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## **An observational analysis of recent female dental enrolment figures in the Republic of Ireland**

**Purpose/Objective:** This research investigates the participation and completion rates of Irish female undergraduate dental students from 2003-2014.

**Methods:** The Higher Education Authority database was accessed and dental students enrolment and completion figures were extracted, compiled and analysed according to gender distribution.

**Result:** From 2003- 2014 there has been a steady increase in the number of female students enrolled in and completing Ireland's undergraduate dentistry programmes.

**Conclusions:** The findings reveal that a distinct process of feminization has occurred in Ireland since the early 2000s. The feminization of dentistry in Ireland will impact on workforce projections for the Irish dental service. However, more research needs to be undertaken to explore why female students are motivated to pursue a career in dentistry. Due regard also needs to be given to ensuring these women progress in this dental career. Dental education can play an important role here.

**Key words:** gender, feminization, dental education, the Republic of Ireland

## INTRODUCTION

Historically, dentistry has been conceptualised as a male-dominated profession.<sup>1</sup> Prior to the 1970s men were over-represented in dentistry programmes across the world. The intervening years witnessed an increase in the number of women enrolling in dental schools. For instance, only 3.2% of US dental students were female in 1975.<sup>2</sup> In 2010 46.6% of US dental students were female.<sup>3</sup> In the Asia sub-continent, 50-60% of Indian dental students were female in 2006.<sup>4</sup> The increased participation of women in dentistry has also been recorded in Europe. In 2002, 55% of German dental students were female.<sup>5</sup> According to the General Dental Council (UK), parity was achieved between male and female dental students in 2011/12.<sup>6</sup> These student enrolment figures contribute to the transformation of the composition of the dental workforce. In 2004, 73% of dentists in Bulgaria were female.<sup>7</sup> In 2006, 75% of Swedish dentists and 48% of Russian dentists were female;<sup>4</sup> 40% of German dentists were female.<sup>5</sup> It is clear that dentistry has undergone a process of feminization,<sup>5,8,9</sup> namely, a numerical increase in women in the dental profession.<sup>10</sup> This process of feminization has also been found in medicine.<sup>10,11, 12</sup>

In the Republic of Ireland, the feminization of the healthcare workforce has been particularly pronounced. Currently, women are over-represented in the Irish health sector. One third of women at work in Ireland are employed in the health and education sectors.<sup>13</sup> In particular, four out of every five employees working in the health sector are female.<sup>13</sup> Research in 2011 found that 91.9% of nursing staff, 85.3% of managers and administrators and 83.7% of health and social care professionals were female. 47.2% of those working in the medical/dental professional category were female.<sup>14</sup> However, within this professional

group, 52.6% of medical/dental non-consultants were female and only 35.7% of medical/dental consultants were female.<sup>14</sup>

The increased participation of women in medicine in Ireland has generated academic debate.<sup>15,16,17,18</sup> In sharp contrast, very little had been written about the impact that the process of feminization has had on Irish dentistry. A small but steady increase in the number of women entering the dental profession has been observed since the founding of the Irish State in 1922.<sup>19</sup> In 1928, 5% of practising dentists were female. By 1960, this rose to 11% and by 1980, 20% of registered dentists in the Republic of Ireland were female.<sup>19</sup> According to the 2006 Census 39.4% of dentists were female.<sup>20</sup> This rose to 45.8% in the 2011 Census.<sup>21</sup> The steady increase in women dentists is encouraging and shows a trend that is consistent across the European Union and beyond. However, very little is known as to whether this trend will continue and how strong the female participation rates in dentistry are in the short to medium term. Without knowing student enrolment data it is difficult to make future dental workforce projections and its potential impacts on service provision in the years to come. This issue of planning for a health service is all the more important when you consider how the Irish health care service has contracted over the past six years under a state policy of austerity.<sup>22</sup>

This research presents dental student enrolment and graduate data from 2003 until 2014 with the view to identifying gender trends in the dental student composition. Its aim is to reveal the number of women who have enrolled in and completed dentistry undergraduate studies in the Republic of Ireland over that period. From this we will be able to quantify the increase of women in dentistry.

