for B.Sc. Nursing relaxed to zero percentile. Times India [Internet]. 2023 Oct 28 [cited 2026 Aug 9].
12. Hindustan Times. State urges Nursing Council to admit students with zero percentile in CET to fill vacant seats. Hindustan Times [Internet]. 2026 Jul 11 [cited 2026 Aug 9].
13. All India Institute of Medical Sciences. NORCET 1 Recruitment Notice No. 106/2020 dated 05 Aug 2020. New Delhi: AIIMS; 2020.
14. All India Institute of Medical Sciences. NORCET 11 Recruitment Notice No. 17/2026 dated 24 July 2026. New, Delhi. AIIMS; 2026. Available from https://rrpdocuments.aiimsexams.ac.in/1784982741213-632229433.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAVRUVRLXWMSLVSAP7%2F20260809%2Fap-south-1%2Fs3%2Faws4_request&X-Amz-Date=20260809T152620Z&X-Amz-Expires=604800&X-Amz-Signature=b6dd3f2994a7c6afdd7979107490211e847980ca94c2af8c4f125c6c9e788163&X-Amz-SignedHeaders=host&response-content-type=application%2Fpdf.

15. World Health Organization. Review of international migration of nurses from the state of Kerala, India. New Delhi: WHO Country Office for India; 2022.
16. Merz S, Hunter BM, Murray SF, Bisht R. Market making and the production of nurses for export: a case study of India-UK health worker migration. BMJ Glob Health. 2024;9(2). 10.1136/bmjgh-2023-014096. . PMID: 38418245; PMCID: PMC10910680.
17. Walton-Roberts M, Runnels V, Sebastian IR, et al. Sending state perspectives on the global migration of Indian nurses. Int Migr. 2025;63(5). 10.1111/imig.70062.
18. Ait Ali D, Ncila O, Ouhhamou S, Rizzo A, Chirico F, Khabbache H. Motivations driving career choices: insights from a study among nursing students. SAGE Open Nurs. 2024;10:23779608241255876.
19. McKenna L, Mambu IR, Sommers CL, Reisenhofer S, McCaughan J. Nurses' and nursing students' reasons for entering the profession: content analysis of open-ended questions. BMC Nurs. 2023;22(1):152. PMID: 37131149; PMCID: PMC10153520.
20. Lommi M, Ricci S, Ivziku D, Filomeno L, Badolamenti S, Notarnicola I, et al. Factors influencing Generation Z bachelor of nursing students' decision to choose nursing as a career: a pilot study. SAGE Open Nurs. 2024;10:23779608241242246.
21. McLaughlin K, Moutray M, Moore C. Career motivation in nursing students and the perceived influence of significant others. J Adv Nurs. 2010;66(2):404 – 12. 10.1111/j.1365-2648.2009.05147.x. PMID: 20423423.
22. González H, Errasti-Ibarrondo B, Iraizoz-Iraizoz A, Choperena A. The image of nursing in the media: a scoping review. Int Nurs Rev. 2023;70(3):425–43. 10.1111/inr.12830. PMID: 37094453. Negative image in media.
23. ten Hoeve Y, Jansen G, Roodbol P. The nursing profession: public image, self-concept and professional identity. A discussion paper. *J Adv Nurs*. 2014;70(2):295–309. 10.1111/jan.12177. PMID: 23711235.
24. Devi S. Nursing profession: portrayal of nurses in Indian cinema and its impact on public opinion about the nursing profession. Ann Rom Soc Cell Biol. 2021;25(4):7204–9.
25. Konstantopoulou G, Tatsis F. The public image of nursing and social perceptions before and after COVID-19: an integrative review. J Nurs Care Rep. 2024;5(2):1–15. PMID: 39123456.
26. Soerensen J, Nielsen DS, Pihl GT. It's a hard process: nursing students' lived experiences leading to dropping out of their education; a qualitative study. *Nurse Educ Today*. 2023;122:105724. 10.1016/j.nedt.2023.105724. PMID: 36791873.
27. Tok HH, Uzun LN. Investigating quiet quitting tendencies among nursing students: a descriptive study. BMC Nurs. 2025;24(1):902.
28. Hong Y, Chen M, Chen C, Qiu M. Abusive supervision and nursing students' intention to leave the nursing profession: a moderated mediation model of emotional exhaustion and the nurse-patient relationship. BMC Nurs. 2024;23(1):361. PMID: 38866545; PMCID: PMC11170985.
29. Wang P, Zhou J, Shen X, Ge Y, Li Y, Ge H, Li S. Health characteristics and factors associated with transition shock in newly graduated registered nurses: a latent class analysis. BMC Nurs.

