Original Article

Choice of Histopathology as a Specialty among Doctors yet to Commit to a Specialty in a Young Nigerian Teaching Hospital

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Abstract

Objectives: The aim of this study was to determine the doctors' choice of pathology as a specialty and the factors affecting such choice. **Materials and Methods:** Self-administered objective-structured questionnaire was administered to doctors in Enugu State University Teaching Hospital, who were yet to commit to a postgraduate specialty by obtaining the primary postgraduate fellowship. Obtained data were analyzed using Statistical Package for the Social Sciences software (SPSS) version 16.0. Missing data were excluded from the study. **Results:** There were 50 (69.4%) respondents from 72 questionnaires distributed. Most of them, 76% (n = 38), have excellent knowledge of the duties of a pathologist. Except for age (P = 0.04), sociodemographic characteristics and knowledge of pathologists' duties do not significantly affect choice about pathology. A total of 29 of 47 (59.2%) respondents rejected histopathology; however, of the 24.5% who might choose histopathology, three rated it last choice while one rated it first. The most common reasons for choosing pathology include flexibility of work hours and availability of job positions. The most common reasons for rejecting pathology include desire for contact with patients, dislike for autopsy, and desire for better remuneration. Most participants, 87.5% (n = 42 of 49), have an overall positive perception of pathology and the pathologist. Course volume, quality of teachers, and pathology examination affect perception of pathology most but not significantly. However, perception does not significantly affect and has weak correlation with choice of pathology. **Conclusion:** Pathology is not a preferred specialty among doctors seeking postgraduate training in our center. Factors responsible for this state of affairs including desire for better remuneration and contact with patients should be addressed by all those concerned.

Keywords: Pathology, postgraduate training, primary fellowship, specialty choice, young teaching hospital

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Introduction

Laboratory medicine, also called pathology, is a medical specialty that is largely obscure and undervalued. It consists of four distinct specialties, namely chemical pathology, hematology, medical microbiology, and histopathology. The last which according to the region or country is also variously called anatomic pathology, morbid anatomy, or simply pathology is the subject of this study.

Decisions about diagnosis and management of patients depend significantly on the works of pathologists also called laboratory physicians. According to Ngo *et al*.,[1] clinical decisions on 29%–98% (variation according to medical services rendered) of patients managed in their hospital relied on pathologists' output. They also reported that laboratory tests were the most utilized (35%) of all available diagnostic procedures. The scope and workload of pathology practice have been on the increase. For instance, Colgan and Geldenhuys,[2] in a 2012 research, reported an annual increase of 17.1% in cancer cases per pathologist in Canada. This increase is traceable to scientific novelties which have brought about more testing options, increasing demands on doctors for diagnostic exactitude, growing population, and improving lifespan.[3] Although pathology practice is still developing in Nigeria like most of Africa, the request for the

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services of a pathologist is significantly increasing.[4] There are however no corresponding increases in the number of doctors specializing in pathology in Nigeria. Studies have shown that there are major deficits in both personnel and quality of laboratory services available in Sub-Saharan Africa including Nigeria.[5,6] Recent figures show that there are only 216 practicing and 184 trainee pathologists in Nigeria, a country with a population of about 200 million people (Waziri DG, unpublished online poll). Several factors affect a doctor's choice of specialty, and they have complex interactions. These factors include personality,[7,8] demographic factors such as sex and age,[2] experiences during medical school,[7] interactions with other professionals, patients, and other students,[9] specialty characteristics,[2,9] and anticipated quality of life[10] among others. There are many studies on the choice of medical specialties by medical students and fresh medical graduates, but studies exploring the choice of histopathology are quite few. The aim of this study was (1) to ascertain the prevalence of the choice of histopathology as a specialty among doctors who had not commenced specialization by obtaining primary postgraduate certification and (2) to analyze the factors that affect this choice by doctors in this setting.

