Pharmacy Education (2026) 26(1) 62 - 74
https://doi.org/10.46542/pe.2026.261.6274

RESEARCH ARTICLE

Navigating the shift: Experiences of pharmacy students transitioning from preclinical to clinical education in Kenya

Vincent Kipkemoi, Allan Tulienge Wafula, Godfrey Wabwile Mayoka
School of Pharmacy, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya

Keywords
Academic stress
Clinical skill
Clinical transition
Kenya
Pharmacy education
Pharmacy student

Correspondence
Godfrey Wabwile Mayoka
School of Pharmacy
Jomo Kenyatta University of Agriculture and Technology
Nairobi
Kenya
godfrey.mayoka@jkuat.ac.ke

Abstract

Background: Pharmacy education evolves significantly, with increased learning demands as students progress from preclinical to clinical years. This study investigated the factors influencing the transition experience of pharmacy students at Jomo Kenyatta University of Agriculture and Technology in Kenya. **Methods:** This cross-sectional study was conducted using structured questionnaires distributed to 120 students, along with focus group discussions involving a purposive sample. Quantitative data were analysed using SPSS (version 22), with chi-square tests applied to assess associations between sociodemographic factors and transition experiences. **Results:** The transition was perceived as challenging by 60.8% of students, with 67.5% feeling unprepared for medical technical skills. Increased workload (88.3%) and severe stress (77.5%) were the most reported challenges. Despite these difficulties, 54.2% of students indicated that the transition impacted their career aspirations positively. Support from family, peers, and faculty played a critical role (p = 0.0034), with males reporting an easier transition than females (p = 0.0419). **Conclusion:** Pharmacy students encounter significant challenges when transitioning to clinical years, suggesting an urgent need to strengthen support systems to enhance adaptability and academic success.

Introduction

The quality of pharmacy education during training directly influences the competence of future pharmacists, particularly in their ability to ensure the safe and effective use of medicines (Hirsch *et al.*, 2020). In Kenya, the Pharmacy and Poisons Board regulates the training and practice of pharmacists, and currently, nine institutions, including Jomo Kenyatta University of Agriculture and Technology (JKUAT), offer pharmacy programmes (Pharmacy and Poisons Board, 2022).

The Bachelor of Pharmacy curriculum in Kenyan universities is broadly structured into two key phases: the preclinical years (first and second years) and the clinical years (third to fifth years), each tailored to address specific educational and professional development needs (Ogaji *et al.*, 2016). During the preclinical years, the focus is on foundational sciences such as biology, chemistry, and mathematics, which are essential for building the theoretical understanding of pharmaceutical sciences (Angelini & Gasbarri, 2018). This phase emphasises theoretical knowledge and laboratory experimentation in basic sciences. The clinical years, in contrast, involve more hands-on, patient-centred learning. Students are exposed to disciplines including clinical pharmacy, pharmacology, pharmaceutical chemistry, and pharmaceutics, alongside practical experience in hospital settings (Rios *et al.*, 2017). At this stage, the focus shifts towards applying classroom-acquired skills to real-world clinical practice.

The transition from preclinical to clinical years represents a significant shift from predominantly lecture-based learning to experiential and clinical training, requiring students to integrate their foundational scientific knowledge with real-world clinical applications (Persky *et al.*, 2019). This stage marks a critical juncture in pharmacy education, where

students must adapt to new learning environments, develop clinical competencies, and manage heightened academic and emotional demands—often while coping with increased academic stress and pressure associated with these changes (Okogbaa *et al*., 2020; Umar, 2022).

It is crucial for pharmacy students to develop the competencies needed for real-world healthcare settings, making this transition period a pivotal phase in their professional development (Shah *et al*., 2016). Poorly managed academic transitions may result in feelings of inadequacy, increased stress, and long-term consequences on both professional performance and personal well-being (Atherley *et al*., 2016). Understanding the factors influencing this transition is essential to improving the quality of pharmacy education, which directly affects the calibre of future pharmacists responsible for delivering safe and effective healthcare.

Research has highlighted the importance of supporting students during this transition through strategies such as mentorship programmes, peer support, and structured feedback mechanisms, all of which can improve adaptation to clinical training (Fares *et al*., 2016). Notably, most studies on the transition experiences of students during their training to become healthcare professionals focus disproportionately on medical students (Atherley *et al*., 2019). Nonetheless, studies on the transition experiences of pharmacy students during their undergraduate training have been conducted in several countries, including the USA, Australia, Afghanistan, Nigeria, and Zambia (Bashaar *et al*., 2019; Drovandi *et al*., 2020; Moseley *et al*., 2020; Kalungia *et al*., 2021; Aguiyi-Ikeanyi *et al*., 2024). However, there remains a significant gap in the literature regarding the experiences of pharmacy students in Kenya during this transition period. The lack of data on how these students cope with academic and professional pressures points to the need for further exploration.

This study aims to investigate the factors affecting the transition of JKUAT pharmacy students from preclinical to clinical years. It explores the challenges they encounter, their attitudes towards this critical phase, and the coping mechanisms they adopt. The findings aim to guide curriculum development and teaching strategies that promote smoother transitions and better prepare students for clinical practice and patient care (Sahu *et al*., 2019).