DENTAL EDUCATION IN IRELAND: A BACKGROUND NOTE

There is intense competition for places in Irish dentistry courses.<sup>23</sup> First, prospective students must attain a high level of achievement in their Leaving Certificate exam results overall, and in particular in Physics, Chemistry and Biology in order to be eligible for a college place. Second, the availability of places is limited by the Department of Education and Science and the Central Applications Office (CAO). While there is slight variation every year, for the past six years approximately 80 students have been admitted as first year dental students between the two dental schools in the country, University College Cork and Trinity College Dublin.

## MATERIALS AND METHODS

Information on the number of students enrolled in all higher education courses in Ireland is recorded by the Higher Education Authority (HEA).<sup>24</sup> Annual student enrolment reports from 2005 and graduate reports from 2002/3 are available from their website. As this information is in the public domain there was no need to apply for ethical approval from the University Ethics Committee. From this database two data sets were compiled, recording the number of student enrolments in dentistry (2005-2014) and the number of dentistry graduates from 2003 -2013. Particular attention was placed on the gendered distribution of these student figures.

## RESULTS

### **Student enrolment in dentistry by gender: 2005-2014**

Student enrolment figures represent the yearly total number of dentistry students registered in Ireland. The data quantifies the total number of dentistry students, across all years of study. As a result, it offers us a cumulative picture of the dental student

undergraduate cohort, rather than an accurate indication of the number of student enrolments per year of study.

Table 1 records student enrolment data for dentistry from 2005 to 2014. Enrolment data suggests that since 2006 the number of women choosing to study dentistry rose gradually year on year. This upward trend reached a peak in 2013 with the enrolment of 313 female dental students. However, the increase fell back to 270 in 2014.

The upward trajectory in female student numbers contrasts with the enrolment trends for male dental students. In contrast, the number of male dental students has plateaued over the same period, starting at a lower baseline than that of female students.

Relationally, we find that there is no parity between the sexes in that intervening period. In fact, every year there were approaching twice as many women enrolled as dental students than male dental students. Such a trend would indicate that a process of feminization has been shaping the composition of the dental undergraduate cohort in Ireland.

### **Student completion figures in dentistry by gender: 2003-2013**

While enrolment figures allow us to quantify the number of women and men studying dentistry overall, they do not give us an indication of how female dental students are performing. One measure of performance is student completion rates.

It is worth noting that student attrition rates for dentistry in Ireland is very low. The percentage of dental students who failed to progress to year 2 of their programme fell from 5% for the 2007/08 student cohort<sup>25</sup> to 2% for the 2010/11 student cohort.<sup>26</sup> These figures compare favourably to the progression rates of medical students (2% for the 2007/8 cohort and 2010/11 cohort) and Veterinary students (4% non-progression rate for the 2007/8

student cohort and 3% in 2010/11).<sup>25, 26</sup> Nursing students, on the other hand, had a non-progression rate of 8% for the 2007/8 cohort and 6% for the 2010/11 cohort.<sup>25, 26</sup> In all cases, these non-progression rates are below the national average attrition rate of 15 % (in 2007/8) and 16% (2010/11).<sup>26</sup>

Table 2 present the gender distribution of dentistry graduates in Ireland from 2003/4 to 2013. The relatively small number of dental student graduating each year confirms the controls that the Department of Education and Science and the CAO place on this professional programme. In 2003/4 the number of male and female graduates was at near parity with 34 male and 35 female dental graduates recorded. However, since then the numerical difference between female and male graduates has grown, reflecting the changing demographic composition of the undergraduate cohort. Though the number of female graduates surpasses the number of male dental graduates' year on year, the number of female graduates displays a curious trajectory, showing slight increases and falls every year. For their part, the number of male dental graduates has displayed a more sustainable growth curve, rising from 27 graduates in 2004/5 to 34 in 2012. Despite these idiosyncratic growth trajectories, the number of female dental graduates continues to surpass the number of male dental graduates. (see Figure 1) The data confirms the over-representation of female dental graduates over a ten year period.

## DISCUSSION

The data has demonstrated an upturn in the number of women enrolling in and graduating from dental undergraduate studies in the Republic of Ireland. This suggests that a process of feminization has been occurring in dentistry in the Republic Of Ireland, similar to other countries in Europe and internationally.

