



Interns' Perceived Competency Levels with Respect to the Medical Expert Role in Different Clinical Disciplines

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Abstract: Competency assessment in the health professions usually serves many purposes including educational, employment-related, and regulatory ones, including aspects of professional competence and protection of the public. Professional bodies and training institutions conduct competency assessments to assess and certify professionals. The main aim of this study is to protect the public by ascertaining whether there is a need for educational interventions by assessing the existing competency levels of clinical officers, and identifying deficiencies with regard to those competencies. Training institutions, Clinical Officers Council and practicing clinical officers can use these results as immediate and future remedies for their curricula and programmes, so that the required competency levels can be achieved. Sixty four (64) interns completed a questionnaire about their self-perceived competency level(s) on various discipline-related tasks. The study population consisted of interns who were graduates of Kenya Medical Training College (45) and Egerton University (19) and who were practicing in accredited interns training hospitals. A self administered questionnaire was used to elicit clinical officer interns' self perceived competencies in their medical expert role. This questionnaire was constructed based on the CanMEDS framework and on guidelines for clinical officer interns' assessment form by Clinical officers Council. A list of tasks in specialties of medicine, paediatrics, surgery, and gynaecology and obstetrics were included in the questionnaire to ensure content-related evidence of validity. This survey reports on the level of competency among clinical officers (interns) in relation to the *medical expert role* during their clinical rotations, reflecting the competency levels relating to various tasks relating to the specialties of the clinical officers of the two selected training institutions (Kenya). The selected institutions are Egerton University and Kenya Medical Training College. The survey focuses on the CO interns' levels of competency in medical specialties (medicine, surgery, pediatrics, and Gynecology and Obstetrics). By answering the main question for CO interns "Sincerely rate yourself in your daily performance in the following areas by circling the number that you feel best represents your competence". The study results shows that CO interns from Kenya medical training college and Egerton University considered themselves to have adequate competency levels for most tasks, with a few exceptions, such as excision of superficial lesions e.g. ganglion, inserting and removing contraceptive devices e.g. coil tasks. These tasks represent 6.8% of all the cases rated.

Keywords: Competency, Expert Role, Assessment

1. Introduction

1.1. Background Information

In this era of accountability the public expects clinicians to be competent. However, the question arises, *is it possible for a clinician to be equally competent in each and every task?*

Due to the current explosion of technical knowledge practitioners are required to keep abreast of new technologies and information, both in the common core and in more specialized practice.

Since medicine is a multifaceted profession it does not seem to be reasonable to expect medical professionals to attain the same levels of competence in all the tasks or

aspects of tasks that they undertake. When referring to a clinician's level of competence or incompetence it is important to define clearly the context and the task or task aspect that is concerned.

The competencies of a clinician/Physician include the roles of *Medical Expert*, *Communicator*, *Collaborator*, *Manager*, *Health advocate*, *Scholar* and *Professional*. The *medical expert* is the central role that combines the aspects of the other roles (See Figure 1). (18) describes the *Medical Expert* role as the central physician role in which physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care.

Key Competencies: Physicians are able to:

1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical and patient-centred medical care;
2. Establish and maintain clinical knowledge, skills and attitudes appropriate to their practice;
3. Perform a complete and appropriate assessment of a patient;
4. Use preventive and therapeutic interventions effectively;
5. Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic;
6. Seek appropriate consultation from other health professionals, recognizing the limits of their expertise.

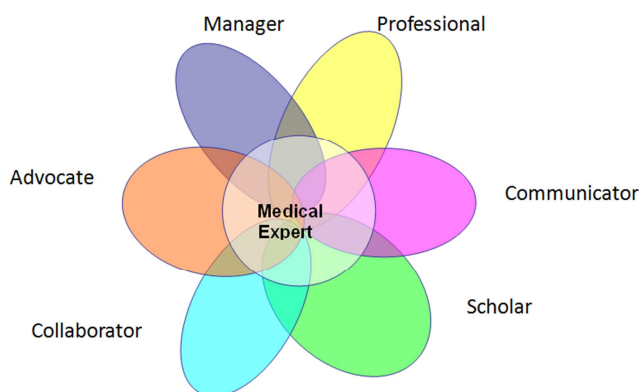


Fig. 1. Physician's role as per CanMEDS framework.

In Kenya, Clinical officers are a cadre of medical professionals whom patients/clients encounter first when visiting most health facilities. They are comparable to Physicians or medical assistants in other countries. Their training is provided by a three year programme that was designed in the early 1960s as a *stopgap measure* after the exit of white doctors soon after independence. Clinical officers handle the majority of patients/clients in health centers, and sub-district and District up to Provincial hospitals. Both Kenyan Medical Training College (KMTC) and Egerton University (EU) and other Institutions not included in this study train Clinical officers as stipulated in the training policy of the Ministry of Health (MoH) and the Training, Registration and Licensing ACT of 1988, implemented by Clinical Officer's council (COC).

KMTC and EU have their own curricula for training clinical officers which are both discipline based. The instructional methods are lectures and clinical and practical sessions. Students undertake field attachments at recognized hospitals. Each institution assesses their students with final examinations at the end of third year, and then they proceed to *Internship* under the umbrella of COC.

This clinical officer is required to possess a defined body of knowledge, clinical skills, procedural skills and professional attitudes in order to be able to provide effective patient/client care. In order for the clinical officers to provide effective services they should be able to:

- competently collect and interpret information,
- make appropriate clinical decisions,
- carry out diagnostic and therapeutic interventions.

