British Journal of Medicine & Medical Research
18(2): 1-12, 2016, Article no.BJMMR.28597
ISSN: 2231-0614, NLM ID: 101570965

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Mentoring Prevalence and Need among Pre-clinical and Clinical Medical and Dental Students in a Nigerian University

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Authors' contributions

This work was carried out in collaboration by all authors. All the authors were involved in designing the study and developing the data collection tools. Authors DET, ACA, DRO, ISA and SLQ collected and analyzed the data. Author DRO wrote the draft introductory section. Author ACA managed the literature searches. Author DET wrote the result section. Authors ISA and SLQ wrote the draft discussion section. Authors OTE and OE wrote the first draft of the manuscript for publication and provided the overall coordination of the conduct of the study. All the authors contributed to the funding of the study, read and approved the final draft of the manuscript.

Article Information

DOI: 10.9734/BJMMR/2016/28597
Editor(s):
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Complete Peer review History: http://www.sciencedomain.org/review-history/16451

Original Research Article

Received 27th July 2016
Accepted 19th September 2016
Published 5th October 2016

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ABSTRACT

Aims: Having a mentor is critical to having a successful career. Despite the known benefits of mentoring, studies have shown a low prevalence among students in the medical and dental schools particularly in developing countries. This study compared the level of awareness, prevalence and degree of need for mentoring relationships among pre-clinical and clinical students at a Nigerian medical and dental school as well as the extent to which this need has been met.
Study Design: Analytical cross-sectional study.
Place and Duration of Study: College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria between March and June, 2015.
Methodology: We interviewed 151 and 224 pre-clinical and clinical medical and dental students respectively, selected via a multi-stage sampling technique. Data was collected with a pre-tested self-administered questionnaire and analyzed using descriptive and inferential statistical tools of the SPSS version 20 with statistical significance set at $P<.05$.
Results: Findings showed a 97.3% awareness of mentoring overall that was higher among clinical students, ($P=.018$). Prevalence of mentoring was a low 30.9% overall, though higher among pre-clinical students with $P=.453$. However, the odd that a pre-clinical student will have a mentor was >1 (OR=1.19) while it was <1 for the clinical students (OR=0.84). The degree of need for mentoring was also significantly higher among the pre-clinical students, ($P=.027$). None of age, sex and awareness of mentoring was significantly associated with having a mentor or the degree of need for mentoring. The need for mentoring is yet to be met for >50% of the pre-clinical ($P=.024$) and clinical ($P=.002$) students.
Conclusion: Pre-clinical students demonstrated higher need for mentoring. An institutionalization of an effective mentoring program with particular focus on the pre-clinical phase may help meet this great need for mentoring and thereby increase its prevalence among medical and dental students in Nigerian training institutions.

Keywords: Mentoring; medical schools; dental schools; pre-clinical students; clinical students.

ABBREVIATIONS

BC : Before Christ
SPSS : Statistical Packages for Social Sciences
DF : Degree of Freedom
CHS : College of Health Sciences

1. INTRODUCTION

Mentoring is 'a process for the informal transmission of knowledge, social capital, and psychosocial support perceived by the recipient as relevant to work, career, or professional development; mentoring entails informal communication, usually face-to-face and during a sustained period of time, between a person who is perceived to have greater relevant knowledge, wisdom, or experience (the mentor) and a person who is perceived to have less (the protégé) [1]. It has been described as a powerful developmental and empowerment tool [2]. It entails the mentees becoming more self-aware, taking responsibilities and directing his or her life in the right direction rather than leaving it to chance under the guidance of the mentor [3]. Isaac Newton, the renowned scholar once said "*If I have seen further it is by standing on the shoulders of giants*" [4].

A mentor is distinct from a supervisor, preceptor and role model. A preceptor is focused on teaching and learning. A supervisor is charged with critically watching and directing while a role model tends to have brief and distant exposures with his or her trainee. However a mentor engages in and maintains a continuous interactive relationship with the mentee such that secures trust and confidentiality within an established meeting time [5]. This instills into the mentee a sense of belonging and provides the platform for discussing different challenges in the mentee's career development and personal issues with immediate constructive feedbacks provided [6].