Traditionally, dentistry has been considered a male-dominated profession. Berryman<sup>27</sup> offers a flow model to understand female participation and progression rates in non-traditional occupational fields. She contends that barriers or 'blockages'<sup>27</sup> can occur early in a person's educational career which can prevent them from gaining entry into the profession of their choice at university. One obvious blockage to students' dental aspirations is their ability to satisfy the selection criteria for strong academic performance in the sciences. The student enrolment figures presented here indicate that this selection prerequisite does not appear to have impeded female enrolment. Interestingly, the rise in female students pursuing dentistry at university appears to coincide with an increase in the number of female students studying science subjects for their Leaving Certificate.<sup>28</sup> Female students have also been found to be attaining high grades for these subjects in their Leaving Certificate exam results.<sup>14</sup> Based on these educational trends we can expect that dentistry will continue to be considered an appropriate and relevant career option for Irish female students who have an aptitude for science.

Developments at secondary school level regarding the availability and support of science education have clearly helped provide opportunity for women to choose a career in dentistry in Ireland. However, aptitude must also be matched by aspirations and a motivation to pursue dentistry. This quantitative analysis of female enrolment in dentistry does not provide us with an understanding of why Irish females are choosing dentistry in greater numbers than previously. The research literature highlights a number of reasons why people pursue a career in dentistry. The professional and social status of dentistry, the flexibility of working hours, job security and financial reward emerge as leading factors that motivate people to study dentistry.<sup>29,30,31,32,33,34,35</sup> In addition, studies also highlight its



vocational appeal, being a profession that is concerned with 'helping people' and those with a desire to engage with patient care.<sup>35</sup> One study into Irish undergraduate's motivations to pursue dentistry<sup>23</sup> found similar enthusiasms being expressed by their participants. Nevertheless, dentistry is universally acknowledged as a highly pressurised career, and this has a number of disadvantages, such as the reported high incidences of burnout<sup>36</sup> and suicide<sup>37</sup> within the profession. Considering the continued increase in women enrolling in dentistry it would be worthwhile to revisit this research topic and undertake qualitative research into the motivations of Irish female and male undergraduates pursuing a career in dentistry. This qualitative research could also help explain the relatively low attrition rates among Irish dental students.

The feminization of health care professions has piqued the interest of academics and clinicians alike with deliberations on how the increased participation of women will impact on the occupational status of their profession and work practices.<sup>38</sup> In dentistry, concern has been raised about how the increased female composition of the dental workforce will impact on 'the net flow of clinicians into and out of the system and the range of different working practices adopted'.<sup>9</sup> For instance, studies into the career motivations for dental undergraduates in the UK has shown that while the issue of financial security and maintaining a healthy work-life balance is an issue for both sexes<sup>39</sup> female dental students do not anticipate working full time in the short to long-term.<sup>39,40</sup> Whether this desire for flexible working arrangements is financially and logistically feasible in practice is not entirely clear, nevertheless, the aspiration to work a reduced working week could have an impact on the staffing levels and work contracts of the Irish dental workforce in the future. It would be worthwhile to investigate if Irish dental students and graduates share similar work-life

balance aspirations, and to consider how this will impact on the delivery and coverage of dental services in Ireland in the years to come.

## CONCLUSION

Since 2003, the composition of dental students in the Republic of Ireland has revealed a strong gendered trend with twice as many female dental students than male dental students emerging. We can attribute this development in part to successes at the secondary education system and its promotion of science education for females. As a result, there doesn't appear to be any systemic 'blockages'<sup>27</sup> in the 'early educational pipeline'<sup>27</sup> of women interested in pursuing a career in dentistry in Ireland. In spite of this achievement, the increased participation of women in dentistry raises some interesting questions which need to be grappled with: why are Irish women interested in pursuing a career in dentistry? What career aspirations do they have and do they consider that the dental profession will enable them to achieve all their career goals? The increased participation of women in dentistry in Ireland is to be celebrated, nevertheless, recent Irish statistics reveal that the majority of female dentists occupy non-consultant positions. While we can partly attribute this to the fact that men were over-represented in the profession in the decades of the late 20<sup>th</sup> century, Irish dentistry and Irish dental education will need to promote positive female role models to dental undergraduates as well as champion career progression, either in clinical specialities or through a more academic route, among their female cohort.

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## DISCLOSURE

None.

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