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One of the faces of Ebola

Review: Ebola haemorrhagic fever .... page 22

From the Editor

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The EBOLA epidemic in Africa and the spread of the virus to other continents necessitates a review on the current situation of EBOLA in this issue by Lesley Pocock. In addition in this issue of the journal a number of papers deal with education of medical students and residents in training in family medicine.

A cross sectional study was done at Oman Medical College. All of the medical students who signed up for an Objective Structured Clinical Examination (OSCE) in Family Medicine were included. As a part of the OSCE, the student performance was evaluated by a simulated patient. After the examination the students were asked to assess their communication skills. The Calgary Cambridge Observation Guide formed the basis for the outcome measures used in the questionnaires. A total of 12 items was rated on a Likert scale from 1–5 (strongly disagree to strongly agree). A total 68 students participated in the examination, 88% (60/68) of whom responded to the questionnaire. The response rate for the simulated patients was 100%. Over all comparison showed that students marginally over estimated in few areas as compared to simulated patients. The authors concluded that students and simulated patients assessment has some agreement. Self-assessment is guiding the future learning, providing reassurance, and promoting reflection which helps students to perform appropriately.

A paper from Sri Linka explored factors affecting patients' attitudes towards training students in general practices. Six general practices to represent different background (urban, semi urban, male and female trainers) where students undergo training, were selected for the study. Fifty consenting consecutive adult patients from each practice responded to a self administered questionnaire following a consultation where medical students had been present. A total of 300 patients (57.2 % females) participated in the study. 44.1% had previously experienced students. Patients' agreed to the presence of students during different stages of consultation; 94.7% history taking, 81.7% examination over clothes, 54% examination without shirt/blouse, 34.7% internal examination. The authors concluded that General practitioner trainers should be aware of the instances where patients are reluctant to have students during consultation and opportunity should be offered to them to consult the doctor without students.

A randomized controlled prospective study was done, at Prince Ali military hospital. The aim is to evaluate the effect of delayed cord clamping on infant's hemoglobin at two months of infant's age for those whom were born to mothers who had hemoglobin less than 11 grams/dl at time of delivery.
One hundred and twelve (112) infants were included, in which they studied the hemoglobin and ferritin levels for these neonates from the cord and then at age of two months. 112 neonates, who were divided into two groups, early cord clamping as group A (47 infants) and delayed cord clamping as Group B (65 infants). The hemoglobin concentration at two months of age was significantly higher in group B than group A which was found to be 10.7 mg/dl compared to 9.2mg/dl respectively. At two months of age tyhey were able to recruit Eighty –two (82) infants, (33) infants from group (A) early cord clamping and (49)from group (B) delayed cord clamping, while they missed follow up with 30 infants as the enrolled mothers did not come back. The authors concluded that iron stores and hemoglobin in infancy can be improved in neonates born to anemic mothers by delaying cord clamping at birth.

A descriptive cross-sectional study from Iraq attempted to identify the prevalence of vision and eye abnormalities in children up to five years old attending two of primary health care centers in Baghdad and to identify some risk factors associated with vision and eye abnormalities in this age group. The sampling was a non-probability convenient sample of (407) children, and all the illegible willing participants were subjected to a self –structured close ended questionnaire and were subjected to the following examinations by the researcher alone. The prevalence of eye and vision abnormalities is 6.14% (95%CI 4.09% - 9.05%). The prevalence of strabismus was 4.4 %, abnormal visual acuity1.5%, nystagmus 0.5%, congenital glaucoma 0.25%. In this study sample the majority of children with ocular abnormalities were from the second and fifth years of life (p=0.008). The authors concluded that strabismus and abnormal visual acuity are the most common abnormalities detected in this study. The detected eye and vision abnormalities were most commonly distributed in children at the fifth and second year of life.

A retrospective study looked Management of primary postpartum Hemorrhage. Data for this study was collected from Directorate of health in Erbil city and record review from Maternity Teaching Hospital, Primary Health Care Labour room and Private Hospital. From the data of Directorate of health in Erbil city and record review a total of 73,954 births in Maternity Teaching Hospital, primary health care center and Private Hospital and home, 32,420 (43.8%) women were at low-risk. About 1.3 percent (428/32,420) of those low-risk women experienced a blood loss greater than 1,000 mL. The result of this study showed that sever primary postpartum hemorrhage was experienced by 1.32 percent of low-risk women inside Erbil city. Place of birth was not associated with increasing the risk of sever postpartum hemorrhage but active management of third stage of labour increased the risk by twofold. This study is welcoming and well-reasoned scientific arguments in promoting third stage labour care for women in developing countries. Further studies tackling this condition are necessary.

Prevalence of Eye and Vision Abnormalities among a Sample of Children up to five years old who visit Primary Health Care Centers in Baghdad Alresafa

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Abstract

Background : **Vision disorders are the fourth most common disability of children and the leading cause of handicapping conditions in childhood. Eye examination and vision assessment are vital for the detection of conditions that result in blindness, signify serious systemic diseases which may lead to problems with school performance, or at worst, threaten the child's life.**

Objectives :
1. To identify the prevalence of vision and eye abnormalities in children up to five years old attending two of primary health care centers in Baghdad Al resafa.
2. To identify some risk factors associated with vision and eye abnormalities in this age group.

Subjects and methods: A descriptive cross-sectional study was conducted from November 2011 to March 2012 in two primary health care centers in Baghdad Al resafa. The sampling was a non-probability convenient sample of (407) children, and all the eligible, willing participants were subjected to a self -structured close ended questionnaire and were subjected to the following examinations by the researcher alone (inspection of all children's eyes and eyelids for any abnormalities, red reflex examination, corneal light reflex test, near fixation, ocular motility test, cover test, visual acuity test). Statistical Package for Social Sciences version 18 was used for data input and analysis.

Result: The prevalence of eye and vision abnormalities is 6.14% (95%CI 4.09% - 9.05%).The prevalence of strabismus 4.4 %, abnormal visual acuity1.5%, nystagmus 0.5%, congenital glaucoma 0.25%. In this study sample the majority of children with ocular abnormalities were from the second and fifth years of life (p=0.008). The sex was not significantly associated with ocular abnormalities (p=0.512). Prematurity was not significantly associated with eye problems (p>0.05). Low birth weight was significantly associated with eye problems (p=0.003). Family history of congenital glaucoma, eye deviation, wearing glasses during childhood, all were significantly associated with eye problems (p=0.001), but family history of nystagmus and cataract was not significant (p>0.05). Positive history of prenatal infection was not significantly associated with eye problems (p=0.273). Needed oxygen therapy on birth was significant (p=0.002). History of seizure, cerebral palsy, and syndromes all were not significant (p>0.05).

Conclusion: Strabismus and abnormal visual acuity are the most common abnormalities detected in this study. The detected eye and vision abnormalities were most commonly distributed in children at the fifth and second year of life.

Key words: Prevalence, eye and vision screening

Introduction

Childhood blindness is a priority eye problem in VISION 2020-The Right to Sight initiative. [1]

Vision disorders are the fourth most common disability of children and the leading cause of handicapping conditions in childhood. [2]

Eye examination and vision assessment are vital for the detection of conditions that result in blindness, signify serious systemic diseases that may lead to problems with school performance, or at worst, threaten the child's life. [3,4]

Vision problems occur in 5% to 10% of all pre-schoolers and include refractive error, strabismus, and amblyopia. [5]

United States Preventive Services Task Force recommends vision screening for all children at least once between the ages of 3 and 5 years, to detect the presence of amblyopia or its risk factors and concludes that the current evidence is insufficient to assess the balance of benefits and harms of vision screening for children < three years of age.[6]

Before adopting this screening in developing countries, workload of such screening should be critically reviewed to ensure its efficiency and sustainability. [7]

In Iraq a new screening program for early detection of eye and vision disorders in children from birth -five years old was started in 2010.*

Aims of the study:

1. To identify the prevalence of vision and eye abnormalities in children up to five years old attending two of primary health care centers in Baghdad Alresafa.
2. To identify some risk factors associated with vision and eye abnormalities in this age group.

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Subjects and Methods

1-Study Design :

A descriptive cross-sectional study to identify the prevalence of vision abnormalities in children up to five years old.

2-Time of the Study

This study was conducted from the first of November 2011 to the first of March 2012

3-Place of the Study

This study was conducted in two primary health care centers in Baghdad AL-Resafa; the selected centers are:

1- Sylakh specialized family Medicine primary health care center.

2- AL-Mustansyria specialized family Medicine primary health care center.

4-Sampling Design

The sampling design was a non-probability convenient sample.

5-Sample size

The sample size was calculated as (407) on a prevalence of -5%-10% (as reported in the USA) [3].
Sample size determination used the formula:
N=P*Q*Z2/R2 N=0.08*0.92*(1.96)2/(0.05)2=113
N=Sample size, P=prevalence, Q=1-P, Z=1.96, R=0.05.

6-Criteria of enrolment:

6.1 Inclusion criteria

The study population who attended the selected PHC centers for any complaint was selected depending on the following criteria:-
1) Age under five years.
2) Children from both sexes were included.

6.2 Exclusion criteria

1) Age above five years old.
2) Subjects who did not respond to screening tests

Content of the questionnaire

After selection of the eligible participants (the parents), then clarification of the purpose behind the study, assuring high confidentiality, and having verbal consents were done. And all the eligible willing participants were subjected to a self -structured closed ended questionnaire consisting of :

- Age at the time of examination
- Gender
- Is there a family history of vision problems (e.g., cataracts, nystagmus, congenital glaucoma, eye crossing and/or needing glasses In Young age?
- Was your child exposed to any prenatal infections (e.g. rubella, toxoplasmosis, cytomegalovirus, hepatitis)?
- Child weight at birth?
- Gestational age at birth?
- Has your child had meningitis or encephalitis?
- Has your child experienced some form of head trauma?
- Does your child have a seizure disorder?
- Does your child have any difficulties with his or her hearing, Cerebral palsy, diagnosed with a syndrome e.g. Down syndrome?

Examination

All children were subjected to the following examinations by the researcher alone using the same equipment for all: [8]

1. Inspection:

Inspection of all children's eyes and eyelids for any abnormalities like eye deviation, limited eye movement, involuntary jerky movement, red eye, watery, cloudiness of eye, drooping eyelid or any other abnormality.

2. Red reflex examination:
The test was done for all children and was performed in a darkened room (to maximize pupil dilation). The direct ophthalmoscope is focused on each pupil individually approximately 12- 18 inches away from the eye, and then both eyes are viewed simultaneously. The red reflex seen in each eye individually should be bright reddish-yellow (or light gray in darkly pigmented, brown-eyed patients) and identical in both eyes. Dark spots in the red reflex, blunted dull red reflex, lack of a red reflex, or presence of a white reflex are all indications for referral. After assessing each eye separately, the eyes are viewed together with the child focusing on the ophthalmoscope light (Bruckner test) as before, any asymmetry in red reflex colour, brightness, or size is an indication for referral, because asymmetry may indicate an amblyogenic condition.

3. Corneal Light Reflex Test:
All children older than three months should be examined holding a penlight 12-13 inches away from the child's face directly in front of the eyes. The child needs to fixate either on the penlight or an object that may be held near the light. The examiner should observe the reflection of the penlight in the pupils of both eyes. The reflection should be centered or equally centered slightly toward the nose (nasal). If the reflection is symmetrical and centered in both eyes it is normal. If the reflection of the penlight does not appear to be in a centered position in the pupil of each eye it is considered abnormal. Sensitivity to light, rapid eye movement, and poor fixation observed during this test are also reasons for referral for further evaluation.

4. Near Fixation:
All children older than three months should be examined. A 1-inch object is to be placed from (8-18) inches away from the child's face and observe whether the child looks at the object. If the child does not look at the object, it can be picked up and shown to the child. If the child fixates on the object (looks with sustained gaze for 2-3 seconds) it's a normal finding but if the child cannot fixate on the object or maintain fixation it's considered an abnormal finding.

5. Ocular Motility Test:
Smooth tracking skills should be evident after 3 months of age.

Horizontal Tracking: Position the object or light about 12 inches from the child's eyes. Move the object to get the child's attention and let him or her look at it for 2-3 seconds. Slowly move the object in an arc of 180 degrees from one side to the other and back to the other side.

Vertical Tracking: Position the object about 12 inches in front of the child's nose. Move the object to get the child's attention and let him or her look at it for 2-3 seconds. Slowly move the object up to several inches above the child's head and then down to several inches below his or her chin. If the tracking is described as jerky or segmented it is abnormal. If both eyes maintain their gaze on the oncoming object at least 4-6 inches from the nose it is normal.

6. Cover Test:
Start by 6 months age.

The target object (small toy) may need to be manipulated or changed to maintain a young child's attention. Position the child sitting in caregiver's lap or independently in a chair. The room should be quiet to reduce unnecessary distraction. The examiner sits across from the child and aligns his or her eyes with the child's eyes. Hold the target object about 12 inches away directly in front of the child. Get the child to fixate on the object for 2-3seconds. This can be checked by moving the object back and forth and watching the child's eyes follow.

The child's right eye should be covered with the occluder, watching the left eye for any movement, the cover should be left for 2-3 seconds then quickly move the occluder across the bridge of the nose to cover the left eye, watching the right eye for any movement, waiting 2-3 seconds after the cover is moved to permit fixation of the now uncovered eye, moving the cover from the left eye back to the right eye, across the bridge of the nose, watching the left eye for any movement then we allow 2-3 seconds for fixation. Repeat procedure several times to be assured of observations. If there is no redress movement in either eye; the child will pass this screening indicator. If there is redress movement in either eye, the child will fail this indicator and should be referred for further evaluation.