Materials and Methods

This is a cross-sectional study involving the use of self-administered objective-structured questionnaire. The study population was doctors in a State University Teaching Hospital who had not obtained the primary postgraduate certification in either the National Postgraduate Medical College or the West African Postgraduate Medical College that oversees postgraduate medical training in Nigeria. The primary fellowship is the committing step to a specialty choice/residency training in Nigeria. Participants included house officers, medical officers working in the general outpatient department and the accident and emergency unit, and those working in specialist areas but are yet to obtain the primary fellowship. This category of participants was also chosen because having completed medical school training; they must have been exposed to all the medical specialties. As such, their choice about specialties will be based on the first-hand information about each specialty. The participants had their undergraduate medical training in diverse training institutions including the study institution. The hospital is about 10 years old and has not commenced residency programs in many specialties, including pathology. It however had subsisting accreditation from both the Nigerian Universities Commission and the Medical and Dental Council of Nigeria, regulators of tertiary and medical education, respectively, in our country. The study center is one of two teaching hospitals in Enugu, a cosmopolitan and capital city that also has a psychiatric hospital and an orthopedic hospital. These four hospitals are owned by either the federal or the state government and have accreditation and government funding to train residents in various specialties. There are also other specialist hospitals owned by church missions or individuals. Ethical approval was obtained from the ethics committee of the hospital. The objectives of the study were explained to the participants, and informed consent was obtained. They were assured of the confidentiality of any information given by them and that they were free to decline participation without any consequence. The sample was selected using the convenience sampling technique.

The questionnaire was developed following the search of relevant literature [Questionnaire 1].[11-13] It was pretested for completeness after which the necessary modifications were effected in the final instrument. The questionnaire is organized into five sections to explore the following five aspects about the respondents namely bio-data, knowledge of services and duties of a pathologist, perception of the subject of pathology from undergraduate training, perception of the pathologist as a healthcare professional, and choice of pathology as a medical specialty. Obtained data were analyzed using the Statistical Package for the Social Sciences software (SPSS, version 16.0, IBM corporation, Illinois, USA) while the missing data were excluded from the study. Frequencies and percentages of the variables were calculated. Chi-square test was used to assess the association between choice of pathology as a specialty and variables. $P < 0.05$ was considered statistically significant. The linear relationship between two variables was determined using the Spearman's rank correlation coefficient which was interpreted as follows: ±0.00–0.25 = weak; ±0.25–0.50 = fair; ±0.50–0.75 = moderate; >±0.75 = very strong. Doctors who had already obtained the primary fellowship were excluded from the study. Data were interpreted by comparing findings from this research with findings in the literature.

Results

A total of 72 questionnaires were distributed of which 56 (77.7%) were returned. However, 50 respondents were included in the study, while six were excluded based on the exclusion criterion. As can be seen from Table 1, majority of the respondents were aged 26–30 years (28/50; 56%), were males (31/50; 62%), and had been doctors for <3 years (37/50; 74%). Most respondents, 32 (64%), knew three or fewer pathologists, while 14 (28%) and 4 (8%) knew 4–5 and >5 pathologists, respectively. Table 2 shows that the level of knowledge of respondents about the duties of a histopathologist was quite high, with 38 (76%) of the respondents checking that they know all the duties of the histopathologist as listed in the questionnaire. Professional status did not significantly affect respondents' knowledge of pathologists' duties (Pearson's Chi-square test = 5.655). Most respondents, 54.4% (25/46), believed that exposure of medical students to pathology during medical school was sufficient to enable one make a decision whether or not to choose pathology as a specialty; 39.1% (18/46) believe that it was not enough while 6.5% (3/46) answered that they did not know if it was sufficient or not. Distribution of the respondents' choice about pathology matched against sociodemographic factors is shown in Table 3.

Except for age ($P = 0.04$), these characteristics of respondents and their knowledge of the duties of a pathologist did not significantly affect a respondent's choice to specialize in histopathology. Most respondents, 59.2% (29/49), said that they would not choose histopathology, while 24.5% (12/49) said that they could consider pathology as a specialty. Those who could consider specializing in pathology were asked to rate their choice on the scale of 1–5 where 1 is the first choice and 5 is the last resort. Four persons each rated their choice of pathology 3 and 4, respectively; three persons rated it 5, while one person rated it 1. With respect to the reason for choosing or rejecting pathology, respondents could choose more than one of the listed reasons. Most of the respondents that might choose pathology chose need for personal time/flexibility of work hours, i.e., work–life balance 75% (9/12) and availability of residency and consultant posts after training 58.3% (7/12) as their reason for choosing pathology. Only one respondent (8.3%) would choose pathology for intellectual satisfaction. The most common reasons for rejecting pathology included the need to make contact with patients 82.8% (24/29) and dislike for autopsy 52.2% (16/29). Other reasons included desire for better remuneration 44.9% (13/29) and general dislike for the subject/specialty 17.2% (5/29).

