WELSH DENTAL SURVEY OF 18-25 YEAR OLDS

YEAR 1 INTERIM REPORT

MARCH 2019

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Contents

SURVEY SAMPLE

This report covers the initial analysis and reporting on the first year of data collection on the dental health of 18-25 year olds in Wales. It is focused upon the dental health of 2 groups. The first group is of those using emergency dental services. This is a group who need urgent dental care, but for whom there is currently little information on their oral health status. The second group for whom we currently have little information are expectant or new parents. In addition to their own dental care needs, this group are key to the dental health of the next generation.

This survey was undertaken using convenience samples who were available in two settings, emergency dental and post/ante natal services. Health boards were asked to attempt to examine 50 of each group. They were dependent on cooperation of the services hosting them and willingness of those service users to participate.

Because the sampling method was not randomised from a sampling frame there are likely to be some differences between the findings of this survey and the "true" picture across Wales. There is also a risk that participants who volunteered are different from the target group in the wider Welsh population (volunteer bias), for example more of the dentally anxious may have chosen not to take part.

Given the limitations of the sampling method and risk of volunteer bias, comparative data from other sources is included in this report to triangulate findings against those of the wider population found in previous surveys. Further analysis which will be undertaken when the Year 2 data is reported upon should provide further triangulation and context for the findings in this Year 1 report.

Table 1 Survey sample by health board

AREA	Number surveyed
Aneurin Bevan	110
ABMU	52
Betsi Cadwaladr	96
Cwm Taf	81
Cardiff & Vale	75
Hywel Dda	78
Powys	20
WALES	**512**

Table 1 illustrates the breakdown of the sample by health board. 19 out of 22 unitary authorities (UAs) were represented in the 512 individuals. Data on the breakdown by UA are not presented because some areas had fewer than five participants.

DEMOGRAPHY

Gender

There were more females participating than males (75% versus 25%, Table 2). This was true among both emergency dental and potential parent participants; although there was a much larger proportion of females in the latter group.

Table 2 Participant gender

GROUP	Gender		
	Female	Male	TOTAL
(Potential) Parents	249	19	268
Emergency Dental	135	108	243
WALES	**384**	**127**	**511**

Ethnicity

Breakdown of participants by self-reported national identity is shown in Table 3;most participants identified themselves as British.

Table 3 Participants self-reported national identity

Identifies as:	(Potential) Parents	Emergency Dental	WALES
British (including Welsh, English, Scottish, Northern Irish, British)	249	227	476
Non British	17	16	33
TOTAL	**266**	**243**	**509**

Out of 509 individuals there were 17 (3.3%) who identified as having non-white ethnic backgrounds. This data is presented to permit comparison with the proportion reported by the annual population survey for Wales (4.7%)[1].

Employment Status

Table 4 presents data on the self-reported employment status of participants. The unemployed group in this table refers to those not in employment, education or training and is therefore broader than claiming unemployment benefits.

Table 4 Employment status of survey participants

Employment Status	(Potential) Parents	Emergency Dental	TOTAL	%
Employed	141	128	269	52.5
In Education	20	49	69	13.5
In Training	3	6	9	1.8
Unemployed	95	59	154	30.1
Other (incorporating at home mum, looking after young, running own business)	9	2	11	
WALES	**268**	**244**	**512**	

Just over 30% (154) of all participants said they were unemployed. Restricting analysis to only those who reported they were employed or unemployed (economically active), 36% were unemployed (i.e. 154/[269+154]). This is a higher figure than the 13.9% unemployment among similar 16-24 year olds reported by the Annual Population Survey in September 2018[2]. It is also higher than the 23.8% of the Welsh population reported as economically inactive in 2017 by NOMIS[3]. Participants in this survey in both sampled groups are more likely to be unemployed than the Welsh population aged 18-25.

Education Status

Table 5 highlights the educational qualifications of participants described in terms of degrees, 'A' levels, GCSEs and leaving school prior to taking GCSEs. In terms of National Vocational Qualifications (NVQs) degrees relate to level 4 and above, 'A' levels are at level 3 and GCSE grades are levels 1 (D-F) and 2 (A-C). Potential parents were more likely to have qualifications whereas emergency dental service users were more likely to either be still in education or have no qualifications (χ^2= 19.8, df=4, p=0.001).

Table 5 Educational status of survey participants for those not still in education

Education Status	(Potential) Parents	Emergency Dental	TOTAL	%
I have a degree	27	21	48	11.0
Left School After A Levels/BTEC	87	58	145	33.2
Left School After GCSE's	117	93	210	48.1
Left School Before GCSE's	13	21	34	7.8
WALES	**244**	**193**	**438**	

Table 6 describes the national overview from StatsWales[4]. Comparing these tables participants in this survey were less likely to have a degree and more likely to have left school with GCSEs than their peers in the 18-24 age group (Tables 5 & 6).

