

Do high tuition fees make a difference? Characteristics of applicants to UK medical and dental schools before and after the introduction of high tuition fees in 2012

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In brief

Provides an overview of the profile of entrants to dentistry.

Informs dental practitioners who may have school children seeking work experience in preparation for application to dental school.

Encourages reflection on how we can encourage access to dental education for young people from under-represented areas.

Aim To compare trends in the volume, socio-demography and academic experience of UK applicants and entrants to medicine and dentistry in the UK with university in general, before and after the major increase in university fees in England in 2012. **Methods** Descriptive trend analyses of University and College Admissions Services (UCAS) data for *focused* (preferred subject was medicine or dentistry) and *accepted* applicants, 2010-14, compared with university in general in relation to socio-demography (age, sex, ethnicity, POLAR 2, region) and academic experience (school type). POLAR2 data provide an indication of the likelihood of young people in the area participating in further or higher education. **Results** In 2012 the volume of applicants to medicine and dentistry fell by 2.4% and 7.8% respectively, compared with 6.6% for university overall. Medical applications remained buoyant and by 2014 had risen by 10.2% from 2010 to 23,365. While dental applications fell in both 2012 and 2013, they had increased by 15.6% to 3,410 in 2014, above 2010 levels. Females formed the majority of applicants, and admissions, with the proportion gaining admission to dentistry in 2014 reaching an all-time high (64%), exceeding medicine (56%), and university in general (56%). Mature admissions to dentistry were at their highest in 2010 (29%) falling to 21% in 2014, compared with 22-24% in medicine. Black and minority ethnic group admissions to university, although rising (24% in 2014), are still less than for medicine (34%) and dentistry (48%). In 2013, just over half of the students admitted to dentistry were from BME groups (51%) for dentistry. Among UK applicants <19 years, over 60% of applicants, and 70% of accepted applicants, to medicine and dentistry are from the top two POLAR2 quintiles representing areas of high participation in education; however, in 2014 there was a notable increase in the proportion of applications from the lower two quintiles to dentistry (19%) and medicine (20%), with a very modest increase in those gaining admission over 2012 (14% of both; *cf* 10% and 12% respectively). **Discussion** The findings suggest that the short-term impact of the 2012 rise in fees had a greater influence on the volume and nature of applicants to dentistry than medicine, and that both programmes are gaining in popularity, despite high fees and reduced places. Dentistry remains particularly attractive to Asians, and females, the latter forming an increasing majority of students. While there is some recovery, social inequalities exist and present a challenge for widening participation in the professions.

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Introduction

Over half of current dentists will have had the enormous privilege of enjoying dental education 'free at the point of delivery' within the United Kingdom. This was one of the benefits of our welfare state under the 1944 Education Act.¹ Many will also have enjoyed the benefit of receiving a grant to cover living expenses while attending university; thus leaving with little, or no, debt. Significant public sector reform means that this is no longer the case across much of

the UK, with implications for individuals, the profession and society.

Firstly, it is important to note that although the vast majority of third level education in the UK continues to be provided through state/public universities, private establishments, very common in other parts of the world, are now emerging in the academic marketplace.^{2,3}

Secondly, gaining a university degree is increasingly important, and expected, in our knowledge-based economy.⁴ Government policy promotes third level education, with

a target that half of young people should go to university, whilst back in 1945 only 3% attended university.⁵ Education costs money and someone has to pay, with loans available, and for certain students NHS bursaries in the final year.⁶ Contemporary neoliberalist political philosophy suggests that students value what they pay for;⁷ and now they do pay for much of their medical and dental education.⁸

Thirdly, all governments of whatever shade have supported this change. University tuition fees were introduced in the UK in 1998 by a Labour government at a rate of up to £1,000 per annum. While intervening years brought an increase in fee cap to £3,000 in 2006, with small inflationary rises, a subsequent coalition government permitted a dramatic increase in fees to a maximum of £9,000 per annum from 2012 onwards in England and Wales.⁹ Fees in Northern Ireland have remained at just over £3,000 plus inflation, while the fees in Scotland (£1,000 plus inflation) are paid by the Student Awards Agency for Scotland;¹⁰ hence, students in Scotland do not pay fees. Students in Wales may apply for a fee grant of up to £5,190, which is not repayable, and thus in reality they pay similar levels of fees to Northern Ireland.

The rise to £9K fees resulted in concerns regarding the volume and demography of applicants, in particular those applying from disadvantaged backgrounds. All medical and dental schools in England and Wales elected to charge £9,000 fees and, in turn, had to demonstrate widening participation initiatives to ensure that applicants from disadvantaged backgrounds were encouraged, and supported, to enter university;^{11,12} this includes schemes such as outreach, national scholarship programmes (NSPs) as well as academic and pastoral support for current students. It is yet to be established whether these schemes are effective.

