

Mentorship in Pharmacy Schools: Students' Perspective

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ABSTRACT

Introduction: Mentorship is seen as key to enhanced self-efficacy, and overall improvement in students' academic performance. However, information on how this affects academic performance in pharmacy schools in Nigeria is scarce. The study identified existing forms of mentorship, appraised the perceived contributions of mentorship to pharmacy students' academic performance, and assessed the benefits obtained by pharmacy students from student-mentor interactions in pharmacy schools in Southwest Nigeria. **Materials and Methods:** The study was a cross-sectional survey of pharmacy students (330) in four accredited pharmacy schools Obafemi Awolowo University (OAU), University of Ibadan (UI), Olabisi Onabanjo University (OOU), and University of Lagos (UNILAG) in Southwest Nigeria. Data collection involved the use of a pre-tested and validated questionnaire. The data collected was analyzed using appropriate descriptive and inferential statistics at $p < 0.05$. **Results:** The results showed that peer mentorship (informal mentorship) (29%) was prevalent even though there was existing formal mentorship in the faculties. The students indicated that lecturers served as professional models (Weighted Average (WA) = 3.91), contributed to the advancement to the next class (WA= 4.15), and impacted their academic performance (WA= 4.16). Mentorship impacted the study habits of UI students the most (Mean Rank= 196.90), attitude to work for OAU students (Mean Rank= 199.86), and students aged 26 and above were more positively inclined to their lecturers serving more as professional role models than those who were younger. **Conclusion:** The study concluded that informal peer mentorship is predominant in pharmacy schools even with the existing formal staff advisory system. Mentorship is significant in role modeling and promoting academic achievement. Mentorship also impacts improved self-confidence, improved study habits, and improved attitude to academic work, resulting in better academic performance.

Keywords: Mentorship, Learning, Academic performance, Education, Study habits, Mentees.

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INTRODUCTION

Mentors play important roles in developing the personal character of the protégé or mentee in achieving personal goals or set standards.¹ According to Huybrecht, *et al.*, mentors help students bridge the knowledge gap between theory and practice, competency, role-modeling, and confidence. They do this by giving needed advice and guidance to their mentees from time to time - which is very instrumental in the academic setting in improving learning and reducing attrition rates. They function in nurturing the self-actualization and growth of a health professional who would be well poised to contribute adequately to the well-being and health of the society at large.² The mentoring process develops the psycho-social ability and enhances mentees' career development.¹ Even though mentorship has served various roles in the historical development of the Pharmacy

(informal training of dispensers during the apothecary model), Medical (residency training of physicians under a notable and accomplished physician), and Nursing (mentoring of nurses in clinical roles by experienced nurses) professions, it is still effective to date in the development and training of upcoming health professionals.³

The concept of mentorship has been adopted in undergraduate education to promote and enhance the effectiveness of the educational program, visible in the quality of students produced by such a program. Therefore, mentorship can be categorized into two major groups-formal and informal mentorship.^{4,5} Formal mentoring is structured, planned, intentional, and has clear goals; usually, the sponsorship is done by mentors in agreement as appropriate with the organization or academic program. However, in informal mentoring, the mentors and mentees meet naturally in the workplace or elsewhere in contrast to the planned arrangement observed in the formal mentorship model.⁶ Most higher education institutions adopt the formal model of mentorship, although other models of mentorship may come to play within the formal setting (e.g., student to student mentorship, amongst many others).^{7,8}



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It should, however, be noted that a lot of dynamics come into play due to the nature of mentoring relationships, particularly formal mentorship, in which the mentor has more power and authority over the mentee, and to a large extent influences the direction and extent of achievement of the mentee. The advice and implicit bias of the mentor impacts the mentee.^{9,10}

Formal mentorship programs have been found to improve career development options and long-term satisfaction for those in the health sciences in general and pharmacy faculty members specifically.¹¹ According to Pierpaoli, the role of mentors in Pharmacy is the highest calling within our professional rank.² Although conflicting results are being reported for formal mentorship programs in terms of outcomes, it has been found that members of a College of Pharmacy who participated in a faculty mentoring program had significantly higher academic success rates as measured by leadership and professional activities, honors and awards, contracts and grants, teaching and mentoring, and publications, as compared to non-participants.¹¹ In most cases, it is suggested that the mentor may either be a faculty member, staff member or student.⁴