7. Visual Acuity (V.A) Test:
All children from 36 months old were examined, using Snellen picture chart. The examiner shows the child the pictures on the chart up close and asks the child to give a name for each picture. The child looks at the chart which is placed 20 feet (6 meters) from the child. The child or his or her parent occluding one eye and the child should be able to identify at least 3 pictures from 5 at each line to pass that line. If the child has a V.A of 20 /40or 6 /12 his or her V.A is considered normal at that eye, one eye should be evaluated at a time. [8]

Data analysis:-
SPSS v.18 (Statistical Package for Social Sciences version 18) was used for data input and analysis. Continuous variables were presented as mean with its standard deviation (SD) and discrete variables presented as numbers and percentages. Chi square test for goodness of fit was used to test the significance of observed distribution. Those who did not undergo a specific examination or test were not included in related analysis. Chi square test for independence and Fisher exact test were used as appropriate to test the significance of association between observed findings. P value used for all tests was asymptotic and two sided. Findings with a P value less than 0.05 were considered significant.

Results

The total number of children who were involved in this study is 407; the minimum age was 2 weeks and the maximum age 59 months; the mean of ages was 16.6 months; standard deviation is 15.1.

The personal characteristics for the study sample according to presence or absence of eye problems: There is a significant association between age and having eye problems with the majority of eye problem cases aged more than one year (p<0.001), (Table 1).

Table 1: Personal characteristics for the study sample according to presence or absence of eye problem

	positive eye problem N=25	100%	negative eye problem N=382	100%	P value
Year of Life					
First	3	12.0	180	47.1	
Second	10	40.0	124	32.5	
Third	1	4.0	35	9.2	**<0.001**
Fourth	0	0.0	21	5.5	
Fifth	11	44.0	22	5.8	
Sex					
Male	12	48.0	143	37.4	**0.512**
Female	13	52.0	239	62.6	
GA< 37 Week	6	24.0	54	14.1	**0.178**
Birth Weight < 2.5 kg	5	20.0	12	3.1	**<0.001**

There was no significant association between sex and having eye problem (P=0.512). Prematurity was not significantly associated with eye problems in the study sample (p=0.178). Low birth weight was significantly associated with eye problems in the study sample (p<0.001), (Table 1).

History findings of the study sample according to presence or absence of eye problems was as follows: The number of children with eye problems was 25 and the number of children with no eye problems was 382. Family history of glaucoma, eye deviation, wearing glasses during childhood, all were significantly associated with eye problems in the study sample (p<0.05) for each, but family history of nystagmus was not significant (p=0.06). There was no family history of cataract. Positive history of prenatal infection was not significantly associated with eye problems in the study sample (p=0.57). Needed oxygen therapy on birth was significant (p=0.002). History of seizure, cerebral palsy, and syndromes all were not significant (p>0.05). There were no cases of hearing difficulty, history of meningitis, encephalitis or head trauma, (Table 2 - next page).

Inspection finding for study sample. The total number of inspection abnormalities was 24 (5.9%), 3 (0.9%) children had watery eye, 1 child (0.2%) had cloudy eye, 18 (4.4%) had eye deviation, 2 (0.5%) children had nystagmus; no child had red eye, irritated eye or drooping of eyelids, (Table 3 - next page).

Examination findings of study sample was 24 (5.8) children having abnormal finding by inspection. 8 (2%) children had abnormal red reflex, 17 (4.1%) had abnormal corneal reflex, 4(1%) children had abnormal fixation test. 5 (1.2 %) children had abnormal fixation and flow (horizontal). 4 children (1%) had abnormal fixation and flow (vertical). 17 (4.1%) had abnormal cover test. 6 (1.4%) had abnormal visual acuity, (Table 4).

The distribution of study sample according to eye status was: 382 (39.9%) had normal eyes.15 (3.7%) had comitant strabismus, 4(1%) had abnormal visual acuity, 2 (0.5%) abnormal visual acuity and comitant strabismus. 2 (0.5%) had nystagmus and 1 (0.2%) have incomitant strabismus. 1 (0.2%) had congenital glaucoma, (Table 5).

The distribution of eye problems in children with eye abnormalities, were comitant strabismus (60%), abnormal (VA.) (16%), comitant strabismus+ abnormal (VA) is (8%), nystagmus (8%), incomitant strabismus (4%) and congenital glaucoma (4%), (Figure 1 - page 10).

Table 2: History findings for the study sample according to presence or absence of eye problems

	N =25	100%	N=382	100%	P value
Family history					
Positive for eye problems	9	36.0	11	2.9	**<0.001**
of Cataract	0	0.0	0	0.0	-
of Nystagmus	1	4.0	0	0.0	0.061
of Glaucoma	3	12.0	0	0.9	**<0.001**
of eye deviation	2	4.0	3	0.8%	**0.032**
Wearing Glasses during childhood	3	12.0	10	2.6	**0.039**
Positive History of Prenatal Infection	1	4.0	4	0.1	0.273
History of Needed Oxygen Therapy on Birth	4	16.0	2	0.5	**0.002**
History of Meningitis or Encephalitis	0	0.0	0	0.0	-
History of Head Trauma	0	0.0	0	0.0	-
History of Seizure	1	4.0	0	0.0	**0.061**
History of Hearing Difficulty	0	0.0	0	0.0	-
History of Cerebral Palsy	1	4.0	0	0.0	**0.061**
History of Syndromes	1	0.0	1	0.3	**0.119**

Table 3: Inspection findings for study sample

	N = 407	100.0%
Red Eye	0	0.0
Irritated Eye	0	0.0
Watery Eye	3	0.9
Cloudy Eye	1	0.2
Eye Deviation	18	4.4
Nystagmus	2	0.5
Drooping of Eyelids	0	0.0
Total No. of abnormalities	24	5.9

The prevalence of eye and vision abnormalities in the study sample were:
The prevalence of all eye abnormalities was 6.14% (95%CI 4.09% - 9.0.5%), the prevalence of strabismus was 4.42 %, abnormal visual acuity 1.5%, nystagmus 0.5% and congenital glaucoma 0.25% (Table 6).

The distribution of children with eye problems according to the age (year of life) at examination shows that maximum distribution is in the fifth (44%) and second (40%) year of life, no children with eye problems were found in the study sample in the fourth year of life, (Figure 2 - page 11).

Table 4: Examination findings for study sample

	N = 407	100.0%
Inspection		
Normal	383	94.1
Abnormal	24	5.8
Red Reflex		
Normal	399	98.0
Abnormal Red Reflex	8	2.0
Corneal Reflex		
Symmetrical	256	62.9
Not Symmetrical	17	4.1
Not done *	134	32.1
Fixation test		
Normal	346	85.0
Not normal	4	1.0
Not done *	57	14.0
Fixation and Flow Horizontal)		
Smooth	345	84.8
Not Smooth/segmented	5	1.2
Not done *	57	14.0
Fixation and Flow (Vertical)		
Smooth	346	85.0
Not Smooth/segmented	4	1.0
Not done *	57	14.0
Cover Test		
Normal	256	62.9
Abnormal Cover Test	17	4.1
Not done *	134	3212
Visual Acuity		
Normal	46	11.3
Abnormal Visual Acuity	6	1.4
Not done *	355	87.2

* children not included in the test because of their age

Table 5: Distribution of study sample according to eye status.

Diagnosis	N=407	100.0%	P value
Normal Eyes	382	93.9	
Comitant Strabismus	15	3.7	
Abnormal Visual Acuity	4	1.0	
Abnormal Visual Acuity & Comitant Strabismus	2	0.5	0.000
Nystagmus	2	0.5	
Incomitant Strabismus	1	0.2	
Congernital Glaucoma	1	0.2	

Figure 1: The distribution of eye problems in children with eye abnormalities

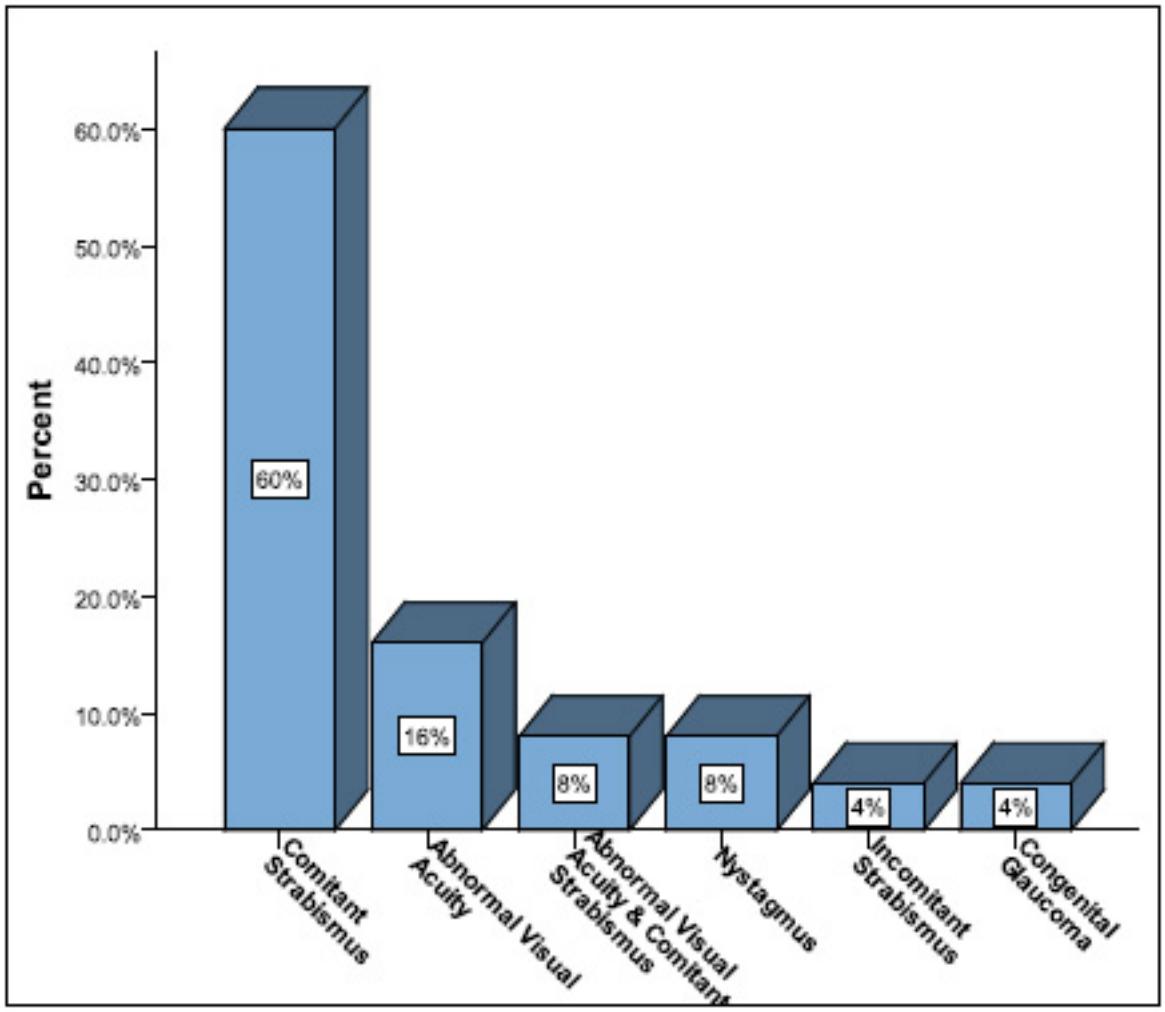


Table 6: Shows the prevalence of eye and vision abnormalities in the study sample

Diagnosis	Prevalence	95%CI
Strabismus	4.42 %	2.32-6.40
Abnormal Visual acuity	1.50%	0.62-3.38
Nystagmus	0.50 %	0.09-1.97
Congenital gluacoma	0.25 %	0.01-1.59
Total	6.14%	4.09 - 9.0.5

Discussion

In this study, the prevalence of eye and vision abnormalities among children up to five years old is 6.14% (95% CI is 4.09% - 9.05%) and this goes with prevalence of American Academy of Pediatrics where prevalence of vision abnormalities is 5% to 10%. [5]

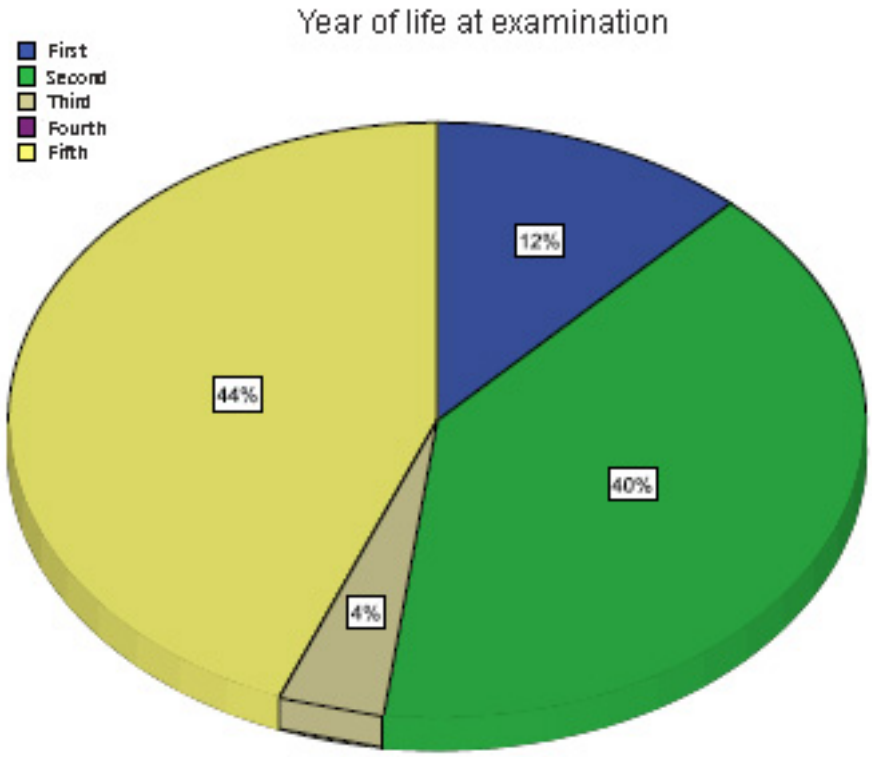
The prevalence of strabismus is 4.4% which is close to Rajiv Khandekar et al's study in Oman and Bardisi et al in Saudi Arabia where the prevalence of strabismus was 2.9% and 6% respectively. [7, 9] This is also similar to other studies in the USA where the prevalence was 4%.[10, 11]

The prevalence of abnormal visual acuity is 1.5%, which is close to the Al-Rowaily study in Saudi Arabia which was 4.5%. [12]

The prevalence of nystagmus is 0.5%. This is similar to Shirzadeh et al's study in Iran 0.5 % [13] and close to Rajiv Khandekar et al's study in Oman which was 1.2%. [7]

The prevalence of congenital glaucoma is 0.2%, while in Zeidan et al's study in Sudan it was 2.5 %, [14] and according to the American Academy of Ophthalmology it was 0.01% in the USA. [15] This may be due to different samples size among these studies.

