

Institutional Related Factors and Academic Performance in Institutional Examinations Among Critical Care and Nephrology Students at the Kenyatta National Hospital School of Nursing

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Abstract: **Background:** Nursing training programs aim at equipping learners with proficiencies necessary for providing quality nursing care and meeting patient care needs. Institutional assessments are therefore critical as they drive the students' learning process and act as a measure of their learning outcomes and progress. **Objective:** To determine the institutional related factors contributing to academic performance in institutional examinations among Critical Care and Nephrology students at the Kenyatta National Hospital (KNH) School of Nursing. **Methods:** This was a mixed-methods study conducted among 101 nursing students (57 critical care nursing and 44 nephrology nursing) and 23 faculty members at the KNH School of Nursing recruited utilizing census technique. The nursing students responded to a self-administered questionnaire while the faculty members responded to an interview guide. Quantitative data was probed descriptively with measures including proportions along with counts utilizing SPSS version 25.0. How study attributes were associated was probed with chi-square test at 95% CI with outcomes shown in tables and figures. Qualitative data was probed thematically with findings reported in-verbatim. **Results:** The institutional related factors found to contribute to the nursing students' academic performance in institutional examinations in the institution were availability of appropriate learning facilities ($p = .000$); availability of appropriate learning materials/resources ($p = .001$); availability of appropriate physical & social amenities ($p = .008$); institutional student academic and examination policies or guidelines ($p < .000$) and a conducive learning environment ($p = .000$). **Conclusion:** Several institutional related factors including availability of appropriate learning facilities and resources, physical and social amenities and various institutional policies were linked to the nursing students' academic performance in institutional examinations. **Recommendation:** The institutional management should ensure that available learning facilities, resources and policies as well as physical and social amenities adequately support the learning needs of the students.

Keywords: critical care, nephrology, academic performance, institutional examinations, institutional related factors, nursing students.

1. Introduction

In nursing training, institutional assessments are quite critical

as they drive the learning process. They also help the nurse educators and the training institutions to keep tabs on the nursing students' learning outcomes and progress [1]. There is no doubt that when used properly, assessments in the form of institutional examinations could motivate the nursing learners to learn and build or construct new knowledge and to show their readiness in meeting the huge responsibilities of caring for the sick [2]. Emphasis on nursing students' academic success is driven by the need to ensure that the nursing workforce is adequately competent to face up with the many, often, intricate patient care demands including safeguarding patients' lives [3]. Consequently, to be allowed to practice, nursing students are required to acquire appropriate academic qualifications. This qualification requires passing of recommended institutional and licensure examinations [4]. Excelling in institutional examinations is thus critical as it indicates that the nursing students hold the right proficiencies necessary to provide high quality nursing care services in clinical settings [5].

Globally, deficiencies in nursing students' academic performance, evidenced by poor scores in institutional examinations, remains an area of concern in nursing training [2]. For instance, in studies carried out in Saudi Arabia [6], Pakistan [1], Philippines [7] and Indonesia [4], academic performance in institutional examinations among nursing students was reported as being sub-optimal. Similarly, a worrying trend in nursing students' poor scoring in institutional examinations was also reported in Egypt [8], South Africa [5], Nigeria [9] and Tanzania [10]. This sub-optimal academic performance in institutional examinations among nursing students has been attributed to a wide range of factors including students' poor study habits, students' poor examinations preparedness, learners' inadequate support by the faculty, poor teaching and assessment methods, weak institutional policies, and inappropriate learning facilities and resources as well as physical and social amenities [9], [11]-[13].

In Kenya, nurse students in the various levels of nursing training are required to pass their institutional examinations

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before they can be allowed to sit nursing licensure examinations. Their performance in institutional examinations is therefore a critical subject that forms the basis for evaluating their learning outcomes and ascertaining whether they have achieved the right competencies for practicing in clinical settings [14]. Nurses constitute the bulk of healthcare workforce in Kenya and play a fundamental role in health services delivery and safeguarding and promoting positive patient care outcomes [15]. At Kenyatta National Hospital School of Nursing, nursing students upon being prepared through training are expected to pass both institutional and external examinations. However, a worrying trend of poor performance in institutional examinations by the Critical Care and Nephrology nursing students over the past few years in the institution was noted, the reasons for which were unknown, hence this study.