The term and concepts of mentoring was borrowed from "Mentor" the son of Alcumus in the Greek mythology who Odysseus himself had asked to provide guidance to his son Telemachus before he departed for the Trojan War. Athena, the Greek goddess also disguised as Mentor to provide mentoring for Telemachus when he had to stand against Penelope, his mother's suitors while the father was away [7]. From the 12th century BC when Mentor accepted the responsibility for Telemachus, Odysseus's son till now, the transmission of knowledge and

skills from a more experienced individual to a less experienced one has become culturally embedded [8].

Unfortunately, despite all the known benefits of mentoring [9], the prevalence of mentoring relationships among students in the medical and dental schools particularly in developing countries has been less than 50% [10]. The prevalence of mentoring among all German medical students in 20 of 36 German medical schools was less than 7.5% in 2011 [11]. It was 26% and 45% for the 3rd and 4th year medical students in the University of California in San Francisco in 2003 [12]. In East Africa, it was 32% among health sciences students at the Makerere University, Kampala, Uganda in 2014 [13]. However, prevalence of mentoring in Nigerian medical schools is yet to be published in literature.

Medical education though respected in the society, is regarded as a highly stressful profession. It is believed that only the most intelligent of populations in the society is eligible for it [14]. This stressful environment where students in the medical and dental profession find themselves can often exert a negative impact on their academic performance, physical health and psychological well-being [14]. It is such a highly achievement oriented and competitive environment where many students may develop to their fullest intellectual potential while some others may break down due to the stress [15]. Hence, having a mentor is critical to having a successful medical and dental career. The profession is learned most effectively and meaningfully through mentoring relationships. A study was conducted at the College of Health Sciences, University of Makerere Uganda in 2011 on the needs assessment of mentoring program from the perception of the mentors and a few mentees [16]. However, this study in Uganda only determined how much the students were in need of a mentoring relationship. The aim of our study is to provide evidence on the current state of mentoring and the need for it in Nigerian medical and dental schools. Findings were compared between those in the early stage of their medical education and those in its later stage to know the peculiarities with each stage. As specific objectives, the level of awareness of mentoring, its prevalence, the degree of need for mentoring were compared between the pre-clinical and clinical students in the medical and dental programs of the College of Health Sciences, Obafemi Awolowo University, Ile- Ife.

2. METHODOLOGY

An analytical cross-sectional study in design conducted at the College of Health Sciences, Obafemi Awolowo University, Ile-Ife, a tertiary institution situated in Ife Central Local Government area of Osun State, South-western Nigeria. The College of Health Sciences has 3 Faculties namely the Faculty of Basic Medical Sciences, Clinical Sciences, and Dentistry. There have been several efforts at instituting mentoring programs within the various faculties in the College. The study involved 200 level to 600 level medical and dental students of the institution studied. These categories of students in the College of Health Sciences were studied primarily because they both offer mainly sessional courses while other students run courses per semester and hence their assessment of the subject of interest may differ. There were 247 and 348 pre-clinical and clinical medical students respectively while the pre-clinical and clinical dental students were 78 and 71 respectively as at the time of the study. Altogether, there were 325 and 419 pre-clinical and clinical students respectively at ratio 1:1.3 at the time of the study. The 200 and 300 level medical and dental students belong to the pre-clinical class while their 400 to 600 level counterparts in both the Medical and Dental programs belong to the clinical class. The 100 level Medical and Dental students were excluded because they were yet to offer courses within the College of Health Sciences. Willingness to participate and having registered in the current academic session were the inclusion criteria for the study.

A minimum sample size of 156 pre-clinical and 203 clinical students was determined. Level of statistical significance was set at 5%, at 90% power with a 20% possible attrition rate. The sample size determined for both the pre-clinical and clinical groups were more than 40% of the total population of these students at the College of Health Sciences as at the time of conduct of this study. A proportionate sampling of students to be studied in the pre-clinical and clinical classes was determined using the formula n/N *156 and n/N*203 respectively for both the medical and dental schools with n being the population of students in a year of study and N, the total population of students in the pre-clinical or clinical classes. A multi-stage sampling technique was employed to select the participants. First stage involved the selection of tutorial groups or practical groups per year of

study in both programs and then the stratification of the selected tutorial lists by sex. The participants were then selected using simple random sampling technique with the tutorial lists per class as the sample frame. If the number of participants in the selected tutorial group was not sufficient to meet the number of respondents needed for that class, another tutorial group is selected by simple random sampling technique from the remaining lists of tutorial groups. Any consenting student within the selected tutorial group was then interviewed until the total number of pre-determined students to be interviewed in the pre-clinical and clinical levels had been met.