Mentees and organizations benefit from mentoring relationships. Similarly, mentors also benefit from the mentor-mentee relationship because a larger circle of influence is developed and legacies are established as academic leaders. Thus, it is not surprising that mutually beneficial mentor-mentee relationships are a key predictor of academic success.⁵ Outcomes of mentorship in organizations include increased productivity, organizational stability, socialization, communication, retention of employees, support of cultural diversity, and improved succession planning.¹² According to Bandura's social learning theory, students with poor or negative behaviors learn and change in accordance with the mentor's input through socialization.¹³

Typically, faculty members who have mentors feel more confident than their peers and demonstrate enhanced teaching effectiveness, productive research, and career satisfaction.¹² The presence of mentorship in any academic setting is always aimed at helping students and trainees develop confidence, competence, social networks, and the provision of career opportunities to mentees.¹⁴

Objectives

This study aims at evaluating the perception of Pharmacy students on the effect of mentorship on academic performance, identifying the existing forms of mentorship amongst Pharmacy students and accessing the values obtained from student-mentor interactions.

MATERIALS AND METHODS

Setting

The study was a cross-sectional survey of pharmacy students in Southwest Nigeria. The study involved the four accredited schools

of Pharmacy in Southwest Nigeria (Obafemi Awolowo University (OAU), University of Ibadan (UI), Olabisi Onabanjo University (OOU), and University of Lagos (UNILAG)) as at the time of this study. The sampling frame for this study comprised students in their 2nd to 5th year of study at the four pharmacy schools.

Population and Sampling

The population of the study was 1857 (OAU: 561; UI: 391; OOU: 345 and UNILAG: 560), and a sample size of 329, calculated using the Taro Yamane formula for finite populations, was drawn using stratified random sampling across the levels (OAU: 100; UI: 61; OOU: 69 and UNILAG: 100).

Research Instrument

Primary data was employed for this study and was obtained using a set of pre-tested semi-structured questionnaires. The instrument was validated using face and construct validity measures, and the internal consistency of the items in the instrument was determined to obtain a Cronbach alpha value of 0.82. The questionnaire comprised three (3) sections. The first section solicited demographic information, the second and third sections elicited useful information in identifying existing forms of mentorship, appraising the contributions of mentorship and benefits obtained by pharmacy students engaged in student-mentor interactions from respondents. The instrument employed a 5-point Likert scale, and the points on the scale included: 'Strongly Disagree,' 'Disagree,' 'Neutral,' 'Agree,' and 'Strongly Agree.' The instrument employed a 5-point Likert scale, and the points on the scale included: 'Strongly Disagree=1,' 'Disagree=2,' 'Neutral=3,' 'Agree=4,' and 'Strongly Agree=5.' A pilot study was conducted with 50 students not included in the study, and from the results, necessary adjustments were made to obtain the final instrument used for the study.

Data Collection

The data was collected using google forms, and research assistants were employed to facilitate identifying sample population and follow up for each school. The instrument took about 5 min to complete, and data collection lasted about five months. The collected data were analyzed for descriptive (including frequencies, percentages, and weighted averages) as well as inferential statistics (Chi-Square and Kruskal-Wallis One-Way ANOVA) using the Statistical Package for Social Sciences (SPSS version 20) software. Ethical clearance was obtained from the Institute of Public Health, Osun State, with the certificate number IPH/OAU/12/1408.

RESULTS

Table 1 shows the demographic characteristics of the respondents with respect to their institutions, level of study, age, and gender. The highest number of respondents were from OAU (122, 31.4%), while the least was from OOU (72, 18.5%). More respondents

Table 1: Demographic Characteristics of Respondents.

Variable	Category	Frequency	Percentage (%)
School	OAU	122	31.4
	OOU	72	18.5
	UI	79	20.3
	UNILAG	116	29.8
	Total	389	100.0
Level of Study	200 level	119	30.6
	300 level	85	21.9
	400 level	91	23.4
	500 level	94	24.2
	Total	389	100.0
Age (Years)	17 – 19	105	27.0
	20 – 22	214	55.0
	23 -25	58	14.9
	26 and Above	12	3.1
	Total	389	100.0
Gender	Female	210	54.0
	Male	179	46.0
	Total	389	100.0
Religion	Christianity	260	66.8
	Islam	128	32.9
	Others	1	.3
	Total	389	100.0

were from 200 level (199, 30.6%) than from other levels (the variations were slight). Most of the respondents were aged 20-22 years (214, 55%), and fewer were aged 26 years and above (12, 3.1%).