Figure 2: Distribution of children with eye problem according to the age (year of life) at examination



The distribution of children with ocular abnormalities in regard to year of life was significant in that the majority were from the second and fifth years of life while in Rajiv Khandekar et al's study the distribution of children with ocular abnormalities was significant in the second and fourth years of age. [7] This may be due to the larger number of children attending primary health care centers during the fifth year of life according to the immunization program, and older children respond better than those who are younger age for assessment of V.A. by Snellen chart.

There is no significant association between sex and having eye problem and this goes with Al-the Rowaily study in Saudi Arabia. [12]

This study shows that low birth weight was significantly associated with eye problems and this goes with Rajiv Khandekar et al's study in Oman and Saw et al's study in the USA. [7,16]

Prematurity was not significantly associated with eye problems and this goes with Rajiv Khandekar et al's study, [7] while in the Dowdeswell et al study in USA, prematurity was associated with eye and vision defect. This discrepancy occurs because most premature children in this study were born after the 32nd week of gestation while in the Dowdeswell et al study, all children were born before the 32nd week of gestation. [17]

Needed oxygen therapy is significantly associated with eye problems in this study and this goes with the Saw et al study and other studies in the USA. [13, 8, 18]

Family history was significantly associated with eye problems in this study. This goes with publications of the American Academy of Ophthalmology and different studies in the USA. [8,16, 18 ,19]
Positive history of prenatal infection was not significantly associated with eye problems in this study. This is because the majority of eye problems which were found like strabismus and abnormal visual acuity, are not associated with prenatal infection.
History of seizure, cerebral palsy, and syndromes are not significantly associated with eye and vision problems in this study, while in Peter Black et al's study in England and Haugen et al's study in Norway there was significant association. [20, 21] This may be due to smaller sample size in this study.

Conclusions

Vision and eye screening conducted in a small sample of children up to five years old in this study enabled us to detect children with eye problems for the first time in spite of having well established and accessible eye care services of primary and secondary levels within the reach of this community.

Strabismus and abnormal visual acuity are the most common abnormalities detected in this study.
The detected eye and vision abnormalities are most commonly distributed in children at the fifth and second year of life.

Recommendations

1- Vision screening is recommended, but validity of such screening should be established before recommending eye screening on a larger scale.
2- Amblyopia is an avoidable vision defect. In this study, risk factors for amblyopia like abnormal visual acuity and strabismus were identified and further studies to identify the prevalence and the effect of early detection and management of this abnormality is recommended.
3- Efforts should be encouraged to increase awareness about the importance of early vision assessment and eye examination firstly among doctors, especially family physicians, general practitioners and pediatricians who are in close contact with children during this critical period of visual development; secondly among medical staff and finally among parents via lectures, meetings and media.

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Management of primary postpartum Hemorrhage inside Erbil city: Iraq

Abstract

Background: The proportions of maternal deaths due to postpartum hemorrhage vary considerably between developed and developing countries; deaths from postpartum hemorrhage are preventable. This study was carried out to determine the effect of place of birth on the risk of primary postpartum hemorrhage and the effect of mode of management of the third stage of labor on severe primary postpartum hemorrhage.

Methods: This is a retrospective study. Data for this study was collected from the Directorate of Health in Erbil city and record review from Maternity Teaching Hospital, Primary Health Care Labour room and Private Hospital. The population comprised all low risk women giving birth from 2012till 2014. The data entry and data analysis was done by using Statistical Package for Social Sciences (SPSS, version 21.0). P value ? 0.05 was regarded statistically significant.

Results: From the data of Directorate of Health in Erbil city and record review a total of 73,954 births in Maternity Teaching Hospital, primary health care center and Private Hospital and home, 32,420 (43.8%) women were at low-risk. About 1.3 percent (428/32,420) of those low-risk women experienced a blood loss greater than 1,000 mL. In this low-risk cohort of women, those women receiving active management of third stage of labor had twice the risk of blood loss greater than 1,000 mL compared with those undergoing physiological management of third stage of labor (RR: 2.12, 95% CI: 1.32-3.21).

Conclusion: The result of this study showed that severe primary postpartum hemorrhage was experienced by 1.32 percent of low-risk women inside Erbil city. Place of birth was not associated with increasing the risk of severe postpartum hemorrhage but active management of third stage of labour increased the risk by twofold. This study is welcoming and provides well-reasoned scientific arguments in promoting third stage labour care for women in developing countries. Further studies tackling this condition are necessary.

Key words: Postpartum hemorrhage, risk factors, management options, cesarean

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Introduction

Postpartum haemorrhage (PPH) is the leading cause of maternal mortality worldwide with a prevalence rate of 6%; Africa has the highest prevalence rate of about 10.5% (1). In Africa and Asia, PPH accounts for more than 30% of all maternal deaths (2).

The proportions of maternal deaths due to PPH vary considerably between developed and developing countries, so deaths from PPH are preventable (2). Interventions to prevent PPH in developing countries are therefore very important in the global effort to achieve by 2015 the Millennium Development Goal of reducing maternal mortality ratio by three-quarters (from 1990 levels) (3).

The third stage of labour is defined as that time extending from the birth of the baby until the birth of the placenta (4).

The most common cause of PPH is uterine atony. An evidence-based intervention for the prevention of uterine atony is active management of the third stage of labour, which has been adopted lately in developing countries (5, 6). Research in this field in developing countries is rare. Therefore, both accurate knowledge about active management of the third stage of labour (7) and its correct use remain low in developing countries (8, 9).

In developing countries, health systems face difficulties that delay the delivery of emergency obstetric care, which is very important for saving the lives of women who develop PPH. The high prevalence of anemia in women in developing countries, complicates PPH. Prevention of PPH through

greater use of active management of the third stage of labour will reduce maternal mortality (10). Approximately 65% of deliveries in our region are supervised by a skilled health-care provider. Developing countries needs evidence-based interventions to reduce PPH rates in deliveries not attended by skilled providers (11).

Primary postpartum hemorrhage is often defined as a blood loss of over 500 mL during or within the first 24 hours of birth (12). The average blood loss delivery has been estimated at 500ml and this amount of blood loss is not tolerated by women in developing countries. They enter labour in poor health and they are usually hemo dynamically compromised(13).The primary method which is available for practitioners in clinical situations is visual estimation of the blood loss. It provides the bases for clinical management. This study depends on this method which usually results in underestimation of blood loss. The estimate of blood loss in the current study is assumed to be consistent in different birth settings with different management of third stage being used (14).

Two approaches to the management of the third stage of labor are used: active, which means using a uterotonic drug, or physiological, not using a uterotonic drug (15).

To our knowledge this is the first study concerning postpartum hemorrhage and its management inside Erbil city. This study was carried out to determine the effect of place of birth on the risk of primary postpartum hemorrhage and the effect of mode of management of the third stage of labor on severe primary postpartum hemorrhage.

Methods

This is a cross sectional, retrospective study. Data for this study were collected from Directorate of Health in Erbil city and record review from Maternity Teaching Hospital, Primary Health Care Labour room and Private Hospital. The Maternity Teaching Hospital is the only public Hospital in Erbil city. It provides delivery care services, medical termination of pregnancy, Caesarean section and blood transfusion. It is largely equipped to cope with emergencies, and services are available 24 hours a day. The hospital serves the whole population of Erbil governorate.

The population comprised all low risk women giving birth from 1st Jan 2012 till 1st Jan 2014. Information collected was about demographic, medical history, type of birth, and place of birth. Exclusion criteria were: women with previous cesarean section, elective cesarean section stillbirth, previous postpartum hemorrhage(>1,000 mL), pregnancy-induced hypertension, gestational diabetes, essential hypertension, diabetes, thyroid disease, heart disease, asthma, hematological disorder, neurological disorder, renal/urinary tract disorder, multiple birth, fetal death, women who presented in labor before 36 completed weeks' gestation or after 42 completed weeks' gestation, induced labor, shoulder presentation or breech, and transverse lie. Place of birth was defined as home, primary unit, secondary hospital, or private hospital.

In active management of labour the uterotonic drug of choice is given as soon as possible after birth of the baby's anterior shoulder; then the cord is clamped and cut after birth of the baby; the placenta is born after separation by maternal effort or controlled cord traction, while in the physiological management of third stage of labour no prophylactic uterotonic drug is given, without controlled cord traction. Clamping and cutting of the cord is delayed for several minutes or until the placenta is expelled. If the cord is clamped and cut before expulsion of the placenta, the placental end is to be drained. Keeping the women warm and put the baby to the breast. When signs of placental separation occur, the mother's position may be changed to deliver the placenta by gravity force then using traction force gently to guide the placenta.

According to the records, women were categorized into four groups: active management, active management with treatment, physiological, and physiological with treatment. In the current study active management and active management with treatment were put together under the group "active management" and physiological, and physiological management with treatment were considered together under the second group named "physiological third stage." Treatment refers to the administration of uterotonic drug (16).

The study was approved by the scientific committee of the department of Community Medicine and the ethical committee of College of Medicine at Hawler Medical University.

Data analysis:

The data entry and data analysis was done by using Statistical Package for Social Sciences (SPSS, version 20.0). P value ? 0.05 was regarded statistically significant. Statistical tests included Chi-square test to compare between the proportions of different "characteristics" among the groups. Analysis was done with multinomial logistic regression after controlling for maternal age(< 35 or > 35years), parity (nullipara or multipara), ethnic group (Kurdish, Arab, Turkman, Aserian, others), augmentation of labor done or not, length of labor, mode of birth (vaginal, assisted vaginal, emergency cesarean section), episiotomy done or not, and newborn birth weight (less or greater than 4,000 g).

Results

From the data of Directorate of Health in Erbil city and record review of a total of 73,954 births in Maternity Teaching Hospital, primary health care center and Private Hospital and home, 32,420 (43.8%) women were at low-risk. Of this group, 11.3 percent gave birth at home, 17.7 percent in a primary unit, 45.5 percent in a secondary-level hospital, and 25.4 percent gave birth in a private hospital.

Table 1 illustrates the mean age, parity, and length of labor, vaginal births, and management of third stage of labor by place of birth. The study shows that each group was different significantly in respect to these characteristics. Those women who gave birth at home or in primary units have a higher mean age and parity and shorter mean length of labor. The home and primary unit women showed a greater percentage of unassisted vaginal delivery with lower percentage of active management of third stage of labor than the secondary and private hospital groups.

Table 1: Distribution of the studied sample according to mean age, mean parity, mean length of labour, vaginal birth, Cesarean section, active management of third stage of labour by place of birth

Place of birth						
Characteristics	Home (n = 3,660)	Primary Unit (n = 5,754)	Public Hospital (n = 14,760)	Tertiary Hospital (n = 8,246)	Total (n = 32,420)	p
Mean age (yr) (SD)	30.4 (5.4)	27.9 (6.0)	27.7 (6.0)	29.3 (5.9)	28.5 (6.0)	<0.005
Mean parity (SD)	1.4 (1.4)	1.1 (1.2)	0.9 (1.2)	0.7 (1.0)	1.0 (1.2)	<0.002
Mean length of labor (hr)* (SD)	5.1 (4.8)	6.1 (4.8)	6.39 (4.6)	7.4 (5.3)	6.4 (4.9)	<0.001
Vaginal births	95.4%	94.7%	84.5%	72.7%	84.6%	<0.0001
Emergency cesarean sections	2.6%	3.2%	8.5%	14.9%	8.5%	<0.002
Active Management of third stage	25.9%	47.1%	73.2%	77.8%	64.4%	<0.003

Table 2 shows women who lost blood greater than 1,000 mL and mode of third stage management for each place of birth. About 1.3 percent (428/32,420) of those low-risk women experienced a blood loss greater than 1,000 mL. Women who gave birth at home and in primary health care center had the lowest proportion(25.9% and 47.1%) among those who received active management of the third stage of labor, and the lowest proportion of blood loss greater than 1,000 mL (1.03% and 1.11%),while the secondary and private hospital groups had the highest proportion (73.2% and 77.8%) of women receiving active management of the third stage of labor and the highest proportion(1.30% and 1.62%) of women with a blood loss greater than 1,000 mL.

A larger number of women (1.11%) with blood loss more than 1,000 ml were in the active management groups for all birth places.

Table 2: Distribution of severe postpartum hemorrhage cases by third stage management and birth place*

Place of birth					
Third stage management	Home N=3,660	Primary Health care Center N=5,754	Public Hospital N=14,760	Private Hospital N=8,246	Total N=32,420
	N(%)	N(%)	N(%)	N(%)	N(%)
Physiological	12	18	20	18	68(0.21)
Active	26	46	172	116	360(1.11)
Total	38(1.03)	64(1.11)	192(1.30)	134(1.62)	428(1.32)

Table 3 shows the relative risk of blood loss greater than 1,000 mL by place of birth. It was 0.92(95% CI: 0.59-1.73) for the home birth group, 1.07(95%CI: 0.68-1.69) for the secondary hospital group, and 1.10 (95% CI: 0.67-1.79) for the private hospital group, although the differences were not statistically significant. There was no statistically significant difference between the four groups in respect to place of birth and risk of severe postpartum hemorrhage (loss greater than 1,000 mL).