Table 1: Sociodemographic characteristics of respondents (*n*=50)

Characteristic	Frequency, *n* (%)
Age range (years)	
20-25	10 (20)
26-30	28 (56)
31-40	10 (20)
41-50	2 (4)
Total	50 (100)
Sex	
Male	31 (62)
Female	19 (38)
Total	50 (100)
Professional status	
House officer	37 (74)
Medical officer	4 (8)
Registrar	9 (18)
Total	50 (100)
Number of years in practice	
<3	37 (74)
3-5	11 (22)
6-10	1 (2)
>10	1 (2)
Total	50 (100)

As shown in Table 4, there is an overall positive perception of both the specialty and the practitioner among the respondents with 42/49 (85.7%) reporting an overall positive view of both ($\chi^2 = 0.763$). A total of 27/49 (55.1%) respondents consider the specialty an indispensable part of medical curriculum and practice, while 47.8% and 62.5% consider the pathologist as sociable and brainy, respectively. However, 50% consider the subject too vast and complex, while 62.5% rate the pathologist's economic status as just average (i.e., just able to meet his/her basic needs) compared to other medical specialists. Respondents' perception of pathology or the pathologist has no significant effect on their choice about pathology and also has weak correlation with the choice, except for perception of the pathologist's personality which has a strong-negative correlation (−0.871) with respondents' choice [Table 4]. Major factors that affect respondents' perception of pathology include the volume of the course 38% (19/50), quality of pathology teachers 30% (15/50), and the pathology examination 22% (11/50). Other factors include rumor about the difficulty of the subject and/or its examination that precedes the course usually circulated by older students 12% (6/50) and personality of teachers 10% (5/50). However, the effect of these factors on perception is not statistically significant and there is weak-positive correlation between the factors and perception (Spearman's correlation coefficient = +0.123).

Discussion

Generally, the medical education curriculum spans 6 years. Although there are slight variations in duration among training institutions, the program is divided into basic medical sciences (first 18 months), basic clinical sciences (second 12 months), and clinical medicine (last 30 months). Conventionally, the basic clinical sciences is comprised of pathology (also known as histopathology or anatomic pathology) alongside medical microbiology, chemical pathology, hematology (these four make up the pathological sciences), and pharmacology and therapeutics. These are taught in the later and early parts of 2nd and 3rd year, respectively. This is the only period a medical student makes contact with pathology. At the end of medical school training, each graduate is required to undertake a compulsory 1-year internship in a teaching hospital or any other

Table 2: Knowledge of the scope of a pathologist's duties by professional status of the respondents (*n*=50)

Professional status	Pathologist's duties and number of respondents' that know them as such, *n* (%)			Total, *n* (%)
	Tissue diagnosis only	Autopsy only	All duties*	
House officer	8 (16)	1 (2)	28 (56)	37 (74)
Medical officer	2 (4)	0	2 (4)	4 (8)
Resident	0	1 (2)	8 (16)	9 (18)
Total	10 (20)	2 (4)	38 (76)	50 (100)

χ^2=5.655, P=0.226. *As listed in the questionnaire

Table 3: Distribution of respondents' choice of pathology and their sociodemographic factors (*n*=49)

Variables	Might choose pathology as a specialty, *n* (%)			Chi-square test	*P**
	Yes	No	Indifferent		
Sex					
Male	7 (58.3)	18 (62.1)	8 (100.0)	3.527	0.195
Female	5 (41.7)	11 (37.9)	0 (0.0)		
Total	12 (100.0)	29 (100.0)	8 (100.0)		
Age (years)					
Below 21	0 (0.0)	2 (6.9)	1 (16.7)	11.053	0.040
21-30	12 (100.0)	18 (62.1)	2 (33.3)		
31-40	0 (0.0)	8 (27.6)	3 (50.0)		
41-50	0 (0.0)	1 (3.4)	0 (0.0)		
Total	12 (100.0)	29 (100.0)	6 (100.0)		
Professional status					
House officers	8 (66.7)	19 (65.5)	6 (100.0)	2.372	0.724
Medical officer	1 (8.3)	4 (13.8)	0 (0.0)		
Resident	3 (25.0)	6 (20.7)	0 (0.0)		
Total	12 (100.0)	29 (100.0)	6 (100.0)		
Length of practice (years)					
Below 3	8 (66.7)	20 (69.0)	6 (100.0)	4.49	0.69
3-5	4 (33.3)	6 (20.7)	0 (0.0)		
6-10	0 (0.0)	2 (6.9)	0 (0.0)		
Above 10	0 (0.0)	1 (3.4)	0 (0.0)		
Total	12 (100.0)	29 (100.0)	6 (100.0)		
Knowledge level					
Good	10 (83.3)	22 (75.9)	4 (66.7)	0.813	0.694
Poor	2 (16.7)	7 (24.1)	2 (33.3)		
Total	12 (100.0)	29 (100.0)	6 (100.0)		