UK students apply to higher education through a central administrative system run by the Universities and Colleges Admissions System [UCAS], and may select up to five programmes of study. Students applying to medicine and dentistry are restricted in their choice and must make at least one alternative selection. Applications, where the majority of options relate to medicine or dentistry, are referred to as *focused* applications. Summary information on applications to medical and dental school is available online from UCAS and more detailed data may be purchased for research purposes. UCAS reported a steady increase in the number of applicants to all UK higher education (HE) courses from 2008, with an average increase of

8.8% per annum. In 2012, however, there was a fall of 7.4% in applicants across the UK.¹³

Medical and dental places are currently capped nationally, and thus competition for entry is present. Numbers of places, having expanded in the noughties,^{14,15} are now reducing at different rates in each of the devolved UK nations, and the number of graduate entry places has also reduced. In order to protect the economic viability of dental schools, more international entrants are increasingly permitted with Northern Ireland leading the way in recruiting from Malaysia. Previous analysis has established relationships between ethnicity, sex, maturity, social status and school type and an increased probability of acceptance to either medicine or dentistry.^{16,17} Fair admissions to higher education have been the subject of ongoing debate,^{18–20} and the Minister for Universities and Science has just challenged universities to increase access to higher education among white boys from lower social backgrounds.^{21,22}

UCAS no longer collect information on social status based on socio-economic group (SEG) based on parental occupation and instead publish POLAR (Participation of Local AREas) data. The latter classification is used by the Higher Education Funding Council [HEFCE] to identify how likely young people applying from different areas of the United Kingdom are to participate in further or higher education (FE/HE) and is regularly updated. This classification has five quintiles with POLAR category 1 being the areas with the least participation through to POLAR category 5, the areas with the highest participation rates.

It is imperative we monitor whether rising fees are inhibiting applicants from varied backgrounds in applying to medicine and dentistry nationally in support of tackling societal inequity. By ensuring that the dental and medical workforce is comprised of individuals with varying demographic characteristics we may be better able to provide appropriate care to a population that is both living longer and becoming increasingly diverse.

Aim

The aim of this study was to compare the demography (age; sex; ethnicity; region) and academic experience (school type; tariff) of *focused* and *accepted* applicants (entrants) to medicine and dentistry undergraduate programmes in the UK with university in general, before and after a major increase in university fees in 2012.

Methods

University and College Admissions Services (UCAS) admissions data were obtained, for *focused* and *accepted* applicants to medicine and dentistry across the five entrance years 2010–14. Information obtained for all applicants included age and sex. Additional information on ethnicity, school type, POLAR2 category and region (based on postcode of application) was obtained for all UK applicants.

Individual student data are not available for analysis from 2012 onwards; thus, limiting the level of analysis possible. Summary data on all dentistry and medicine programmes were obtained from UCAS and compared with online data for universities and colleges overall.²³ Univariate analysis involved comparing proportions of *focused* and *accepted* applicants for medicine, dentistry and university overall for each of the variables. In 2014 to further protect student anonymity, there is rounding of student numbers to the nearest ‘5’ of the data sent from UCAS, making trend analysis less precise.

Results

Volume of applications

Table 1 presents the data on applications and admissions from 2010 to 2014. In 2012 the total volume of applicants to medicine and dentistry fell by 2.4% for medicine and 7.8% for dentistry compared with 6.6% for university overall. Medicine showed the least fluctuation across the five years of admissions, 2010–14; having had an increase in *focused* applicants in 2011 (n = 21,721), and by 2014 applications had risen by a further 10.2% over 2012 levels to 23,365. In contrast dentistry saw a more marked decline in *focused* applicants between 2011 (n = 3,197) and 2012 (n = 2,949), and a further fall of 1.6% to 2013 (n = 2,902); however, they increased in 2014 by 15.6% over 2012 levels (n = 3,410).

Age

The proportion of mature *focused applicants* to both medicine and dentistry (>21 years of age) remained relatively stable over the five years with approximately one third of applicants to both courses reported as mature (~31% to dentistry, and ~33% to medicine) which is higher than university overall at 26%; however, the proportion of *accepted* applicants to dentistry decreased from a high of 29% in 2011 to 20% in 2013 and 21% in 2014, while the

Table 1 Number and proportion of focused and accepted applicants to medicine and dentistry by age and gender in comparison to UCAS applicants, 2010-14