Table 3: Distribution of studied sample according to variables and risk of severe hemorrhage

Variables	Crude RR	P value	Adjusted RR	P value
Place of birth				
Home	0.94 (0.53–1.65)	0.83	0.92 (0.59–1.73)	0.77
Primary Health care center	(reference group)			
Secondary Hospital	1.20 (0.80–1.79)	0.38	1.07 (0.68–1.69)	0.45
Private Hospital	1.47 (0.96–2.24)	0.08	1.10 (0.67–1.79)	0.23
Maternal age (yr) (>35 vs <35)	1.27 (0.89–1.78)	0.04	1.21 (0.79–1.93)	0.17
Parity (nulliparous vs multiparous)	**0.63 (0.46–0.85)**	**0.01**	**1.11 (0.65–1.56)**	**0.50**
Ethnicity				
Kurdish	0.84 (0.57–1.24)	0.65	1.17 (0.65–1.72)	0.46
Arab	(reference group)			
Turkman	1.20 (0.56–2.24)	0.35	1.61(0.91–2.87)	0.12
Aserian	1.24 (0.81–2.21)	0.26	1.20 (0.59–2.08)	0.41
Others	0.88 (0.39–1.98)	0.76 0.96	0.96 (0.42–2.10)	0.93
Augmentation of labor (yes vs no)	**1.35 (1.03–1.76)**	**0.02**	**0.84 (0.51–1.16)**	**0.31**
Mode of birth				
Vaginal	(reference group)			
Assisted vaginal	**1.65 (1.12–2.68)**	**0.01**	**0.79 (0.45–1.62)**	**0.62**
Emergency cesarean section	**3.69 (2.94–4.11)**	**<0.001**	**2.98 (1.71–4.21)**	**<0.001**
Episiotomy (yes vs no)	1.29 (0.84–1.99)	0.24	0.98 (0.53–1.82)	0.96
Macrosomia (>4 kg vs <4 kg)	**1.53 (1.13–2.07)**	**0.01**	**1.40 (0.79–1.98)**	**0.04**
Mode of third stage (active vs physiological)	**2.74 (2.04–4.23)**	**<0.001**	**2.12 (1.32–3.21)**	**<0.001**

In this low-risk cohort of women, those women receiving active management of third stage of labor had twice the risk of blood loss greater than 1,000 mL compared with those undergoing physiological management of third stage of labor (RR: 2.12, 95% CI: 1.32-3.21). In addition, women experiencing an emergency cesarean section had an almost two fold risk of blood loss greater than 1,000 mL than women who had normal vaginal birth.

Discussion

In the current study 1.32% of women experienced severe postpartum hemorrhage, which is lower than that reported in other low-risk populations. According to WHO PPH affects approximately 2% of all women who give birth.

WHO defines postpartum hemorrhage (PPH) as a blood loss of 500 ml or more within 24 hours after birth, while severe PPH is defined as a blood loss of 1000 ml or more within the same time frame. The reporting of postpartum hemorrhage in our region uses the WHO definition which did not distinguish between high and low risk women (17).

Women who make the choice to give birth at home or in a birth centre do so because they want to give birth naturally, in their own way at their own time; this includes the way they want to experience the third stage of labour.

The study which was conducted among low risk American women (18) reported that 2.6 percent of the women had a blood loss which was greater than 1,000 mL. A randomized controlled trial in the UK(19) showed that 2 percent (90/3,436) of the women had a blood loss which was greater than 1,000 mL. The Australia Study, (20) demonstrated that 2.3 percent of the women who gave birth vaginally had a blood loss of 1,000 mL or more but which was less than 1,500 mL and that 1.6 percent had a blood loss of 1,500 mL or more. A study in India showed that, 40.3% of the women had a blood loss which was between 500-700 ml, 27.4% had a blood loss which was between 700-1000 ml and 32.2% had a blood loss of more than 1000ml (21).

A recent Swedish randomized controlled trial (22) on low-risk women which compared the physiological third stage with the active management, reported a high rate of severe postpartum hemorrhages 13.5 percent overall. The high rate of PPH in the previous studies is due to high risk cohort. The explanation for the low rate of PPH in the current study: is due to low risk women, under-reporting, or due to different skills of midwives in the different study settings and finally could be due to the use of visual method for assessment of hemorrhage which is a subjective one and results in underestimation of the amount lost especially in a busy labour room.

In the current study the lowest proportion of women who received active management was among home and primary health center groups (25% and 47% respectively).

The explanation for that could be due to the fact that birth is a normal process and no need for interference that is why those women seek care from the primary health care center and some even prefer delivery at home (23), while the hospital group had higher rate of active management even without risk of postpartum hemorrhage.

In the current study, those having active management of the third stage of labor had two times the risk of severe postpartum hemorrhage than those having a physiological third stage of labor. This finding was in contrast with the findings from randomized controlled trials that were conducted in the UK (24, 25).

One of the limitations of this study is a retrospective study so it's subjected to selection bias. The higher rate of severe postpartum hemorrhage in the active management group found in our study could be explained by under-reporting of postpartum hemorrhage in the physiological third stage group. It could also reflect the fact that the third stage of labor was already complete when it was managed. Caregivers may not be as skilled as they should be in monitoring blood loss and uterine contractility when physiological management was used. It is clear, however, that in developing countries there is no good evidence which informs decision making for women at low risk of hemorrhage, in low-resource settings and with caregivers who are not confident in active and physiological management of third stage of labor (26). The results of this study suggest that women at low risk of hemorrhage with caregivers who are confident in the physiological management of third stage of labor may have less risk of severe postpartum hemorrhage than their counterparts experiencing active management of the third stage of labor. Another limitation of this study is that the deliveries are not representative of all facility-based deliveries in Erbil governorate so the result can't be generalized. Further prospective research is needed to substantiate these results and provide stronger evidence to inform decision making.

Conclusion

The result of this study showed that severe primary postpartum hemorrhage was experienced by 1.32 percent of low-risk women inside Erbil city. Place of birth was not associated with increasing the risk of severe postpartum hemorrhage but active management of third stage of labour increased the risk by twofold.

The finding of this study is in contrast to other studies from randomized controlled trials on this clinical issue. Blood loss in labor or the postpartum period exposes women to additional risks and also increases financial burden on the health service. It is important to support women and encourage physiological birth if it's appropriate. It should also be emphasized that the reduction of blood loss has a much greater impact on women's health in our region. A randomized controlled trial in this field is recommended. We acknowledge that this study is welcoming and provides well-reasoned scientific arguments in promoting third stage labour care for women in developing countries.

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Review: Ebola haemorrhagic fever

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Abstract

This is a review paper, on the spread of Ebola haemorrhagic fever (Ebola) on the African continent and beyond, and provides guidelines for its prevention, diagnosis and treatment, for family doctors.

Key words: Ebola, prevention, diagnosis, treatment

Background

Ebola haemorrhagic fever (Ebola) was first documented in Zaire (Democratic Republic of the Congo) in 1976. The reported number of human cases at the time was 318. Of those, 88% died. The disease was spread by close personal contact and by use of contaminated needles and syringes in hospitals/clinics.

In the same year there were 284 cases in South Sudan, where the disease was recorded as Sudan fever. The disease was spread mainly through close personal contact within hospitals. Many medical care personnel were infected.

With few cases in the ensuing years it emerged again in 1979, in South Sudan with 34 cases. 65% of the infected died.

1994 saw a major re-emergence in Gabon (52 cases, 31 deaths) and in 1995 there were 315 cases in the Democratic Republic of the Congo (formerly Zaire).

There was 1 death in Russia in 1996, the first case out of Africa, and a further death in Russia in 2004. 6 asymptomatic cases were found in the Philippines in 2008.

2000-2001 saw a major outbreak in Uganda with 425 cases with a 53% death rate. Major outbreaks also occurred in Gabon and the Republic of Congo in the same year.

Varying levels of outbreaks have occurred since that time.

2014 has seen major outbreaks in Guinea, Liberia, and Sierra Leone, with local transmission of Ebola in Spain, (2 cases) and the USA (2 cases). Senegal has had cases of travel-associated transmission.

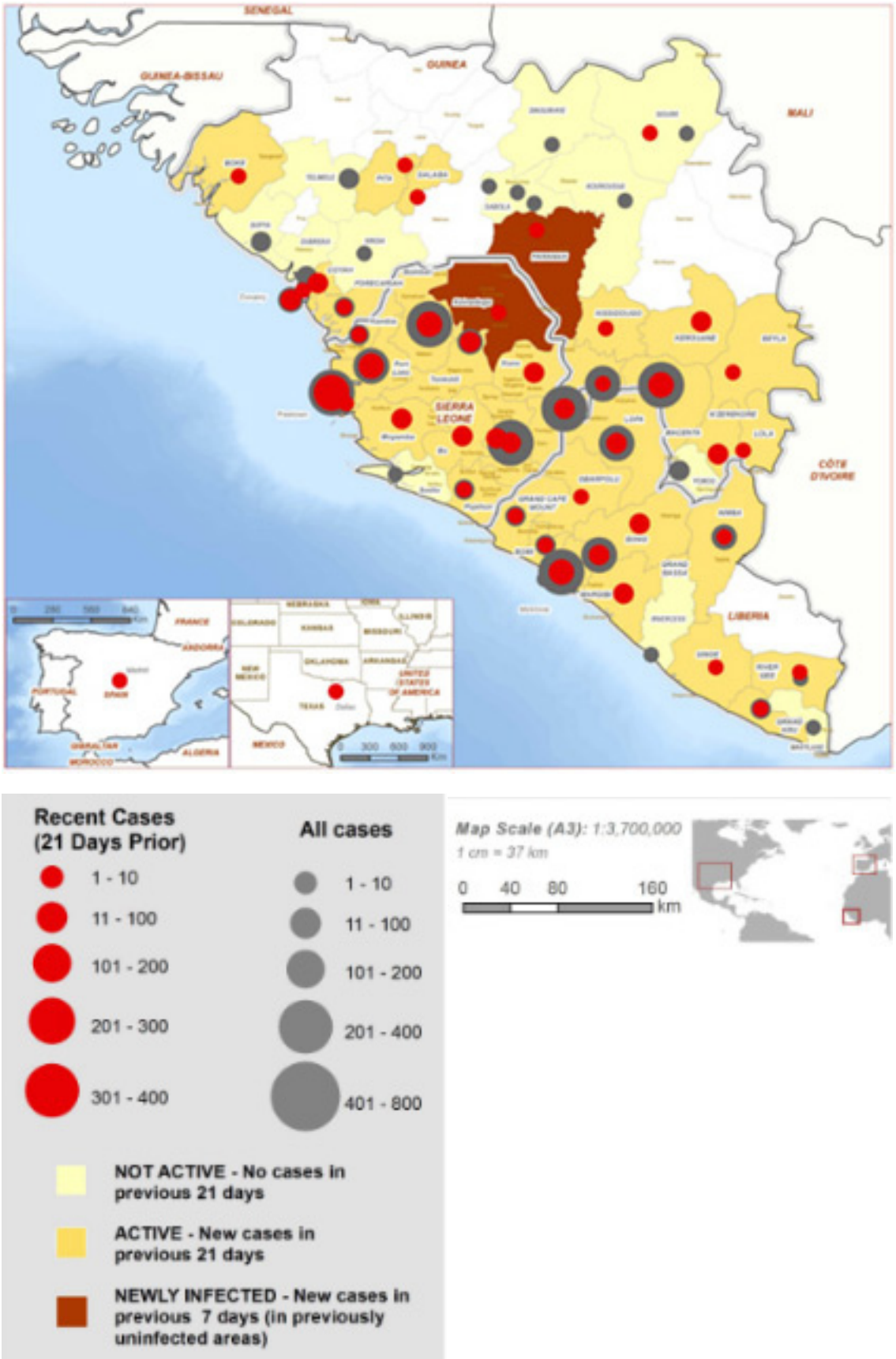
Currently there are 10,000 expected new cases of Ebola in West Africa, every week. Unfortunately the major outbreaks are in developing nations with limited resources, with minimal foreign aid or assistance to these countries being generated, Ebola now threatens the global population. (1,4)

