What's in a name? Nominative determinism in the UK dental workforce

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In brief

Surveys the current research on nominative determinism in healthcare.

Analyses the prevalence of dentally-related surnames in the UK dental workforce, and compares this with the UK population. Reveals the phenomenon of 'nominative antideterminism' amongst UK dentists.

Background Nominative determinism describes the theory that people are more likely to pursue careers that are connected to their names. Compelling research has been carried out across the medical professions that provides strong evidence for this phenomenon, but as yet its applicability to the UK dental workforce remains unknown. **Aim** The aim of this study was to establish the prevalence of dentally-related surnames in the UK dental workforce (dentists and dental care professionals) and compare this to the UK population. **Results** Dentistry may provide a surprising counter-example to prevailing theories of nominative determinism, as UK dentists are significantly less likely than the UK general population to have dentally-related surnames. This new phenomenon of 'nominative antideterminism' was not observed in the dental care professional (DCP) cohort, for whom the prevalence of dentally-related surnames was similar to that in the wider UK population.

Introduction

Nominative determinism describes the theory that people are more likely to pursue careers that are connected to their names. The term was first introduced in *New Scientist*'s Feedback column of 5 November 1994,¹ in which editor John Hoyland discussed an article in *The Psychologist* by Jen Hunt that asserted 'Authors gravitate to the area of research which fits their surname'.² Hunt cited as evidence for this theory the paper 'The urethral syndrome: morphological studies' by A. J. Splatt and D. Weedon, published in the *British Journal of Urology*.³

Other commonly-cited examples of nominative determinism include the Lord Chief Justice of England and Wales from 2008–2013, Igor Judge, and the eminent inter-war neurologist, Russell Brain.

Pelham *et al.* attempted to provide a theoretical framework for this phenomenon in

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Accepted 25 November 2016 DOI: 10.1038/sj.bdj.2016.950 ***British Dental Journal 2016; 221: 773-776** their 2002 paper, 'Why Susie sells shells by the seashore'.⁴ Their studies showed not only that people are disproportionately likely to choose careers whose labels resemble their names, but also that they are disproportionately likely to live in places that resemble either their first or last names and in cities whose names begin with their birthday numbers (e.g. 'Two Harbours').

The authors' explanation for these findings centred on the phenomenon of 'implicit egotism': 'Because most people possess positive associations about themselves, most people prefer things that are connected to the self (for example, the letters in one's name).'⁴

These findings have been confirmed by several more recent pieces of research looking specifically at the medical professions.

In 2013, Abel⁵ concluded that medical doctors and lawyers were disproportionately likely to have surnames that influenced their professions, while Keaney *et al.*⁶ provided evidence of the effect of nominative determinism in patients in their study of the prevalence of the surname Brady amongst patients suffering from bradycardia.

A landmark study by the four Limbs⁷ (all members of the same medical family) extended research in the field to the hospital specialities, concluding that specialties in which the English language has provided plentiful synonyms or euphemisms were more likely to demonstrate nominative determinism than others. Genitourinary medicine (Hardwick, Kinghorn, Woodcock, Bell) and urology (Burns, Cox, Dick, Koch, Cox, Balluch, Ball, Waterfall) were cited as two prominent examples.

The authors also noted some interesting differences between the specialties:

'Practitioners of almost all specialties were more likely to be Little than Large. Counterintuitively, only cardiothoracic surgery and cardiology were more likely to be Large than Little. Paediatric medicine was much more likely to be Wong than White, whereas anaesthetists were far more likely to be White than Wong.'⁷

The Pelham study of 2002 investigated in detail whether forenames such as Dennis and Denice were disproportionately prevalent amongst US dentists. They compared each name against other forenames with similar frequencies in the US population, so for example Dennis (prevalence in US population = 0.415%) was compared with the names Jerry and Walter (prevalence = 0.416%). A nationwide search of the American Dental Association directory of members revealed 482 dentists named Dennis,

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257 named Walter and 270 named Jerry. The study reported an odds ratio for this effect of 1.83 to 1 (P <0.001) and hence concluded that people named Dennis are more likely to gravitate towards a career in dentistry.⁴

While current research has shed more light on the prevalence and impact of nominative determinism on medicine and on dentistry in the USA, its effect on dentistry and the dental profession in the UK remains unknown.

The aim of this paper is to examine the potential impact of nominative determinism on the UK dental workforce.

