As early as 1920, Iraqi women were moving towards gaining more rights and better education and were considered to be some of the most highly educated and pioneering women professionals in the Middle East. However, Iraqi women were only allowed into veterinary colleges in 1966. Between 1971 and 1972, two women graduated from the College of Veterinary Medicine of the University of Baghdad: Layla Al-Bassam and Faeza Al-Madfae became the first female veterinarians in the country. Since that time, the number of female veterinary graduates in Iraq has increased only slowly, because of various socio-economic factors. The veterinary profession in Iraq is still a male-dominated career, with 61.81% being males and 38.19% being females.

Introduction

The history of Iraq shows that Iraqi women have always been among the most highly educated and professional women in the Middle East. As early as 1920, Iraqi women were lobbying to gain more rights and better education. These efforts paid off, resulting in Iraqi women joining the job market by the late 1920s and early 1930s, making them pioneers in the Middle East. The first woman Minister in Iraq’s modern history, and the first woman Cabinet Minister in the Arab world, was Naziha al-Dulaimi (1923–2007) [1], an early pioneer of the Iraqi feminist movement. In 1941, she graduated as a medical doctor from the Royal College of Medicine (later attached to the University of Baghdad). She was the co-founder and first president of the Iraqi Women’s League in 1952, and spent the 1950s researching and eradicating the indigenous bejel bacteria in southern Iraq. Dr Suad Khalil Ismail was another Iraqi woman pioneer. From 1969 to 1972, Dr Ismail served as Minister of Higher Education and Scientific Research and during this period she worked hard to raise the level of higher education in Iraq and, in particular, to improve the educational situation of Iraqi women [2]. During the 1990s, women faculty members in Iraqi universities and research centres made up more than 30% of the total number of faculty members; moreover, 26% of the teaching staff in the College of Veterinary Medicine of the University of Baghdad were women [3]. The worldwide feminisation of the veterinary profession has been the subject of...
many studies and publications [4]. Studies on the educational climate are somewhat more limited and no studies seem to have been carried out on gender distribution in veterinary education in the Arab world, more particularly, in Iraq.

This article intends to describe the gender distribution of the veterinary profession in Iraq and current trends in the numbers of female veterinary graduates, and to compare them against worldwide trends in the feminisation of the veterinary profession.

The Iraqi educational system

Iraq established its education system in 1921. It began with the most important teaching institutions for higher learning, specialising in human medicine, veterinary medicine, engineering, law, and the arts. These became the colleges of the University of Baghdad in 1957 [5].

The educational policy of Iraq was laid down in three Acts passed in the 1970s: the Illiteracy Eradication Act (1971), the Free Education Act (1974), and the Compulsory Education Act (1978). Within two decades, the educational status of women in Iraq had been transformed, especially when compared to neighbouring countries in the region. Illiteracy among women dropped from 91% in 1957 to 12% in 1990; partly because education was made mandatory and also because of the establishment of a free educational system, which included all stages of learning, from primary school to higher education [6].

According to the UNESCO and Education in Iraq Fact Sheet (28 March 2003), the education system in Iraq before 1991 was one of the best in the region, with a gross enrolment ratio of over 100% for primary schooling, and an advanced level of literacy, for both men and women. Higher education, especially in the scientific and technological institutions, was of an international standard, and these institutions were staffed by highly qualified personnel [7].

Veterinary colleges and women veterinarians in Iraq

The first College of Veterinary Medicine (CVM) was established in Baghdad in the 1950s, and became affiliated to the University of Baghdad in 1958. This college has provided veterinary education and prepared graduates and veterinarians for more than 56 years [8]. Layla Al-Bassam and Faeza Al Madfae were the first women to be accepted into the CVM in 1966, and they graduated in 1971, becoming the first female veterinarians in Iraq (Fig. 1).

Fig. 1
Layla Al Bassam (circled) on Graduation Day in 1971
Since her graduation, Dr Al-Bassam has worked as a tutor in the Microbiology Department of the CVM, University of Baghdad. She gained her Master's Degree in Microbiology and her PhD in Veterinary Medicine. She is currently Head of the Microbiology Department in the CVM of the University of Diyala.

The first veterinary school in Iraq, affiliated to the University of Baghdad, remained the sole CVM until 1976. The second college was founded at the University of Mosul in 1976, and its first class graduated in 1981. At present, there are 14 CVMs in Iraq, two of which have been established only recently, in 2011 (Table I).