Data was collected using a pre-tested, semi-structured, self-administered questionnaire by a set of medical students similar to the group being studied to allow for freedom of divulging information and eliminate any form of intimidation. Field and office editing of the data was done. Three questions were asked to assess the level of awareness and a positive response to each of these received a score of one giving a maximum score of 3. The degree of need for mentoring was also assessed using a set of 16 questions. Each affirmative response to these questions was also given a score of one with a total obtainable score of 16. The mean score for awareness was determined and scoring above or below the mean was defined as high or low level of awareness respectively. Poor or good knowledge of mentoring, as well as the degree of need for mentoring were also defined using their mean scores. The quartile was also used to grade the degree of need for mentoring into low, high and very high. Data was analyzed using descriptive and inferential statistics of the SPSS version 20 statistical software with level of statistical significance set at p-value < .05.

3. RESULTS

A response rate of 151 (96.8%) and 224 (100%) was obtained for the pre-clinical and clinical students respectively. The mean age of the pre-clinical students was 21.46 ± 3.102 while that of the clinical students was 24.61± 2.964 with a statistically significant difference in their mean ages (t= -9.811, df=312, *P*<0.001, 95%C.I= -3.773 to -2.5227). There were a higher proportion of male clinical 168 (66.1%) students than their pre-clinical counterparts 86 (33.9%). Conversely, there were a higher proportion of female students 65 (53.7%) in the pre-clinical class compared to the clinical 56 (46.3%). See Table 1.

3.1 Awareness of Mentoring

Level of awareness on mentoring was determined by the proportion of students in both the clinical and pre-clinical classes, who had heard about mentoring, received a formal coaching on it and or read about it at any point in time. Overall, 365 (97.3%) of all the 375 students studied were aware of mentoring. Five students each in the pre-clinical and clinical classes were not aware of mentoring. Of the remaining 146 and 219 pre-clinical and clinical students respectively who were aware, the proportion with high level of awareness among the clinical class 131 (65.5%) was almost double that of the pre-clinical class, 69 (34.5%) and this finding was statistically significant ($\chi 2$= 5.576; df =1; *P* = .018). The students were further asked if they were aware of any mentoring program for medical or dental students in the College of Health Sciences. Overall, only 43 (11.5%) of the students responded positively. There was no statistically significant difference in the pre-clinical and clinical students' awareness of a mentoring program existing within their training institution. See Table 2.

3.2 Prevalence of Mentoring

The prevalence of mentoring among all the respondents studied was 30.9% (33.1% and 29.5%) for the pre-clinical and clinical classes respectively. The likelihood that a pre-clinical student will have a mentor was higher compared to a clinical student given the odd ratio of 1.19 (95% C.I =+0.76 to +1.85). There was however no statistically significant difference in the prevalence of mentoring found among the pre-clinical students and the clinical students, ($\chi 2$= 0.562; df=1; *P*= .453). Probing within the programs, only 91 (31.3%) of the 291 medical students interviewed had at least a mentor while a similarly low 25 (29.8%) of the 84 dental students interviewed had at least a mentor. There was no statistically significant difference in the prevalence of mentoring relationships across students in these study programs, ($\chi 2$= 0.070; df=1; *P* = .792).

3.3 Degree of Need for Mentoring

The need for mentoring was assessed using several questions as shown in Table 3. A higher proportion of clinical students compared to pre-clinical students had at some point failed a course ($\chi 2$= 22.193, df=1, *P* <.001) or had to repeat a class, ($\chi 2$= 9.753, df=1, *P* =.002) in the

medical or dental school of the institution studied. There were no statistically significant differences in the desire of both the pre-clinical and clinical students to have an older one with whom they could share their academic challenges ($\chi2=2.188$; df=1; P =.139) and in those who had an older person playing this role already ($\chi2=0.473$; df=1; P =.492). Also, there was no statistically significant difference in the proportion of pre-clinical or clinical students who had regrets studying their current degree programs in the medical or dental schools, ($\chi2=0.211$; df =1; P = .646). However, a higher proportion of clinical students compared with the pre-clinical would rather opt not to study their current degree programs again if given another chance, and this finding was statistically significant, ($\chi2=8.660$; df= 1; P =.003).