*Unadjusted *P*

approved hospital and the 1-year compulsory national service for people under the age of 30 years. Thereafter, a person interested proceeds to residency training. Compared to other specialties, the exposure of medical students to pathology is short. This probably negatively affects the willingness of medical graduates to choose it as a specialty. In our study, 39.1% (18/46) of respondents thought that exposure time was insufficient to appreciate the specialty enough. Anim[14] also reported that doctors in Ghana believe that exposure to pathology in undergraduate days is insufficient to help appreciate pathology enough to be willing to choose it as a specialty. However, Raphael and Lingard[11] reported no influence of undergraduate exposure to the course on the choice made about it. Our center does not have any known formal career guidance program regarding career/specialty choice in medicine for students and/or new doctors. This means that young doctors have to rely on personal experiences and information gleaned from various sources including people around them, namely colleagues, family members, and mentors for such a lifelong decision. Many of these people as is common with human will usually advise from their own experiences and biases.

The age range of most respondents in our study was aged 26–30 years is similar to participants in other studies in Nigeria.[15,16] Further, there were more males than females as reported by other workers.[15-17] Our finding also showed that sex and other sociodemographic characteristics do not significantly affect the choice of pathology as a specialty. This is similar to other reports[13,15,16] but contrasts with the report of significant positive correlation between sex and choice of specialty by other researchers.[12,18]

Of 12 of 49 respondents (24.5%) who could consider choosing histopathology as a specialty, only one (2%) would make the specialty the first choice. This is similar to the findings from other researchers that reported pathology as the least or one of the least desired choices of medical specialty.[13,15,16,18-20] Those in this study who might choose pathology listed need for work–life balance as a major reason for their choice. This is similar to the findings by other workers.[15,18,20,21] However, subjects in Grasreiner *et al*.'s[18] study added the desire to participate in research as another strong attraction for the specialty. From our study, need to make contact with patients, dislike for autopsy, and desire for better remuneration were the main reasons why respondents rejected pathology. This is similar to the findings by other workers who listed, among other things, personal dislike for pathology, concerns about material reward/remuneration, and society perception as the reasons for rejecting the specialty among their studied population.[12,13,20,21] Added to the perception of pathology by the wider society is also a probable negative perception and even stigma of the specialty by classmates and other doctors.[11,14] For instance, Vo *et al*.[19] referred to pathology and certain other specialties as "auxiliary specialties" in their research article. Efforts are on to encourage interest in pathology. To increase contact between pathologist and patients, "pathology clinics" where pathologists meet with patients have been advocated and already introduced in centers in some countries.[22] Further, some centers have created varying periods of rotation through pathology or autopsy specifically during internship periods.[23]

Of the variables we studied, only age had a statistically significant effect on respondents' choice about pathology with younger doctors more likely to choose histopathology than the older ones. This finding is similar to the findings by Asani *et al*.[13] and Akinyinka *et al*.[20] but contrasts with the finding from Pakistan[24] that sex and having postgraduate plan while in the medical school significantly affected the choice of specialty. According to the study, females chose a wider range of specialties compared to men. It would therefore appear that people's decision about choosing pathology in our environment is an event that is entirely independent of any combination of factors. However, it is possible that this finding may be different if the study population had been larger.