2. Methods

Research Design: We performed a mixed-methods study which helped us explore the institutional related factors contributing to academic performance in institutional examinations among Critical Care and Nephrology students at the Kenyatta National Hospital School of Nursing using both quantitative and qualitative data approaches.

Study Area: We undertook the study at the Kenyatta National Hospital School of Nursing (KNH SoN). The KNH SoN was established for purposes of building competence for expert nursing care within KNH in areas including nephrology nursing, neonatal nursing, oncology care nursing, critical care nursing, peri-operative nursing and trauma and emergency care nursing. It also offers supplementary brief courses for nurses and other health care workers from within the country and the neighbouring countries. We selected the Critical Care and Nephrology nursing areas of study for evaluation owing to notable failure rates in institutional examinations reported among nursing students of these two courses in the institution.

Study Population and Sample: Higher diploma Critical Care and Nephrology nursing students (April 2023 and September 2022 cohorts) and the faculty at the KNH School of Nursing constituted the study population. An aggregate of 101 nursing students (57 Critical Care nursing and 44 Nephrology nursing) and 23 faculty members selected using census method took part in the study.

Inclusion and Exclusion Criteria: Entire April 2023 and September 2022 higher diploma Critical Care and Nephrology nursing students and all the faculty members at the KNH School of Nursing who consented were enrolled. However, Critical Care and Nephrology nursing students and faculty members unavailable at the time of the study were excluded.

Data Management and Analysis: We collected data using a structured questionnaire and an interview guide. The nursing students responded to the questionnaire while the faculty members responded to the interview guide. The questionnaire was self-administered while the interview guide was interviewer-administered. Four research assistants were recruited and trained to administer the study tools. The interviews with the faculty members were audio-taped and qualitative data collection ceased when data saturation was

reached. We pretested the questionnaire among five (5) Critical Care and five (5) Nephrology nursing students and the interview guide among three (3) faculty members at the Kenya Medical Training College (KMTTC) Nairobi campus. Validity of the study tools was assessed through subject matter expert review while the study questionnaire's internal consistency was determined to be high. Quantitative data was probed descriptively via proportions along with occurrence rates with correlations between the explanatory and explained variables assessed with the chi-square test at 95% confidence interval and findings reported in tables. Quantitative data analysis was performed using SPSS v. 25. Qualitative data generated from the interviews with the faculty members were probed using thematic analysis based on Braun and Clarke (2006) six-step method for analyzing non-numeric data and findings were presented verbatim. Qualitative data analysis was performed using NVivo v.12.

Ethical Considerations: The KNH ERC (Ref: KNH-ERC/A/400) and Amref ESRC (Ref: AMREF - ESRC P1400/2023) approved the study. Additionally, research permit was issued by NACOSTI (NACOSTI/P/23/27822) while the administration of KNH School of Nursing authorized the data collection. Participants gave their informed consent to participate and participated in the study voluntarily. They received no compensation for taking part in the study. Utmost confidence was observed for all the obtained data. Data were processed and findings reported anonymously. Security of the interview audio recordings was guaranteed and study findings were disseminated in accordance with the institutional policies.

3. Results

We achieved a 100% response rate for the questionnaires, hence all the 101 nursing students sufficiently responded to the study tool. Additionally, on the basis of the principle of data saturation, an aggregate of 15 faculty members also took part.

A. Demographic Characteristics of the Nursing Students

We assessed the nursing students' demographic profile. According to the results, most of the nursing students were female (64.4%, n = 65); aged 30 - 39 years (49.5%, n = 50) or 18 - 29 years (42.6%, n = 43) and were married (65.3%, n = 66). Additionally, most lived 10 kms or more from the school (64.4%, n = 65) and majority were Christians in terms of religion (95%, n = 96), as is depicted in Table 1.