Table 2 showed responses focusing on the nature of the existing forms of mentorship among pharmacy students. It was discovered that the majority of the students considered they had mentors (253, 65%), while most considered peers (pharmacy students like themselves) to be their mentors (113, 29.0%), as well as practicing pharmacists (71, 18.3%). They agreed to a lesser extent that fathers (63, 16.2%), mothers (60, 15.4%), and lecturers (56, 14.4%) were their mentors.

Most of the respondents indicated that the choice for their current mentor was their personal decision (215, 55.3%) and just a few showed that their mentors were assigned by the faculty (17, 4.4%). The majority of the respondents were aware they had a staff adviser (365, 93.8%), while the majority rarely or never interacted with their staff advisers (201, 51.7%). The weighted average calculated showed the average frequency of visits to their staff adviser to be “sometimes”. The χ^2 analysis showed a relationship existed between the responses to “type of school” and “do you have a mentor” ($p = 0.000$) and “type of school” and “do you have a staff adviser” ($p = 0.005$).

The Kruskal-Wallis One-Way ANOVA test carried out revealed that OOU had significantly the most response in affirming the question “do you have a mentor” while UNILAG had the least, $\chi^2 (3, n = 389) = 38.145, p = .000$. For the response to the probe, “do you have a staff adviser” on the other hand, UNILAG had the most response in the affirmative while UI had the least, $\chi^2 (3, n = 389) = 12.932, p = .005$. The age of the respondents also significantly affected their responses to “do you have a mentor”, as significantly more students aged 26 and above responded positively to having a mentor while ages 17-19 had the least, $\chi^2 (3, n = 389) = 8.083, p = 0.044$.

Table 3 shows the perceived contribution of mentorship to the academic performance of pharmacy students. The students mostly agreed that their lecturers served as professional models (WA= 3.91), played important roles in their advancement to the next class (WA= 4.15), and had an impact on their academic performance (WA= 4.16). Also, students aged 26 and above were significantly more positively inclined to their lecturers serving more as professional role models than younger students. Those aged 17-19 showed the least positive response, $\chi^2 (3, n = 389) = 9.289, p = 0.026$. The responses were not affected by gender, as inferential statistics showed no significant differences in the responses for males and females.

Table 2: Existing Forms of Mentorship among Pharmacy Students.

Variable	Category	Frequency	Percentage (%)
Do you have a Mentor?	No	133	34.2
	Yes	253	65.0
	No response	3	0.8
	Total	389	100.0
Respondents' mentor(s)	Father	63	16.2
	Mother	60	15.4
	Lecturers	56	14.4
	Practicing Pharmacists	71	18.3
	Peers	113	29.0
	Religion leaders	26	6.7
	Total	389	100.0
Means by which mentor was obtained.	Assigned by Faculty	17	4.4
	Assigned by Religious groups	35	8.9
	My choice	215	55.3
	Not sure	112	28.8
	Others	10	2.6
		389	100.0
Do you have a Staff Adviser (mentor)?.	No	19	4.9
	Yes	365	93.8
	Neutral	5	1.3
	Total	389	100.0
Frequency of interaction with Staff adviser.	Never	27	6.9
	Rarely	174	44.8
	Sometimes	141	36.3
	Always	1	0.3
	Frequently	46	11.7
		389	100.0
	Weighted Average = 1.7		

Never = 0, Rarely = 1, Sometimes = 2, Always = 3, Frequently = 4

The benefits of mentorship to students are presented in Table 4. Most of the respondents agreed that student-mentor relationships have great benefits as it improves study habit (WA= 3.79), attitude to work (WA= 3.90), motivation for excellence (WA= 3.92), and self-confidence (WA= 3.97). The majority of the students also agreed that 'Mentors are needed for improved academic performance (WA = 4.19), better Grade Index (WA= 3.76) and make an immense contribution to achieving academic goals (WA= 3.98). There was, however, no variation across the different schools for these responses. Inferential analysis with Kruskal Wallis test showed that the perception of students from UI about how their interactions with their mentors have improved their study habits was significantly higher than the other schools while OOU was the least, χ^2 (3, N = 389) = 9.587, p = 0.022). OAU had a significantly higher positive response for improved attitude

to work than others while OOU had the least, χ^2 (3, n = 389) = 11.355, p = 0.010).