Ebola Outbreak Response Maps

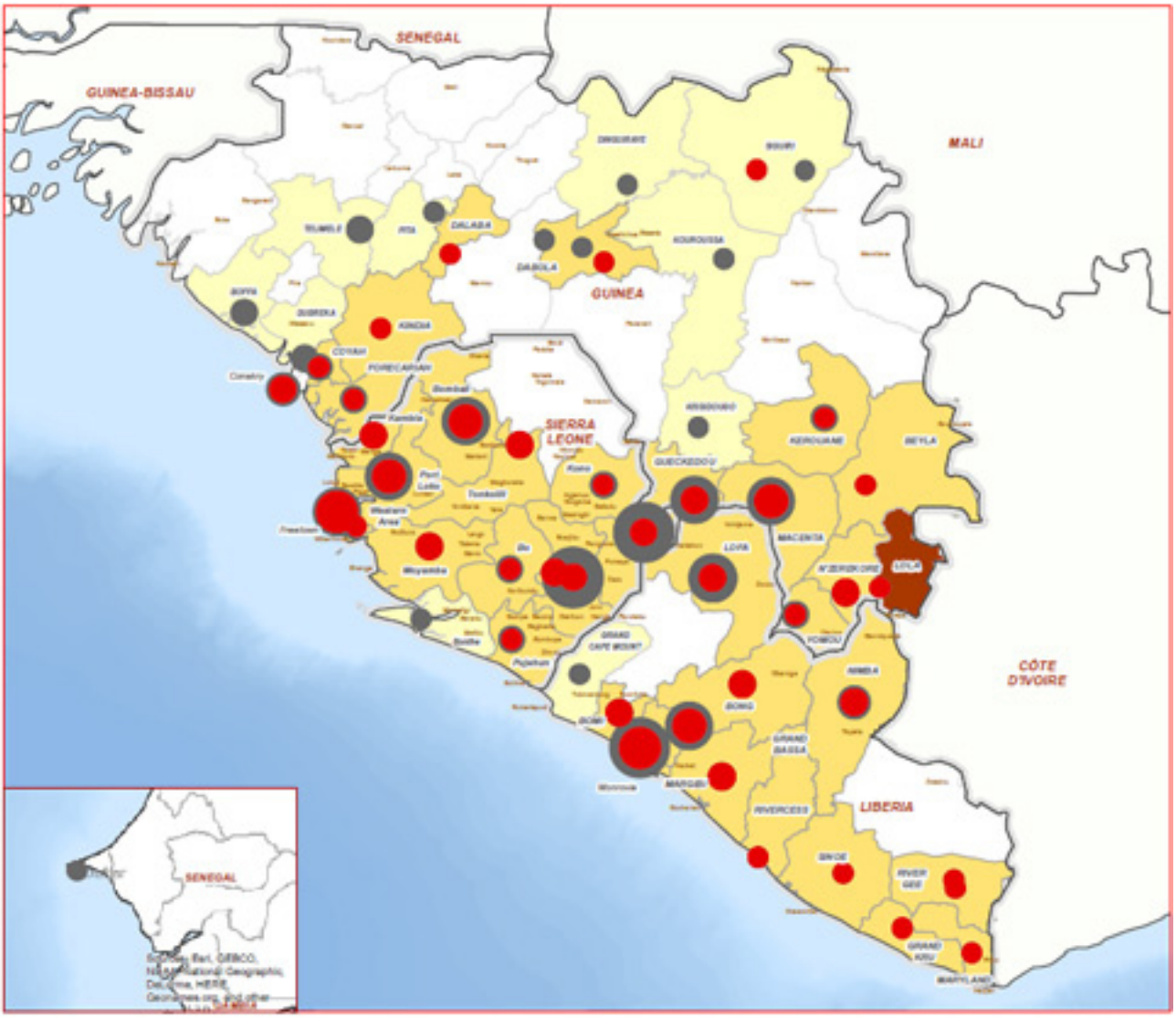
WHO 2014

(Reproduced with permission from: http://www.who.int/csr/disease/ebola/maps/en/)

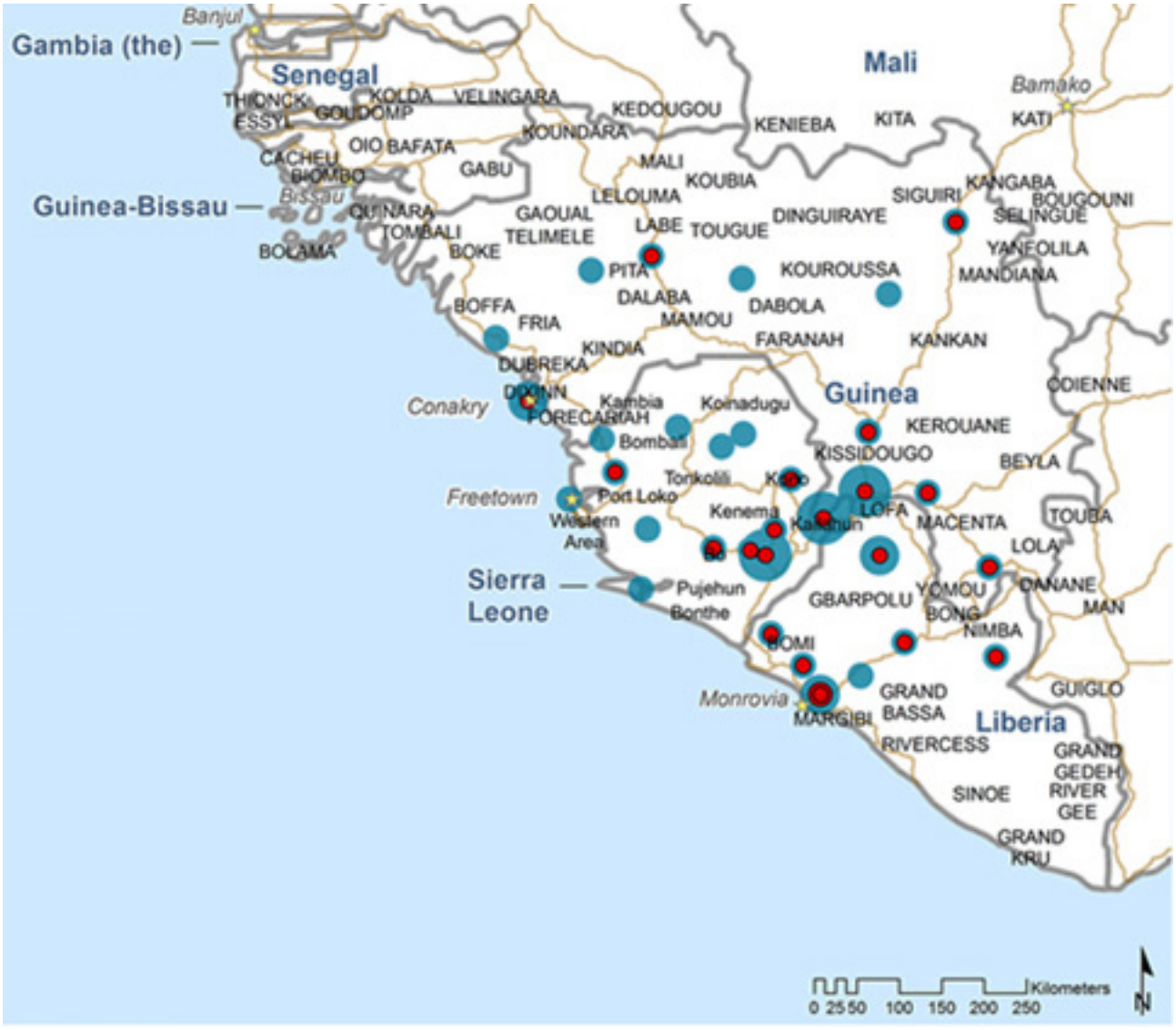
Map 1: Regional confirmed and probable cases - 20 October 2014

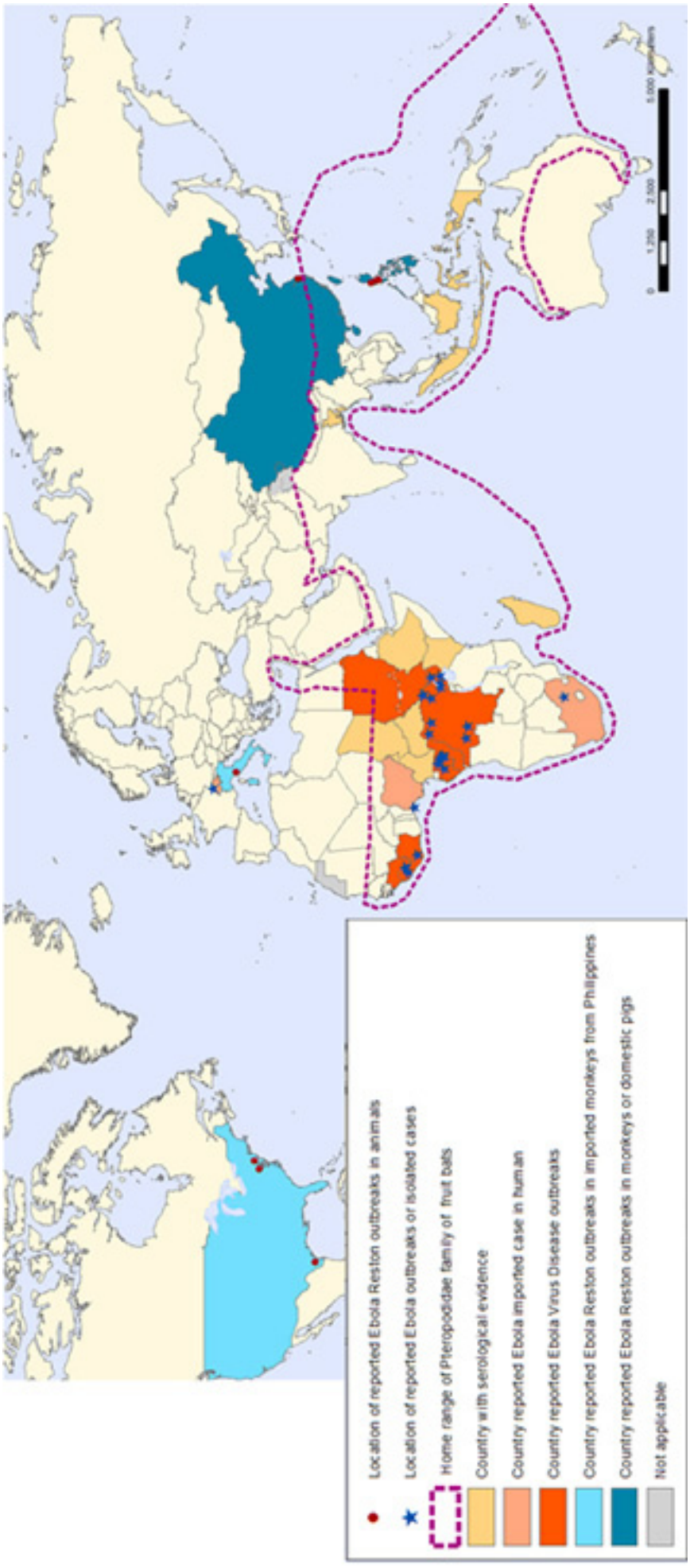


Map 2: Regional confirmed and probable cases - 3 October 2014



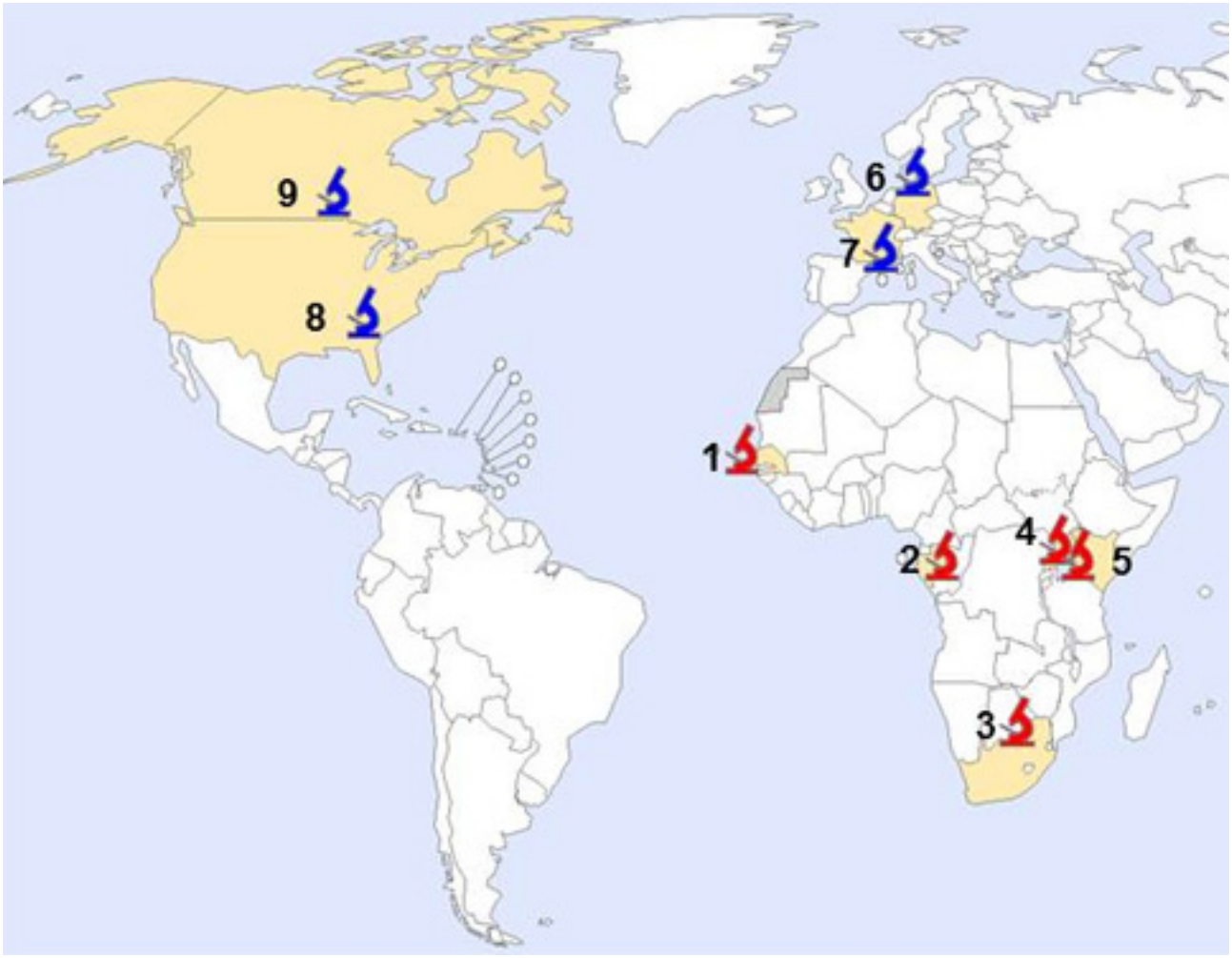
Map 3- Confirmed cases of Ebola – 7 August 2014





Map 4- Geographic distribution of Ebola virus disease outbreaks in humans and animals - 2014

Map 5 - Laboratories for Ebola virus diagnostic - 10 April 2014



Species and Epidemiology

Ebola virus is one of a group of zoonotic viruses that can cause severe disease in humans. Other viruses that cause viral haemorrhagic fever include Lassa virus, Crimean-Congo haemorrhagic fever virus, Marburg virus, and emerging viruses such as Lujo virus.