This study has a number of limitations. The small study population is a major limitation of this work. The fact that

Table 4: Relationship between respondents' perception of pathology and the pathologist and choice of pathology (*n*=49)

Respondents' perceptions of pathology and the pathologist	Might choose pathology as a specialty, *n* (%)				χ^2, *P*	r_s
	Yes (*n*=12; 24.5)	No (*n*=29; 59.2)	Indifferent (*n*=8; 16.3)	Total (*n*=49; 100)		
Overall perception						
Negative	1	3	3	7 (14.3)	0.763, 0.814	
Positive	11	26	5	42 (85.7)		
Perception of relevance of course to medical curriculum						
May be relevant	0	0	1	1 (2.0)	6.289, 0.179	−0.073
Relevant	6	11	4	21 (42.9)		
Indispensable	6	18	3	27 (55.1)		
Perception of course content (*n*=46)						
Abstract and boring	0	2	0	2 (4.4)	8.398, 0.590	−0.123
Too impersonal for a doctor	0	0	1	1 (2.2)		
Scientifically very difficult	1	3	0	4 (8.7)		
Complex and too vast	5	14	4	23 (50.0)		
Enjoyable and easy to relate to	3	6	1	10 (21.7)		
Others	2	3	1	6 (13.0)		
Perception of the personality of the pathologist (*n*=46)						
Proud	3	7	2	12 (26.1)	3.842, 0.871	−0.871
Lazy	0	1	1	2 (4.4)		
Not sociable/reclusive	1	4	1	6 (13.0)		
Sociable	5	13	4	22 (47.8)		
Others	2	2	0	4 (8.7)		
Perception of the intellectual capacity of the pathologist (*n*=48)						
Dull	0	0	1	1 (2.1)	7.019, 0.319	−0.051
Brainy	8	17	5	30 (62.5)		
Average	2	7	2	11 (22.9)		
Don't know	1	5	0	6 (12.5)		
Perception of the economy of the pathologist (*n*=48)						
Rich	4	8	1	13 (27.1)	6.382, 0.382	+0.103
Poor	0	0	1	1 (2.1)		
Average	6	19	5	30 (62.5)		
Don't know	1	2	1	4 (8.3)		

χ^2: Pearson's χ^2, r_s: Spearman's correlation

some of the respondents are working in specific specialty departments, that most respondents knew very few pathologists, and that the work was done in a center lacking a pathology residency program may also have affected the outcome.

Conclusion

Pathology is a rather unpopular specialty choice among doctors seeking postgraduate training in our center. Meanwhile, there is a severe dearth of pathologists compared with other specialties in our country. Factors thought to affect a doctor's choice about pathology as a specialty seem to derive their strength from their interactions. Further studies are required to further explore dynamics of these interactions. Better exposure to pathology during medical school training, improved mentorship, and deliberate provision of career guidance are necessary to stimulate interest in pathology. Government and its policymakers should create incentives to attract people into the field of pathology.

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Conflicts of interest

There are no conflicts of interest.

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Questionnaire

Questionnaire 1: Questionnaire for the study of the choice Histopathology (Pathology) as a specialty

Hello,

Kindly take a brief moment out of your busy schedule to complete the following questionnaire which is aimed at studying the choice of Histopathology as a specialty among doctors not yet in residency training. All information will be held in complete confidence please. Do please note that Pathologist and Histopathologist and Pathology and Histopathology, respectively, are here used interchangeably. You may choose more than one (1) option in some questions.

Thank you.

a. Biodata and professional information
   1. Sex: a) Male [ ] b) Female [ ]
   2. Age (in years): a) 20–25 [ ] b) 26–30 [ ] c) 30–35[ ] d) >35 [ ]
   3. Do you have a primary fellowship yet? a) Yes [ ] b) No [ ]