Methods

Study scope, design and population

This study explored the transition experiences of Bachelor of Pharmacy (BPharm) students during their clinical years—defined as the period from the third year of study onwards—at the School of Pharmacy, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Main Campus. The clinical phase begins in the third year, when students are first introduced to clinical coursework and experiential training. The study assessed students' adjustment experiences, challenges, and coping mechanisms as they progressed from preclinical to clinical years. A cross-sectional design was employed, involving students currently in their third, fourth, and fifth years of study during the data-collection period, represented by four cohorts: Year 3 Trimester 2 (3.2), Year 3 Trimester 3 (3.3), Year 4 Trimester 1 (4.1), and Year 5 Trimester 2 (5.2).

Study selection criteria

Participants consisted of JKUAT BPharm students in their clinical years who provided informed consent. Students in preclinical years (first and second year), those not in session at the time of the study between March and June 2024, and those who declined to provide consent were excluded.

Sample size determination and sampling technique

The sample size was determined using Cochran's formula, following methodologies outlined in previous studies (Ahmad & Halim, 2017; Uakarn *et al*., 2021). For an infinite population, the estimated sample size was 385 participants. This value was then adjusted for the finite population of 250 clinical-year Bachelor of Pharmacy students enrolled at Jomo Kenyatta University of Agriculture and Technology (JKUAT) during the study period, resulting in a final sample size of 119 participants.

For the qualitative component, convenience sampling was employed to select participants for the Focus Group Discussions (FGDs). Students who expressed willingness to participate after learning about the study through class announcements and peer communication channels facilitated by class representatives were invited to take part. Four FGDs were conducted, each comprising participants from the same class year to enable focused discussion of shared academic and clinical learning experiences. Group sizes ranged from four to ten participants, with a balanced gender representation. All FGD participants had previously completed the questionnaire.

Study variables and data collection instruments

The study employed two primary instruments: a structured questionnaire and a focus group discussion (FGD) guide.

The structured questionnaire was adapted from previously validated instruments that assess academic transitions, student stress, coping mechanisms, and support systems among healthcare trainees. Key domains—including academic adjustment, emotional strain, coping behaviours, and institutional support—were informed by established scales used in studies among medical, dental, and pharmacy students (Atherley *et al*., 2016; Thamby Sam *et al*., 2016; Botelho *et al*., 2018; Chisholm-Burns *et al*., 2019; Drovandi *et al*., 2020; Kalungia *et al*., 2021; Aguiyi-Ikeanyi *et al*., 2024). Items were contextually adapted to reflect the structure of the Kenyan Bachelor of Pharmacy curriculum and the unique expectations of the transition from preclinical to clinical years. The questionnaire consisted of three sections. The first section contained the informed consent statement, confirming voluntary participation. The second section gathered sociodemographic information, including age, gender, religion, residence, funding source (e.g., government loans or self-sponsorship), and academic year, representing the independent variables. The third section explored transition experiences, including perceived challenges (e.g., academic workload and academic stress), coping mechanisms, and institutional support —representing the dependent variables.

Content validity, construct validity and reliability of the study instrument

Content validity was evaluated by two subject-matter experts in pharmacy education and research methodology. They assessed each item for clarity, relevance, and representativeness of constructs. Item-level (I-CVI) and scale-level (S-CVI/Ave) content validity indices were calculated in line with established procedures. Construct validity was examined using confirmatory factor analysis (CFA) with maximum likelihood estimation. Three latent constructs were specified a priori: academic transition, academic stress, and student support. CFA was conducted to confirm the factor structure of the adapted scales.

Internal consistency reliability for each scale was assessed using Cronbach's alpha. Since students were nested within four academic cohorts, intraclass correlations (ICCs) were calculated to assess potential clustering effects.

Scoring and handling of data

All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Reverse-coded items were re-scored before analysis. Scale scores were computed as mean composite values of retained items. Missing data were handled using listwise deletion for psychometric analyses.

The focus group discussion (FGD) guide was designed to complement the questionnaire findings by eliciting richer, qualitative insights. It included open-ended questions structured around key areas such as academic workload, coping strategies, and institutional support.

Participants were recruited using convenience sampling. Information about the study and the link to the questionnaire, designed as a Google Form, were shared through official class communication platforms, with the help of respective class representatives, to enhance awareness and voluntary participation.

Both instruments are provided in the supplementary file.

Data management and analysis

Collected data were securely stored on password-protected devices, with access restricted to the research team, including the primary researcher and supervisors. Quantitative data were cleaned, coded, and analysed using Microsoft Excel 2016 and SPSS version 22.0. Descriptive statistics were used to summarise sociodemographic data and Likert scale responses, presenting findings as frequencies and percentages. Additionally, associations between demographic characteristics and study outcomes were examined using chi-square (χ^2) tests, with the level of statistical significance set at $p < 0.05$.

For qualitative data, transcripts from focus group discussions were coded and categorised into themes and subthemes, followed by thematic analysis to identify key patterns and insights.

Ethical considerations

Ethical approval for this study was granted by the JKUAT Ethical Review Committee (Approval Number: JKU/ISERC/02317/1184). Prior to data collection, informed consent was obtained from all participants, ensuring voluntary participation, confidentiality, and the right to withdraw at any stage without consequences. Data were handled in compliance with ethical guidelines for research involving human subjects, with measures in place to maintain anonymity and data security throughout the study.