Method

The study examined the prevalence of surnames that have a connection to dentistry and compared their frequency in the overall UK population with frequency amongst UK dental professionals.

Broadly speaking, the UK dental workforce can be divided into dentists and dental care professionals (DCPs). DCPs, as defined by

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the General Dental Council, includes dental nurses, dental technicians, dental therapists, dental hygienists, orthodontic therapists and clinical dental technicians.

Frequency data for the UK population was obtained from web searches of www.britishsurnames.co.uk⁸ between 15–19 August 2016. Rare surnames, for whom frequency data is not available (for example, Fang, Needleman) were discarded.

Frequency data for UK dentists and dental care professionals was obtained from web searches of the General Dental Council (GDC) dental register in the same period.⁹

Figures for the total number of dentists and dental care professionals on the GDC register were taken from the GDC Annual Report for 2014.¹⁰

Using the above data, frequency statistics per million were calculated for the dentist population and the dental care professional population and compared with those for the UK population as a whole. A paired two sample for means t-test was used to establish the significance of the results.

Results

The mean frequency of dentally-related surnames amongst UK dentists was only 40.5% of that of the general UK population, meaning that dentists are significantly less likely than the general population to have names that relate to dentistry.

The mean frequency of dentally-related names amongst UK DCPs was 93.4% of that of the general UK population, meaning that they are no more or less likely than the general population to have dentally-related surnames (Tables 1 and 2).

Table 1 Total number of dentist	s and DCPs			
Number of dentists on GDC register 41,038				
Number of DCPs on GDC register 65,275				

	requeries of surnam	lics					
Name	Frequency per million in UK population	Dentists			Dental care professionals		
		Number on GDC register	Frequency per million in dentist population	Proportion in comparison to UK population	Number on GDC register	Frequency per million in DCP population	Proportion in comparison to UK population
Brace	74	1	24	32.9%	3	46	62.1%
Bridge	156	2	49	31.2%	15	230	147.3%
Brush	7	0	0	0.0%	1	15	218.9%
Chiu	44	3	73	166.1%	1	15	34.8%
Chu	73	4	97	133.5%	3	46	63.0%
Crown	20	0	0	0.0%	1	15	76.6%
Dent	179	1	24	13.6%	14	214	119.8%
Fill	4	0	0	0.0%	0	0	0.0%
Filler	5	0	0	0.0%	0	0	0.0%
Fillingham	21	0	0	0.0%	1	15	73.0%
Gumm	6	0	0	0.0%	1	15	255.3%
Hurt	29	0	0	0.0%	2	31	105.7%
Pain	64	0	0	0.0%	12	184	287.2%
Paine	100	0	0	0.0%	5	77	76.6%
Payne	933	19	463	49.6%	46	705	75.5%
Root	30	0	0	0.0%	1	15	51.1%
Roots	26	0	0	0.0%	2	31	117.8%
Tongue	27	0	0	0.0%	1	15	56.7%
Tooth	6	0	0	0.0%	1	15	255.3%
TOTAL	1,804	30	731	40.5%	110	1685	93.4%

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Dentists comprise 0.1% of the UK working age population, but in our sample of those with dentally-related surnames they comprised only 0.04%. Meanwhile DCPs comprise 0.16% of the UK working age population and in our sample of those with dentally-related surnames they comprised 0.15% (Fig. 1).

Statistical analysis

Hypothesis 1

Null hypothesis: there is no difference in the frequency of dentally-related surnames between dentists and the overall UK population.

Alternative hypothesis: dentists are more or less likely than the overall UK dental population to have a dentally-related surname.

With a P value of 0.038 we confidently reject the null hypothesis and conclude that dentists are significantly less likely to have dentallyrelated surnames than the general UK population (Table 3).

Hypothesis 2

Null hypothesis: there is no difference in the frequency of dentally-related surnames between dental care professionals and the overall UK population.

Alternative hypothesis: dental care professionals are more or less likely than the overall UK dental population to have a dentallyrelated surname.

With a P value of 0.68 we accept the null hypothesis and conclude that DCPs are no more or less likely to have dentally related surnames than the general UK population (Table 4).

Discussion

The data show that in the UK those with dentally-related surnames are significantly less likely to become dentists than those with nondentally related surnames. Interestingly though, this effect does not apply to DCPs, for whom a dentally-related surname does not appear to be a barrier to entering the profession.