In previous outbreaks 2,387 cases have been reported, with a case fatality risk of 66.7%. (2) Of the five species of Ebola virus, three (Zaire, Sudan and Bundibugyo) have been associated with significant human to human transmission, with the other two (Tai Forest and Reston) associated with limited or no human disease.

The current outbreak has been caused by a new emergence of the Zaire species.(2)

Data from previous outbreaks suggest Ebola is moderately transmissible in the absence of infection control, even in resource limited settings. Studies have estimated the basic reproductive ratio (R0) at 1.3 to 2.7 in different outbreaks (2,3) meaning that in a completely susceptible population with no interventions to reduce spread, each infected case resulted in secondary transmission to an average of fewer than three people.

Symptoms

Symptoms of Ebola include

- Fever
- Severe headache
- Muscle pain
- Weakness
- Diarrhoea
- Vomiting
- Abdominal (stomach) pain
- Unexplained hemorrhage (bleeding or bruising)

Symptoms may appear from 2 to 21 days after exposure to Ebola, but the average is 8 to 10 days.

Recovery from Ebola depends on good supportive clinical care and the patient's immune response. People who recover from Ebola infection develop antibodies that last for at least 10 years.
(1, 4)

Transmission

Because the natural reservoir host of Ebola viruses has not yet been identified, the way in which the virus first appears in a human at the start of an outbreak is unknown. Scientists believe that the first patient becomes infected through contact with an infected animal, such as a fruit bat or primate. Person-to-person transmission follows and can lead to large numbers of affected people. Ebola is spread through direct contact (through broken skin or mucous membranes in, for example, the eyes, nose, or mouth) with “ blood or body fluids (including but not limited to urine, saliva, sweat, faeces, vomit, breast milk, and semen) of a person who is sick with Ebola” objects (like needles and syringes) that have been contaminated with the virus” infected fruit bats or primates. (1,2,4)

Healthcare providers caring for Ebola patients and the family and friends in close contact with Ebola patients are at the highest risk of transmission because they may come in contact with infected blood or body fluids of sick patients.

Diagnosis

Diagnosing Ebola in a person who has been infected for only a few days is difficult, because the early symptoms, such as fever, are nonspecific to Ebola infection and are often seen in patients with more commonly occurring diseases, such as malaria and typhoid fever.

However, if a person has the early symptoms (http://www.cdc.gov/vhf/ebola/symptoms/index.html) of Ebola and has had contact with the blood or body fluids of a person sick with Ebola, contact with objects that have been contaminated with the blood or body fluids of a person sick with Ebola, or contact with infected animals, they should be isolated and public health professionals notified. Samples from the patient can then be collected and tested to confirm infection.

The following basic interventions, when used early, can significantly improve the chances of survival:

- Providing intravenous fluids (IV)and balancing electrolytes (body salts)
- Maintaining oxygen status and blood pressure
- Treating other infections if they occur

Experimental vaccines and treatments for Ebola are under development, but they have not yet been fully tested for safety or effectiveness.

Prevention and Control

- Practice careful hygiene.
- Do not handle items that may have come in contact with an infected person’s blood or body fluids (such as clothes, bedding, needles, and medical equipment).
- Avoid funeral or burial rituals that require handling the body of someone who has died from Ebola.
- Avoid contact with bats and non-human primates or blood, fluids, and raw meat prepared from these animals.
- Avoid hospitals in West Africa where Ebola patients are being treated.

Healthcare workers exposed to people with Ebola should:

- Wear protective clothing, including masks, gloves, gowns, and eye protection.
- Practice proper infection control and sterilization measures.
- Isolate patients with Ebola from other patients.
- Avoid direct contact with the bodies of people who have died from Ebola.
- Notify health officials if direct contact has been made with the blood or body fluids, such as but not limited to, faeces, saliva, urine, vomit, and semen of a person who is sick with Ebola. The virus can enter the body through broken skin or unprotected mucous membranes in, for example, the eyes, nose, or mouth
- Laboratory workers are also at risk. Samples taken from humans and animals for investigation of Ebola infection should be handled by trained staff and processed in suitably equipped laboratories.

Good outbreak control also relies on applying a package of interventions, namely case management, surveillance and contact tracing, a good laboratory service, safe burials and social mobilisation. Community engagement is key to successfully controlling outbreaks. Raising awareness of risk factors for Ebola infection and protective measures that individuals can take is an effective way to reduce human transmission. National risk reduction messages should focus on several factors:

- **Reducing the risk of wildlife-to-human transmission** from contact with infected fruit bats or monkeys/apes and the consumption of their raw meat. Animals should be handled with gloves and other appropriate protective clothing. Animal products (blood and meat) should be thoroughly cooked before consumption.

- **Reducing the risk of human-to-human transmission** from direct or close contact with people with Ebola symptoms, particularly with their bodily fluids. Gloves and appropriate personal protective equipment should be worn when taking care of ill patients at home. Regular hand washing is required after visiting patients in hospital, as well as after taking care of patients at home.

- **Outbreak containment measures** including prompt and safe burial of the dead, identifying people who may have been in contact with someone infected with Ebola, monitoring the health of contacts for 21 days, the importance of separating the healthy from the sick to prevent further spread, the importance of good hygiene and maintaining a clean environment.

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Comparison of the medical students' self-assessment and simulated patients evaluation of students' communication skills in Family Medicine Objective Structured Clinical Examination (OSCE).

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Abstract

Objective: Comparison of the medical students' self-assessment and the evaluation of students by simulated patients regarding students' communication skills in Family Medicine OSCE.

Introduction: Communication is the act of conveying a message to another person, and it is an essential skill for establishing physician-patient relationships and effective functioning among health care professionals. Effective communication can positively influence patient satisfaction and outcomes. Health professional communication skills do not necessarily improve over time but can improve with formal communication skills training.

Method: A cross sectional study done at Oman Medical College. All of the medical students who signed up for an Objective Structured Clinical Examination (OSCE) in Family Medicine were included. As a part of the OSCE, the student performance was evaluated by a simulated patient. After the examination, the students were asked to assess their communication skills. The Calgary Cambridge Observation Guide formed the basis for the outcome measures used in the questionnaires. A total of 12 items were rated on a Likert scale from 1-5 (strongly disagree to strongly agree).

Results: 68 students participated in the examination, 88% (60/68) of whom responded to the questionnaire. The response rate for the simulated patients was 100%. Over all comparison showed that students marginally over estimated in few areas as compared to simulated patients. Measures of reliability show that it is a reliable measure with Cronbach's Alpha from the 12 items being 0.89. When comparing between the experience and new simulators only one item (q12) showed a statistically significant difference, with $t(16)=3.08$, $p<0.05$, with experienced simulators giving a higher score 4.55, when compared with the new simulators 3.86.

Conclusion: Students' and simulated patients' assessment has some agreements. Self-assessment is guiding the future learning, providing reassurance, and promoting reflection which helps them to perform appropriately.

Key words: Self-assessment, communication skills, Calgary Cambridge observation guide; Communication skills training, under graduate medical student

Background

Communication skills' training is an essential component of medical education. Communication is a process by which meaning is conveyed to create shared understanding[1]. It is a skill that can be taught and learnt; students learn this competency in an effective learning environment. It is an essential skill for safe, effective, and compassionate health care to improve better outcomes in health care system and good communication skills are more likely to make patients satisfied with the care they receive[2]. Learners are expected to be actively involved and coached in communication by their teachers specially the features of clinical competence like empathy, compassion, counseling, and showing support to patients[3-4]. The most difficult aspect of the doctor-patient relationship is ability to convey distressing news to the patients and their relatives. Breaking bad news is an inevitable part of medical practice[5-7]. The development of effective communication skills is an important part of becoming a good doctor; with appropriate teaching, these skills can be both acquired and retained[8]. Integrating communication with other clinical skills- with history taking, physical examination, and medical problem solving, help them in real-life practice[9-10]. Interviewing real patients in real practice has been shown to be valuable for learning communication skills and understanding patient illnesses. The UK's General Medical Council (GMC) emphasizes effective communication as fundamental to good medical practice[11].

To implement a more comprehensive approach, Calgary-Cambridge guides is an effective tool used to teach medical students' communication skills and practice in a comprehensive clinical method[12]. Educators can adopt the methods for teaching communication that are more effective to help learners cultivate the skills required as well as help learners set realistic goals, and teachers should know when and how to provide feedback to the learners in a way that allows a deepening of skills and a promotion of self-awareness[13-14]. Standardized or simulated patients are used for role playing specific communication skills or solving certain patient problems. Simulations are good for improving certain communication skills, and are effective in teaching and assessing communication skills.

Teaching and Learning communication skills at Oman Medical College:

Oman Medical College (OMC) is the only private medical college in Oman, and offers a seven-year curriculum, leading to the degree of Doctor of Medicine (MD). In the 4th year (first preclinical year) they learn Physical Diagnosis and Clinical Integration (PDCI) clinical skills. History taking and physical examination is conducted in the skills lab on simulated patients(16 sessions). At the end of the course, 2 theory exams and 1 clinical exam are done on simulated patients(SP). In the 5th Year of PDCI they learn clinical history taking and examination on real patients in the hospital (32 sessions). At the end of the course Theory Exam and Practical exam of clinical skills is done on real patients in Sohar Hospital. Communication skills teaching and assessment is an integral part of clinical teaching in clinical years 6 and 7 at OMC. The Family Medicine department organizes special communication skills sessions to help the students communicate with their patients. They learn knowledge of basic communication concepts, communication models, types and functions of non-verbal communication, ability to elicit accurate, comprehensive and focused medical histories as well as communication in different difficult and special situations. Although communication skills are the integral part of every patient encounter there are few specialized skills they learn during Family Medicine rotation like breaking bad news, smoking cessation counseling, confidentiality, how to handle a difficult patient, counseling for chronic diseases (Diabetes, Hypertension, Obesity), Palliative and Geriatric care.

Self-assessment is used to assess the outcome of continuous professional development using questionnaires and checklists focusing on skills, such as performance skills and general clinical skills. Calgary Cambridge Observation Guide is used as a basis for the self-efficacy and objective assessment scores; the evaluation tools closely match the communication skills taught.

Their communication skills are assessed during the real consultation in the clinic as well as mid rotation and end of rotation in Objective Structured Clinical examination (OSCE). In the OSCE setting simulated, standardized patients are used for role playing different scenario. Simulators training are done by faculty of family medicine department maintaining a bank for simulators. At the end of each OSCE there is a feedback session with simulators regarding students' approach towards patient and communication skills. OMC maintains a SP bank managed by faculty of family medicine. The criteria to choose SP are; minimum education high school graduate, good English communication, volunteers and actors, living within the city. General training program is to give them orientation about OMC and students, OSCE and its conduct. Special training sessions are done twice, 4 weeks before OSCE on a specific scenario carefully written and reviewed by family medicine faculty. The scenario is than discussed and role play with the SP.

In final MD OSCE 10 live stations were placed including: A young female with lymphocytic leukemia diagnosis as breaking bad news, a male with ureteric colic and hematuria, a young female with Irritable Bowel Syndrome, father of one year old child develops febrile fit, middle aged male with community acquired pneumonia, a middle aged male hypertensive with recurrent Transient Ischemic Attack, an elderly male with diabetes mellitus as follow up, a middle aged women with menorrhagia (Dysfunctional uterine bleeding), young boy with acute hepatitis for abdominal examination and a young male with right knee injury for examination of knee joints.

All stations had trained SP and all stations had built in communication skills during consultation. The overall objective was how the students approach to the patient identifies the problem and manages it. Total duration for each station was 7 minutes.

This study aimed at the comparison of students' self-assessment and simulated patients' assessment on students' communication skills at the end of Family Medicine final MD OSCE.

Method

A cross sectional study done on all of the medical students who were signed up for an Objective Structured Clinical Examination (OSCE) at the Oman Medical College, June 2013 were included in this study. There were 2 sessions for simulators training for the exam and survey questionnaire by faculty.

Questionnaires

The Calgary-Cambridge Observation Guide Checklist formed the basis for the outcome measures used in the questionnaires to the students [12], the simulated patients. Twelve items were chosen, covering domains of the checklist (initiating the session, gathering information, building relationship, giving information, explaining and planning, and closing the session).The students were asked to assess how confident they felt being able to successfully manage each of the 12 different communication skills rated on a Likert scale in categories 1-5 (strongly disagree to strongly agree). The simulated patients were asked to assess how the students succeeded in managing the 12 skills rated on a similar Likert scale.

Validation of the questionnaires was done. A pilot test was performed to assess the feasibility of answering the questionnaires for the standardized patients and students during a similar OSCE examination 6 months prior to the study.

Results

Sixty eight students participated in OSCE of whom 60 responded to the questionnaire, of these -52 were women, 8 men. The response rate for the simulated patients was 100%.

Comparison of student self-assessment and simulated patient evaluation scores,when including all 12 items evaluated. Overall comparison showed that students marginally over estimated in Q 2,4,5 and 9, while remaining items showed under estimation (Figure 1).

Measures of reliability show that it is a reliable measure with Cronbach's Alpha from the 12 items being 0.89. There is one item (q10) where the simulators show an unusual pattern of responses.

When comparing between the experience and new simulators only one item (q12) showed a statistically significant difference, with $t(16)=3.08$, $p<0.05$, with experienced simulators giving a higher score 4.55, when compared with the new simulators 3.86.

