

## Pattern of postgraduate specialization of Kuwaiti medical graduates throughout the last 30 years

Khaled F Al-Jarallah<sup>1</sup>, Mohamed AA Moussa<sup>2</sup>

**Objectives** The study examines postgraduate specialty training of Kuwaiti medical graduates during the period 1968 to 1999, identifies their attained professional qualifications in order to reveal scarcity in some specialties.

**Methods** A survey was carried out involving review of the records maintained at the Kuwait Institute for Medical Specialization (KIMS) and Ministry of Health for all the trainees who were enrolled in higher training programs for specialization during the study. Information obtained from the records were ascertained through matching with the doctors' career destinations and employment in the recruitment departments of the health sector. Ascertained data included gender, year and awarding country, level of attained qualifications (medium: Diploma and M.Sc.; higher clinical: fellowship/membership: MRCP, FRCS, MRCOG, Boards of Kuwait, Canada, USA, Germany; and higher academic qualification: Ph.D.).

**Results** A total of 679 (363 males, 316 females) Kuwaiti medical graduates attained their higher postgraduate qualifications until year 1999. There was an excess of female postgraduates since 1993, and a drop in 1991 due to the Gulf War. Specialty differed according to gender, males mostly opted for medicine and surgery, while females mainly chose obstetrics and gynecology, pediatrics and family medicine. The nature of postgraduate qualifications differed according to gender, fewer females undertook academic qualifications. Also, the awarding country differed according to gender: females

obtained their qualifications mostly from Kuwait or UK, while males were mainly awarded by Canadian, American or German universities. Scarcity in some clinical specialties was apparent: subspecialties in surgery (vascular, pediatric, hand, chest, laparoscopic, neurosurgery and oncology); pediatric (nephrology, respiratory, cardiology, and neonatology); psychiatry, occupational medicine, and immunology.

**Conclusions** The number of Kuwaiti medical graduates with higher professional qualifications significantly increased after 1985 due to the establishment of KIMS and Kuwait Faculty of Medicine. Excess of female postgraduates since 1993 was due to the social and cultural transitions witnessed by Kuwait resulting in rapid urbanization, changing the structure and content of education, increasing the numbers of females employed, professional redistribution in social dimensions, and modification in life style. Gender significantly affected the nature of postgraduate studies, the awarding countries and the choice of specialty. The pattern of preference of Kuwaiti graduates to specialties was consistent with other parts of the world; males opted mainly to internal medicine and surgery, while females preferred obstetrics and gynecology, pediatrics and family medicine. Scarcity in some specialties has been revealed and needs to be adjusted.

*Key words:* Career choices, postgraduate, specialties, gender, medical education, Kuwait

*Bulletin KIMS 2002;1:2-7*

### Introduction

The Kuwait Institute for Medical Specialization (KIMS) of the Ministry of Health, which was established in 1984, is the body responsible for organizing all aspects of postgraduate training of medical practitioners and other health professionals in Kuwait.

The main aims of KIMS are to enhance the level of competence of health professionals, enabling them to keep abreast of the developments in the medical specialties and patient management; prepare graduates in the health professions for specialization in the different branches of medicine; provide facilities and opportunities for continuing professional development, and monitor their progress and achievement. Among other specific objectives, KIMS aims at developing a national pool of medical specialists needed for managing health care needs. Prior to the establishment of KIMS, postgraduate training

<sup>1</sup>Secretary General, KIMS

<sup>2</sup>Professor, Department of Community Medicine, Faculty of Medicine, Kuwait University

Correspondence: Dr. Khaled Al-Jarallah, Kuwait Institute for Medical Specialization (KIMS), P.O.Box 1793 Safat, 13018 Kuwait. Tel./Fax: + (965) 2421984, E-mail: aljarallah@kims.org.kw

for higher professional specialization was undertaken by the Training Division of the Ministry of Health.