In addition to clinical work, they should be familiar with managerial, social, communication, education, and health-counseling skills, and with basic financial management.

To qualify as a clinical officer in Kenya students must have successfully completed a three year course, followed by a one year internship at an accredited hospital. The interns work under supervision in order to gain further practical experience. See appendix I. At the end of internship the clinical officer's council (COC) recognizes and licenses them for practice. Both Kenya medical Training College and Egerton university clinical officer graduates are subjected to internship of COC under the Training, Registration, and Licensing Act of 1988. During this period they perform the various tasks of clinical officers in the medical specialties (medicine, pediatrics, surgery, and gynecology and obstetrics departments). During their rotations in these departments/specialties they perform both In and Out-patient tasks. This is commonly known as *clinical rotations*; where students work under supervision of senior doctors who from time to time supervise them as they learn and perfect their competencies. (9) reported that "for the majority of clinical conditions listed, interns feel they should be able to initiate some management without supervision". At the end of each clinical rotation the senior doctor rates the intern on the provided clinical officer interns' assessment booklet (See appendix II). This booklet contains guidelines for clinical officer interns in clinical medicine, in accordance with training, registration, and licensing Act of 1988, rules and regulations of the Kenyan Dangerous Drug Act. Cap 245 and pharmacy and poison Act. Cap 244.

This survey reports on the level of competence attained by clinical officers (interns) in relation to the *medical expert role* during clinical rotations. The survey reflects the levels of competence among clinical officers of two Kenyan training institutions: Kenya Medical Training College (KMTC) and Egerton University (EU). CO interns' competency levels in medical specialties (medicine, surgery, pediatrics, and Gynecology and Obstetrics) were evaluated by means of the CO interns' self assessed individual competencies. The CO interns answered the question: "*Sincerely rate yourself in your daily performance in the following areas by circling the*

number that you feel best represents your competence". Senior doctors were asked to answer the question: "Sincerely rate the intern clinical officer whom you supervise and indicate the observed and notable abilities that best represent their competence."

1.2. Statement of the Problem

Society demands protection from malpractice by incompetent health professionals. At the same time society needs effective and efficient health care services. Usually clinical officers' competence assessment has been emphasized at the *medical school level* and during the *one year internship* period before they are certified and licensed for practice by COC on behalf of the ministry of Health. This is done to ensure that the public is protected, but no feedback is given to the training institutions although they are using their own curricula to train clinical officers. From time to time subtle cases have been noted in health care delivery, which firstly may be detrimental to patients and clients' health welfare and secondly may result in damaging the medical profession's reputation. In Kenya, the clinical medicine profession has not reported any *gaps* or *needs* in competence nor have any recommendations been made concerning remedial action to maintain the required level of competency among clinical officers.(3) recommends to conduct additional research to identify effective ways for junior doctor to learn broad aspects of competence and stresses that it is important to evaluate the effect of educational interventions on patient care.

1.3. Justification

Identifying which clinicians' competencies are performed poorly and which are performed at a safe and effective level can serve many purposes, including educational, employment-related, regulatory, and protection of the public, because of changing societal demands for accountability of professionals. Clinical officers play a vital role in service provision, serving at least 80% of the Kenyan population. Just like pharmacists are expected to be competent in all aspects of pharmacy, clinical officers should be competent in a similar way in their field. (19) have noted increasing concern within the medical profession over competence and accountability. To meet this concern several of the specialist branches in medicine mainly in the United States have initiated studies to determine the competencies required by their members. In Kenya no similar study has been conducted to determine the existing competency levels among clinical officers. This survey reports on the competency levels of clinical officers to identify any gaps or needs and, if necessary, to make recommendations as to how they might be addressed. This will pave the way for medical training institutions to design, develop and implement training programmes for clinical officers to ensure that the required competency levels are attained or maintained.

1.4. Objectives

The main aim of this study was to enhance protection of the public by establishing whether the training programme for clinical officers should be modified. Specific objectives are;

- 1). To determine the levels of competency in the medical expert role among interns who recently graduated from medical schools and who are undertaking internship training before they are recognized, certified and licensed for practice.
- 2). To identify needs or gaps in competencies for the medical expert role and give recommendations to be used by medical training colleges in:
 - (a). their circular reviews of the current programme,
 - (b). and in designing, developing, and implementing continuing medical education activities that will address the need or gaps of their graduates in the field.

1.5. Research Hypotheses and Question

Research question:

What is the competency level(s) of Clinical Officers (*Interns*) from Egerton University (EU) and Kenya Medical Training College (KMTC)?

The research hypothesis is

HO1: There is no difference in the competency levels of clinical officers in their medical expert role between CO (*Interns*) from EU and KMTC

HO1: There is no difference in competency levels between clinical officers of Kenya Medical Training College and Egerton University.

1.6. Definition of Terms

This study will use the following definitions:

Competency – thoughtful integration of knowledge, skill and abilities in order to perform effectively on the job.

Competencies – Observable and measurable behaviours which are critical to successful individual performance.

Clinical officer (CO) – This is a health professional with a diploma after three years of training in clinical medicine and surgery.

Clinical Officer Council (COC) – An authorising and professional body that ensures policy and standards are maintained in training and service provision of clinical officers. Empowered through the training, registration and licensing Act 1988 of laws of Kenya.