	Focused applicants						Accepted applicants					
	Dentistry		Medicine		UCAS		Dentistry		Medicine		UCAS	
	N	%	N	%	N	%	N	%	N	%	N	%
2010												
Age												
<21	2,337	70	14,044	67	498,469	72	968	76	6,091	77	372,522	76
21+	1,010	30	6,892	33	198,882	29	310	24	1,856	23	114,807	24
Sex												
Female	1,862	56	11,574	55	390,444	56	754	59	4,403	55	267,244	55
Male	1,485	44	9,362	45	306,907	44	524	41	3,544	45	220,085	45
Total	3,347	100	20,936	100	697,351	100	1,278	100	7,947	100	487,329	100
2011												
Age												
<21	2,174	68	14,493	67	507,410	73	851	71	5,905	76	383,727	78
21+	1,023	32	7,228	33	192,751	28	345	29	1,893	24	108,303	22
Sex												
Female	1,761	55	11,926	55	393,096	56	687	57	4,221	54	270,154	55
Male	1,436	45	9,795	45	307,065	44	509	43	3,577	46	221,876	45
Total	3,197	100	21,721	100	700,161	100	1,196	100	7,798	100	492,030	100
2012												
Age												
<21	2,003	68	14,317	68	477,909	73	909	76	6,088	78	363,128	78
21+	946	32	6,886	32	175,728	27	286	24	1,717	22	101,782	22
Sex												
Female	1,677	57	11,734	55	368,569	56	725	61	4,158	53	256,623	55
Male	1,272	43	9,470	45	285,068	44	470	39	3,647	47	208,287	45
Total	2,949	100	21,203	100	653,637	100	1,195	100	7,805	100	464,910	100
2013												
Age												
<21	2,009	69	14,584	67	498,430	74	951	80	5,823	78	387,695	78
21+	893	31	7,060	33	178,945	26	237	20	1,691	23	107,900	22
Sex												
Female	1,717	59	12,185	56	381,920	56	727	61	4,136	55	273,530	55
Male	1,185	41	9,459	44	295,450	44	461	39	3,378	45	222,070	45
Total	2,902	100	21,644	100	677,375	100	1,188	100	7,514	100	495,600	100
2014												
Age												
<21	2,340	69	15,635	67	517,515	74	870	79	5,840	76	401,570	78
21+	1,070	31	7,730	33	182,170	26	235	21	1,840	24	110,800	22
Sex												
Female	2,095	61	13,355	57	397,085	57	705	64	4,280	56	285,080	56
Male	1,315	39	10,010	43	302,600	43	395	26	3,400	44	227,290	44
Total	3,410	100	23,365	100	699,685	100	1,105	100	7,680	100	512,370	100

Table 2 Number and proportion of focused and accepted UK applicants to medicine and dentistry by ethnicity, 2010-14

Ethnicity	Focused applicants						Accepted applicants					
	Dentistry		Medicine		UCAS		Dentistry		Medicine		UCAS	
	N	%	N	%	N	%	N	%	N	%	N	%
2010												
Asian	1,286	45	3,949	24	53,040	9	439	37	1,327	19	38,595	10
Black	115	4	1,092	7	41,655	7	28	2	186	3	25,015	6
Mixed	93	3	654	4	18,965	3	40	3	267	4	13,580	3
White	1,225	43	10,060	61	435,250	78	638	54	5,060	72	319,855	79
Other	123	4	380	2	5,955	1	37	3	109	2	4,055	1
Unknown	30	1	243	1	4,380	1	8	1	82	1	3,025	1
Not applicable												
Total	2,872	100	16,378	100	559,245	100	1,190	100	7,031	100	404,125	100
2011												
Asian	1,241	46	4,136	24	56,170	10	420	38	1,327	19	41,330	10
Black	95	3	1,170	7	44,500	8	24	2	200	3	27,310	7
Mixed	81	3	714	4	20,110	4	30	3	266	4	14,920	4
White	1,157	42	10,200	60	432,635	77	593	53	4,916	71	322,505	78
Other	100	4	464	3	6,300	1	26	2	122	2	4,370	1
Unknown	50	2	295	2	4,295	1	20	2	101	1	2,960	1
Not applicable												
Total	2,724	100	16,979	100	564,010	100	1,113	100	6,932	100	413,395	100
2012												
Asian	1,090	43	4,120	25	53,005	10	424	38	1,435	20	39,845	10
Black	75	3	1,124	7	42,245	8	12	1	211	3	27,175	7
Mixed	88	4	718	4	18,445	4	39	3	293	4	13,885	4
White	1,093	43	9,659	59	389,320	76	600	53	4,756	68	293,990	77
Other	122	5	481	3	7,325	1	31	3	160	2	5,255	1
Unknown	46	2	264	2	3,535	1	16	1	152	2	2,480	1
Not applicable												
Total	2,514	100	16,366	100	513,875	100	1,122	100	7,007	100	382,630	100
2013												
Asian	1,124	45	4,290	26	54,770	10	460	41	1,435	21	42,620	11
Black	81	3	1,143	7	42,165	8	12	1	189	3	28,445	7
Mixed	79	3	749	4	19,480	4	39	4	286	4	15,095	4
White	1,014	41	9,716	58	400,420	76	549	49	4,501	67	311,330	77
Other	125	5	472	3	7,415	1	40	4	155	2	5,430	1
Unknown	51	2	283	2	3,565	1	12	1	149	2	2,595	1
Not applicable												
Total	2,474	100	16,653	100	527,815	100	1,112	100	6,715	100	405,515	100
2014												
Asian	1,200	43	4,555	19	57,755	11	370	36	1,525	20	45,165	11
Black	135	5	1,430	6	44,290	8	25	2	225	3	29,995	7
Mixed	115	4	815	3	21,120	4	40	4	325	4	16,445	4
White	1,105	39	9,825	42	409,610	75	520	52	4,475	58	319,435	76
Other	185	7	520	2	8,210	2	45	5	140	2	6,075	1
Unknown	55	2	295	1	3,535	1	15	1	130	2	2,450	1
Not applicable	615		5,920				90		855			
Total	3,410	100	23,360	100	544,520	100	1,105	100	7,675	100	419,565	100