Results

Psychometric properties of the study instruments

The adapted measures demonstrated acceptable psychometric performance. For the academic transition scale, seven items were retained after two items with low factor loadings were removed. The final model demonstrated acceptable fit (χ^2 = 20.78, p = .054, CFI = .94, TLI = .89, RMSEA = .078, SRMR = .049) and good internal consistency (α = .78). The academic stress scale retained five items after exclusion of two poorly performing reverse-coded items, yielding excellent model fit (χ^2 = 4.34, p = .229, CFI = .99, TLI = .97, RMSEA = .061, SRMR = .015) and strong reliability (α = .79). The five-item student support scale also exhibited good fit (χ^2 = 8.08, p = .152, CFI = .98, TLI = .95, RMSEA = .072, SRMR = .031) and high internal consistency (α = .85). ICC values across cohorts were low for academic transition (0.008) and academic stress (0.006), and moderate for student support (0.091), indicating minimal clustering effects.

Sociodemographic characteristics

The study recruited 120 participants, with 64 (53.3%) identifying as male. Representation across all clinical-year cohorts was well balanced. The majority (84.2%) had attained an A– or higher in their Kenya Certificate of Secondary Education (KCSE) examinations. A small proportion (3.3%) had previously completed a diploma in pharmacy, while 40% reported active participation in extracurricular activities (Table I).

Attitudes towards transition from preclinical to clinical training

Participants generally expressed negative perceptions about their transition to clinical years. Forty-nine percent of participants found the introduction to third-year studies unsatisfactory, and only 28.3% felt adequately prepared for the shift. The transition was described as difficult by two-thirds of the students, with just 18.3% considering it seamless (Figure 1).

Academic and personal disruptions were widely reported, with 77.5% experiencing significant challenges. Additionally, 67.5% felt unprepared for the technical medical skills required in clinical practice. However, despite these difficulties, 54.2% acknowledged that the transition had a positive impact on their career aspirations (Figure 1).

Table I: Sociodemographic characteristics

Characteristic	Category	Frequency, n (%)
Gender	Male	64 (53.3)
	Female	56 (46.7)
Age (years)	19-21	33 (27.5)
	22-24	69 (57.5)
	25-28	18 (15)
Religion	Christianity	106 (88.3)
	Islam	11 (9.2)
	Hinduism	1 (0.8)
	Rastafarianism	1 (0.8)
	Non-practicing	1 (0.8)
Class	3.2	31 (25.8)
	3.3	27 (22.5)
	4.1	30 (25.0)
	5.2	32 (26.7)
Residence	University hostels	17 (14.2)
	Private rented houses	95 (79.2)
	With parents/Guardians	7 (5.8)
School fees	Government-sponsored	84 (70)
	Self-sponsored	35 (29.2)
	Other sponsors	1 (0.8)
*Upkeep costs	Family	94 (61)
	Government study loan	49 (31.8)
	Part-time job	11 (7.1)
KCSE Grade at entry	A	21 (17.5)
	A-	80 (66.7)
	B+	14 (11.7)
	B	3 (2.5)
	B-	2 (1.7)
Diploma in Pharmacy	Yes	4 (3.3)
	No	116 (97.7)
Extracurricular activities	Yes	48 (40)
	No	72 (60)

Note: Participants could select more than one source of upkeep support; therefore, the total number of responses for this item exceeds the total sample size (n = 120). Percentages were calculated based on the number of responses rather than participants.

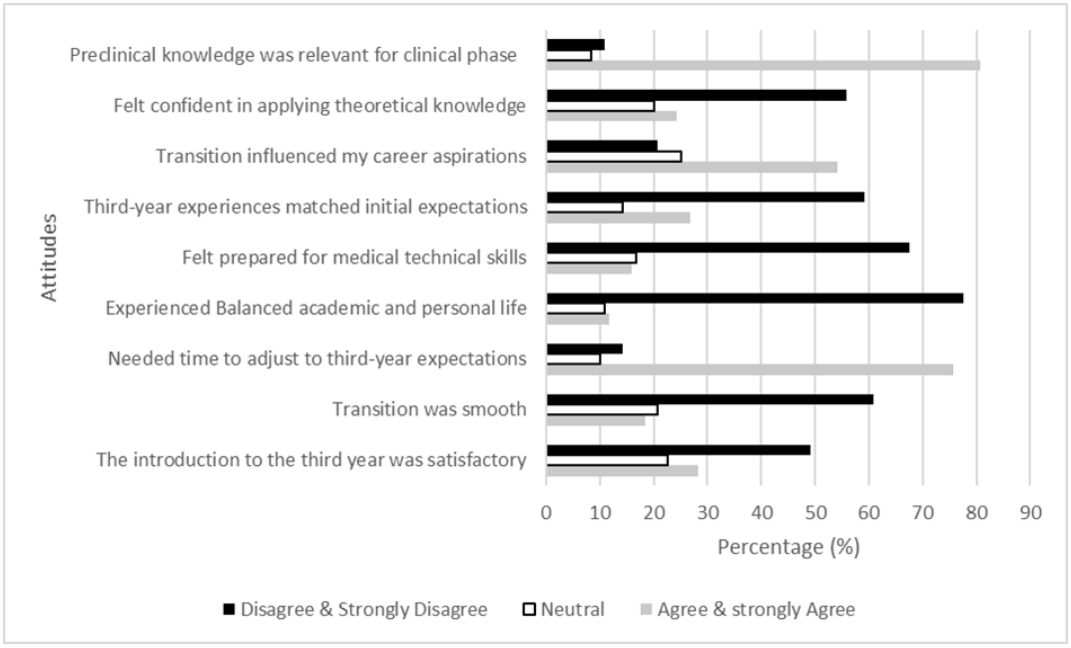

Figure 1: Attitudes toward the transition from preclinical to clinical years

Challenges experienced during the transition from preclinical to clinical years

Students encountered several challenges during the transition to clinical years. More than two-thirds felt unprepared for the technical demands of clinical practice, while 59.2% reported that their clinical experiences fell short of initial expectations. Maintaining a balance between academic responsibilities and personal life was a significant struggle, with 77.5% facing difficulties in managing both. Additionally, a similar proportion of students emphasised the need for more time to adjust to the heightened expectations of third-year coursework (Figure 2).