B. Institutional Related Factors and the Nursing Students' Academic Performance in Institutional Examinations

We sought to determine the institutional related factors contributing to academic performance in institutional examinations among Critical Care and Nephrology students at the KNH SoN. We requested the nursing students to identify institutional related attributes that influenced their academic performance in institutional examinations. From the findings, the institutional related factors that influenced academic performance in institutional examinations among the nursing students at the KNH SoN included availability of appropriate learning facilities such as the library among others; availability

Table 1
Nursing students' demographic characteristics

Demographic attributes		Frequency (n)	Percentage (%)
Gender	Male	36	35.6
	Female	65	64.4
	Total	101	100.0
Age	20 - 29 years	43	42.6
	30 - 39 years	50	49.5
	40 - 49 years	8	7.9
	Total	101	100.0
Marital status	Married	66	65.3
	Not married	35	34.7
	Total	101	100.0
Their residence from the school	< 10 kms	36	35.6
	10 kms or more	65	64.4
	Total	101	100.0
Religious faith	Christianity	96	95.0
	Islam	5	5.0
	Total	101	100.0

Table 2
Institutional related factors contributing to academic performance in institutional examinations among the nursing students

	Proportion that identified the factor	
	Frequency (n)	%
Availability of appropriate learning facilities e.g. library among others	93	92.1
Availability of appropriate learning materials/resources	95	94.1
A conducive learning environment	86	85.1
Availability of appropriate physical & social amenities in the school	70	69.3
Institutional student academic and examination policies or guidelines	72	71.3
Institutional management processes	68	67.3

Institutional related factors	Students' academic performance		Chi-sq. p value [at 95% CI]		
	Passed [N = 76]	Failed [N = 25]	X ²	Sig. (p)	
Availability of appropriate learning facilities e.g. library among others	Yes	75	18	18.366	.000*
	No	1	7		
Availability of appropriate learning materials/resources	Yes	75	20	11.753	.001*
	No	1	5		
A conducive learning environment	Yes	71	15	16.616	.000*
	No	5	10		
Availability of appropriate physical & social amenities in the school	Yes	58	12	7.09	.008*
	No	18	13		
Institutional student academic and examination policies or guidelines	Yes	63	9	20.211	<.000*
	No	13	16		
Institutional management processes	Yes	57	11	8.218	.004*
	No	19	14		

* Statistically significant at 0.05 significance level

of appropriate learning materials/resources; a conducive learning environment; availability of appropriate physical and social amenities in the School; institutional student academic and examination policies or guidelines and institutional management processes as depicted in Table 2.

In addition, we utilized chi-square test at 95% confidence interval to assess the association of these institutional related factors with academic performance in institutional examinations among the nursing students. From the findings, the institutional related factors established to have a statistically significant association with the nursing students' academic performance in institutional examinations were availability of appropriate learning facilities such as library among others (chi-square p value = 0.000), availability of appropriate learning materials/resources (chi-square p value = 0.001), a conducive learning environment (chi-square p value = 0.000), availability of appropriate physical and social amenities in the School (chi-square p value = 0.008), institutional student academic and

examination policies or guidelines (chi-square p value = < 0.000) and institutional management processes (chi-square p value = 0.004). Results were as illustrated in Table 3.

The findings were collaborated by sentiments shared by the faculty members through the interview guide in relation to their perspectives regarding institutional related attributes that contributed to academic performance in institutional examinations among the critical care and nephrology students at the KNH SoN. Three themes emerged in relation to the faculty members' views of the influence of institutional related factors on the students' academic performance in institutional examinations. These were the role of appropriate learning facilities and resources, the role of physical and social amenities and the role of institutional operational rules and policies.