The overall contribution of mentorship to pharmacy students, as presented in Table 5, shows that most of the respondents perceived mentorship as serving more for academic purposes (64.1%) than for role modeling (17.8%) or psychological support (15.5%). Furthermore, a Kruskal-Wallis One-Way ANOVA indicated no significant difference in the responses obtained across the four schools, χ^2 (3, n = 387) = 4.678, p = 0.197.

DISCUSSION

Most respondents had mentors and indicated their peers as mentors (informal mentorship) above other options (practicing pharmacist, father, mother, lecturers, and religious leaders).

Table 3: Perceived Contribution of Mentorship to the Academic Performance of Pharmacy Students.

Variables			Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	Weighted Average
	x	0	1	2	3	4	5		
Lecturers serve as Professional models.	f	2	5	54	2	236	92	389	3.91
	%	0.5	1.3	13.9	0.5	60.7	23.7	100	
	fx	0	5	108	6	944	460	1523	
Lecturers play important roles in students' advance to the next level of study.	f	1	4	15	1	267	102	389	4.15
	%	0.3	1.0	3.9	0.3	68.6	26.2	100	
	fx	0	4	30	3	1068	510	1615	
Lecturer input has an impact on Academic performance.	f	1	2	14	1	271	101	389	4.16
	%	0.3	0.5	3.6	0.3	69.7	26.0	100	
	fx	0	2	28	3	1084	505	1622	

1 = Strongly Disagree 2 = Disagree 3= Neutral 4 = Agree 5= Strongly Agree

This might be due to the ease in accessing other students, which enhances interactions and the exchange of ideas within their immediate academic environment instead of the long processes required to set up an interaction with formal mentors. Informal mentorship refers to any form of mentorship outside a structured/organized mentorship system. In this type of mentorship, the mentee is free to choose their mentor and vice-versa. Thus, mentor-mentee pair in this kind of mentoring relationship would include student-student, lecturer-student, religion leader-student, etc. Angelique, Kyle and Taylor posited that to form peer mentoring relationships, the parties involved must have similar or comparable experiences and perceptions, which limits their interactions to the provision of emotional support, personal feedback, and friendship rather than the traditional mentoring processes in which mentors challenge their mentees to perform better than they would have normally done.¹⁵ The choice of practicing Pharmacists as mentors could be associated with the achievement of such individuals within the profession, thereby placing them as models of professionals that respondents would like to emulate based on the mentee's area of interest. The mentee's area of interest (e.g., Community, Hospital, Industrial, Academic, and Administrative/Regulatory) would highly influence the choice of a Practicing Pharmacist as a mentor.

Despite the fact that informal mentoring relationships are spontaneous and require longer time frames for formation, the majority of the respondents indicated that they chose their mentors.¹⁶ The prevalence of informal mentoring relationships in this manner could be due to mentees' preferences that are not met by their assigned staff advisers or mentors (lecturers), leading to an individual search for a suitable mentor.¹⁷ Even though most schools assigned staff advisers to students, most of

the students did not consider them as their mentors, which could either be because the students did not understand the concept of mentorship or the staff assigned to them were not providing mentorship or had an approach to mentorship different from what the students understood.¹⁸ Also, most of the respondents did not frequently interact with their staff advisers which could be due to their perception of staff advisers as being busy and not available/accessible. Many students could be afraid of their assigned advisers (lecturers) because of their impression about the lecturer from their experience with such a lecturer in class. Some students have also been reported to be independent and believe they have their life under control and do not need mentorship.¹⁹