Note: Total numbers do not tally with other UK only variables for 2014 as data provided for each institution was rounded up or down to the nearest 5 applicants

Table 3 Number and proportion of focused and accepted UK applicants to medicine and dentistry by school-type, 2010-14

School type	Focused applicants						Accepted applicants					
	Dentistry		Medicine		UCAS		Dentistry		Medicine		UCAS	
	N	%	N	%	N	%	N	%	N	%	N	%
2010												
Academy	*	*	*	*	*	*	*	*	*	*	*	*
Further Education	203	7	1,063	6	101,366	17	55	5	327	5	70,897	17
Grammar School	544	19	2,669	16	33,305	6	291	24	1,448	21	27,488	6
Independent School	548	19	3,490	21	42,386	7	266	22	1,935	28	34,357	8
Other	443	15	2,407	15	151,702	26	115	10	543	8	93,227	22
Sixth Form College	334	12	1,902	12	91,190	16	120	10	728	10	70,471	17
State exc. Grammar	800	28	4,847	30	166,030	28	343	29	2,050	29	127,631	30
Total	2,872	100	16,378	100	585,979	100	1,190	100	7,031	100	424,071	100
2011												
Academy	*	*	*	*	*	*	*	*	*	*		
Further Education	93	3	479	3	89,780	15	17	2	157	2		
Grammar School	452	17	2,371	14	31,982	5	241	22	1,323	19		
Independent School	428	16	2,760	16	38,410	7	194	17	1,549	22		
Other	917	34	6,213	37	187,525	32	341	31	1,790	26		
Sixth Form College	283	10	1,566	9	85,148	14	97	9	596	9		
State exc. Grammar	551	20	3,590	21	156,505	27	223	20	1,517	22		
Total	2,724	100	16,979	100	589,350	100	1,113	100	6,932	100		
2012												
Academy	240	10	1,413	9	36,292	7	125	11	683	10	30,488	7
Further Education	83	3	433	3	82,045	15	27	2	146	2	61,320	15
Grammar School	279	11	1,475	9	21,786	4	160	14	863	12	18,211	8
Independent School	405	16	2,634	16	36,068	7	239	21	1,605	23	30,849	26
Other	861	34	5,987	37	170,936	31	284	25	1,709	24	107,147	16
Sixth Form College	216	9	1,384	8	79,230	15	68	6	566	8	63,929	23
State exc. Grammar	430	17	3,040	19	118,395	22	219	20	1,435	20	95,447	23
Total	2,514	100	16,366	100	544,752	100	1,122	100	7,007	100	407,391	100
2013												
Academy	496	20	3,133	19	84,730	24	268	24	1469	22	73,190	24
Further Education	83	3	459	3	44,635	12	26	2	133	2	36,130	12
Grammar School	169	7	839	5	12,760	4	98	9	456	7	10,660	4
Independent School	328	13	2,550	15	33,725	9	207	19	1497	22	29,220	10
Other	841	34	6,206	37	34,920	10	253	23	1666	25	27,205	9
Sixth Form College	237	10	1,442	9	65,920	18	93	8	603	9	55,975	19
State exc. Grammar	320	13	2,024	12	82,195	23	167	15	891	13	67,375	22
Total	2,474	100	16,653	100	358,885	100	1,112	100	6,715	100	299,755	100
2014												
Academy	300	12	2,930	16	86,380	24	115	19	1,300	19	74,970	24
Further Education	100	4	510	3	46,035	13	20	3	130	3	37,440	12
Grammar School	130	5	825	4	12,775	3	55	9	450	7	10,445	3
Independent School	245	10	2,735	14	33,825	9	75	12	1,450	21	29,415	10
Other	1,415	56	8,665	46	36,195	10	270	45	2,375	35	28,290	9
Sixth Form College	180	7	1,500	8	67,885	18	55	9	560	8	57,555	19
State exc. Grammar	150	6	1,710	9	84,300	23	20	3	540	7	69,235	23
Total	2,520	100	18,875	100	367,395	100	610	100	6,805	100	307,350	100

Note: Total numbers do not tally with other UK only variables for 2014 as data provided for each institution was rounded up or down to the nearest 5 applicants.