Theme 1: The role of appropriate learning facilities and resources

From the findings, the faculty members were unanimous that existence of the right and functional learning facilities,

resources and materials including a well-equipped library with good reference materials, the right books, appropriate teaching aids, appropriately equipped skills simulation laboratory, functional wifi, spacious, clean and well-ventilated classrooms, comfortable desks and seats, functional computers and laptops and a calm and conducive learning environment among others was instrumental in achieving good performance in institutional examinations among the students. The faculty members were also clear that the lack of or inadequacy of the right learning facilities and resources, no doubt, negatively impacted the students' academic performance in institutional examinations as is illustrated in the following verbatim;

"Our facility is wifi challenged. So, the students are not able to access more materials from online sources as would be appropriate, yes. Also, the learning environment matters a lot and I would say our environment is not very friendly because sometimes it is very noisy. The learning space is also inadequate especially when you need to have a physical class for many students, there is a lot of congestion. So, there is a problem with space." (NE008)

"Of course, availability of learning facilities and materials is very important to their (*referring to the students*) performance. You know, whether you are talking about adequately spacious and clean learning halls, right text books, functional wifi, computers/laptops and projectors for the trainers, and an ambience learning environment. All these are indeed crucial." (NE001)

"... I think we have a functional library and it has good books. ... The only problem I may say that we are yet to have a strong Wi-Fi where the students can be able to search and use relevant materials as part of their learning. I know it is important for our students to have e-learning materials. Yeah, Um, that's an area we need to improve on. Another area that we need to improve on is the space. The space sometimes is mostly not enough. And I know this is a long term a goal, but if it is done, then, it would be a good gesture." (NE002)

"... indeed, the ambience, the congestion of the lecture rooms, the furniture that is the chairs need to be comfortable for long sitting, the lighting, the noise, (it has to be away from noise), the books, the wifi, the whiteboard markers, the washrooms, the changing rooms... I can go on and on. Yeah, they are all quite important and should be both adequate and functional." (NE003)

Theme 2: The role of physical and social amenities

From the findings, the faculty members shared the view that availability of appropriate functional physical and social amenities including adequate accommodation, easily accessible places where the students can buy lunch during lunch breaks or tea during tea breaks, games, social, entertainment and recreational facilities, good ablutions among others was instrumental in achieving good performance in institutional examinations among the students. The faculty members clearly stipulated that students' academic performance was not just about books and studying only; having appropriate physical and social amenities was also critical to producing holistic and all-round competent nursing students. The faculty members however identified this as an area requiring improvement owing

to prevailing gaps and deficiencies in relation to availability of appropriate physical and social amenities for students in the institution. Their views are illustrated in the ensuing excerpts;

"The availability of physical and social amenities in our institution affects the students' performance, because these students also need to relax, sometimes. Education is not just about learning in class. They need to interact, and they also need ample areas where they're supposed to socialize. And because this is not available in our institution, it really makes them just think what we are doing is just about books. And this affects their performance, because sometimes we need the students also to relax. The unavailability of these things (*referring to various physical and social amenities*) makes them feel overworked and overwhelmed." (NE012)

"Of course, of course it does ... Maybe during break time, where do they go to take their break? During lunch time, do we have availability for meals, or are they able to go and take meals within the locality, if not being provided within the institution? So, by the end of the day, if you find that all these services are not there, sometimes it might put a strain on the students, and somehow, they might do as well as they are capable of doing. ... The other one is about the accommodation. There are those students who might require to be accommodated within the organization because of where they come from, or because of many other factors. And if they are housed in a place, they are able to study well, to interact, come in groups, it would help them to perform better." (NE001)

"There is lack of hostels where the students can stay. And therefore the students have to be housed away and far. coming all the way from far makes some to arrive late or even miss classes. Our playing ground is also not well equipped and not well maintained. The ground is there but we do not have outdoor... What do you call this? Balls, playing cards, we do not have those things for students to use. So, the students are not able to interact well socially outside class work and this likely influence their performance in studies negatively." (NE006)