KIMS encompasses a number of Faculties to initiate and coordinate postgraduate training in the specialties Internal Medicine, Surgery, Pediatrics, Obstetrics and Gynecology, Family Medicine, Laboratory Medicine, Radiology, Nuclear Medicine, Anesthesia and Intensive Care, and Dentistry.

At present, KIMS offers a variety of four to five-year residency programs which lead to specialization certification (Kuwait Board) in collaboration with the Royal Colleges from abroad. These programs include Internal Medicine, Surgery, Pediatrics, Obstetrics and Gynecology, Family Medicine, Radiology and Nuclear Medicine.<sup>1</sup>

### Research Objectives

This study surveyed the postgraduate training of Kuwaiti medical graduates during the period 1968 to 1999 with the following objectives:

- Identify specialties in which Kuwaiti medical graduates received their higher professional training;
- Identify professional qualifications attained;
- Study the influence of gender on career choices of Kuwaiti medical graduates;
- Reveal scarcity in some specialties.

### Methods

This survey involved the review of the records maintained at KIMS and the Ministry of Health employment records for the trainees who were enrolled in higher training programs for specialization during the period 1968-1999. In addition, information obtained from these records were ascertained through matching with the employment records in the Recruitment Department, Ministry of Health in order to ensure high quality and completeness of data. This involved review of 679 records pertaining to the background of the trainees, their choices and progress in higher medical specialization.

Available data in the records included gender, year and country of graduation, level of attained qualification (medium including Diploma and M.Sc.), higher clinical (fellowships:

MRCP, FRCS, MRCOG: Boards of Kuwait, Canada, USA, and Germany), and higher academic qualification (Ph.D.).

Coded data from the records were keyed in an IBM-personal computer using the Statistical Package for Social Science (SPSS) software Window's version. After checking data quality, they were processed using the cut-off level for statistical significances as  $p < 0.05$ . The Pearson Chi-square test was used to assess the extent of association between two categorical variables.

### Results

During the study period (1968 to 1999), 679 (363 males, 316 females) Kuwaiti medical graduates attained their higher postgraduate qualifications, Table 1. The overall male:female (M:F) ratio was 1.15:1. During the early eleven years (1968 to 1979), only 15 (2.2%), (11 males, 4 females) completed their higher professional qualifications with preponderance of males, M:F ratio 2.75:1. The

Table 1. Distribution of Kuwaiti postgraduates during the period 1968-1999 according to year of graduation and gender

Year of graduation	Total No. (%)	Male:Female ratio
1968	2 (0.3)	
1970	1 (0.1)	
1973	2 (0.3)	
1975	1 (0.1)	
1977	4 (0.6)	1:1
1978	4 (0.6)	3:1
1979	1 (0.1)	
1980	7 (1.0)	6:1
1981	7 (1.0)	2.5:1
1982	6 (0.9)	2:1
1983	14 (2.1)	2.5:1
1984	7 (1.0)	
1985	21 (3.1)	9.5:1
1986	32 (4.7)	7:1
1987	30 (4.4)	2.8:1
1988	35 (5.2)	2.5:1
1989	47 (6.9)	2.9:1
1990	32 (4.7)	1:1.7
1991	9 (1.3)	3.5:1
1992	43 (6.3)	1.2:1
1993	26 (3.8)	1:1.2
1994	58 (8.5)	1.2:1
1995	65 (9.6)	1.3:1
1996	66 (9.7)	1:1.4
1997	56 (8.2)	1:1.8
1998	44 (6.5)	1:1.6
1999	59 (8.7)	1.7:1
Total	679 (100.0)	1.1:1

Years 1968 to 1979 were combined to calculate the Chi-squared value. Chi-square = 117.347, d. f. = 20,  $p < 0.001$

first batch of the Faculty of Medicine, Kuwait University was graduated in 1983. Since then, there was a steady increase in the number of postgraduates. This was accompanied by significant increase in the number of female graduates. Starting from 1993, the male:female ratio was reversed with excess of females (in 1994, 58 postgraduates 39 females, 19 males, M:F ratio 1:2.1; 1:3.1 in 1995; 1:1.4 in 1996; 1:1.8 in 1997).