Table 4 Number and proportion of focused and accepted UK applicants to medicine and dentistry by region and country, 2010-14 (cnt on 187)

Country/region	Focused applicants						Accepted applicants					
	Dentistry		Medicine		UCAS		Dentistry		Medicine		UCAS	
	N	%	N	%	N	%	N	%	N	%	N	%
2010												
East Midlands	186	6	972	6	38,123	6	83	7	408	6	38,123	7
Eastern	151	5	1,336	8	50,007	9	51	4	537	8	50,007	9
London	639	22	3,848	23	96,693	16	226	19	1,250	18	96,693	18
North East	91	3	508	3	21,658	4	34	3	204	3	21,658	4
North West	398	14	1,643	10	68,965	12	149	13	788	11	68,965	13
South East	252	9	2,266	14	78,255	13	101	8	1,009	14	78,255	14
South West	138	5	1,164	7	46,142	8	57	5	521	7	46,142	8
West Midlands	294	10	1,140	7	51,171	9	120	10	505	7	51,171	9
Yorks & The Humber	212	7	1,048	6	44,848	8	69	6	469	7	44,848	8
Northern Ireland	179	6	698	4	19,682	3	104	9	429	6	19,682	4
Scotland	195	7	1,076	7	46,347	8	126	11	594	8	46,347	8
Wales	137	5	678	4	24,908	4	70	6	316	4	24,908	5
UK Unknown					22	0					22	0
UK Total	2,872	100	16,377	100	586,799	100	1,190	100	7,030	100	548,698	100
2011												
East Midlands	154	6	955	6	37,925	6	66	6	389	6	37,925	6
Eastern	144	5	1,377	8	50,392	9	57	5	546	8	50,392	9
London	597	22	3,975	23	99,668	17	217	19	1,185	17	99,668	17
North East	100	4	492	3	22,030	4	38	3	214	3	22,030	4
North West	368	14	1,452	9	68,767	12	157	14	752	11	68,767	12
South East	230	8	2,331	14	77,685	13	84	8	1,004	14	77,685	13
South West	183	7	1,501	9	46,069	8	55	5	534	8	46,069	8
West Midlands	297	11	1,241	7	50,514	9	113	10	451	7	50,514	9
Yorks & The Humber	235	9	1,084	6	45,069	8	93	8	471	7	45,069	8
Northern Ireland	139	5	715	4	20,242	3	80	7	430	6	20,242	3
Scotland	173	6	1,153	7	46,015	8	111	10	632	9	46,015	8
Wales	104	4	703	4	24,974	4	42	4	324	5	24,974	4
UK Unknown					0	0					0	0
UK Total	2,724	100	16,979	100	589,350	100	1,113	100	6,932	100	589,350	100
2012												
East Midlands	152	6	913	6	34,390	6	56	5	391	6	34,390	6
Eastern	139	6	1,271	8	45,968	8	63	6	553	8	45,968	8
London	584	23	3,975	24	91,301	17	218	19	1,273	18	91,301	17
North East	94	4	469	3	19,756	4	42	4	211	3	19,756	4
North West	308	12	1,273	8	62,782	12	119	11	574	8	62,782	12
South East	216	9	2,279	14	70,172	13	93	8	1,013	14	70,172	13
South West	119	5	1,135	7	41,067	8	58	5	537	8	41,067	8
West Midlands	308	12	1,595	10	47,869	9	122	11	695	10	47,869	9
Yorks & The Humber	213	8	1,042	6	42,109	8	81	7	477	7	42,109	8
Northern Ireland	116	5	627	4	19,377	4	78	7	361	5	19,377	4
Scotland	158	6	1,122	7	45,116	8	141	13	600	9	45,116	8
Wales	105	4	665	4	24,845	5	51	5	322	5	24,845	5
UK Unknown					0	0					0	0
UK Total	2,512	100	16,366	100	544,752	100	1,122	100	7,007	100	544,752	100

Table 4 Number and proportion of focused and accepted UK applicants to medicine and dentistry by region and country, 2010-14 (cnt from 186)