"I think maybe I would say students, I think learning, reading, it takes a lot of energy especially mental energy. So what I have realized is and some students have said that they would appreciate it if we had a place where they could eat food that is available near here. Our ablution facilities are also inadequate for the student numbers we have which eats into the time they would spend in class. Things like having a playing ground, allowing students to participate in different co-curricular activities. I am sure it would help enhance their ability to learn and their cognitive faculties would be much better if they are able to also exercise and do things like these, yes." (NE011)

Theme 3: The role of institutional operational rules and policies

From the findings, the faculty members shared the view that their work of teaching the students was guided by the institution's policies and regulations on academic affairs and acknowledged that the institution's policies and regulations were instrumental in creating a good and conducive learning environment for the students. The faculty members were also clear that prevailing institutional policies and regulations were

also core to delivery of high quality and standardized training to the students which in turn contributed to better academic performance among the students.

The faculty members identified institutional policies and regulations on admission requirements, class attendance, clinical placement and supervision, examinations, fees, research, accommodation, provision of appropriate learning materials, employment of competent educators and conflicts resolution as having a profound effect on the students' academic performance in institutional examinations and therefore called for a review and enhancement of these policies and regulations. These views were as illustrated in the ensuing excerpts;

"We do have policies in the institution that govern every activity that is carried out, we have examination guidelines, we have, we have policies on admission, policies on class attendance, policies on clinical placement and supervision and so on. So, the policies are on board. They are there and govern what we normally do. Also remember that in any institution, management is very important. Management is key to everything and guides both the trainers and the students. Yes. So, everything, the education and life inside the institution is guided by the management. So, students' performance, is no doubt, affected by the nature of the management and the regulations and policies they put in place." (NE002)

"In my view, it is important to have institutional policies. ... They (*referring to the policies*) help us actually make the learning standardized as much as possible. Like now, the policies we have from admission of the students, to the teaching, to the administration of exams, to practical sessions and all, are important in guiding us through so that we do not do our things haphazardly and this is very important. Otherwise, it would be difficult to create a good learning environment for our students if we did not have them in place." (NE003)

"My own observation is that policies on areas such as students' admission, availability of accommodation and fees settlement have significant effect on how the students perform in their examinations. On admission, only those who meet the set qualifications for a given course should be admitted and I am glad that is the case with our institution. Accommodation is a big challenge as we have very few rooms, very, very, very few rooms for our students, and you find that sometimes they will go very far away to look for accommodation. On fees, not every student, and especially this time of economic hardships, is able to settle their fees in time which affects their doing of examinations and even studying. So, I feel all these, in one way or the other, affects the students' academic performance." (NE005)

"Yes, these institutional policies... Institutional policies, of course, if you do not have the right institutional policies, it is like you are planning to fail. That is what I would say. You need to have a policy in place to be able to enhance the students' performance. Any institution that does not have a policy, it is like you do not have a goal or you do not have a driving force that guides your behavior, that guides your actions. So, policies on academic matters, examinations, students' conduct here, resolving conflicts among the teaching staff and many others,

all impact students' academic performance in one way or the other." (NE006)

"Yes, the policies are quite important and very key because they do guide us on how to go about issues, and particularly if I talk about the policy that guides us on examination, it is very clear and gives us direction on what is expected of the students' performance wise. So, the policies need to be checked over time so that we see whether they are still guiding us rightly. So, without the policies, we will be doing things without headway and without a definite vision of where we are going." (NE015)

4. Discussion

From the findings, the institutional related factors identified as contributing to academic performance in institutional examinations among the Critical care and Nephrology students at the Kenyatta National Hospital School of Nursing were availability of appropriate learning facilities such as the library among others; availability of appropriate learning materials/resources; a conducive learning environment; availability of appropriate physical and social amenities in the School; institutional student academic and examination policies or guidelines and institutional management processes. Indeed, a statistically significant association was established between the nursing students' academic performance in institutional examinations and these identified institutional related factors as signified by chi-square p values < 0.05.