**NATURE OF POSTGRADUATE QUALIFICATIONS**

Attained higher qualifications consisted of 206 (30.3%) mid-level (Diploma and M.Sc.), 392 (57.7%) clinical higher level (Membership and Board certification), and 81 (11.9%) academic qualifications (Ph.D.). The type of qualifications significantly differed according to gender. Fewer females opted to undertake academic qualifications, while more females attained mid-level qualifications, Figure 1.

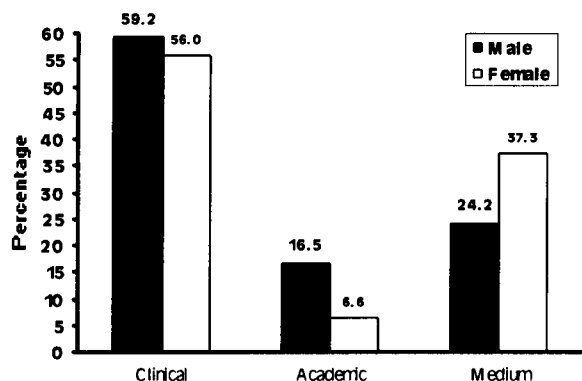
Clinical higher qualifications (392) included membership from UK (MRCP 14.8%, FRCS 11.0%, MRCOG 4.6%), Board Certification

(Kuwait 29.8%, Canadian 15.8%, German 7.1% and American 4.8%). Certification also varied according to gender, Table 2. More females obtained MRCP, MRCOG, Kuwait Board, while males attained more FRCS, American, Canadian and German Boards than females.

Table 2. Distribution of Kuwaiti postgraduates (1968-1999) according to gender and higher qualification

Qualification	No. (%)	Male:female ratio
Kuwait Board	117 (17.2)	1:1.7
Diploma	116 (17.1)	1:2.3
M.Sc.	94 (13.8)	1.5:1
Ph.D.	77 (11.3)	2.9:1
Canadian Board	62 (9.1)	4.2:1
MRCP	58 (8.5)	1:2.2
FRCS	43 (6.3)	2.9:1
Subspeciality	35 (5.2)	3.4:1
German Board	28 (4.1)	3.7:1
American Board	19 (2.8)	2.8:1
MRCOG	18 (2.7)	1:5
Arab Board	6 (0.9)	0:6
Yugoslavian Board	3 (0.4)	3:0
Saudi Board	2 (0.3)	2:0
Swedish Board	1 (0.1)	1:0

Fig. 1. Distribution of Kuwaiti postgraduates (1968-1999) according to gender and nature of attained qualification



Some categories (Swedish, Saudi, Yugoslavian and Arab Boards) were combined to calculate the Chi-squared value. Chi-square = 135.5, d. f. = 11, p < 0.001

**SPECIALTIES OF POSTGRADUATE QUALIFICATIONS**

The choice of specialty differed by gender. Males opted mainly for internal medicine (24.5%) and surgery (20.1%), while females preferred obstetrics & gynecology (20.6%), pediatrics (19.3%) and family medicine (18.2%), Figure 2.