Country/region	Focused applicants						Accepted applicants					
	Dentistry		Medicine		UCAS		Dentistry		Medicine		UCAS	
	N	%	N	%	N	%	N	%	N	%	N	%
2013												
East Midlands	163	7	965	6	35,400	6	77	7	396	6	35,400	6
Eastern	129	5	1,306	8	47,870	8	57	5	544	8	47,870	8
London	570	23	3,925	24	94,900	17	219	20	1,250	19	94,900	17
North East	79	3	494	3	20,745	4	32	3	201	3	20,745	4
North West	312	13	1,325	8	64,900	12	131	12	570	8	64,900	12
South East	214	9	2,310	14	72,690	13	104	9	977	15	72,690	13
South West	82	3	1,231	7	42,925	8	35	3	548	8	42,925	8
West Midlands	317	13	1,615	10	49,945	9	140	13	605	9	49,945	9
Yorks & The Humber	208	8	1,080	6	43,050	8	77	7	439	7	43,050	8
Northern Ireland	131	5	640	4	20,545	4	80	7	358	5	20,545	4
Scotland	160	6	1,112	7	45,720	8	123	11	583	9	45,720	8
Wales	109	4	650	4	24,595	4	37	3	244	4	24,595	4
UK Unknown					35	0					35	0
UK Total	2,474	100	16,653	100	563,285	100	1,112	100	6,715	100	563,285	100
2014												
East Midlands	135	5	980	6	36,300	6	50	5	400	6	28,890	6
Eastern	160	6	1,325	8	49,045	8	65	7	565	8	39,230	9
London	645	23	4,235	24	100,875	17	195	19	1,200	18	76,525	17
North East	80	3	505	3	20,785	4	25	3	205	3	16,190	4
North West	400	14	1,740	10	66,665	12	135	13	700	10	52,275	12
South East	240	9	2,385	14	74,750	13	95	9	1,020	15	59,355	13
South West	110	4	1,185	7	43,400	8	40	4	520	8	34,085	8
West Midlands	265	9	1,365	7	51,625	9	90	9	530	8	40,500	9
Yorks & The Humber	260	9	1,165	6	44,320	8	85	9	485	7	35,355	8
Northern Ireland	120	4	660	4	20,570	4	70	7	345	5	14,455	3
Scotland	255	9	1,185	7	44,785	8	105	10	570	8	30,315	7
Wales	130	5	710	4	25,065	4	55	5	280	4	20,165	4
UK Unknown					110	0					110	0
UK Total	2,800	100	17,440	100	578,295	100	1,010	100	6,820	100	447,450	100

proportion of *accepted* medical counterparts remained more stable at 23-24% (Table 1).

Sex

A greater proportion of *focused* applicants to medicine were female (55-57%), as were accepted applicants (53-56%) (Table 1). However, even higher proportions of *focused applicants* to dentistry were female (55-61%). *Accepted* applicants to dentistry were consistently more likely to be female than *focused* applicants and their medical, or university, counterparts. This increased over time: whereas in 2012 and 2013, 61% were female, by 2014 this had risen to an all-time high of 64%, notably exceeding medicine and university overall (56% for both).

Ethnicity

When UK admissions are considered, medicine and dentistry attract applicants from a variety of ethnic backgrounds but with a distinctly different profile to university overall over the five-year period (Table 2). The proportion of white students applying to medicine has decreased from 61% to 56% and to dentistry from 43% to 39%, with a corresponding rise in BME [Black and minority ethnic group] *applicants*.

Furthermore, the proportion and volume of students from black and minority ethnic groups accepted to medicine increased between 2010 and 2014 (25% n = 1,780 compared with 28% n = 1,910 respectively). While in medicine this increase is most pronounced in the Asian

constituent who rose to 22% in 2014, dentistry has been consistently popular among Asians with 41% in 2013. In 2013, for the first time, just over half of UK accepted applicants to dentistry (51%) were from black and minority ethnic groups (Table 2).

When compared with university admissions overall, it would suggest that Asians are twice as likely to be represented in medicine (22%) and three to four times as likely in dentistry (36-41%), with black and white students under-represented compared with university overall.

The proportion of black *applicants* to dentistry decreased over the five years from 115 applicants in 2010 to just 85 applicants in 2013, rising to 135 in 2014; however, the

number of accepted applicants was low even in 2014 when BME admissions were highest (2%, n = 25). Black students applying to dentistry appear to have been *most* affected and Asian students applying to medicine *least* affected by the 2012 fee changes. While 7% of students accepted to university were of black ethnicity in 2014, the corresponding levels for medicine and dentistry were 3% and 2% respectively.

School type

There were major changes in school type during this period which makes comparative analysis difficult. The general trend is a decrease in the number of applicants from grammar and state schools (excluding grammar). However, this fall may be accounted for by the increase in applicants from academies which only emerged from 2012 onwards (Table 3).

Country/region

The proportion of applicants from different regions within England has remained relatively

constant during the five-year period (Table 4). The proportion of applicants to university from London (16-17%) is consistently higher than the rest of the country, and notably so for medicine (23-24%) and dentistry (22-23%).

The proportion of accepted students from London was at its highest in 2014 (17%), while admissions to medicine (18%) and dentistry (19%), were slightly higher, they were lower than the level of applications.

The proportions of *accepted* applicants to medicine from Scotland, Northern Ireland and Wales have not shown significant change during the same period; albeit the numbers have dropped. For dentistry the proportions and number fluctuate over the five-year period and numbers overall are down, except for Wales which appear to have risen from 2011.