Similar views were espoused by the faculty members who also identified availability of appropriate learning facilities and resources, availability of appropriate physical and social amenities and institutional operational policies and regulations as institutional related attributes with profound effect on the nursing students' academic performance in institutional examinations in the school. Indeed, the faculty members were categorical that availability of sufficient, diverse and appropriate learning facilities and resources, physical and social amenities and appropriate enabling institutional regulations and policies helped improve the students' academic performance in institutional examinations and vice-versa. The faculty members also opined that nurse educators provision of high-quality training of nurse students also relied on existing institutional policies and regulations and it was therefore imperative that nursing training institutions had the right institutional policy framework.

This signified that institutional related factors, particularly those related to availability of adequate and appropriate learning facilities, learning resources and social amenities, institutional policies around academic studies and examinations and an effective management running the nurses training institution were significant contributors to academic performance in institutional examinations among the surveyed nursing students. It was apparent from the findings that institutional related factors played a critical role in students' academic performance as students can only excel academically if they are provided with the right environment to learn in. such an environment is no doubt characterized by presence of appropriate learning facilities and resources, social and physical amenities, and clear institutional policies and processes. The

implication of the findings is that the institutional management of KNH School of Nursing has a responsibility of ensuring that nursing students have a conducive learning environment which is supported by adequate supply of appropriate learning facilities and resources, appropriate physical and social amenities, and appropriate institutional policies, guidelines and processes.

Similar observations were made by Sharma and colleagues [11] who in a study carried out in India identified presence of a well-equipped school library, availability of adequate and relevant learning materials, availability of suitable learning facilities and existence of strictly applied institutional policies on student academic outcomes as leading institutional related factors that had notable influence on surveyed nursing students' performance academically. Equally, in another Indian study, Ravi and Flinsi [16] also identified several institutional based attributes that had significant influence on the academic performance in institutional assessments among nursing students which included whether an institution had a well-equipped library, whether it had adequate, appropriate and relevant learning facilities and materials, presence of a conducive learning setting, whether it had good recreational facilities and whether it had suitable accommodation facilities. In an empirical investigation performed in Pakistan, Mushtaq and colleagues [13] also identified availability of appropriate learning facilities, the learning facilities being in good condition, a strict class attendance policy, access to internet in the library and availability of appropriate physical and social amenities within the institution as some of the institutional related attributes with consequential influence on how well nursing students performed in their studies including in institutional examinations.

In a cross-sectional study carried out in South Africa, it was apparent that nursing students' performance in their studies was also curtailed by several institutional related factors including the institutions lacking appropriate learning facilities and materials, lacking appropriate physical and social amenities, and ineffective Institutional management processes and policies as espoused by Mhlongo and Masango [5]. Similar observations were made by Alshammari *et al.* [6] who in a study conducted in Saudi Arabia observed that availability of appropriate learning facilities and materials, availability of appropriate physical & social amenities, and effective institutional management processes and policies helped enhance academic performance of nursing students. Similarly, in studies by Okanga *et al.* [15] and Babaji *et al.* [9], existence of necessary learning resources and facilities, existence of appropriate physical and social amenities in the school, robust and strictly applied institutional policies on class attendance and around learning outcomes, having an experienced nursing faculty and an able management of the school were identified as being institutional related attributes that significantly impacted academic performance of nursing students. In Indonesia, Wardani [4] also posited that institutional related factors including presence of functional and appropriate physical and social amenities, learning resources and facilities and a supportive management were positive enablers of good

academic performance among nursing students and vice-versa.

5. Conclusion

Availability of appropriate learning facilities such as the library among others; availability of appropriate learning materials/resources; a conducive learning environment; availability of appropriate physical and social amenities in the School; institutional student academic and examination policies or guidelines and institutional management processes were the institutional related factors that contributed to academic performance in institutional examinations among Critical care and Nephrology students at the KNH SoN.

6. Recommendation

To the institutional management, there is need to ensure that available learning facilities, resources as well as physical and social amenities adequately support the learning needs of the students.

Study limitation: Other factors, other than institutional related factors, likely to influence the nursing students' academic performance in institutional examinations in the institution were not evaluated.

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