2. Methods

2.1. Research Design

A cross-sectional study design was used to conduct a survey. 'It collects information from a sample that has been drawn from a predetermined population. The information is collected at just one point in time, although the time it takes to collect all of the data may take anywhere from a day to a

few weeks or more' (6).

2.2. Unit of Analysis

The unit of analysis is *CO interns* at their training posts (accredited hospitals). Sixty four (64) CO interns of Year 2002 classes from both Kenya medical Training College and Egerton University completed the questionnaire. These CO interns completed their one-year internship in September 2006. The study was conducted during the months of August-September 2006 when the interns had almost completed their clinical rotations. During internship the *interns* depend much on what they learn during their training.

Purposive sampling was used to determine the sample for the study. First, a list of all stations with interns was obtained from the Clinical Officers' Council offices, Nairobi. Then a list of hospitals where interns from the two selected institutions were training was made. Out of that list two hospitals from each province were randomly selected, except for the North Eastern province which had no hospital with interns from both selected institutions. All interns at the selected hospitals were included in the study.

2.3. Instrument

A questionnaire was constructed which required responses on a Likert scale from 1-4 (1- Not at all prepared, 2- Inadequately prepared, 3-adequately prepared, & 4- Extremely well prepared). The higher levels of competence were represented by 4 and 3, and the lower levels of competence were represented by 2 and 1. There was no option reflecting the situation of being on neither side of competence. (12) supports that performance is best viewed on a continuum, ranging from highly competent to clearly incompetent. The rating of the items is of a forced-type. (11) stated that "forced types of items facilitate consistency of responses across respondents. This is because responses have to be objective and are made so by being specified". The questionnaire was a modified version of the clinical officer interns' assessment form used by Clinical officers Council (COC) which incorporates the aspects of the CanMEDS framework. The questionnaire items are a selected representative list of tasks in specialties of medicine, pediatrics, surgery, and gynecology and obstetrics to ensure content-related evidence of validity. The list of items was arrived at after extensive consultation with specialists who are practitioners and teachers in clinical medicine and surgery.

First, a pilot survey was conducted to test the questionnaire's wording, ambiguity, validity (representation of a definite problem), and presence of any irrelevant material. After this the initial 5-point scale was changed into a 4-point scale. The pilot was conducted among 6 CO interns, 8 recently qualified Clinical Officers and 6 Doctors, who were later excluded from the study survey.

The questionnaire was pre-tested in one hospital and all the participants in the pre-test were excluded from the actual study. Before completing the questionnaire the respondents

received an explanation of the questionnaire both verbally and in writing through a letter attached to the questionnaire. They were told who the researcher was, the purpose and benefit of the study and support for the study from their previous institutions and the Ministry of Health. This was done to promote a positive, cooperative and supportive attitude among the participants. The *CO interns* especially those from EU were contacted by phone in advance to inform the others to be present during the visiting day, in order to increase the number of interns present at stations. The questionnaire was completed by all respondents on site at the clinics to preclude that administration at different locations might jeopardize internal validity.

2.4. Procedure

Official consent was acquired from the Ministry of Health, through Chief clinical officer and Registrar of Clinical Officers Council. At each hospital that participated the Medical officer of Health was consulted before respondents were contacted.

First, the interns' stations were alerted by phone before they were visited. Data were collected during the months of August-September 2006. All the interns were visited personally at their selected stations to complete the questionnaires. Verbally and with an attached introduction letter the *CO interns* were explained the purpose of the study before completing the questionnaires. Only *CO interns* from KMTC and EU completed the questionnaires. Each completed his/her questionnaire on the spot. Those who were absent from station were not followed up.

2.5. Study Area

This study was conducted in Kenya, Africa. The study sample consisted of interns from various Hospitals in seven out of the eight provinces of the Republic of Kenya.

1. *Nyanza Province* - Kisii District Hospital
2. *Western province* - Lugulu Mission Hospital
3. *Rift Valley Province* - Kericho District and Nakuru Provincial General Hospitals
4. *Central Province* - Nyahururu District, Kijabe Mission, Nyeri Provincial, and Consolata Mathari Mission Hospitals,,
5. *Coast Province* - Coast Provincial General and Malindi District Hospitals
6. *Eastern Province* - Machakos District hospital
7. *Nairobi Province* - Mbagathi District and Nazarene Mission Hospitals

2.6. Data Analysis

All completed questionnaires were coded. A total of 64 year 2003 interns completed the questionnaires: 45 out of 263 from KMTC (17.05%) and 19 out of 21 from EU (90.47%). (15) suggested that for descriptive studies ten percent of the accessible population is enough. They also add that when the population is too small selecting a sample is meaningless. Taking the whole population in such cases is

advisable. That is why a larger percentage of EU interns responded. (6) say that the best answer is that a sample should be as large as the researcher can obtain with reasonable expenditure of time and energy. All coded questionnaires were entered, compiled and analyzed using SPSS and Excel program. Measures of central tendency - modus, measures of variability - were calculated and presented in pie and bar charts, and independent sample *t-test* was used to test the null hypothesis.

3. Results and Discussion

In answering the research question

What is the competency level(s) of Clinical Officers (Interns) from the Egerton University (EU) and Kenya Medical Training College (KMTC)?