Discussion

Good and appropriate communication skills are essential for medical students to become an efficient member of a health care team in future. Self-assessment is guiding future learning, providing reassurance, and promoting reflection which helps them to perform appropriately in examination[15-16]. They can reinforce students' intrinsic motivation to learn and inspire them to set higher standards for themselves[17]. In our study medical students in the self-assessment of communication skills, do not overestimate their skills. Students have shown appropriate self-assessment in one of the history taking stations; the literature also support student's self-assessment is good for history taking attributes in an OSCE[18]. Some differences are also shown, as they have only marginally overestimated their communication skills in questions 2, 4, , 5 and 9. As reported in literature that communication skills assessment measures broader aspects of attitudes towards learning communication skills this may turn out to be helpful for monitoring the effect of different teaching strategies on students' attitudes during medical school.[19]. Another study has shown that students scored their communication skills lower compared to observers or simulated patients. The differences were driven by only 2 of 12 items[20]. The results in this study indicate that self-efficacy based on the Calgary Cambridge Observation guide seems to be a reliable tool that can be used for formative assessment of health professionals [21].

In Q10 of our study there is no variance in the simulators responses; that is all simulators chose "agree". This lack of variance is likely to indicate that for this question the simulators did not feel confident to 'stray' away from a default answer. They may not have understood the question or may not have felt confident to assess it. Since numbers are quite small this is difficult to ascertain. Question number 11 seems to have full agreement.

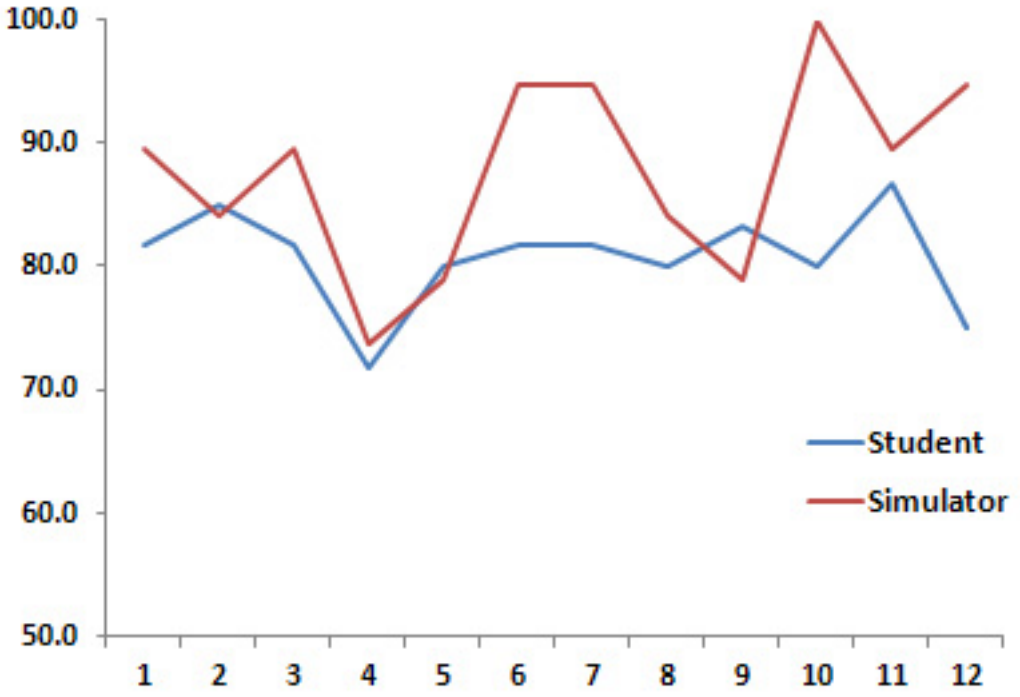
There is difference seen when we have done regression respondents who agreed and strongly agreed(Figure 2). Another interesting finding was seen in the extreme end of Likert scale which is strongly agree(Figure 3). While the students seem very consistent in the item ratings, with the average for all items being between 10 and 20% for "strongly agree", the simulators usage of "strongly agree" is much more variable, with average score ranging from 0% to nearly 40%.

It appears that on average the experienced simulators are more likely to use the extreme end of the rating scale(Figure 4). One study has reported that simulators' training compared with pre workshop standardized patient encounters, post workshop encounters showed significant improvement in communication skills [22].

Figure 1: Percentage scores for each Item. Likert scores for each item (from 1-5) are presented here as percentages

		Students Mean (St. Dev.) n=60		Simulators Mean (St. Dev.) n=20	
q1	Identify problems the patients wish to address	79	11	81	10
q2	Use concise, easily understood, jargon free language	81	13	78	19
q3	Structure interview logically	79	11	82	19
q4	Attend to time keeping, and keeping interview on task	78	14	77	18
q5	Use appropriate non-verbal behavior	80	12	78	20
q6	Provide support: express concern, understanding, and willingness to help	79	11	85	11
q7	Share thought and reflection with the patient	79	11	85	15
q8	Clarify patient's prior knowledge and wish for information	79	12	80	14
q9	Check patient's understanding	81	12	78	11
q10	Negotiate mutual plan of action	79	12	80	0
q11	Contract with patient the next steps for patient and physician	81	11	81	10
q12	Summarize session briefly and clarify plan of care	79	13	85	11

Figure 2: The percentage of respondents (students and simulators) who "agreed" or "strongly agreed" with the items



While the students seem very consistent in the item ratings, with the average for all items being between 10 and 20% for “strongly agree”, the simulators usage of “strongly agree” is much more variable, with average score ranging from 0% to nearly 40%.

Figure 3: The percentage of respondents (students and simulators) who used the extreme end of the Likert scale (“strongly agree”)

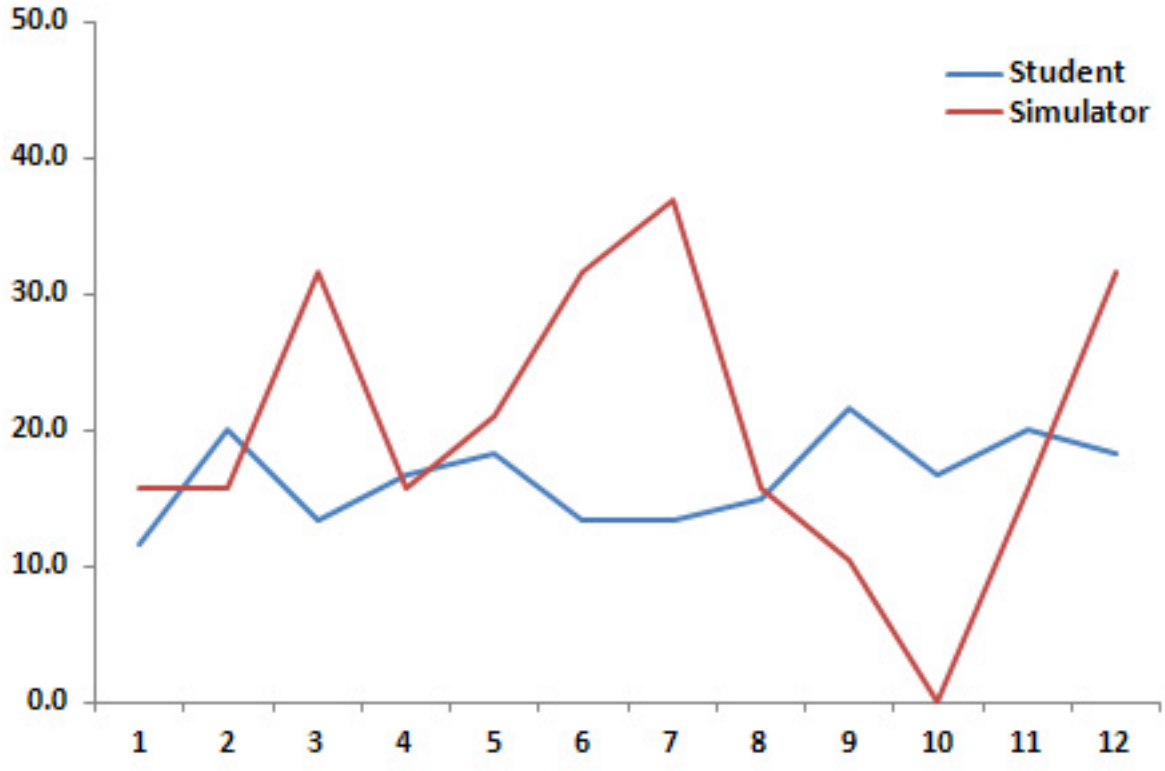


Figure 4: The percentage of simulators who used the extreme end of the Likert scale (“strongly agree”), with comparison between the new simulators and the experienced simulators

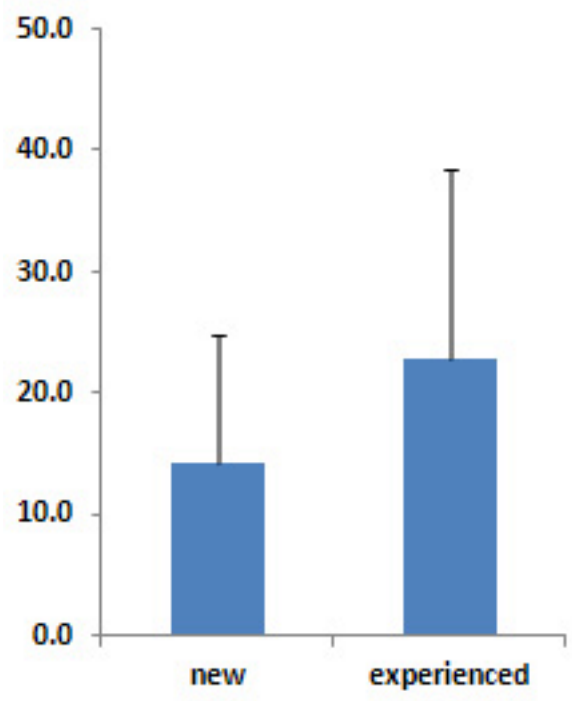
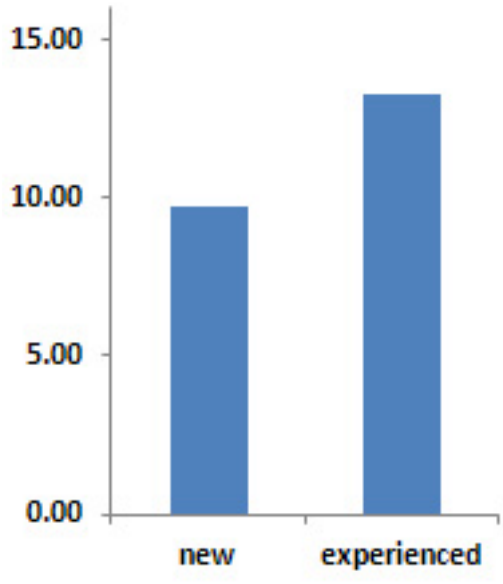


Figure 5: This figure shows the intra-rater variance for the new and experienced simulators



It appears that on average the experienced simulators are more likely to use the extreme end of the rating scale.

Standardized or simulated patients or use of well-trained actors is an alternative way of role playing specific communication skills or solving certain patient problems. Simulations can mirror reality quite closely and are good for improving certain communication skills, such as counseling and breaking bad news. Standardized patient simulations are effective in teaching and assessing communication skills[23]. In our study the experienced simulators have a higher intra-variance, and thus they are more willing to use a wider range of scores in their assessments, while the 'new' simulators, might be a little more cautious so are therefore using a more narrow and restricted range of scores in their assessments (Figure 5). One study has shown detailed constructive feedback to students from SPs is a feature of SP contribution to student learning[24]. Eva has reported that , self-assessment serves several potential functions learning communication and clinical skills, becomes a part of the training of healthcare professionals and it appears to be evident and generally accepted that communication skills are core competencies essential for good patient care[25-26]. During the training period students are exposed to real as well as simulated patients. They can practice this attribute under supervision. Preliminary research does indicate that self-assessment of clinical skills in medical schools improves the ability to self-assess in clinical practice [27]. Literature has proven that introduction and integration of structured communication skills teaching in early years contributes greatly in the development of students' strengths. The interactive examination may be a convenient tool for providing deeper insight into students' ability to prioritize, self-assess and steer their own learning [28].

Limitation:
Our study is done on final year medical students at exit level exam who may have some undue pressure on them.

Conclusion

Medical students in the self-assessment of communication skills, do not overestimate their skills; students seem very consistent in the item ratings .Students and simulated patients' assessment has some agreements. Self-assessment is guiding the future learning, providing reassurance, and promoting reflection which helps them to perform appropriately.