POLAR2

Medicine and dentistry attract considerably higher proportions of applicants from ‘areas of higher participation in FE/HE’ (Categories

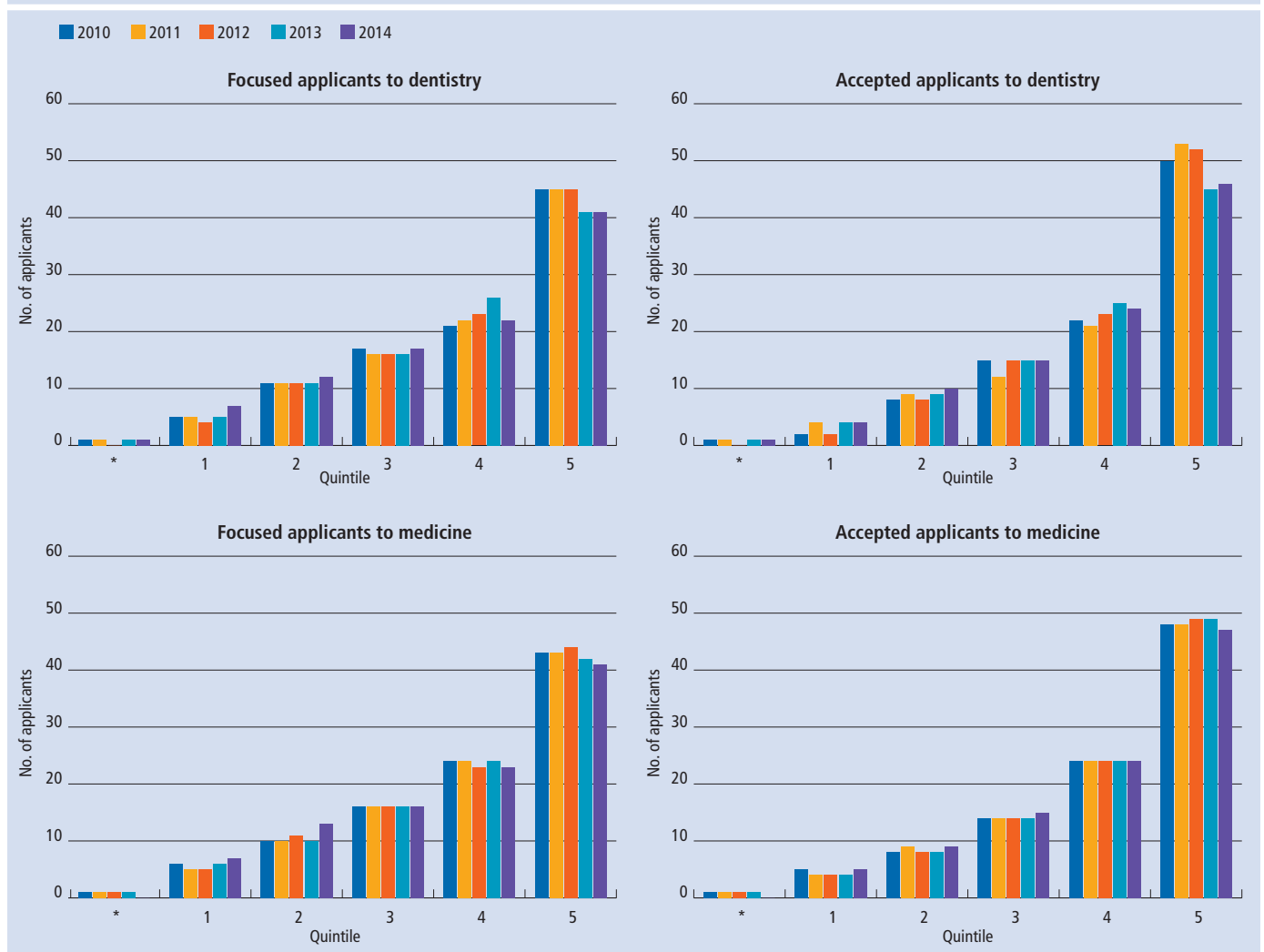
5 and 4), than those from areas of lower participation (Fig. 1). Over the five years, high proportions of applicants to dentistry (63-66%) and medicine (64-67%) are from the upper two quintiles, and even higher levels of admissions: dentistry (70-75%) and medicine (71-74%).

The data for 2014 suggest that applications from areas of low participation have just risen in 2014 for dentistry and medicine (to 19% and 20% respectively), with admissions slightly lower at 14% for both. A caveat for this year is of course the rounding up/down of numbers to the nearest five which can make a difference when small numbers are involved.