Table 1. Comparison of the socio-demographic characteristics of pre-clinical and clinical students

Independent variables	Pre-clinical students	Clinical students	Total	Test of statistical significance and degree of freedom (df); p-value (*P*)
	Freq (%)	Freq (%)	Freq (%)	
Sex				
Male	86 (33.9)	168 (66.1)	254 (100.0)	χ^2= 13.441, (1)
Female	65 (53.7)	56 (46.3)	121 (100.0)	*P* < .001
Age (by the definition of young people)				
≤ 24 years	133 (51.2)	127 (48.8)	260 (100.0)	χ^2= 41.781, (1)
> 24 years	18 (15.7)	97 (84.3)	115 (100.0)	*P* < .001
Marital status				
Single	142 (39.9)	214 (60.1)	356 (100.0)	χ^2= 0.420, (1)
Married	9 (47.4)	10 (52.6)	19 (100.0)	*P* = .517
Income (Up-keep allowance)				
≤ ₦14000	81 (46.0)	95 (54.0)	176 (100.0)	χ^2= 9.903, (1)
> ₦14000	51 (29.7)	121 (70.3)	172 (100.0)	*P* = .002

Table 2. Awareness of mentoring among pre-clinical and clinical students

Independent variables	Pre-clinical students	Clinical students	Total	Test of statistical significance and degree of freedom (df); p-value (p)
	Freq (%)	Freq (%)	Freq (%)	
Ever heard about mentoring				
Yes	138 (39.8)	209 (60.2)	347 (100.0)	χ^2= 0.478, (1)
No	13 (46.4)	15 (53.6)	28 (100.0)	*P* < .489
Ever had a formal teaching on mentoring				
Yes	55 (43.0)	73 (57.0)	128 (100.0)	χ^2= 0.590, (1)
No	96 (38.9)	151 (61.1)	247 (100.0)	*P* = .442
Ever read on mentoring				
Yes	54 (31.6)	117 (68.4)	171 (100.0)	χ^2= 9.864, (1)
No	97 (47.5)	107 (52.5)	204 (100.0)	*P* = .002
Awareness on mentoring				
Not aware	5 (50.0)	5 (50.0)	10 (100.0)	χ^2= 0.405, (1)
Aware	146 (40.0)	219 (60.0)	365 (100.0)	*P* = .525
Level of awareness				
Low level of awareness	77 (46.7)	88 (53.3)	165 (100.0)	χ^2= 5.576, (1)
High level of awareness	69 (34.5)	131 (65.5)	200 (100.0)	*P* = .018
Awareness of a mentoring program in their training institution for students				
Aware	13 (30.2)	30 (69.8)	43 (100.0)	χ^2= 2.033, (1)
Not aware	138 (41.6)	194 (58.4)	332 (100.0)	*P* = .154

These students were asked to what extent they were satisfied with some aspects of their life in determining their need for mentoring relationships and how they were coping with it. A statistically significantly higher proportion of clinical students compared with the pre-clinical students were satisfied with their ability to plan and organize their life, ($\chi2$= 4.904, df=1, *P* =.027); manage and cope with stress, ($\chi2$=6.303, df=1, *P* =.012); maintain and sustain family relationships, ($\chi2$= 12.729, df=1, *P* < .001); relate well with others, ($\chi2$= 9.503, df=1, *P* =.002); have a sense of self-worth and confidence, ($\chi2$= 5.516, df=1, *P* =.019) and adapting to new environments, ($\chi2$= 5.861, df=1, *P* = .015). See Table 3.