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Appendices

Survey Questionnaire for Simulated Patients

Simulated patients' assessment regarding students' communication skills in Family Medicine OSCE

Please tick your response: Age: in years Gender: ☐ Male ☐ Female

Occupation: ☐ Student ☐ Businessman ☐ Teacher ☐ Private job ☐ others

Education level: ☐ Undergraduate ☐ Graduate ☐ Post graduate

Acting as simulator first time Yes ☐ No ☐

S No	Students' Attributes on Communication Skills	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
1.	Identify problems the patient wishes to address					
2.	Use concise, easily understood, jargon free language					
3.	Structure interview logically					
4.	Attend to time keeping, and keeping interview on task					
5.	Use appropriate non-verbal behavior					
6.	Provide support: express concern, understanding, and willingness to help					
7.	Share thought and reflection with the patient					
8.	Clarify patient's prior knowledge and wish for information					
9.	Check patient's understanding					
10.	Negotiate mutual plan of action					
11.	Contract with patient the next steps for patient and physician					
12.	Summarize session briefly and clarify plan of care					

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Survey Questionnaire for Students

Medical students' self-assessment regarding communication skills in Family Medicine OSCE

Age: Gender: ☐ Male ☐ Female

S No	**Students self-assessment on communication skills**	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
1.	Identify problems the patient wishes to address					
2.	Use concise, easily understood, jargon free language					
3.	Structure interview logically					
4.	Attend to time keeping, and keeping interview on task					
5.	Use appropriate non-verbal behavior					
6.	Provide support: express concern, understanding, and willingness to help					
7.	Share thought and reflection with the patient					
8.	Clarify patient's prior knowledge and wish for information					
9.	Check patient's understanding					
10.	Negotiate mutual plan of action					
11.	Contract with patient the next steps for patient and physician					
12.	Summarize session briefly and clarify plan of care					

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Training medical students in general practices: Factors influencing patients' attitudes

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Abstract

Introduction: **It is in the privacy of the consultation room that a patient divulges information regarding his/her illness to the doctor. Presence of students could compromise the privacy and intimacy and may prohibit a patient from revealing sensitive information and allowing internal examination. This study was conducted to explore factors affecting patients' attitudes towards training students in general practices.**

Methodology: **Six general practices, to represent different backgrounds (urban, semi urban, male and female trainers) where students undergo training, were selected for the study. Fifty consenting consecutive adult patients from each practice responded to a self administered questionnaire following a consultation where medical students had been present.**

Results: **300 patients (57.2 % females) participated in the study. 44.1% had previously experienced students. Patients' agreement to the presence of students during different stages of consultation were; 94.7% history taking, 81.7% examination over clothes, 54% examination without shirt/blouse, 34.7% internal examination. Even though 83.3% agreed to discuss their illness in the presence of students they were less prepared to discuss family problems (58.7%) and sexual problems (38.7%). Females, younger (<35yrs), more affluent (income > 20000LKR) and more educated (>Gr 12) and patients seeing female GPs were less prepared for internal examination and discussion of family and sexual problems in the presence of students. Previous contact with students and location of the practice (urban/semi urban) did not have an impact on patients' attitudes.**

Recommendations: **General practitioner trainers should be aware of the instances where patients are reluctant to have students during consultation and opportunity should be offered to them to consult the doctor without students.**

Key words: **Medical students, training, General practice, patients' attitudes, factors**

Introduction

Consultation is the pivot of family medicine and it is the privacy or intimacy of the consultation room which provides the patient with the opportunity of divulging even sensitive personal information regarding his/her problem to the doctor.(1) Presence of students in the consultation room may compromise the privacy and intimacy of consultation and converts this activity between the doctor and the patient into a triad.

During the consultation students can learn gathering information from a patient in an out patient setting and how to conduct a focused examination. They can experience every aspect of patient management; investigations, pharmacological and non pharmacological management, and referral. This is an opportunity for them to practice record keeping, writing prescriptions and referral letters. More importantly this in an environment where the importance of social, economic, psychological and cultural influences on a patient's illness and the family response can be experienced first hand(2) and it is also an opportunity for students to get an insight into the socio-economic environment of patients and the local resources available to them. General practice consultations offer a highly personalized teaching experience for students where teacher student ratio is either one to one or one to two.

Involvement of students in general practice could have an impact on the patient, the doctor and the consultation. Patients may be inhibited by the presence of students and may not divulge sensitive information or may postpone internal examination. Doctors may not be able to conduct the consultation in the usual manner. Quality of the consultation could be affected positively or negatively and duration may become longer.

Patients' attitudes towards students may depend on patient characteristics(3), the nature of the problem, (4,5,6) previous experience with students(7,8,9) and gender of the student.(10,11,12) There could be a difference in patients' thinking patterns between an urban practice and a rural practice and between a practice managed by a male doctor and a female doctor. Although there have been numerous studies from the western world on patients' attitudes towards students such research has been extremely limited in Sri Lanka and South Asia. How a different culture in the eastern world has shaped patient thinking has not been explored adequately. In this background this study, which is part of a larger research project on community based training of undergraduate medical students, explored factors which affect patients' attitudes on involvement of students in general practice consultations.

Table 1: Demographic details of patients

Demographic detail	Frequency	%
Gender		
Female	167	57.2
Male	125	42.8
Age		
16 -34	104	36.2
35-59	125	43.6
60 and more	58	20.2
Educational status		
Up to Grade 5	19	6.4
Grade 6-12	154	51.7
Beyond Grade 12	125	41.9
Income		
< 10000LKR	27	9.5
10000-20000LKR	105	37.0
20001-50000LKR	96	33.8
>50000LKR	56	19.7
Previous consultations with students		
Never	139	48.3
1-3 times	70	24.3
>3 times	57	19.8
Cannot remember	22	7.6

n=300 note: Percentages expressed are of valid responses for a given item, not for the entire sample

The Faculty of Medicine, University of Kelaniya, Sri Lanka sends students to general practices during their fourth year of training in the five year course. They learn by observing doctor patient encounters, taking histories, performing clinical examinations and getting involved with the management of patients with the GP teacher. This study was conducted in general practices where these students undergo training.

Methodology

This descriptive cross sectional study was conducted in 6 general practices purposively selected to represent urban and semi-urban practices as well as general practices managed by both male and female doctors. A self administered questionnaire was used to gather demographic data, number of previous consultations with student participation and their willingness to have presence of students at different stages of the consultation and the factors impacting upon willingness. Fifty consenting consecutive eligible patients from each practice who consulted the doctor in the presence of students were invited to respond to the questionnaire. Patients below 16 years, seriously ill patients, confused or cognitively impaired patients, who were unable to read and write, were excluded. Younger patients were excluded since they may not be able to respond to the questionnaire and the opinion of the guardian could vary depending on the relationship to the patient.

Ethical approval for the study was obtained from the ethical review committee of the faculty of medicine, University of Kelaniya and the study was conducted in 2012.

Results

Out of the 6 general practitioners 4 were male doctors, while 3 practices were located in urban areas. Demographic details are given in Table 1 (page 39).

Graph 1: Patients' overall response to student involvement during consultation in different situations

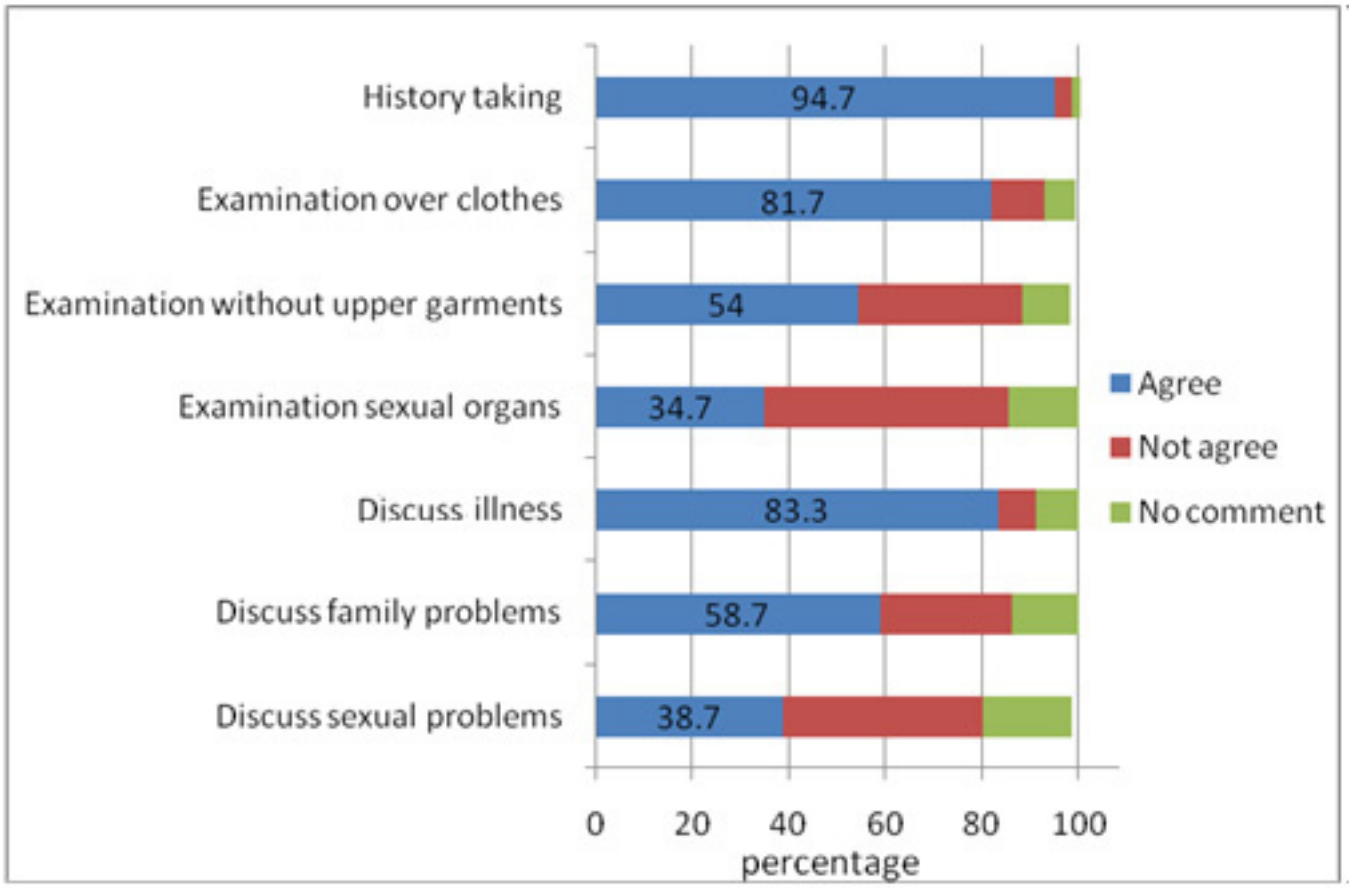

Table 2: Percentage of patients who agreed to participation of students according to their demographic factors and previous experience with students

Stage of consultation	Gender		Age group		Income(LKR)		Educational status		Previous experience	
	Male	Female	< 35yrs	≥35yrs	<20000	≥ 20000	≤Gr 12	>Gr 12	≥ 1	Never
History taking	92.8	96.4	94.2	96.7	97.0	94.1	94.7	90.4	96.1	93.5
Examination over clothes	79.2	83.8	76.0	87.4	84.1	82.2	80.3	81.6	81.1	84.2
Examination without shirt/blouse	61.6	48.5	39.4	63.3	65.1	47.3	54.9	49.6	53.5	54.0
Examination of sexual organs	36.8	31.7	16.3	45.3	41.7	29.6	38.7	27.2	28.3	38.8
Discussion of illness	79.2	86.2	77.9	86.8	85.6	82.2	83.2	80.0	88.2	82.0
Discussion of family problems	59.2	59.3	50.0	63.9	66.7	52.0	61.8	51.2	61.4	59.7
Discussion of sexual problems	36.8	41.3	20.2	50.8	44.7	33.6	43.9	32.0	33.9	44.6

Table 3: Percentage of patients who agreed to participation of students according to practice characteristics

Activity in the presence of students	Gender of the practitioner		Location of the practice	
	Patients attending		Patients attending	
	Male Dr	Female Dr	Urban	Semi urban
History taking	94.6	94.8	93.4	96.0
Examination over clothes	78.1	91.7	77.9	87.2
Examination without shirt/blouse	59.9	45.3	57.2	53.0
Examination of sexual organs	38.6	26.8	35.2	34.2
Discussion of illness	84.2	81.4	84.8	81.9
Discussion of family problems	57.9	60.8	57.6	60.1
Discussion of sexual problems	41.0	35.8	37.2	41.5

Table 4: Patients' attitudes towards gender of students

Patient / Preferable Gender of student	Female (%)	Male (%)
Female	38(23.0)	17(14.0)
Male	6(3.6)	9(7.4)
No preference	121(73.3)	95(78.5)
Total	**165(100)**	**121(100)**

Pearson Chi square =5.099 p= 0.012

Discussion

Patients' responses show their positive attitudes towards students but it was evident that the reason for consultation and the nature of the physical examination required influenced their decision. Even though more than 90% of the patients agreed to the presence of students during history taking, there was resistance to their presence during examination. There was a step wise decline in the consent rate from examination over clothes to examination of genital organs. This has been a universal phenomenon. Wright(3) in 1974 and Choudhury et al(9) in 2006 among British patients and Salisbury et al(5) in 2004 among Australian patients observed that there is a lesser degree of acceptance of students during examination compared to history taking.

While there was little reluctance to discuss physical illness patients were less prepared to discuss family problems and sexual problems in the presence of students.. Research also suggested that consent for a student to be present is given more readily for physical rather than psychological complaints(7,9,13,14) and presence of students could be a problem in consultations that involved emotional upset, internal examinations, and sexual problems.(15,16)

Their responses were analysed to see if demographic factors affect their decisions. Gender based analysis showed that females were more reluctant to have students when it comes to internal examination. Wright(3) in 1974 and O'Flynn et al(4) in 1997 described similar difference in attitudes between males and females. In general older patients were more willing to have students. That was more marked for internal examinations and discussion of sexual problems. Similarly patients with better monthly income also showed a degree of reluctance to involvement of students. There was resistance among more educated patients as well. Earlier studies revealed social class had no influence on patients' attitudes towards students.(3,8)

The previous experience of students had not affected patients' attitudes contrary to other studies which showed that such experience was a positive predictor for more active student involvement.(7,8,9)
Patients attending female general practitioners were more resistant to examination without clothes and internal examination while there was no difference in their attitudes towards students among patients attending urban general practices and semi urban general practices.

Gender of the student mattered more for female patients. 23% of the females preferred involvement of female students compared to 7.4% among males even though this difference was not statistically significant. Chipp et al(11) and Bentham et al(10) also found that women preferred a student of their own sex more often than men.

This study analysed the effect of the nature of the problem, demographic factors of patients, previous experience of students, practice characteristics and gender of the student on the thinking pattern of patients. Nature of the problem and type of examination seem to influence whether they like the presence of students or not most. In general patients' attitudes do not seem to be quite different from that of patients in western countries.

Conclusion

- Patients are willing to have students during consultation but the most important determinants are the nature of the problem and the extent of the examination required.
- Females and younger patients are more reluctant to the presence of students in internal examinations and discussion of sexual problems.
- More affluent and more educated patients are less prepared to have students during consultation
- More female patients prefer interaction with female students

Recommendations

General practitioner trainers should be aware of the instances where patients are reluctant to have students during consultation and opportunity should be offered to them to consult the doctor without students.

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