And testing the research hypothesis

HO1: There is no difference between the competency levels of Clinical officers in their medical expert role between CO (Interns) from EU and KMTC

HO1: There is no difference in competency levels among Clinical Officers of Kenya Medical Training College and Egerton University.

The cut line for competencies was 1 (not at all prepared) and 2 (inadequately prepared) as incompetent level, and 3 (adequate) and 4 (extremely adequate) as competent level.

3.1. Medicine Specialty Tasks

The values of the modus for all the tasks/competencies are on the competent level of (3) adequate and (4) extremely adequate. These data refer to tasks performed in adult patients i.e. History taking, Physical examination, Interpreting laboratory investigations, making a management plan, a provisional diagnosis or impression, prescribing and use of drugs, venepuncture for blood samples, insertion of branula/cannula for infusions/transfusions, lumbar puncture, Ascetic tap and Pleural tap. The CO interns from both institutes perceived themselves to be on the higher level of

extremely prepared for Ascetic tap and Venepuncture for blood samples only. While for the other tasks/competencies they perceived their competency to be adequate. Although CO interns perceived themselves to be competent in various tasks, the percentages of self-perceived adequate competence for lumbar puncture, Ascetic tap and Pleural tap were below 50%. While other tasks showed perceived adequate competence in more than 50% of the respondents, those with below 50% spread the other bigger percentage to the competent side - for example self-perceived adequate competence for Pleural tap was reported by 40.6%, perceived highly adequate competence for this task was reported by 31.3%, 21.9% reported inadequate performance and 6.3% considered themselves not at all prepared for this task. (table 1)

The *P*-values of all the tasks assessed in medicine for both KMTC and EU CO interns were greater than 0.05, which is considered to be NOT statistically significant. So there was no reason to reject the null hypothesis. The results show that *there is no difference in competency levels between clinical Officers of Kenya Medical Training College and Egerton University in medicine specialty.*

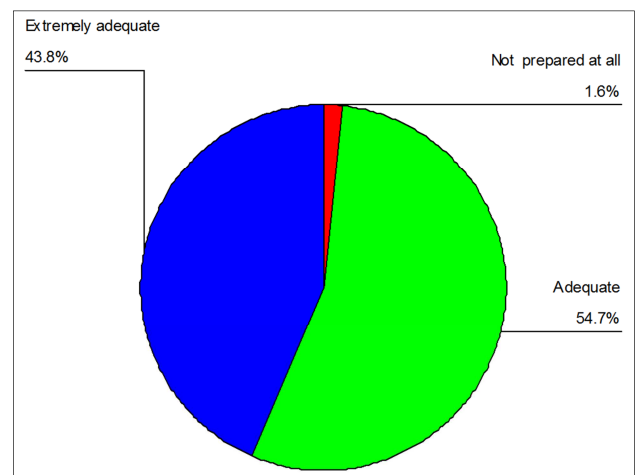


Fig. 2. Scores on history taking adults according to competency levels.

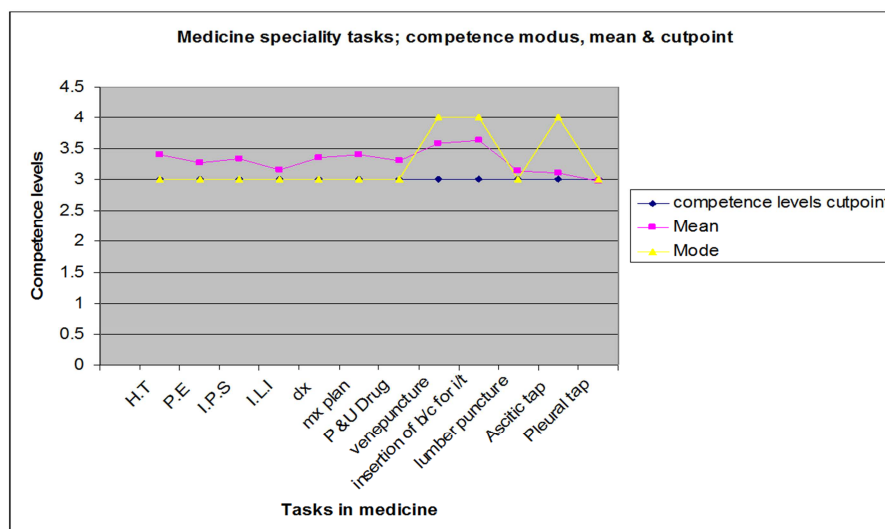


Fig. 3. Scored competencies levels in medicine specialty.

Tab. 1. Medicine Specialty.

Tasks in MEDICINE	N	Mode of competency levels	%	p-value Independent samples test
1. History taking	64	1	1.6	.707
		2	0	
		3	54.7	
		4	43.8	
2. Physical examination	63	1	3.2	.487
		2	0	
		3	63.5	
		4	33.3	
3. Interpretation of laboratory	64	1	3.1	.758
		2	7.8	
		3	59.4	
		4	29.7	
4. Making Provisional Diagnosis		1	1.6	.633
		2	1.6	
		3	57.1	
		4	39.7	
5. Making management plan	64	1	1.6	.707
		2	0	
		3	54.7	
		4	43.7	
6. Prescribing and proper use of drug	63	1	1.6	.439
		2	1.6	
		3	61.9	
		4	34.9	
7. Venepuncture for blood samples	64	1	4.7	.101
		2	1.6	
		3	25.0	
		4	68.8	
8. Insertion of branula/canula for infusions/transfusions	64	1	3.1	.963
		2	3.1	
		3	21.9	
		4	71.9	
9. Lumbar puncture	63	1	3.2	.057
		2	15.9	
		3	44.4	
		4	36.5	
10. Ascetic tap.	64	1	4.7	.319
		2	18.8	
		3	37.5	
		4	39.1	
11. Pleural tap	64	1	6.3	.378
		2	21.9	
		3	40.6	
		4	31.3	