Fig. 2. Distribution of Kuwaiti postgraduates (1968-1999) according to gender and speciality

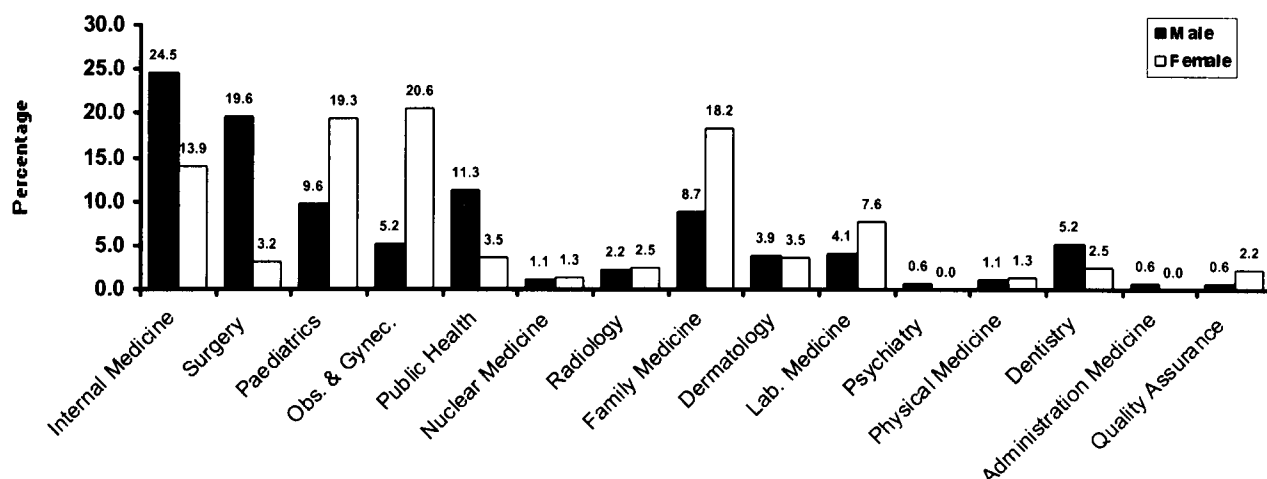


Table 3 depicts specialties and subspecialties attained by Kuwaiti medical graduates according to gender. It reveals scarcity in some subspecialties: surgery (vascular, pediatric, hand,

chest, laparoscopic, oncology and neurosurgery), pediatric (nephrology, respiratory, cardiology, and neonatology), psychiatry, occupational medicine, and immunology.

Table 3. Distribution of Kuwaiti postgraduates (1968-1999) according to subspecialties and gender