Discussion

This paper provides an important insight on the socio-demographic profile of the future medical and dental workforce during a period of reduced medical and dental places, increasing student fees, promotion of widening participation activities, and a background of economic

Fig. 1 POLAR2 profile of applicants and accepted applicants to dentistry and medicine, 2010-14



recession. Dentistry appears to have recovered, and medicine to have retained, popularity despite the university fee increase to £9k pa in England and Wales. The odds of gaining admission to study dentistry are still fairly good, at 3:1 overall. Dentistry is now admitting a higher proportion of females than ever and thus males are increasingly under-represented, even more so than for university as a whole. Universities have been challenged to address the under-representation of white males,^{21,22} and these findings present a particular challenge for dentistry where white and black students are underrepresented. Admissions to medicine and dentistry from areas of 'low uptake of education' reduced in line with the fee increase, but appear to be recovering, albeit that the volume of students from such areas is lower than before, calling into question whether the widening participation agenda can go beyond counteracting the impact of fees to widen access to medical and dental education.

The aim of widening participation strategies is to encourage anyone with the ability to participate in higher education with an opportunity to do so.²⁴ While three decades ago, there were concerns that women were in the minority, it is now men who require active encouragement to participate in higher education, particularly the professions. The new imbalance between males and females is becoming more notable in dentistry and the possible influences and implications should be considered. Could it be in some way related to NHS policies which mean that most graduates will have less hope of running their own business in future, particularly in England and Wales as corporate bodies and contract ownership means that most can only hope to be employees or work for others as associates? There is some evidence that males are significantly more likely than females to be attracted by the ability to run a business.²⁵ Additionally UK dentistry may be a more attractive career option for women due to the potential of flexible and more social working hours, and the potential for 'work-life balance' and 'financial stability'.^{26–28} All have implications for future workforce capacity.

Interestingly, while graduate applications have remained stable, graduate places, have reduced with two schools converting their graduate entry places to the standard five-year programme. This may be responsible for the notable reduction in mature students entering dentistry in 2013 and 2014, compared with 2010.

The ethnic group most affected by the rise in fees appears to be black students. This issue warrants monitoring and action by local dental

schools in their widening participation activities to target under-represented groups, and may be informed by further research. In contrast, Asian applicants to university just exceed their proportion in the 18–19-year-old population overall at 11% (cf 9%), the volume of applicants and entrants is over four times higher for dentistry and over twice for medicine. Black and white students are under-represented among both focused and accepted applicants to medicine and, to a greater extent, in dentistry.

Both the dental and medical professions provide long-term career stability with a variety of employment options; a feature which is particularly attractive in times of economic recession. There are, however, implications for student debt which is a major issue for university entrance among low-income and working class backgrounds.²⁰ Fees differ in each of the UK countries with students outside of England paying lower or, as in the case of Scotland, no fees. It could have been expected that these applications would remain constant but they decreased in 2012. This could be explained by the fact that Scottish students receiving education at home do not pay fees and can apply for a means-tested bursary for assistance with living costs. They have to pay fees if they go to university elsewhere, although they are able to apply for a means tested bursary.²⁹ So if they can't, or don't want to, stay at home, students who might otherwise have applied for dentistry in Scotland, may possibly be opting for shorter alternative courses elsewhere in the UK. Similar issues may be occurring among students from Northern Ireland who pay reduced fees at home or in Scotland but full fees in England.

It is important to note that the proportion of admissions to medicine and dentistry from areas of 'low uptake of education' is much worse when compared to the proportion in university overall. The proportion decreased further in line with the fee increase but appears to be recovering. This can be explained by potential students being deterred by fees for programmes which last five or even six years with implications for long-term debt. Further action is required in order to ensure that individuals with the ability to pursue careers in medicine and dentistry are given the support and access they need, regardless of their ability to pay. As the system of loans and grants becomes increasingly complex, it is important that prospective students are aware of the additional grants and financial support available to those from low-income backgrounds, in

particular in their UK country of origin and how to apply. Given well-documented social challenges of young people from low income backgrounds entering medicine,³⁰ and university in general,²⁰ research is required into the social and economic challenges of entering dentistry, and action should go beyond a knowledge deficit model and address the environment within which individual life choices are embedded.³⁰

The limitations of this analysis are first our inability to have access to individual data in order to undertake multivariate analysis, due to new restrictions on the data available from UCAS; second, changing categories/coding of data which challenge any trend analysis; and third, the rounding up and down of the data from each school make robust analysis difficult. Nonetheless readers can see very clear patterns within the data upon which we as a profession should reflect, and act, as they have implications for the future medical and dental profession and wider society. The long-term population trends shows that the decline in young population is set to continue until 2021, with the number of 18- to 20-year-olds projected to decrease by 12.3% between 2012 and 2021.³¹ We should be actively encouraging the brightest and best into dentistry.³²

Answering the question posed: yes the introduction of fees did impact on admissions to dental school, numerically and demographically, particularly for dentistry. While there is some recovery, social inequalities exist and present a challenge for widening participation in the professions.

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Conflict of interest declaration

In relation to conflict of interest, three of the authors (JG, VN and LC) are involved in dental education and admissions interviews to dental school. Dr Lyndon Cabot is the lead for dental admissions at KCL. JEG is chair of the Dental Workforce Advisory Group for England; the views expressed in this paper do not represent the views of Health Education England.

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