Using these various variables for determining the need for mentoring amongst these students, each response affirming the needs were scored 1 and total scores computed and categorized into high and low degrees of need using the mean scores. A higher proportion of pre-clinical students 83 (55.0%) had a higher degree of need for mentoring, while a higher proportion of the clinical students 127 (56.7%) had a low degree of need for mentoring and this finding was statistically significant, ($\chi2$=4.916; df= 1; *P* = .027). See Fig. 1.

3.4 Characteristics of Existing Mentoring Relationships

Of the students who had a mentor, less than half of them, 55 (47.4%) had a mentor within the College of Health Sciences (CHS). There was no statistically significant difference in the distribution of students who had their mentors as lecturers within the College of Health Sciences (CHS) in the pre-clinical and clinical class, (*P* =.912). Among these students with mentors within the CHS, 37 (88.1%) of the 42 of them who responded initiated the mentoring relationship themselves while the remaining 5 (11.9%) said it was initiated by the lecturer who mentored them. None of them attributed the initiation to an appointment by their faculty. Also, a higher proportion of these students with mentors within the CHS, 34 (56.7%) described the frequency of their meeting with their mentors as irregular and varies, depending on their (mentees') needs. There was no statistically significant difference in the distribution of the persons who initiated the mentoring relationship ($\chi2$=0.454, df=1, *P*=.500) as well as the frequency of mentoring meetings (Likelihood ratio=7.824, df=3, *P*=.098) between the pre-clinical and clinical students. See Table 4.

The pre-clinical and clinical students who attested to having 'good academic performance' and who also had mentors were asked if their performance was traceable to their having mentors. Overall, a higher proportion of them, 55 (52.9%) attributed their performance to their having a mentor. However, there was no statistically significant difference between those who attributed their good performance to their having a mentor and those who refuted between the pre-clinical and clinical students, ($\chi2$=2.201, df=1, *P* =.138). Furthermore, the students yet to have a mentor were asked if they looked forward to having a mentor within the CHS. Though, a higher proportion of the clinical students compared with the pre-clinical students responded positively to this, the difference in their response was not statistically significant, ($\chi2$=1.252, df=1, *P* =.263). See Table 4.

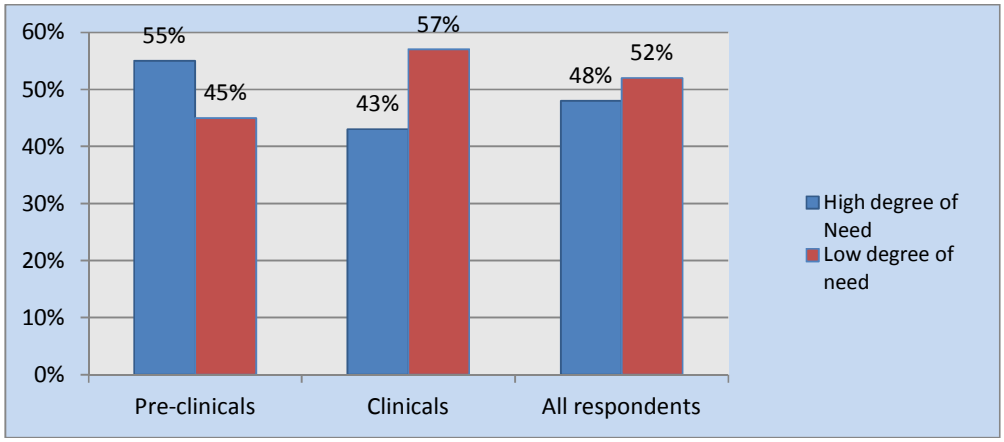

Fig. 1. Degree of need of mentoring among pre-clinical and clinical students studied
$\chi2$=4.916; df= 1; P = .027