2024;23(1):211. PMID: 38565858; PMCID: PMC10990211.

30. García-Vivar C, Ferraz-Torres M, Escalada-Hernández P, Soto-Ruiz N. Intention to abandon the nursing profession due to mental health during the COVID-19 pandemic in Navarra (Spain). Sist Sanit Navar. 2025;48(1).
31. Tadesse B, Dechasa A, Ayana M, Tura MR. Intention to leave nursing profession and its associated factors among nurses: a facility-based cross-sectional study. Inquiry. 2023;60:469580231200602. PMID: 38081098; PMCID: PMC10713589.
32. Bhatia M, Dhaliwal N, Bhogal RS. The road less taken: factors influencing intent to quit among Indian nurses-single centre experience. Hosp Top. 2025;103(3):1–8. 10.1080/00185868.2025.2530594.
33. Kalal N, Sharma SK, Sadhanu H, Meena AI. Perceptions and professional career intentions of senior nursing students in India: a cross-sectional e-survey. Invest Educ Enferm. 2026;44(1):e05. 10.17533/udea.iee.v44n1e05.
34. Employees' State Insurance Corporation. Policy for transfer/posting of Nursing Cadre Officers/Employees in ESIC [Internet]. New Delhi: ESIC. 2024 Dec. Report No.: Z-11011/9/2024-MED-VI. Available from: https://esic.gov.in/attachments/circularfile/97246cf6469e966a5f0e08a7d31b80e7.pdf
35. Teresa-Morales C, Rodríguez-Pérez M, Ramos-Pichardo JD. Reasons for choosing and completing nursing studies among incoming and outgoing students: A qualitative study. Nurse Educ Today. 2023;125:105794. 10.1016/j.nedt.2023.105794. . Epub 2023 Mar 15. PMID: 36934625.
36. Macdiarmid R, Turner R, Winnington R, McClunie-Trust P, Donaldson A, Shannon K, Merrick E, Jones V, Jarden R. What motivates people to commence a graduate entry nursing programme: A mixed method scoping review. BMC Nurs. 2021;20(1):47. 10.1186/s12912-021-00564-9. [DOI] [PMC free article] [PubMed] [Google Scholar][Ref list].
37. Elibol E, Kader A, Seren H. Reasons nursing students choose the nursing profession and their nursing image perceptions: A survey study. Nurs Pract Today. 2017;4(2):67–78. [DOI] [Google Scholar][Ref list].
38. Chmielewski A, Przymuszała P, Marciniak R. Why do young people choose nursing as their future profession? - a qualitative study on polish nursing students' motivating factors to apply to nursing and work in the profession after graduation. BMC Med Educ. 2025;25(1):343. 10.1186/s12909-025-06899-0. . PMID: 40050925; PMCID: PMC11883933.
39. Canzan F, Saiani L, Mezzalira E, Allegrini E, Caliaro A, Ambrosi E. Why do nursing students leave bachelor program? Findings from a qualitative descriptive study. BMC Nurs. 2022;21(1):71. 10.1186/s12912-022-00851-z. PMID: 35351118; PMCID: PMC8966353. https://pmc.ncbi.nlm.nih.gov/articles/PMC8966353/#Sec10.
40. National Council of State Boards of Nursing. National Nursing Education Database: 2023–2024 Aggregate Data. Chicago: NCSBN; 2025.
41. Mazinga G. NLN Annual Survey of Schools of Nursing Academic Year 2022–2023: Executive Summary. Nurs Educ Perspect. 2024 Sep-Oct 01;45(5):269–270. doi:

10.1097/01.NEP.0000000000001322. PMID: 39159249.