The study revealed that most students considered their lecturers as models of the professionals they would like to become in the future. This does not agree with the findings of Wright, Kern, Kolodner, Howard and Brancati, that students considered clinical teachers as bad role models.²⁰ According to Dawodu and Rutter, pharmacists in academia have the responsibility of influencing the students' perception of what the profession entails, a failure to do this will have severe consequences on the profession.²¹ Trede, Macklin and Bridges stated in their study that developing professional identity in students goes beyond teaching and includes exposure to practice.²² Their position was asserted by the International Forum for Quality Assurance of Pharmacy Education who stated that students who are exposed to practice experience have greater professional identity and self-confidence.²³ Since most pharmacy lecturers are not actively engaged in the practice, and limited pharmacists in practice are engaged in teaching, professionalism might be difficult to achieve.²⁴

Table 4: Benefits Obtained from Student-Mentor Interaction.

Variables		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	Weighted Average
	x	1	2	3	4	5		
Student-Mentor interaction significantly improves study habit.	f	8	69	26	181	105	389	3.79
	%	2.1	17.7	6.7	46.5	27.0	100	
Student-Mentor interaction improves attitude to work.	f	7	52	26	193	111	389	3.90
	%	1.8	13.4	6.7	49.6	28.5	100	
Mentors provide constant motivation for excellence.	f	8	47	23	200	111	389	3.92
	%	2.1	12.1	5.9	51.4	28.5	100	
Students gain improved confidence in ability from interaction with mentors.	f	1	48	21	210	109	389	3.97
	%	0.3	12.3	5.4	54.0	28.0	100	
Mentors are needed for improved academic performance.	f	1	26	3	222	137	389	4.19
	%	0.3	6.7	0.8	57.1	35.2	100.0	
Mentors are needed for better Grade Index.	f	8	76	15	193	97	389	3.76
	%	2.1	19.5	3.9	49.6	24.9	100	
Mentors make immense contribution to academic achievement.	f	10	52	13	176	138	389	3.98
	%	2.6	13.4	3.3	45.2	35.5	100	

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Table 5: Overall Perceived Contribution of Mentorship to Pharmacy Students.

Variable	Category	Frequency	Percentage (%)
Perceived aspect of Lecturer input	Academics	372	64.1
	Psychological support	90	15.5
	Role modeling	103	17.8
	Others	13	2.2
	Neutral	2	0.3

The respondents agreed to their lecturers being important to their education and performance in pharmacy school. Lecturers impact students with knowledge about their field of study and aim to train students to an acceptable level of expertise. Thus, through the duration of their studies, the student becomes well

intimated with the peculiarities and situations within the chosen field of study.²⁴ A key benefit of the interaction of students with their mentor(s) (formal and informal) from the study is that they gain improved confidence in their ability to perform excellently on academic tasks. This concurs with the findings of a study on

the effects of a mentoring program among nursing students in Asia. In the study, it was reported that a majority of the students perceived mentorship to be beneficial in the following aspects: giving helpful advice, increase in self-confidence, problem-solving ability, support, and role modeling and knowledge of rights.²⁵

Negative self-perceptions that hinder desirable academic performance are tackled by boosted self-efficacy and high self-perception (resulting from mentor-mentee interactions). The respondents perceived that their academic mentors constantly challenged and motivated them to excel in their academic pursuits. This could be attributed to the early warnings and advice offered by mentors to their mentees, which ultimately guides the mentee in making appropriate decisions at the right time. The cumulative effect of which could be improved academic performance, in agreement with the findings of Somers, Wang and Piliawsky in which it was reported that mentoring in academic environments goes a long way in improving the academic functioning of young students.²⁶ Intervention by the mentor could include: skills programs, tutorial classes, and direct mentoring among many other possible interventions. Overall, mentors provided the students with the psychological support needed for improved performance. The respondents asserted that their attitude to work improved significantly as they interacted with their mentors. They properly understood what needed to be done and how to achieve their set goals under the guidance, encouragement, and support of their mentor(s).