b. Knowledge of services/duties of a pathologist
   1. What duties does a pathologist perform? [you may choose more than 1 option] a) Tissue diagnosis [ ] b) Autopsy performance [ ] c) Teaching [ ] d) Research [ ] e) Medical witnessing in courts [ ]
   2. Do you think there are cases in which there is a need for the pathologist to make professional contact with a patient? a) Yes [ ] b) No [ ] c) Don't know [ ]
   3. If your answer to 2 above is NO, which of the following explains the reason for your position? [you may choose more than 1 option] a) Information provided by managing clinician on the request form should be enough [ ] b) Pathologists usually lose clinical skills upon specialization [ ] c) The implication of their specialty may frighten patients [ ] d) A pathologist does not contribute to patient treatment [ ] e) Don't know [ ]
   4. Does a pathologist in his practice make professional contact with patients? a) Yes [ ] c) No [ ] c) Don't know [ ]
   5. Do you think that the duties of the Pathologist can be regarded as part of the clinical management of a patient: a) Yes [ ] b) No [ ] c) Don't know [ ]
   6. If your answer to 5 is YES, what, in your understanding, is the extent of the clinical involvement of a pathologist? [you may choose more than 1 option] a) Helps to establish diagnosis [ ] b) Establishes cause of death [ ] c) Output useful for decision on treatment options [ ] d) Don't know [ ]
   7. Diagnostic duties of a pathologist involve: [you may choose more than 1 option] a) Surgical specimens [ ] b) Cytological specimens [ ] c) Autopsy [ ] d) Others (specify):..... e) Don't know [ ]
   8. The routine work of a pathologist includes: [you may choose more than 1 option] a) Preparing tissues into slides [ ] b) Examining/handling gross specimens [ ] c) Reading/reporting of slides [ ] d) Fine needle aspiration procedure [ ] e) Preparing laboratory reagents [ ] e) Embalmment of bodies [ ] f) Performance of autopsy [ ]

c. Perception of Pathology as a course from the 3rd MBBS training/program
   1. How would you rate the relevance of the course as part of medical curriculum? a) Not relevant [ ] b) May be relevant [ ] c) Relevant [ ] d) Very relevant [ ] e) Indispensable [ ]
   2. What was your perception of the course? a) Abstract and boring [ ] b) Too impersonal for a doctor [ ] c) Very scientifically rigorous/difficult [ ] d) Complex and too vast [ ] e) Enjoyable and easy to relate to [ ] f) Others:.....
   3. What affected your perception of the course most? a) Rumors preceding my joining the course [ ] b) Organization (including volume) of the course [ ] c) Quality of teaching/teachers [ ] d) Personality of teachers [ ] e) Examination (3rd MBBS) in the course [ ] f) Others:.....

d. Perception of pathologists
   1. How many pathologists do you know? a) ≤3 [ ] b) 4–5 [ ] c) >5 [ ]
   2. Perception of personality: which of following describe (s) your perception of pathologists' personality? a) Proud [ ] b) Lazy [ ] c) Anti-social/reclusive[ ] d) Sociable [ ] e) Others: specify..... f) Don't know [ ]
   3. Perception of intellect: how do you assess the intellectual capacity of pathologists? a) Dull [ ] b) Brainy [ ] c) Average [ ] d) Don't know [ ] e) Others:.....
   4. Perception of economy: with respect to other specialists, how would you rate the economic power of the pathologist? a) Rich [ ] b) Poor [ ] c) Average [ ] d) Don't know [ ]
   5. How would you rate your overall perception of pathology and the pathologist? a) Positive [ ] b) Negative [ ] c) Cannot rate [ ]
   6. Choice of Pathology as a specialty

7. What factors would you consider as major in choosing a specialty? [you may choose more than 1 option] a) Need for personal time[ ] b) Flexibility of work hours [ ] c) Remuneration [ ] d) Need to make contact with patients [ ] e) Availability of residency position [ ] f) Availability of job after training[ ] g) Job satisfaction [ ] h) Need to belong to the "core" of the profession [ ] i) Others: specify.....
8. Would you consider specializing in Pathology? a) Yes [ ] b) No [ ] c) Indifferent [ ]
9. If your answer to 2 is [YES], how would you rate your choice of Pathology on a scale of 1–5 with 1 as first choice and 5 as last resort? a) 1[ ] b) 2[ ] c) 3[ ] d) 4[ ] e) 5[ ]
10. If your answer to 2 is NO, what are your reasons? [you may choose more than 1 option] a) Need to make regular contact with patients [ ] b) Dislike for autopsy [ ] c) Desire for better remuneration [ ] d) Vastness of pathology [ ] e) Dislike of the subject [ ] f) Perception of specialty by colleagues [ ] g) Perception of the specialty by society[ ] h) fear of infections [ ] i) Others: specify.....
11. Is exposure to pathology as a course in medical school enough to help one make an informed choice about pathology as a specialty? a) Yes [ ] b) No [ ] c) Don't know [ ]