3.2. Paediatrics Tasks Specialty

The calculated values for the modus indicate that all tasks are done at competency levels 3 and 4 in pediatrics specialty. From the two institutions most CO *interns* with over 50% perceived themselves as competent at level 3 (adequate) except 4 (extremely adequate) in Venepuncture for blood samples, Insertion of scalp vein for infusions/transfusions, Insertion of branula/canula for infusions/transfusions and BCG immunization. For lumbar puncture, ascetic and pleural taps 37.5% - 47.6% perceived

themselves as competent. Although the mode for tasks like pleural tap was 3, which was scored by 37.2%, 32.8% felt inadequate. A one-sample test (3 being cut point) confirms that they are competent with p-value of .665 for ascetic tap and .051 for pleural tap which are greater than .05. (*Also see fig. 3 pie chart*).

The *P*-values for all the tasks/competencies in pediatrics were above 0.05, so the null hypothesis cannot be rejected. This means that the self-perceived competencies of KMTC and EU CO *interns* indicate no difference in their respective pediatrics competencies.

Tab. 2. PaediatricsSpeciality.

Tasks inPAEDITRICS	N	Modus of Competency levels	%	p-value Independent samples test
1. History taking	64	1	1.6	.443
		2	3.1	
		3	50.0	
		4	45.3	
2. Physical examination	63	1	1.6	.998
		2	4.8	
		3	61.9	
		4	31.7	
3. Interpretation of physical signs	61	1	1.6	.471
		2	6.6	
		3	54.1	
		4	37.7	
4. Making management plan	64	1	1.6	.431
		2	0	
		3	54.7	
		4	43.8	
5. Prescribing and proper use of drug	62	1	4.8	.295
		2	6.5	
		3	59.7	
		4	29.0	
6. Venepuncture for blood samples	64	1	4.7	.239
		2	0	
		3	37.5	
		4	57.8	
7. Insertion of scalp vein for infusions/transfusions	62	1	3.3	.568
		2	4.9	
		3	37.7	
		4	54.1	
8. Insertion of branula/cannula for infusions/transfusions	61	1	4.8	.353
		2	4.8	
		3	32.3	
		4	58.1	
9. Lumbar puncture	63	1	6.3	.091
		2	6.3	
		3	47.6	
		4	33.3	
10. Ascetic tap.	61	1	6.6	.353
		2	21.3	
		3	42.6	
		4	29.5	
11. Pleural tap	64	1	6.3	.921
		2	32.8	
		3	37.5	
		4	23.4	
12. BCG immunization	64	1	6.3	.993
		2	10.9	
		3	25.0	
		4	57.8	

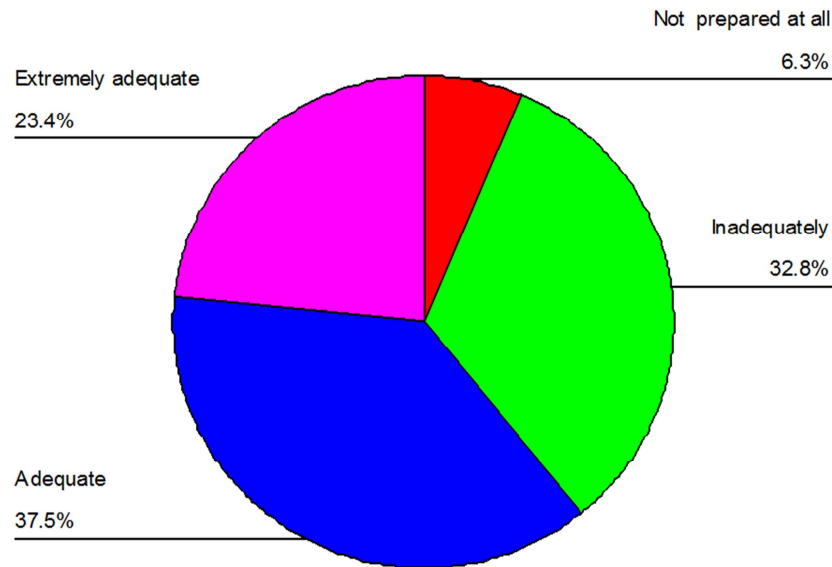


Fig. 4. Pie chart on pleural tap.