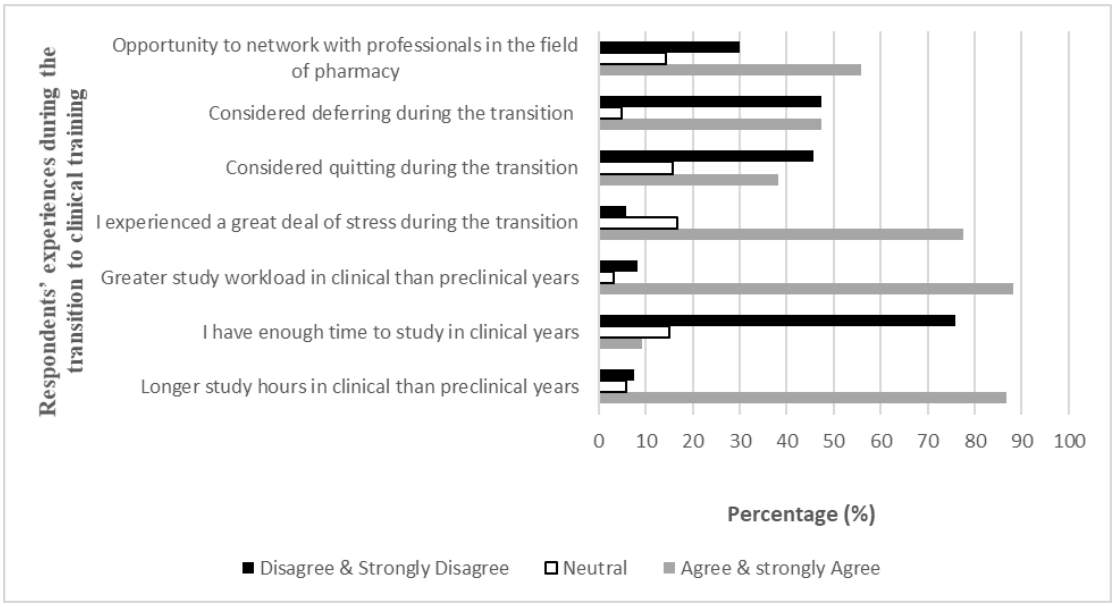

Figure 2: Distribution of respondents' experiences and perceived challenges during the transition to clinical training

Emotional challenges were common during the transition, including stress, anxiety, and depressive feelings. Only 18% of respondents reported experiencing no emotional difficulties (Figure 3).

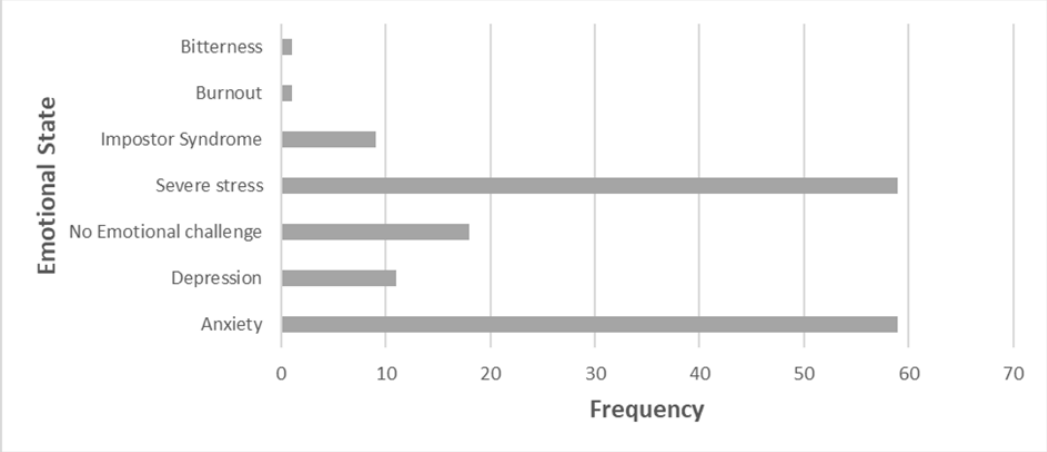

Figure 3: Distribution of participants' emotional state during the transition period

Perceived level of support

The survey highlighted perceived gaps in faculty and institutional support during the transition to clinical years. Fifty-four percent of the respondents felt that communication regarding course expectations and requirements was inadequate, leaving them uncertain about academic and clinical demands. Similarly, 60.8% reported insufficient faculty support, citing a lack of guidance and accessible resources. Additionally, 45.8% of the participants expressed concerns about the limited encouragement and constructive feedback from instructors, further compounding their challenges in adapting to the clinical phase of training (Figure 4).