Table 3. Needs for mentoring among pre-clinical and clinical students

Independent variables	Pre-clinical students	Clinical students	Total	Test of statistical significance and degree of freedom (df); p-value (*P*)
	Freq (%)	Freq (%)	Freq (%)	
Ever failed a course in the program				
Yes	40 (26.0)	114 (74.0)	154 (100.0)	χ^2= 22.193, (1),
No	111 (50.2)	110 (49.8)	221 (100.0)	*P* < .001
Ever repeated a class in the program				
Yes	33 (28.4)	83 (71.6)	116 (100.0)	χ^2= 9.753, (1),
No	118 (45.6)	141 (54.4)	259 (100.0)	*P* =.002
Desire to share challenges with older persons				
Yes	120 (42.4)	163 (57.6)	283 (100.0)	χ^2= 2.188, (1),
No	31 (33.7)	61 (66.3)	92 (100.0)	*P* =.139
Already have older persons to share with				
Yes	93 (41.7)	130 (58.3)	223 (100.0)	χ^2= 0.473, (1),
No	58 (38.2)	94 (61.8)	152 (100.0)	*P* =.492
Regrets studying current program				
Yes	27 (42.9)	36 (57.1)	63 (100.0)	χ^2= 0.211, (1),
No	124 (39.7)	188 (60.3)	312 (100.0)	*P* = .646
Would study current program given another chance				
Yes	122 (44.9)	150 (55.1)	272 (100.0)	χ^2= 8.660, (1),
No	29 (28.2)	74 (71.8)	103 (100.0)	*P* =.003
Perceived academic performance				
Good	141 (39.6)	215 (60.4)	356 (100.0)	χ^2= 1.272, (1),
Poor	10 (52.6)	9 (47.4)	19 (100.0)	*P* =.259
If satisfied with life planning and organizing				
Satisfied	56 (33.9)	109 (66.1)	165 (100.0)	χ^2= 4.904, (1),
Not satisfied	95 (45.2)	115 (54.8)	210 (100.0)	*P* =.027
If satisfied with academic activities				
Satisfied	62 (36.5)	108 (63.5)	170 (100.0)	χ^2= 1.863, (1),
Not satisfied	89 (43.4)	116 (56.6)	205 (100.0)	*P* =.172
If satisfied with ability to cope with stress				
Satisfied	55 (33.1)	111 (66.9)	166 (100.0)	χ^2= 6.303, (1),
Not satisfied	96 (45.9)	113 (54.1)	209 (100.0)	*P* =.012
If satisfied with spiritual life and its activities				
Satisfied	89 (38.0)	145 (62.0)	234 (100.0)	χ^2= 1.290, (1),
Not satisfied	62 (44.0)	79 (56.0)	141 (100.0)	*P* =.256

Independent variables	Pre-clinical students Freq (%)	Clinical students Freq (%)	Total Freq (%)	Test of statistical significance and degree of freedom (df); p-value (*P*)
If satisfied with ability to keep family relations				
Satisfied	86 (34.0)	167 (66.0)	253 (100.0)	χ^2= 12.729, (1),
Not satisfied	65 (53.3)	57 (46.7)	122 (100.0)	*P* <.001
If satisfied with ability to relate well with people				
Satisfied	75 (33.8)	147 (66.2)	222 (100.0)	χ^2= 9.503, (1),
Not satisfied	76 (49.7)	77 (50.3)	153 (100.0)	*P* =.002
Satisfied with Sense of self-worth and confidence				
Satisfied	91 (36.1)	161 (63.9)	252 (100.0)	χ^2= 5.516, (1),
Not satisfied	60 (48.8)	63 (51.2)	123 (100.0)	*P* = .019
If satisfied with ability to adapt to new environs				
Satisfied	81 (35.4)	148 (64.6)	229 (100.0)	χ^2= 5.861, (1),
Not satisfied	70 (47.9)	76 (52.1)	146 (100.0)	*P* = .015
Need a mentor				
Yes	95 (38.8)	150 (61.2)	245 (100.0)	χ^2= 0.653, (1),
No	56 (43.1)	74 (56.9)	130 (100.0)	*P* = .419

Table 4. Characteristics of the mentoring relationships engaged in by pre-clinical and clinical students