42. Royal College of Nursing. Student Attrition Report 2023–2024. London: RCN; 2024.
43. Bakker EJM, Verhaegh KJ, Kox JHAM, van der Beek AJ, Boot CRL, Roelofs PDDM, Francke AL. Late dropout from nursing education: An interview study of nursing students' experiences and reasons. Nurse Educ Pract. 2019;39:17–25. 10.1016/j.nepr.2019.07.005.
44. Özcan S, Sarioğlu Kemer A. Evaluation of family influence on career choice of nursing students. MAS J Appl Sci. 2021;6(4):899–908. 10.52520/masjaps.123.
45. Omer TY. New graduate nurses experience during the internship year: transitioning from a student to a professional nurse. South East Eur J Public Health. 2024;1105–14.
46. Lindberg M, Carlsson M, Engström M, Kristofferzon ML, Skytt B. Nursing student's expectations for their future profession and motivating factors—A longitudinal descriptive study from Sweden. Nurse Educ Today. 2020;84:104218. 10.1016/j.nedt.2019.104218.
47. Guerra-Martín MD, Cano-Orihuela A, Martos-García R, Ponce-Blandón JA. Translation and First Pilot Validation Study of the Undergraduate Nursing Student Academic Satisfaction Scale Questionnaire to the Spanish Context. Int J Environ Res Public Health. 2021;18:423. 10.3390/ijerph18020423.
48. Romero-Martín M, Gómez-Salgado J, de la Fuente-Ginés M, Macías-Seda J, García-Díaz A, Ponce-Blandón JA. Assessment of reliability and validity of the Spanish version of the Nursing Students' Perception of Instructor Caring (S-NSPIC). PLoS ONE. 2019;14:e0212803. 10.1371/journal.pone.0212803.
49. Moghbeli G, Gardashkhani S, Soheili A. Public image of nursing: an integrative review of challenges and solutions. BMC Nurs. 2025;24(1):573. 10.1186/s12912-025-03160-3. Published 2025 May 21.
50. MsMM James. A Study to Assess the Opinion regarding Pursuing Jobs in Nursing Profession among Outgoing Student Nurses in a Selected College of Nursing in New Delhi. Int J Nurs Midwifery Res. 2017;4(2):17–23.Similar. geographical trend.