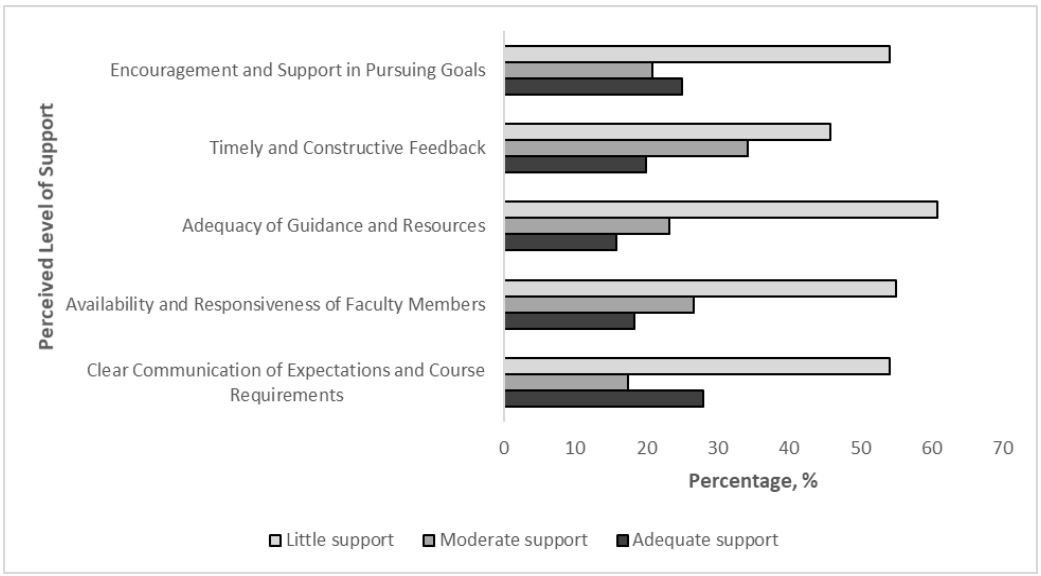

Figure 4: Student perceptions of faculty and institutional support during transition to clinical training.

Factors associated with transition experience

A Pearson chi-square test identified a significant association between gender and perceived ease of transition, with males reporting a smoother experience than females (p = 0.0419) (Table II).

Table II: Sociodemographic characteristics and the perceived ease of transition (N=120)

Category	n (%)	Transition was smooth			*p*-value
		A+SA, n (%)	D+SD, n (%)	Neutral, n (%)	
Gender					0.0419
Male	64 (53.3)	16 (25.0)	39 (60.9)	9 (14.1)	
Female	56 (46.7)	6 (10.7)	34 (60.7)	16 (28.6)	
Class					0.6000
3.2	31 (25.8)	5 (16.3)	19 (61.3)	7 (22.6)	
3.3	27 (22.5)	4 (14.8)	18 (66.7)	5 (18.5)	
4.1	30 (25.0)	4 (13.3)	21 (70.0)	5 (16.7)	
5.2	32 (26.7)	9 (28.1)	15 (46.0)	8 (25)	
KCSE grade					0.2540
A	21 (17.5)	3 (14.3)	10 (47.6)	8 (38.1)	
A-	80 (66.7)	13 (16.2)	55 (68.8)	12 (15.0)	
B+	14 (11.7)	4 (28.6)	6 (42.9)	4 (28.6)	
B	3 (2.5)	1 (33.3)	1 (33.3)	1 (33.3)	
B-	2 (1.7)	1 (50.0)	1 (50.0)	0 (0.0)	
Extracurricular activities					
Yes					
No	48 (40.0)	7 (14.6)	30 (62.5)	11 (22.9)	0.6647
	72 (60.0)	15 (20.8)	43 (59.7)	14 (19.4)	
Diploma					0.9065
Yes	4 (3.3)	0 (0.0)	3 (75.0)	1 (25.0)	
No	116 (96.7)	22 (19.0)	70 (60.3)	24 (20.7)	

Additionally, perceived faculty support varied significantly across class levels, with Year 5 Trimester 2 (5.2) students reporting higher levels of support (p = 0.0034) (Table III).

Table III: Sociodemographic characteristics and the perceived level of support from faculty members (N=120)

Category	n (%)	Extent of support			*p*-value
		Adequate, n%)	Moderate, n (%)	Little, n (%)	
Gender					
Male	64 (53.3)	7 (10.9)	27 (42.2)	30 (46.0)	0.8717
Female	56 (46.7)	5 (8.9)	26 (46.4)	25 (44.7)	
Class					0.0034
3.2	31 (25.8)	3 (9.7)	8 (25.8)	20 (64.5)	
3.3	27 (22.5)	2 (7.4)	16 (59.3)	9 (33.3)	
4.1	30 (25.0)	1 (3.30	10 (33.3)	19 (63.4)	
5.2	32 (26.7)	6 (18.7)	19 (59.4)	7 (21.9)	
KCSE grade					
A	21 (17.5)	3 (14.3)	12 (57.1)	6 (28.6)	0.5157
A-	80 (66.7)	6 (7.5)	34 (42.5)	40 (50.0)	
B+	14 (11.7)	3 (21.4)	6 (42.9)	5 (35.7)	
B	3 (2.5)	0 (0.0)	1 (33.3)	2 (66.7)	
B-	2 (1.7)	0 (0.0)	0 (0.0)	2 (100.0)	
Extracurricular activities					0.8602
Yes	48 (40.0)	4 (8.3)	21 (43.8)	23 (47.9)	
No	72 (96.0)	8 (11.1)	32 (44.45)	32 (44.45)	
Diploma					0.5079
Yes	4 (3.3)	1 (0.25)	2 (0.5)	1 (0.25)	
No	116 (96.7)	11 (9.5)	51 (43.9)	54 (46.6)	

Thematic analysis of findings from FGDs

Focus group discussions were conducted to gain a deeper understanding of students' experiences during the transition. A total of 24 participants, fairly distributed between males and females, were selected from the four clinical year cohorts (Figure 5).