Independent variables	Pre-clinical students	Clinical students	Total	Test of statistical significance; degree of freedom; p-value
	Freq (%)	Freq (%)	Freq (%)	
Had mentors as staff of the university				
Yes	22 (36.1)	39 (63.9)	61 (100.0)	χ^2= 2.598, (1)
No	28 (50.9)	27 (49.1)	55 (100.0)	*P* =.107
Had mentors as lecturers in the CHS				
Yes	24 (43.6)	31 (56.4)	55 (100.0)	χ^2= 0.012, (1)
No	26 (42.6)	35 (57.4)	61 (100.0)	*P* = .912
Person who initiated the mentoring relationship				
Mentee	13 (35.1)	24 (64.9)	37 (100.0)	χ^2= 0.454, (1)
Mentor	1 (20.0)	4 (80.0)	5 (100.0)	*P* = .500
Frequency of mentoring meetings				
Weekly	5 (62.5)	3 (37.5)	8 (100.0)	Likelihood ratio=
Monthly	0 (0.0)	3 (100.0)	3 (100.0)	7.824, (3)
Once a semester	5 (41.7)	7 (58.3)	12 (100.0)	*P* =.098
Varies depending on the mentee's need	12 (32.4)	25 (67.6)	37 (100.0)	
Good academic performance hinged on having a mentor				
Yes	27 (49.1)	28 (50.9)	55 (100.0)	χ^2= 2.201, (1)
No	17 (34.7)	32 (65.3)	49 (100.0)	*P* =.138
Persons without a mentor look forward to a mentor in the College of Health Sciences				
Yes	62 (40.8)	90 (59.2)	152 (100.0)	χ^2= 1.252, (1)
No	32 (33.7)	63 (66.3)	95 (100.0)	*P* =.263

3.5 Factors Associated with the Need for a Mentor and having a Mentor Already

None of sex, (χ2=1.262, df=1, *P*=.261); Being aged >24years old or not, (χ2=2.323, df=1, *P* =.127); Marital status, (χ2= 0.172, df=1, *P*=.678); having an income greater than ₦14,000 or not, (χ2=0.924, df=1, *P* =.336) and being aware of mentoring or not, (χ2=0.016, df=1, *P* =.898) was statistically significantly associated with the respondents' having a high or low degree of need for mentoring. Also, none of sex, (χ2=0.728, df=1, *P* =.393); Being aged > 24 years old or not, (χ2=1.228, df=1, *P* =.268); Marital status, (χ2=0.004, df=1, *P* =.950); having an income greater than ₦14,000 or not, (χ2=0.526, df=1, *P* =.468) and being aware of mentoring or not, (χ2=0.575, df=1, *P* =.448) was statistically significantly associated with the respondents having a mentor or not.

3.6 How Much the Degree of Need for Mentoring has been Met

Finally, the proportion of pre-clinical and clinical students whose need for mentoring has been met by having a mentor was determined. A high proportion of both those with high and low degree of need for mentoring were yet to have a mentor. Though, this proportion was higher for those with a high degree of need and it was statistically significant (χ2=13.913; df=1; *P* <.001). Probing further, the ratio of pre-clinical students with a high degree of need for mentoring who were yet to have mentors to those who already do was 3 to1, while it was 4 to 1 for clinical students also with a high degree of need for mentoring. A statistically significant association was found in the distribution of pre-clinical (χ2=5.078, df=1, *P*=.024) and clinical students (χ2=13.913, df=1, *P* = .002) with a high or low degree of need for mentoring whose needs were met or yet to be met. See Table 5.

Table 5. Needs for mentoring met by having a mentor

Category of respondents	Variables	Have a mentor	Do not have a mentor	Total	Test of statistical significance and degree of freedom (df); p-value (p)
		Freq. (%)	Freq. (%)	Freq. (%)	
Only pre-clinical students	**Degree of need for a mentor**				
	High degree of need	21 (25.3)	62 (74.7)	83 (100.0)	χ^2= 5.078, (1),
	Low degree of need	29 (42.6)	39 (57.4)	68 (100.0)	*P* = .024
Only clinical students	**Degree of need for a mentor**				
	High degree of need	18 (18.6)	79 (81.4)	97 (100.0)	χ^2= 9.794, (1),
	Low degree of need	48 (37.8)	79 (62.2)	127 (100.0)	*P* =.002
Both category of respondents	**Degree of need for a mentor**				
	High degree of need	39 (21.7)	141 (78.3)	180 (100.0)	χ^2= 13.913, (1),
	Low degree of need	77 (39.5)	118 (60.5)	195 (100.0)	*P* <.001

4. DISCUSSION

This study highlighted the importance of mentoring in the life of a medical and dental student, be it in the pre-clinical or clinical phase of their training and how much this learning and modeling tool is desired among the students studied. The two groups of students studied were statistically significantly different in age and this was expected as the clinical students are senior to the pre-clinical students. This does not in any way bias the study as the aim of the study was to identify the needs at the different phases of their study and the degree to which their needs differ. This will assist in prioritizing how their needs will be addressed such as which phase of study to focus on when resources are limited.