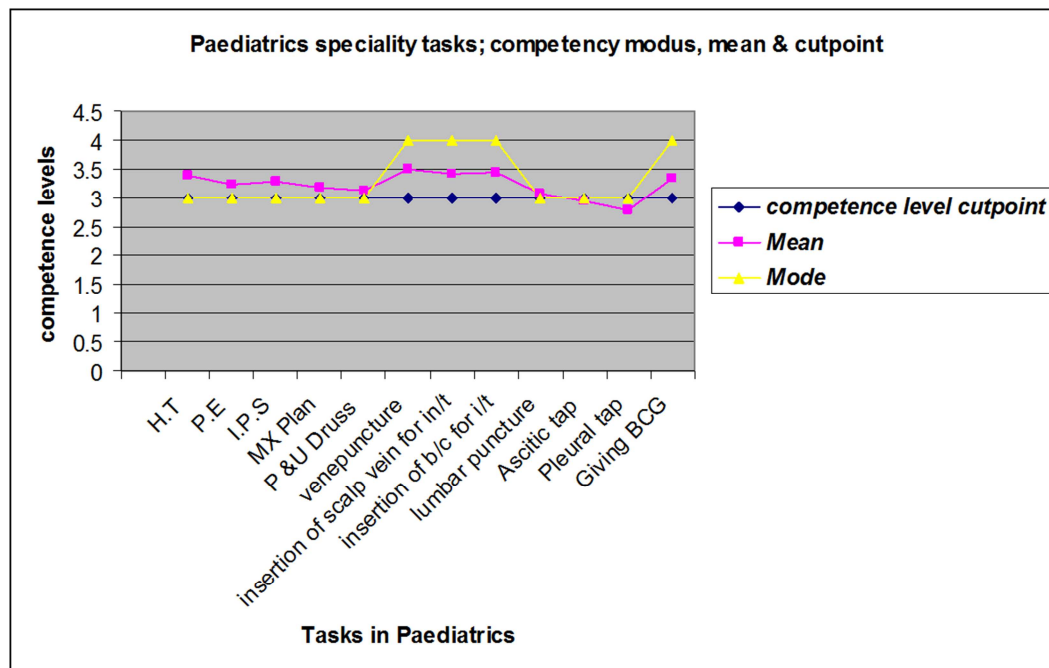


Fig. 5. CO's Self-perception scores showing mean, mode & cut point for competency levels in pediatrics tasks.

3.3. Surgery Specialty Tasks

The values that were calculated for the modus of the surgery tasks for CO *interns* from both KMTC and EU were 3 and 4 except for excision of superficial lesions e.g. ganglion, where the modus was 2, indicating the interns perceived themselves as having inadequate competence. Although the majority perceived that competency for Male circumcision to be level 3 (adequate), there was a rather high proportion that rated their competency as 2 (inadequate), i.e. 29.1% and 21.8% rated their competency as extremely adequate, table 3, figure 6.

Therefore the null hypothesis is accepted with *P*-values of more than 0.05, so there are no significant differences among

the levels of competencies in all CO *intern* tasks; Pre-surgical counseling (major procedures), Incision and Drainage Of superficial abscesses, Excision of superficial Lesions e.g. ganglion, Excision of biopsy e.g. Superficial lymph node, Stitching superficial wounds under Local Anesthesia, Male circumcision under local anesthesia (Older children and adults), and Catheterizing the Bladder (male). One way ANOVA yielded a *P*-value for Excision of superficial Lesions e.g. ganglion of .792, which is more than 0.05, so we have no reason to reject the null hypothesis. There appear to be no significant differences in competency levels among the CO interns from KMTC and EU. Both KMTC and EU CO *interns* self-perceived to be at competent levels.

Tab. 3. Surgery Specialty.

Tasks in SURGERY	N	Modus of Competency levels	Frequency in %	p-value Independent samples test
1. Pre-surgical counselling major procedures	60	1	1.6	.601
		2	9.8	
		3	37.7	
		4	50.8	
2. Incision and Drainage Of superficial abscesses	63	1	3.2	.994
		2	9.5	
		3	31.7	
		4	55.6	
3. Excision of superficial Lesions e.g. ganglion	61	1	4.9	.079
		2	36.1	
		3	29.5	
		4	29.5	
4. Excision of biopsy e.g. Superficial lymph node.	62	1	8.1	.633
		2	16.1	
		3	41.9	
		4	33.9	
5. Stitching superficial wounds under Local Anaesthesia	60	1	10.0	.612
		2	5.0	
		3	36.7	
		4	48.3	
6. Male circumcision under local anaesthesia (Older children and adults).	55	1	12.7	.536
		2	29.1	
		3	36.4	
		4	21.8	
7. Catheterising the Bladder (male).	63	1	4.8	.994
		2	0	
		3	27.0	
		4	68.3	

male circumcision (older children and adults)

Both KMTC and EU interns



Fig. 6. CO self-perception task in surgery - competence on male circumcision.