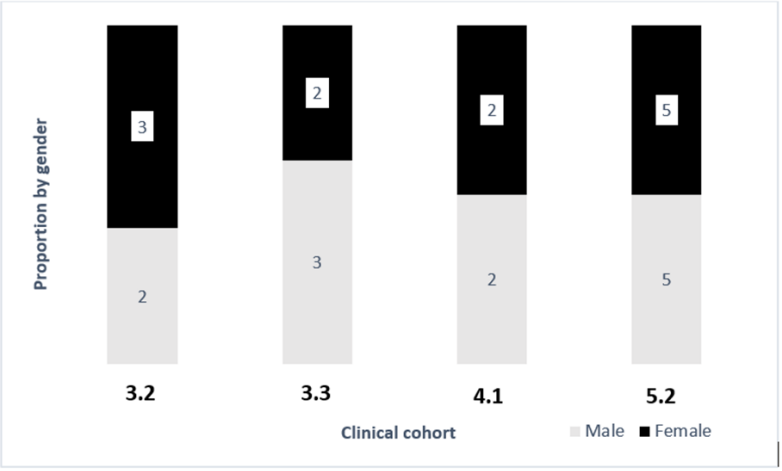

Figure 5: Distribution of participants in the focus group discussions

Increased academic demands and workload

The transition was marked by a substantial rise in academic demands. Students faced more units with more complex content, leading to increased stress. Many described the workload as "*brutal*" and "*overwhelming*."

> *"To most of the people including me, it is like flipping a switch, like snapping a finger, because you are from the normal things that you are used to from other educational levels like high school with units like anatomy, biochemistry to units like pharmacology, pharmaceutics and deeper chemistry that are structure-based. So, if you are not ready by the end of your preclinical years, it is quite hard. It is not a smooth transition for me. You have to cut yourself off from a lot of other things you used to do during the preclinical years." (FGD 1, p1)*

To meet the increased academic demands, students extended their study hours into the night and adopted new learning strategies. The abrupt transition from foundational sciences to advanced clinical subjects, particularly pharmacology, posed a significant challenge.

Significant adjustments and challenges

Participants reported the need to reorganise their schedules, reduce leisure time, and prioritise academic activities.

> *"My social life changed. I lost a number of friends, and I stopped calling home… I stopped attending family events." (FGD 4, p3)*

Clinical exposure introduced new pressures, requiring students to engage with patients and apply theoretical knowledge in real-world settings. Additionally, they had to transition from relying on lecture notes to consulting comprehensive, peer-reviewed materials. This shift often demanded sacrifices in extracurricular activities and personal time to meet the academic and practical expectations of clinical training.

Support systems

Family and peer support played a crucial role in easing the transition. Emotional and financial support from family members, including regular check-ins and prayers, helped provide stability and reassurance. Peers contributed by offering academic guidance and emotional support through group discussions and encouragement, fostering a sense of camaraderie during the challenging period.

> *"My peers from the other classes ahead, who knew how it would be progressing from second year to third year, kept offering advice on what I can do better and how I can handle the thorns that came my way and also in terms of past papers, how things should be done differently, what should be done differently. Also, advice on what to do when I was at my end, because 3.2 was kind of a difficult patch for me." (FGD 2, p3)*

However, faculty support varied significantly, with some lecturers providing encouragement, academic mentorship, and clear guidance, while others offered limited engagement, leaving students without the necessary resources, direction, or reassurance.

Resource utilisation

Students heavily depended on productivity apps, online educational content, library resources, and past papers from peers to effectively manage their workload and adapt to the academic demands of the transition.

> *"There are some apps that I use that have turned out to be productive to me. I use productivity apps like Balance and Notion and mental apps like Balance Apps, which help me relax in the times when I feel that I am having a mental breakdown because of the frequency I have to study. There are also apps that simplify some notes such as Med Notes." (FGD 1, p1).*

Another respondent remarked:

> *"YouTube really helped me bring things into perspective in terms of chemistry and pharmacology. I found medical drama useful, particularly for pathology, because I would relate with the theory we were learning. The library was very useful in terms of research, especially with regards to pharmacology." (FGD 4, p6)*

Despite these efforts, many students voiced dissatisfaction over the limited institutional support, citing the lack of structured academic resources, inadequate guidance, and uneven workload distribution, which further compounded the challenges of their transition.

> *"From the faculty, I wouldn't say we get so much support from them. Others encourage us." (FGD 1, p4)*

Adaptations in study habits

The transition compelled students to develop more effective study habits, including structured study schedules, active participation in discussion groups, and a shift from cramming to a deeper, comprehension-based learning approach aimed at enhancing knowledge retention and long-term academic success.

> *"…We had to make discussion groups to tackle the units and to shorten them because when you discuss with people you are able to cover more ground." (FGD 3, p3)*

Many participants compromised personal time and social activities to keep up with the increased academic demands.