Furthermore, respondents perceived a significant improvement in their study habits, which concurs with the study conducted by Dyrberg and Micelsen, which shows the importance of mentors (formal and informal) in improving students' academic ability by improving study skills.²⁷ The outcome of proper mentoring enables students to effectively manage their time and follow the advice given by their mentors who are well placed to advise on effective study strategies due to the fact that they might have gone through the same training process as their mentees or have more experience in time management. Thus, they called their mentee's attention to pitfalls that must be avoided while studying. They also call the attention of their mentees to mistakes they made while they were students. Thus, the student (mentee) has an optimized knowledge and awareness of how to study effectively.²⁸ Karanja, in his study, also pointed out that students who have mentors perform better in their academic work and are less likely to become dropouts.²⁹ Taylor and Harding have highlighted the importance of mentoring interventions in improving self-esteem, which counters feelings of disappointment or rejection, which usually precedes poor academic outcomes and negative emotional states.²⁴

The impact of lecturer input was perceived to be higher in academic progress than in providing psychological support or role modeling. This is quite expected, lecturers play key roles such as:

imparting practical and theoretical knowledge about Pharmacy and the pharmaceutical industry to students as well as driving the student to meet deadlines for submitting assignments, project works, and other academic-related tasks. Also, lecturers give direction to students about the demands of the academic world; ensure that students are well equipped in terms of study skills and academic work, as shown in the study of Bathmaker and Avis, who emphasized the role of lecturers in equipping their students with study skills and the culture of pacing their learning.³⁰

Even though the study showed mentorship contributes to good academic performance, very few respondents agreed to receiving psychological support from their lecturers. There is usually a tendency for some lecturers to be more concerned about teaching and learning and not pay adequate attention to other important aspects of learning, like the psychological factors influencing teaching and learning. This is because interactions between lecturers and students occur mostly in the classroom or laboratory setting to ensure that students learn and complete academic tasks satisfactorily. Many other factors that might affect the student's academic performance e.g feeding, housing, and finance, are usually not discussed in this setting. This becomes very apparent when a student who previously excelled academically starts to experience a decline in academic performance. Lunsford *et al.*, in their study designed to give students psychological support asserted that students who are not mentored are likely to consider leaving the university four times more than students who are mentored.³⁰

Limitation of the Study

Objective data e.g., result sheet was not used to measure academic performance in terms of the grade index, rather, the study was based on the perception of the students. It is suggested a follow up study that would make use of objective data in accessing academic performance be done to ascertain the effects of mentorship on academic performance.

CONCLUSION

The study concluded that mentorship made vital contributions to the students' academic pursuits in terms of academic support but made little contributions to the psychological needs of students. The existing forms of mentorship identified include both formal (lecturer-student) and informal (peer, parents, practicing pharmacists and religious) with the peer mentoring providing a more rounded impact. This benefited the students in improving study habits, attitude to work, motivation for excellence, improved confidence, and academic performance. From the foregoing, the following recommendations are made:

1) Pharmacy students should be orientated on the benefits associated with having a mentor from time to time (at the beginning of each semester and towards the middle).

2) Interaction of Pharmacy students with their staff advisers (lecturers) could be improved by allocating specific tasks (e.g. signing of course forms as found in the Faculty of Pharmacy, Obafemi Awolowo University), which would bring assigned mentees (students) in contact with their staff advisers.

3) Suggestion boxes should be made available or colloquiums should be organized to investigate the reasons why many pharmacy students do not interact with their staff advisers regularly.

4) For improved outcomes, formal mentors (e.g., lecturers assigned to a number of students as the staff adviser) should be asked of their willingness to participate as mentors within such a scheme. Only lecturers who are willing to serve as mentors should be assigned as formal mentors by the school.

5) Students should be encouraged to form mentoring relationships among themselves. This would boost psycho-social and smart work strategies, e.g. study habits and time management.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

OAU: Obafemi Awolowo University; **UI:** University of Ibadan; **OOU:** Olabisi Onabanjo University; **UNILAG:** University of Lagos; **ANOVA:** Analysis of Variance; **SPSS:** Statistical Package for Social Sciences; **WA:** Weighted Average.

SUMMARY

The information on how mentorship affects academic performance in pharmacy schools in Nigeria is scarce.

This study identified the existing forms of mentorship in pharmacy schools in Southwest Nigeria, showed the effects of mentorship on performance of students and examined the benefits of mentorship to students.

The existing forms of mentorship identified include both formal (lecturer-student) and informal (peer, parents, practicing pharmacists and religious) with the peer mentoring providing a more rounded impact.

The study showed that mentorship made vital contributions to the students' academic pursuits in terms of academic support but made little contributions to the psychological needs of students.

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