Figures

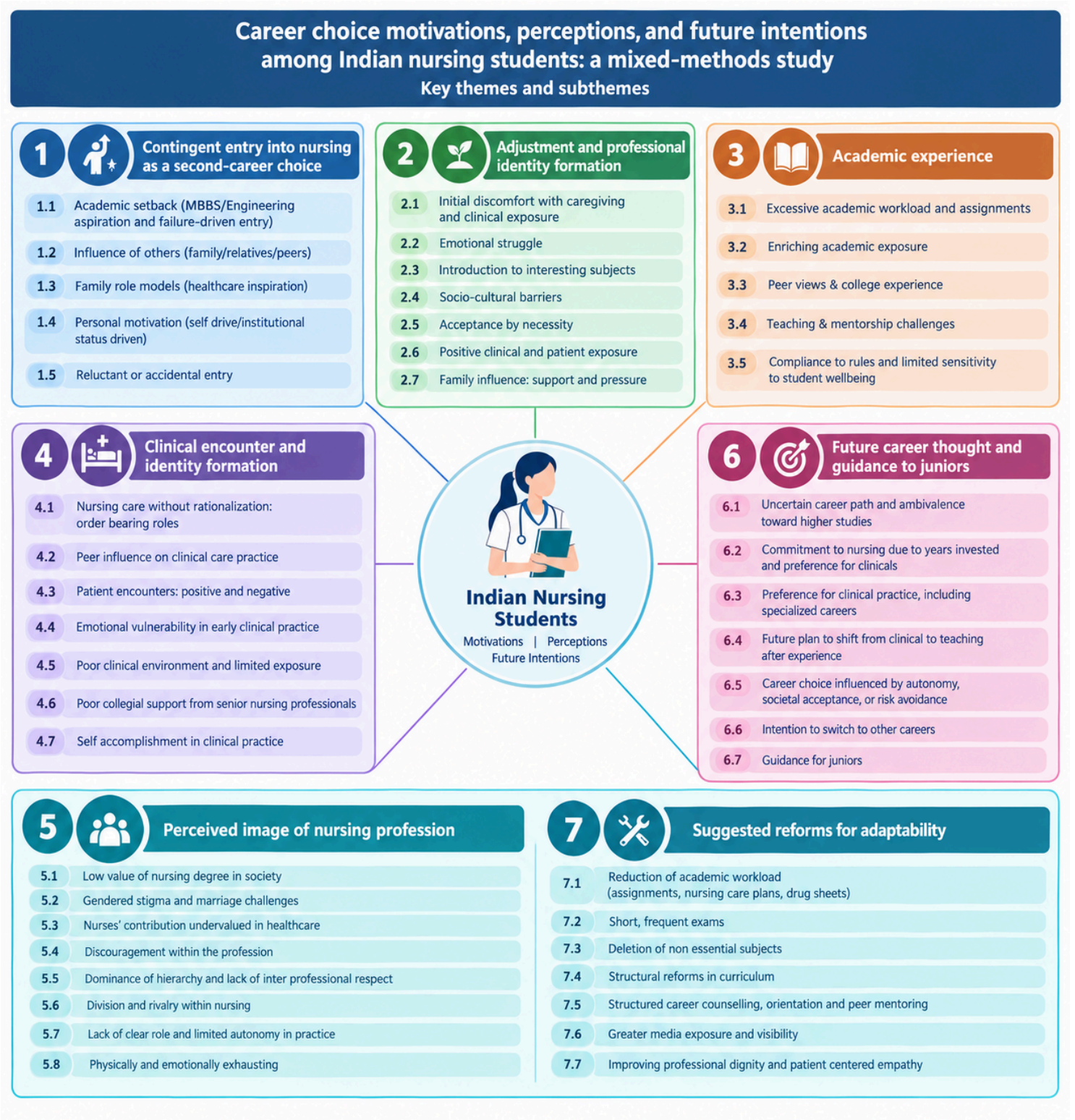


Figure 1

Identifies themes and subthemes

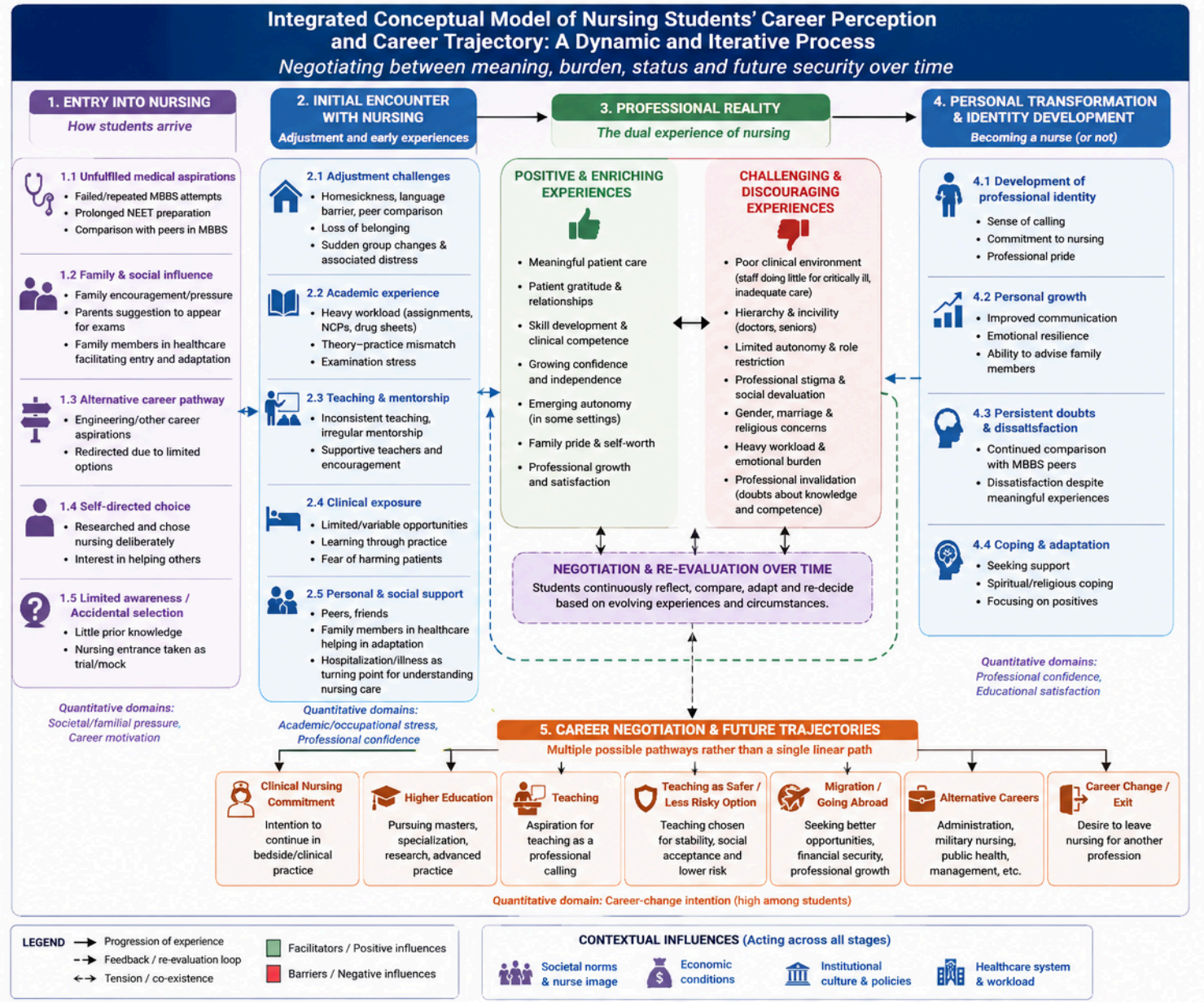


Figure 2

Integrated conceptual model of nursing students career perception and career trajectory.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Supplementarytables.docx
- Supplementaryfile2.docx