This surprising result, which we might term 'nominative antideterminism', runs contrary to previous research which has indicated that possession of an appropriately themed surname increases the likelihood of entering a medical profession.⁵

Nominative antideterminism

Why might 'nominative antideterminism' pertain in dentistry, but not in other areas of medicine?



Table 3 Statistical analysis of dentist vs UK population

	Frequency of dentally-related surnames in the UK population	Frequency of dentally-related surnames in the UK dentist population
Mean	94.94736842	38.47525144
Variance	43,698.16374	11,368.68388
Observations	19	19
Pearson correlation	0.963751987	
Hypothesized mean difference	0	
df	18	
t Stat	2.23731294	
P(T <=t) one-tail	0.019077141	
t Critical one-tail	1.734063607	
P(T <=t) two-tail	0.038154282	
t Critical two-tail	2.10092204	

Table 4 Statistical analysis of DCP vs UK population Frequency of dentally-related Frequency of dentally-related surnames in the UK DCP surnames in the UK population population Mean 94.94736842 88.69358383 Variance 43,698.16374 27,422.40954 Observations 19 19 Pearson correlation 0.966243172 Hypothesized mean difference 0 df 18 t Stat 0.419405101 P(T <=t) one-tail 0.339941492 t Critical one-tail 1.734063607 P(T <=t) two-tail 0.679882984 t Critical two-tail 2.10092204

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One possible explanation is that so many of the surnames that relate to dentistry are concerned with negative connotations of dental care (Pain, Hurt etc). It is understandable that those considering dentistry as a career may be discouraged at the thought of eventually becoming Dr Pain. All the more so, when this might have a negative effect on the financial success of a high street dental practice – a consideration which is less important for other medical professionals.

Meanwhile, notwithstanding new developments in direct access, DCPs names are less visible to the general public and therefore any potential penalty associated with negative connotations of their surname is reduced.

Honourable mentions

Limitations in the data available on the frequency of lesser-known surnames in the UK population meant that several excellent individual examples of dental nominative determinism had to be excluded from this study. Honourable mentions should therefore go to Dr Fang, Dr Molaro, noted periodontologist Professor Ian Needleman, and the three UK dentists named Dr Dentith.

The author has regrettably been unable to find any UK dental professionals named Dr Phil Ing or Dr D. Kay, but would welcome reports from international readers who may be aware of thusly-named colleagues.

Further research

It appears that dentistry in the UK provides a counter-example to prevailing theories of nominative determinism. More research is required to corroborate this study, to establish if its findings can be replicated internationally, and to investigate the potential causes of, and mechanisms behind, 'nominative antideterminism'.

Further proof?

The author makes no comment about the fact that this paper is appearing in the *BDJ*'s Christmas issue but invites readers to draw their own conclusions.

Declarations of interest

JS is an employee of SpringerNature and the Publisher of the British Dental Journal.

- Hoyland J. Feedback. New Scientist. 1995. Available online at https://www.newscientist.com/article/ mg14419506.000-feedback/ (accessed August 2016).
- Hunt J. The Psychology of Reference Hunting. *Psychologist* 1994; 7: 480.
- Splatt A J, Weedon D. The Urethral Syndrome: Experience with the Richardson Urethroplasty. *Br J Urol* 1977; 49: 173–176.
- Pelham B W, Mirenberg M C, Jones J T. Why Susie sells seashells by the seashore: implicit egotism and major life decisions. J Pers Soc Psychol 2002; 82: 469–87.
- Abel E L. Influence of Names on Career Choices in Medicine. Names 2013; 58: 65–74.
- Keaney J J, Groarke J D, Galvin Z *et al.* The Brady Bunch? New evidence for nominative determinism in patients' health: retrospective, population based cohort study. *BMJ* 2013; **347**: f6627.
- 7. Limb C, Limb R, Limb C, Limb D. Nominative determinism in hospital medicine. *RCS Bulletin* 2015; **97:** 24–26.
- British Surnames. Website. Available online at http:// www.britishsurnames.co.uk/ (accessed August 2016).
- General Dental Council. Search the registers. Available online at http://www.gdc-uk.org/pages/searchregisters. aspx (accessed August 2016).
- GDC. General Dental Council Annual Report and Accounts. 2015. Available online at http://www. gdc-uk.org/Newsandpublications/Publications/Publications/17290%20GDC%20AR%20ACC%202014%20 R6%20WEB%20UD.pdf (accessed August 2016).