> *"I realised that I had to spend more time in my studies than doing other activities, so I found that especially during the exam time, I had to wake up at 4 am and also sleep very late at night in order for me to be able to capture everything and be able to read. With time, doing that for a period of over three weeks takes a toll on your body, and you are constantly fatigued." (FGD 4, p1)*

Emotional and psychological impact

The transition period had a significant impact on students' mental health, with many reporting stress, anxiety, burnout, and even depression. These emotional challenges were largely driven by the increased workload and intense pressure to perform.

> *"Sometimes you could just end up crying because of the workload or finding that you failed the CAT because you did not know the bulkiness because you were not that prepared." (FGD 4, p4)*

> *"I was depressed for several months and had to seek counselling from a professional counsellor, and it helped." (FGD 3, p4)*

Support from family, peers, and religious practices played a crucial role in helping students navigate the emotional and psychological challenges of the transition. These coping mechanisms provided a sense of stability, encouragement, and reassurance, enabling students to manage stress and maintain their mental well-being during this demanding period.

> *"How I handled it—mostly I had places where I could let it out, through music; it helped me rest and relax. And also calling friends, people who have been through the same and who could understand what I was going through. Prayer also helped a lot." (FGD 2, p2)*

The complete set of responses illustrating the diverse challenges, strains, and coping strategies associated with the transition, as captured from the FGD participants, is provided in the supplementary file.

Discussion

This study examined pharmacy students' experiences as they transitioned from preclinical to clinical education, focusing on the academic, emotional, and institutional factors influencing this critical developmental phase. The findings provide valuable insight into how students

navigate increased clinical exposure, evolving learning expectations, and the psychological and structural adjustments that accompany this shift.

Overall, the transition was characterised by mixed experiences, reflecting both enthusiasm for hands-on learning and apprehension about meeting new academic and professional expectations. Similar ambivalence has been reported in previous studies among health professions students, where the move to clinical training evokes a blend of excitement and anxiety as learners reconcile theoretical knowledge with practical application (Atherley *et al*., 2019; Drovandi *et al*., 2020). Notably, many students in this study perceived the transition to clinical training as challenging, with 77.5% reporting significant difficulties. This quantitative finding is vividly illustrated by a focus group participant who described the experience as "*like flipping a switch… from the normal things you are used to, to deeper, more complex units like pharmacology and pharmaceutics*." As students progress to senior levels of study, they are introduced to clinical rotations that require them to apply theoretical knowledge to real-world patient care scenarios. This shift, often described as abrupt, demands rapid adaptation and imposes increased academic and emotional pressures. The combination of heavier workloads, heightened expectations, and longer study hours compounded academic strain—an observation consistent with findings from other studies (Boyle *et al*., 2019; Altawalbeh *et al*., 2023).

Emotional challenges were equally prevalent, with students reporting experiences of stress, anxiety, and low mood during the transition period. More than half (55.8%) of participants expressed low confidence in handling patient cases, revealing how academic and emotional challenges intersect. As one student reflected, "*Sometimes the workload became so overwhelming that I would just end up crying*." These findings align with existing literature demonstrating that the shift to clinical training often triggers heightened psychological strain due to new responsibilities, workload intensity, and uncertainty about clinical competence (Atherley *et al*., 2019; Kalungia *et al*., 2021). Similarly, Aguiyi-Ikeanyi *et al*. (2024) observed that the transition itself acts as a key stressor for many students. The emotional burden identified in this study reflects a broader pattern of "*transition stress*" observed across health professions education, underscoring the importance of targeted mental health and wellness initiatives.

Furthermore, qualitative data revealed that some students initially felt overwhelmed or "*lost*" within the clinical environment but gradually adapted through peer interaction, self-reflection, and supportive relationships. This process parallels the "*shock–adjustment–adaptation*" model described in healthcare education (Atherley *et al*., 2019). Encouragingly, students developed resilience and positive coping strategies over time, often drawing support from classmates, mentors, and faith-based practices. Such findings highlight that structured peer mentorship and emotional support systems are not only beneficial but essential in fostering psychological readiness and sustained motivation during the transition.

From an academic perspective, students reported difficulties balancing the increased workload with the demands of independent learning. The adjustment to self-directed and experiential learning appeared particularly challenging for many, given the shift from teacher-led instruction to more problem-based, clinical learning scenarios. These findings resonate with previous reports suggesting that the transition phase often exposes skill gaps in time management, critical reasoning, and clinical decision-making (Botelho *et al*., 2018; Drovandi *et al*., 2020).

Interestingly, despite these challenges, many students expressed appreciation for the relevance of the clinical phase, noting that practical exposure enhanced their understanding of pharmacological concepts and patient-centred care. This duality—struggle alongside growth—illustrates that well-supported transition periods can catalyse deep learning and professional identity formation. Integrating preparatory workshops, reflective learning exercises, and early clinical orientation could therefore mitigate anxiety while fostering autonomy and competence.

Institutional support emerged as a pivotal determinant of transition success. Nearly 60% of participants expressed dissatisfaction with the level of communication, guidance, and availability from faculty members and academic resources. One participant lamented, "*We don't get much support from the faculty… the level of guidance is limited*." This inconsistency in support can affect students' confidence and preparedness, as those who receive adequate guidance are more likely to feel better equipped to handle the transition, while others struggle due to lack of structured mentorship and access to essential learning materials. Poor communication often resulted in confusion about expectations and academic priorities, further straining students' learning experiences. These findings echo earlier studies showing that a positive institutional culture and faculty approachability significantly influence learners' confidence, engagement, and motivation (Atherley *et al*., 2019; Kalungia *et al*., 2021).