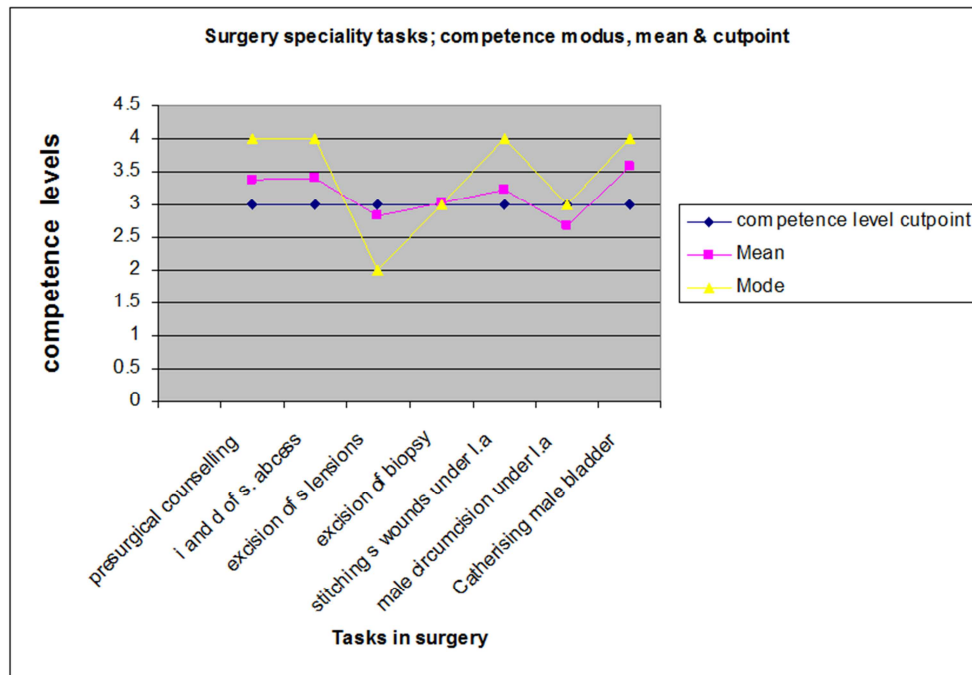


Fig. 7. CO's Self perception scores showing mean, mode & cut point for competencies levels in surgery tasks.

3.4. Obstetrics and Gynecology Specialty Tasks

The calculated values of the modus indicate that the interns' self-perceived competency in obstetrics and gynecology was more than adequate at 3 and 4. A modus of 3 was found for Conducting (SVD) normal Spontaneous Vaginal Delivery, Resuscitating a newborn, assessing fundal height, inserting contraceptive device, removing contraceptive device e.g. coil, Inserting a speculum for cervical examination, and a modus of 4 (extremely adequate) was found for catheterising the bladder (female), Assessing cervical dilation during labor, Assessing presentation part during labor, Assessing fetal position and lie, Determining the expected date of delivery from Last Menstrual Period (LMP), Inserting a speculum for assessing APH examination.

Tab. 4. Obstetric and Gynecology Specialty.

Tasks in OBSTETRICS and GYNAECOLOGY	N	Modus of Competency levels	Frequency in %	Independent samples testp-value
i). Conducting (SVD) normal Spontaneous Vaginal Delivery	64	1	4.7	.054
		2	9.4	
		3	48.4	
		4	37.5	
ii). Resuscitating a newborn.	63	1	3.2	.237
		2	14.3	
		3	50.8	
		4	31.7	
iii). Assessing fundal height.	64	1	4.7	.782
		2	3.1	
		3	31.3	
		4	60.9	
iv). Assessing cervical dilation during labour.	64	1	1.6	.672
		2	4.7	
		3	37.5	
		4	56.3	
v). Assessing presentation part during labour..	64	1	1.6	

Although inserting and removing contraceptive device e.g. coil had a mode of 3, the mean score indicates that the CO interns consider their competency to be inadequate (table 2).

P-values of all tasks in obstetrics and gynecology are higher than .05, so the null hypothesis is not rejected and there seems to be no reason to assume that there are differences between CO interns of KMTC and EU. Although some are at different levels these differences are the same for interns from both institutions. Further analysis for example of inserting and removing contraceptive devices e.g. coil showed a p-value (test value =3) of .017 and .001, respectively, so CO interns from both institutions rated their competence below 3 (adequate) (table 2).

Tasks in OBSTETRICS and GYNAECOLOGY	N	Modus of Competency levels	Frequency in %	Independent samples testp-value
vi). Assessing foetal position and lie.	64	2	4.7	.158
		3	34.4	
		4	59.4	
		1	1.6	
vii). Determining the expected date of delivery from Last Menstrual Period (LMP)..	63	2	3.1	.338
		3	32.8	
		4	62.5	
		1	1.6	
viii). Inserting a speculum for assessing APH examination.	64	2	3.2	.062
		3	27.0	
		4	68.3	
		1	3.1	
ix). Determining period of amenorrhoea from last Menstrual period.	63	2	6.3	.773
		3	39.1	
		4	51.6	
		1	1.6	
x). Explaining the menstrual cycle.	63	2	0	.669
		3	36.5	
		4	61.9	
		1	3.2	
xi). Inserting a speculum for cervical examination.	62	2	4.8	.306
		3	38.1	
		4	54.0	
		1	3.2	
xii). Inserting contraceptive device e.g. coil.	63	2	3.2	.704
		3	32.3	
		4	61.3	
		1	11.1	
xiii). Removing contraceptive device e.g. coil.	63	2	27.0	.671
		3	41.3	
		4	20.6	
		1	14.3	
xiv) Catheterising the bladder (female)	63	2	28.6	.740
		3	41.3	
		4	15.9	
		1	3.2	
	63	2	1.6	.131
		3	30.2	
		4	65.1	
		1		