Subspecialty	Male No. (%)	Female No. (%)	Total No. (%)	Subspecialty	Male No. (%)	Female No. (%)	Total No. (%)
Internal Medicine	47 (13.1)	25 (8.0)	72 (10.7)	Nutrition	1 (0.3)	5 (1.6)	6 (0.9)
Diabetes	5 (1.4)	10 (3.2)	15 (2.2)	Tropical Medicine	3 (0.8)	2 (0.6)	5 (0.7)
Gastroenterology	6 (1.7)	3 (0.9)	9 (1.3)	Community Medicine/ Epidemiology	5 (1.4)		5 (0.7)
Endocrinology	5 (1.4)	2 (0.6)	7 (1.0)	Occupational Medicine	2 (0.6)		2 (0.3)
Cardiology	4 (1.1)	1 (0.3)	5 (0.7)	Biostatistics	1 (0.3)		1 (0.1)
Urology	10 (2.8)		10 (1.5)	Laboratory Medicine	1 (0.3)		1 (0.1)
Nephrology	3 (0.8)	1 (0.3)	4 (0.6)	Pathology	4 (1.1)	14 (4.4)	18 (2.7)
Rheumatology	3 (0.8)		3 (0.4)	Haematology	5 (1.4)	3 (1.0)	8 (1.2)
Infectious Diseases	2 (0.6)	1 (0.3)	3 (0.4)	Microbiology	4 (1.1)	3 (1.0)	7 (1.0)
Respiratory	2 (0.6)		2 (0.3)	Clinical Chemistry		2 (0.6)	2 (0.3)
Allergy	1 (0.3)		1 (0.1)	Immunology		2 (0.6)	2 (0.3)
Oncology		1 (0.3)	1 (0.1)	Virology	1 (0.3)		1 (0.1)
Neurology	1 (0.3)		1 (0.1)	Dermatology	14 (3.9)	11 (3.5)	25 (3.7)
Pediatrics	32 (8.9)	58 (18.5)	90 (13.4)	Radiology	3 (0.8)	7 (2.2)	10 (1.5)
Pediatric Cardiology	1 (0.3)	1 (0.3)	2 (0.3)	Radiotherapy	4 (1.1)		4 (0.6)
Neonatology	1 (0.3)	1 (0.3)	2 (0.3)	Medical Resonance Imaging (MRI)		1 (0.3)	1 (0.1)
Pediatric Nephrology		1 (0.3)	1 (0.1)	Body Imaging Intervention	1 (0.3)		1 (0.1)
Pediatric Respiratory	1 (0.3)		1 (0.1)	Quality Assurance	2 (0.6)	7 (2.2)	9 (1.3)
Family Medicine	31 (8.7)	57 (18.2)	88 (13.1)	Nuclear Medicine	4 (1.1)	4 (1.3)	8 (1.2)
Obstetrics and Gynecology	16 (4.5)	64 (20.4)	80 (11.9)	Physical Medicine			
Infertility	2 (0.6)		2 (0.3)	Physical Medicine and Rehabilitation	4 (1.1)	1 (0.3)	5 (0.7)
Infertility and In Vitro Fertilization		1 (0.3)	1 (0.1)	Auding and Hearing		1 (0.3)	1 (0.1)
Maternal Fetal Medicine	1 (0.3)		1 (0.1)	Development and Neurodisabilities		1 (0.3)	1 (0.1)
Surgery	34 (9.5)	4 (1.3)	38 (5.7)	Electromyography		1 (0.3)	1 (0.1)
Ophthalmology	10 (2.8)	2 (0.6)	12 (1.8)	Psychiatry	2 (0.6)		2 (0.3)
E.N.T.	7 (2.0)	2 (0.6)	9 (1.3)	Administration Medicine	2 (0.6)		2 (0.3)
Orthopedic surgery	8 (2.2)		8 (1.2)	Dentistry			
Oncology & Laparoscopic Surgery	3 (0.8)	1 (0.3)	4 (0.6)	Crown and Bridge	5 (1.4)	1 (0.3)	6 (0.9)
Plastic Surgery	4 (1.1)		4 (0.6)	Pedodontics	1 (0.3)	4 (1.3)	5 (0.7)
Neurosurgery	3 (0.8)		3 (0.4)	Oral and maxillofacial surgery	4 (1.1)		4 (0.6)
Paediatric Surgery		1 (0.3)	1 (0.1)	Endodontics	4 (1.1)		4 (0.6)
Hand Surgery	1 (0.3)		1 (0.1)	Orthodontics	2 (0.6)	1 (0.3)	3 (0.4)
Chest Surgery	1 (0.3)		1 (0.1)	Periodontics	2 (0.6)	1 (0.3)	3 (0.4)
Breast Cancer Surgery	1 (0.3)		1 (0.1)	Prosthodontics	1 (0.3)		1 (0.1)
Non-Invasive Vascular Surgery	1 (0.3)		1 (0.1)	Dental Public Health		1 (0.3)	1 (0.1)
Public Health	29 (8.1)	4 (1.3)	33 (4.9)				

Table Contd.

## Discussion

The number of Kuwaiti medical graduates who achieved higher professional qualifications significantly increased since 1985, few years after the first batch was graduated from Kuwait University in 1983. This obviously reflects the role of national medical education in promoting health manpower. Before 1983, 35 (26 males, 9 females; M:F ratio 2.9:1) graduates attained their higher qualifications. This shows that over a whole decade only 5.2% of Kuwaiti graduates obtained their higher qualifications, one-third of them only were females.