### Table I
Name, and year of establishment, of the Colleges of Veterinary Medicine in Iraq

<table>
<thead>
<tr>
<th>Order of establishment</th>
<th>University</th>
<th>Year of establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University of Baghdad/College of Veterinary Medicine</td>
<td>1955</td>
</tr>
<tr>
<td>2</td>
<td>University of Mosul/College of Veterinary Medicine</td>
<td>1976</td>
</tr>
<tr>
<td>3</td>
<td>University of Basrah/College of Veterinary Medicine</td>
<td>1993</td>
</tr>
<tr>
<td>4</td>
<td>University of Al Qadisiyah/College of Veterinary Medicine</td>
<td>1993</td>
</tr>
<tr>
<td>5</td>
<td>University of Sulaimani/College of Veterinary Medicine</td>
<td>1995</td>
</tr>
<tr>
<td>6</td>
<td>University of Duhuk/College of Veterinary Medicine</td>
<td>1996</td>
</tr>
<tr>
<td>7</td>
<td>University of Diyala/College of Veterinary Medicine</td>
<td>2002</td>
</tr>
<tr>
<td>8</td>
<td>University of Anbar/College of Veterinary Medicine</td>
<td>2006</td>
</tr>
<tr>
<td>9</td>
<td>University of Tikrit/College of Veterinary Medicine</td>
<td>2006</td>
</tr>
<tr>
<td>10</td>
<td>University of Babylon/College of Veterinary Medicine</td>
<td>2007</td>
</tr>
<tr>
<td>11</td>
<td>University of Kerbala/College of Veterinary Medicine</td>
<td>2008</td>
</tr>
<tr>
<td>12</td>
<td>University of Kufa/College of Veterinary Medicine</td>
<td>2008</td>
</tr>
<tr>
<td>13</td>
<td>University of Wasit/College of Veterinary Medicine</td>
<td>2011</td>
</tr>
<tr>
<td>14</td>
<td>University of Al Muthanna/College of Veterinary Medicine</td>
<td>2011</td>
</tr>
</tbody>
</table>

These colleges differ with respect to the number of students, staff members, technicians, personnel and equipment that they have. Since 2003, and the Second Gulf War, the infrastructure in all of these institutions was looted, damaged or burned down, including the records of the CVMs, which has led to many obstacles when trying to obtain adequate information on the total number of veterinarians who graduated from Iraqi universities.

There are currently 11,000 (both male and female) veterinary graduates registered in the Iraqi Veterinary Syndicate, according to a study on human resource management by Mashatet in 2010 [9], and the final report of the Iraq State Company for Veterinary Services (2011) [10]. However, there is no breakdown of the gender distribution among graduates. The restrictions on obtaining full information and data are the result of looting, damage, and burning of governmental archives. Consequently, only data from 1999 to 2012 were available for analysis, to gain an impression of the trends concerning women in veterinary medical education.

Data on the number of graduates from the first four established CVMs (Universities of Baghdad, Mosul, Basrah and Al Qadisiyah) were collected for this study. The total number of graduates and the percentages of males and females were determined.

Between 1999 and 2012, a total of 1,669 women (38.19%) were among the 4,370 graduates from the CVMs of the Universities of Baghdad (UBag), Mosul (UMos), Basrah (UBas), and Al Qadisiyah (UQad) (Figs 2 & 3).

There have been fewer female graduates than males over the last 14 years (1999–2012). However, there were variations in the distribution of male and female graduates among the four colleges in each individual year. In 2001, the percentage of females at CVM/UQad was slightly higher than that of males, at 51.61% of the total number of graduates, and in 2009, it was again slightly higher at 50.94% (Fig. 4). The situation was different at CVM/UBas, where the percentage of females was lower in each year, except in the year 2000, when the
percentage of females was more than half: 52.17% (Fig. 5). At CVM/UMos, the number of male graduates was higher than that of females in every year (Fig. 6). Circumstances were different again, and more variable, at CVM/UBag. In 1999 and 2000, the percentages of men and women were almost equal, but the number of females dropped dramatically between 2001 and 2008. However, the percentage of female graduates rose quickly in 2009 and started to become equal again in 2010 and 2011 (Fig. 7).

Feminisation in the veterinary profession: a comparison between Iraq and other countries

Most occupations are not gender neutral. Veterinary medicine has, historically, been a male-dominated field that is becoming rapidly and dramatically feminised in different parts of the world [4]. As studies from the United States of America (USA) and the United Kingdom (UK) show, the gender balance of the veterinary profession has changed considerably over the past 30 to 40 years; having previously been very much in the minority, women now make up about 50% of the profession, and the proportion is set to rise further, given that women account for nearly 80% of the students at veterinary school [11].