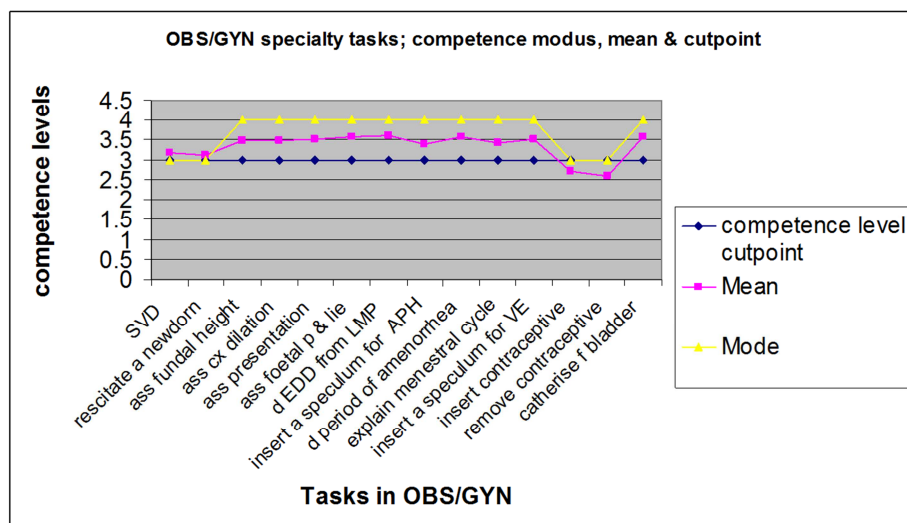


Fig. 8. CO's Self perception scores showing mean, mode & cut point for competencies levels in Obstetrics and Gynaecology.

inserting contraceptive device e.g coil

Both KMTC and EU interns



Fig. 9. General Self perception (Both CO Interns KMTC and EU) in Specialities.

4. Conclusion

4.1. Research Question

What is the competency level(s) of Clinical Officers (Interns) from the Egerton University (EU) and Kenya Medical Training College (KMTC)?

CO interns from both KMTC and EU had adequate self-perceived competency levels in most medicine, pediatrics, surgery, and obstetrics and gynecology tasks, except for excision of superficial lesions e.g. ganglion, pleural tap in pediatrics, Male circumcision, inserting and removing contraceptive devices e.g. coil.

In medicine tasks the self-perceived competencies of CO interns indicate no difference in competency levels among the tasks as they all were self-perceived to be at the competent level side of adequate and extremely adequate. At the same time the clinical Officers interns from both Kenya Medical Training College and Egerton University reported similar self-perceived competency levels (adequate and extremely adequate) so there is no significant difference in competency levels. Competency levels for medicine tasks are at the same level.

In pediatrics tasks the study shows that the CO interns considered their competency levels to be adequate, although the ratings for ascetic and pleural taps showed a division in two almost equal groups at either side of the competent incompetent divide. There was no significant difference in competency levels among the pediatrics tasks as they all indicated adequate and extremely adequate competency levels. These levels indicate no difference in their competence levels in pediatrics tasks for both KMTC and EU interns.

In surgery tasks the CO interns indicate adequate self-perceived competencies except for excision of superficial lesions e.g. ganglion and circumcision for which they rated

themselves as incompetent. So they showed variations in competency levels for different tasks. No difference was found between CO interns from KMTC and EU as they concurred in their self-perceptions; tasks that yielded self-perceived high or low competency levels yielded similar ratings for both institutions.

In obstetrics and gynecology tasks the CO interns considered themselves competent except for inserting and removing contraceptive devices e.g. coil, for which they reported self-perceived incompetency. The tasks showed variation in competency levels with some showing adequate and others showing inadequate competency. No difference was found between CO interns from KMTC and EU as they concurred in their self-perceptions; the differences between tasks in competency levels were similar for interns from both institutions e.g. in inserting and removing contraceptive devices.

In general, over 80% of the CO interns who participated in the study appeared to consider themselves well prepared in all of the four specialties.

In conclusion the CO interns from Kenya medical training college and Egerton University reported that they perceived themselves to have reached adequate competency levels for most tasks, except a few, like excision of superficial lesions e.g. ganglion, inserting and removing contraceptive devices e.g. coil. These tasks represent 6.8% of all the tasks rated. This suggests that the answer to the question 'is it possible for a clinician to be equally competent in all the tasks?' should be no. However Hagan (1979) cautioned that "incompetence poses a risk for professionals because negligent behavior often lays foundations for malpractice lawsuits". The CO interns are not equally competent in all the tasks of their profession. The public is only protected in 93.2% of the cases rated so it is not 100% protected. This loophole can be remedied to avoid hurting the patient and damaging the reputation of the

medical profession.

4.2. Recommendations

The study recommends that some issues might be taken into consideration by the two institutions; Kenya medical Training College and Egerton University and the Clinical officers who are practicing. (16) noted that “flagrant cases of professional incompetence are often identified and corrected through formal remediation procedures.

4.2.1. Immediate Remedies

- (1) Curriculum review to address areas that have demonstrated inadequate self-perceived competency levels among CO interns, such as superficial lesions e.g. ganglion, inserting and removing contraceptive devices e.g. coil tasks. These are tasks that require skill training and practice perfection. *Refer table 2, table 3 & 4*
- (2) Practicing Clinical Officers might undertake self-directed learning and foster the habit of lifelong learning habit in systematic continuing medical education activities which addresses the area where they perceive incompetency's or want further information. For example attending symposia, conferences, short courses and other activities.
- (3) Dedicating more time to working alongside colleagues in specific activities.
- (4) The training institutions might incorporate the concept of self-directed and lifelong learning into their training programmes. This may help students to become future self-directed and lifelong learners.

4.2.2. Future Remedy

1. The training institutes might develop and organize a variety of update and refresher courses, for practicing clinical officers to attend.
2. Professional body (Clinical Officer Council) either alone or in partnership with others might design and organize update and refresher courses for practicing clinical officers.

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