Starting from 1993, female postgraduates outnumbered males. This transition in male:female postgraduate ratio may be attributed to two reasons. Firstly, Kuwait witnessed during the last 3 decades many social and cultural changes. The consequences of these changes influenced among other issues, the health status of the population, and hence the distribution of the quantity and quality of required health manpower. Other effects of these changes are rapid urbanization, increasing numbers of females employed, the changing structure and content of education, professional redistribution in social dimensions, and modification in life style.<sup>2</sup> Secondly, in 1984 the Kuwait Institute for Medical Specialization was established as the body responsible for organizing all aspects of postgraduate training of medical practitioners and other health professionals in Kuwait.

Our finding of increasing the proportion of female postgraduates is in concert with another study<sup>3,4</sup> who reported important changes in the medical workforce in specialist training, and in employment. Examples of these changes were the increasing proportion of women doctors.

In the present study, the type of postgraduate qualifications differed according to gender. Fewer females undertook academic qualifications, while more females attained mid-level qualifications. This is not because female doctors are less ambitious, but is more likely due to family and social pressures. Also, more females obtained UK fellowships in medicine (MRCP), obstetrics & gynecology (MRCOG) and Kuwait Board, while more males attained UK membership in Surgery (FRCS), American, Canadian and German Boards.

The choice of specialty differed according to gender: males opted mainly for internal medicine and surgery, while females obtained higher qualifications in obstetrics & gynecology, pediatrics and family medicine. Also more males pursued their subspecialties than females. These findings accord with other studies<sup>4,5</sup> who reported that a higher proportion of women preferred to enter general practice, the opposite was true as regards the choice of surgery by men as a specialty.<sup>6</sup> also reported that male doctors prefer specialties such as surgery, while female doctors prefer pediatrics, obstetrics & gynecology and family medicine.

The study revealed scarcity in some subspecialties: surgery (vascular, pediatric, hand, chest, laparoscopic, oncology and neurosurgery), pediatric (nephrology, respiratory, cardiology, and neonatology), psychiatry, occupational medicine, and immunology.

The results of the project are useful in planning undergraduate and postgraduate medical education, and in designing policies to attract medical manpower to the scarcity and high priority disciplines, so that the imbalances encountered in subspecialties would be minimal in the future. Accordingly, findings of the study will help in avoiding either overproduction or inadequate supply of doctors in certain specialties, or subspecialties. Emerging results can be shared with the other GCC countries, since they have similar health care and medical education systems.

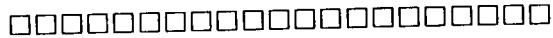
## Acknowledgements

This work was carried out with the support of health research grant from the Ministry of Health, Kuwait.

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### KIMS Training Programs

KIMS supervises many postgraduate training programs leading to specialty certificates in several disciplines in medicine. The contact details of the Directors of these training programs are listed below for any inquiries regarding them:

#### Family Medicine

Dr. Abeer Al-Baho  
Tel.: 965 2562372  
Email: abeerkhaled@hotmail.com

#### Obstetrics & Gynecology

Dr. Eyad Al-Saleh  
Tel.: 965 3967649  
Email: dr.eyad@lycos.com

#### Laboratory Medicine

Prof. T. Junaid  
Tel.: 965 5319476  
Email: tah@hsc.kuniv.edu.kw

#### Pediatrics

Dr. Amal Al-Eisa  
Tel.: 965 5319486  
Email: amal@hsc.kuniv.edu.kw

#### Internal Medicine

Dr. Moussa Khadadah  
Tel.: 965 5319596  
Email: mousa@hsc.kuniv.edu.kw

#### Radiology

Dr. Tariq Sinan  
Tel.: 965 5317038  
Email: drtariq@yahoo.com

#### Nuclear Medicine

Prof. Bert David Collier  
Tel.: 965 5319592  
Email: bertdavidcollier@hotmail.com

#### Surgery

Dr. Adel Ayed  
Tel.: 965 4843885  
Email: adel@hsc.kuniv.edu.kw