Moreover, disparities in perceived support—particularly regarding communication and scheduling—suggest that institutional systems require greater standardisation and responsiveness to students' academic needs. To

facilitate an easier transition, structured mentorship and clear, consistent communication are essential in providing students with the guidance and reassurance they need (Botelho *et al*., 2018). Strengthening student–faculty dialogue, establishing transparent communication channels, and adopting structured mentorship frameworks could bridge the identified gaps. Additionally, incorporating emotional intelligence and pedagogical training for preceptors may enhance supportive supervision and the overall learning climate.

Students transitioning through the pharmacy curriculum often have distinct expectations about their learning experiences. Focus group discussions exploring student pharmacists' evolving perceptions in a U.S. university revealed that faculty support plays a critical role in shaping these expectations. By providing appropriate guidance, pharmacy educators can help students develop realistic outlooks and effective coping strategies, fostering a shift from passive recipients to active participants in their professional development (Moseley *et al*., 2020).

In contrast, strong peer and family support emerged as an important resource for mitigating stress and promoting resilience. Students engaged in study groups and received emotional encouragement from family members to cope with the pressures of transition—findings consistent with observations made by Anene-Okeke *et al*. (2024). Nonetheless, institutional systems such as mentorship programmes and accessible mental health services were perceived as inadequate, revealing a systemic gap that warrants deliberate policy and curricular attention.

Gender differences were also evident, with male students reporting easier transitions than females (p = 0.0419), possibly reflecting differing coping strategies—males often adopting problem-focused approaches, while females rely more on emotion-focused mechanisms (Theodoratou *et al*., 2023). Other sociodemographic factors, including prior academic performance and extracurricular participation, showed no significant association with transition ease, implying that the challenges are widespread across student groups. Despite these obstacles, over half (54.2%) indicated that the transition positively influenced their career aspirations. Many students displayed resilience by restructuring study habits, extending study hours, and using productivity tools, even though these adaptations often came at the expense of social life and personal well-being. The narrative of one participant—"*My social life changed. I lost a number of friends and stopped attending family events*"—captures the trade-offs students endure in pursuit of academic excellence.

Tailored training programmes that incorporate gender-sensitive coping strategies may help bridge preparedness gaps and foster a more inclusive learning environment. Additionally, a phased introduction to clinical rotations could ease the transition by reducing its abruptness. Simulation-based learning and hands-on workshops focusing on practical skills can equip students with the confidence and competence needed for real-world clinical practice (Altawalbeh *et al*., 2023).

Furthermore, emotional and psychological support systems involving mentors familiar with academic strain and professional expectations proved essential in helping students navigate these challenges. Similar patterns have been observed among pharmacy students in Zambia, where comparable stressors and coping strategies were reported (Kalungia *et al*., 2021). Given these findings, it is imperative to equip students with effective coping strategies and provide robust institutional support systems to facilitate a smoother transition into clinical years.

This study therefore underscores the urgent need for targeted interventions to support pharmacy students during their transition to clinical education. Strengthening faculty engagement through improved communication and accessibility is essential to providing clearer guidance and sustained academic support. Integrating structured mentorship programmes and accessible mental health resources into the curriculum could help address systemic gaps and enhance overall student well-being.

While this study provides valuable insights into the transition experiences of pharmacy students, several limitations should be acknowledged. First, the reliance on self-reported data introduces the potential for recall and social desirability bias, as participants may have over- or under-estimated their challenges or coping efficacy. Second, the study was conducted at a single institution, which may limit the generalisability of the findings to other pharmacy schools with differing environments and support structures. Third, the cross-sectional design captures perceptions at a single time point and does not reflect how experiences or coping mechanisms evolve across the academic trajectory. Finally, the focus group discussions involved a relatively small number of participants, which, while providing depth, may not fully represent the diversity of student experiences.

Future research should therefore employ longitudinal and multi-institutional designs to assess how transition experiences vary across settings and over time. Mixed-methods approaches integrating academic performance data, observational assessments, and structured psychological evaluations could yield more comprehensive insights. Such work would help inform evidence-based strategies for curriculum development,

student support, and holistic training in pharmacy education.

Conclusion

This study underscores the complex and multifaceted academic, emotional, and institutional challenges faced by pharmacy students as they transition from preclinical to clinical training. The increased academic demands, practical skill requirements, and emotional stressors during this phase emphasise the need for targeted interventions and systemic reforms to enhance the learning experience. Successful adaptation relies on a balance between personal resilience and systemic support—particularly effective mentorship, consistent faculty engagement, and accessible mental health resources.

Institutions can strengthen this critical phase by implementing phased clinical exposure, simulation-based training, and gender-responsive coping initiatives. Proactively addressing these factors will not only ease the transition process but also cultivate a generation of competent, confident, and emotionally resilient pharmacy professionals ready to meet the demands of modern healthcare.

Conflict of interest

The authors declare no conflict of interest.

Source of funding

The authors did not receive any funding.

Acknowledgement

The authors would like to thank all the students who took part in the study and shared their experiences openly, allowing us to glean the information from the study.

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