In the USA, the proportion of women practising veterinary medicine grew from 1.8% in 1960 to 36% in 1999, and is expected to reach 67% by 2015 [12]. A number of factors affected enrolment to veterinary colleges between 1975 and 1995, and the shift to more female students started after 1972, when legislation was introduced in the USA prohibiting discrimination against women students. In her study [13], Lincoln refutes the common misconception that women did not care about salaries because they had a husband’s earnings to fall back on. She demonstrated that men and women were equally affected by tuition fees and salaries but, in terms of a postgraduate degree, she found that fewer men than women were graduating with a Bachelor’s degree, and that men were not applying in the same numbers because they did not have the prerequisites.

The situation was similar in the UK, and a similar shift had also been observed, due to similarities in the demographic trends [11].

In Canada, at the Ontario Veterinary College of the University of Guelph, enrolment patterns have proved to be consistent with predictions. Admissions have consisted...
of approximately 70% female students in each class over consecutive years from 1989 to 1992. The impact of this shift on the veterinary profession is thought to be profound. It has been predicted that, if the trend continues, veterinary medicine will become a female-dominated profession [14]. Jeanne Lofstedt (2003) [15] stated that 43% of the practising veterinarians in Canada are female, and women represented the majority of the veterinary profession by 2007 [16, 17, 18].

In Australia, the 50:50 male–female ratio among first-year students at the University of Queensland between the years of 1985 and 1986 had become 38:62 a decade later. One estimate even has female students making up 85% of the veterinary college admissions [19].

Feminisation in the veterinary profession is also a phenomenon in most European countries. In the Netherlands, the average percentage of female first-year students between 1988 and 1992 was 60%, and this percentage increased to 70%. Between 1988 and 1999, the average percentage of female graduates in the Netherlands grew from 35% to 60% [20].

In Turkey, the veterinary profession also displays a trend towards feminisation, although it is occurring at a slower rate than that of other developed countries [21].

In Iraq, the veterinary profession has remained mostly dominated by males, compared to the feminisation that has occurred elsewhere in the world. There are many factors contributing towards this trend, the first being the social perception that this is still ‘a man’s job’ and not a woman’s. The second is a combination of socio-economic factors. Veterinary medicine is not very attractive to most Iraqi parents, who would prefer that their daughters become physicians, dentists, pharmacists or teachers, and not veterinarians, which they locally term ‘animal doctors’. They tend to think that their daughters would be especially well suited to dealing with people (in particular, to treating other women and children or teaching children) and would prefer them to work in the same geographic area. They also think about future employment opportunities, because, as a physician, a woman can open and own her own private clinic and earn a high income compared to that of a veterinarian. They believe that, even if a woman veterinarian opened her own private veterinary clinic, she would have no clients, because people do not believe in paying money to treat an animal. Furthermore, ownership of companion animals is very rare. Moreover, if she opened a private clinic
in a village, she would almost certainly have to compete with a male veterinarian who was already there, and most villagers prefer to visit the male veterinarian, as most cases involve larger animals, such as cattle, buffalo, sheep and goats. In addition, when vaccinating livestock, the veterinarian must visit the field and women are often considered ill-suited for this kind of work outside their clinics. Various other social factors also come into play. Since 2003, other fears have been raised, such as political factors, sectarianism and loss of safety, which have had a great effect on the veterinary profession, since many Iraqi veterinarians have been kidnapped or murdered during their work.

The third and most important factor hampering feminisation of the veterinary profession in Iraq is the matriculation grade-point average and centralised selection of students. Since women students usually receive a higher matriculation grade-point average, this enables them to be more successful in gaining places in medical college and dentistry than their male counterparts, and this affects the number of women who apply for entry to CVMs.

Finally, the percentage of males and females entering the veterinary and other professions is not affected by tuition fees and salaries in Iraq, because university education is free and salaries are equal for men and women. Since 1986, there has been no discrimination between men and women in terms of governmental salaries and educational opportunities. Iraq became one of the first countries to ratify the Convention on Elimination of all forms of Discrimination Against Women (CEDAW) [22].

Conclusions
The first female Iraqi veterinarians graduated from the College of Veterinary Medicine of the University of Baghdad in 1971–1972. The present study reports a low percentage (38.19%) of female veterinarians in comparison to males (61.81%) in Iraq today. Societal perceptions, socio-economic factors and matriculation grades are all factors that contribute towards a male-dominated profession. However, tuition fees and salaries have been shown to have little or no effect on the numbers of female students, because education is free in Iraqi universities and women are not discriminated against. In conclusion, veterinary medicine is still a male-dominated profession in Iraq in comparison to other countries and regions in the world, such as USA, the UK and other European countries.
References