The clinical students were more aware of mentoring in all respects as a higher proportion of them had even read about it compared to those in the pre-clinical classes. This is not surprising as these clinical students are much older as expected and have had a longer stay in the College wherein there had been several efforts to establish a mentoring program to improve the teaching and learning process. This finding was contrary however to the findings of Kyeyune et al. in 2014 [13] at the Makerere University in Uganda wherein a high proportion of the students were aware of mentoring irrespective of their level of study. A high proportion of the students in this study were also not aware of any existing mentoring program in their training institution. This may be because any such mentoring program is yet to be fully institutionalized.

Though, a higher proportion of clinical students were aware of mentoring, the prevalence of mentoring relationships was higher among the pre-clinical students even though this was not statistically significant. This higher prevalence among the pre-clinical students is however somewhat surprising. It would have been expected otherwise since a higher proportion of the clinical students were aware and considering their having stayed longer in the college as well. This suggests that the clinical students might not have fully utilized whatever efforts the College might have provided in form of mentoring programs in the past. This may have contributed to why some of them had suffered challenges such as having to fail a course or even repeat a class. A mentor could have better motivated and guided them on how to overcome such challenges. Overall, the prevalence of mentoring relationships is still unacceptably low at 30.9% as found in this study. It is as low as what was reported in the University of San Francisco in 2003 [12] which was 12 years to the time of conducting this study. It is even lower than the 32% reported in the University of Makerere in Uganda in 2014 [13] though, in Uganda, their study participants were not restricted to only the medical and dental students but all the students at their College of Health Sciences. Findings also corroborates with the high unmet need for mentoring found in German medical schools as found by Meinel et al. in 2011 [11].

Despite having a higher prevalence of mentoring relationships, this study showed that the pre-clinical students yet demonstrated a higher need for mentoring compared to their clinical

counterparts. This could presuppose that pre-clinical students face a lot of stress in that phase of study and are in more dire need of a mentor to provide guidance through it. It was found that the clinical students had overtime developed coping strategies to manage their academic and personal life challenges in the medical and dental school based on the series of questions asked to assess their degree of need for mentoring. Therefore, despite their having a higher level of awareness on mentoring and a lower prevalence of mentoring relationships, a higher proportion of the clinical students seemed not to have so much need for mentoring again. This is a critical finding and it is hoped that the clinical students have not in any way given up on their training institution to providing them a solution for their academic and personal challenges.

None of the factors assessed was found to be associated with the students studied having a mentor or their having a need for a mentor or not. This was contrary to the findings of Kyeyune et al. [13] in Uganda where age and awareness of mentoring were found to be significantly associated with their respondents having a mentor. The high level of awareness across all the levels of study in Uganda could have contributed to this.

As at the time of conducting this study, a high proportion of both the pre-clinical and clinical students with need for mentors were yet to have them. This shows that there is still a wide gap to be filled by the training institutions in promoting mentoring relationships among the students in view of the expected evidence-based benefits this may accrue to the students.

5. CONCLUSION

The awareness of mentoring was lower amongst the pre-clinical students. The prevalence of mentoring relationship was low among all the students studied and there was no statistically significant difference in the prevalence reported among the pre-clinical and clinical students. A higher need for mentoring was demonstrated by the pre-clinical students. Irrespective of the degree of need for mentoring by both the pre-clinical and clinical students, a high proportion of them have their needs yet to be met. The onus then lies on their training institution to meet the mentoring need of these students at both phases of their career. This they can do by introducing mentoring programs in these medical and dental schools and ensuring its effectiveness.

CONSENT AND ETHICAL APPROVAL

Ethical approval was obtained from the Ethics and Research Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife with an HREC number IPH/OAU/12/413. Written informed consent was also obtained from the participants.

COMPETING INTERESTS

Authors have declared that no competing interest exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/16451