Table 6 Educational qualifications for 18-24 year olds in Wales

Qualifications	%
NVQ 4 or above (Degree)	23.1
NVQ 3 (A levels/BTEC level 3)	39.1
NVQ 0-2 (qualifications up to GCSEs)	34.1
No qualifications	3.7

Source: StatsWales 2017[4]

GENERAL HEALTH and RISK FACTORS

General Health

Table 6 provides data on self-reported general health status of participants in the Wales Oral Health Survey of 18-25 year olds alongside the 16-24 year old data from the National Survey for Wales (2017-18)[5].

Table 6 General Health Status

Wales Oral Health Survey of 18-25 year olds (Yr1) General Health Status					***National Survey for Wales 16-24yr olds***
General Health	**(Potential) Parents**	**Emergency Dental**	**Total**	**%**	*%*
Very Good	70	69	139	27	*51*
Good	159	126	285	56	*32*
Fair	36	45	81	16	*13*
Bad	3	4	7	1	*0*
Very Bad	0	0	0	0	*0*
WALES	**268**	**244**	**512**		

Previous data in this report has suggested lower educational attainment and higher levels of unemployment amongst our survey participants when compared with their peers. The findings in Table 6 showing poorer self-reported general health would be in line with a pattern of greater social deprivation among the oral health survey participants.

Smoking

Smoking tobacco is a risk to oral health as well as general health. Both periodontal (gum) disease and oral cancer are smoking related diseases. The National Survey for Wales (2016-17) reports that 20% of 16-24 year olds are smokers and 6% of 16-24 year olds use e-cigarettes on a daily basis[5]. The National Survey does not identify the proportion who use both cigarettes and e-cigarettes.

Table 7 Smoking Status of survey participants

Smoking Status	(Potential) Parents	Emergency Dental	Total	%
Cigarettes	71	108	179	35.0
Cigarettes & E-cigarettes		2	2	0.4
E-Cigarettes	7	11	18	3.5
No	190	123	313	61.1
WALES	**268**	**244**	**512**	

Table 7 shows a larger proportion of survey participants smoking cigarettes than in the wider 16-24 Welsh population. The ADHS in 2009 found that 32% of 16-24 year olds were smoking cigarettes (at a time when e-cigarettes were not widely available, and when smoking was more common). This survey reported 39% smoking cigarettes and/or e-cigarettes. Worryingly more than a quarter (26.5%) of the mainly female potential parents are cigarette smokers.

Alcohol

Alcohol is another common risk factor for both general and oral health, in the latter case oral cancer is the significant oral disease. The National Survey for Wales reports that 82% of 16-24 year olds drink alcohol[5].

Table 8 Alcohol drinking

Drinks Alcohol	(Potential) Parents		Emergency Dental		Total	
	n	%	n	%	n	%
Yes	61	22.8	145	59.4	206	40.2
No	207	77.2	99	40.6	306	59.8
WALES	**268**		**244**		**512**	

Table 8 shows lower levels of alcohol consumption amongst emergency dental service users and much lower levels amongst potential parents. Some of this latter group will be pregnant.

The combination of alcohol and smoking cigarettes amplifies the risk of developing oral cancer, especially when spirits are drunk. This combination is displayed by 15% (78/512) of those surveyed (Table 9).

Table 9 Smoking status and drinking alcohol status

	Drinks Alcohol		Total
Smoking Status	**No**	**Yes**	
Cigarettes	101	78	179
Cigarettes & E-cigarettes	2		2
E-Cigarettes	11	7	18
No	192	121	313
WALES	**306**	**206**	**512**

Sugary drinks

Table 10 shows that the proportion of participants indicating that they have sugary drinks as their most frequently consumed beverage was 45% (227/512).

One fifth of survey participants report that they most frequently consume carbonated (and not sugar free) drinks. This is in line with the findings of a 2013/14 survey of teenagers in Wales[7].

Table 10 In a typical day what do you drink most frequently?

DRINK TYPE	**Number of participants**
Carbonated	101
Tea with sugar	72
Coffee with sugar	50
Cordial/Squash	2
Energy drinks	1
Juice	1
SUGARY DRINK TOTAL	***227***
Water	160
Tea without sugar	30
Sugar free carbonated	20
Coffee without sugar	12
Milk	11
Beer/Wine	2
SUGAR FREE DRINK TOTAL	***235***
Other	50
Total	**512**

ORAL HEALTH STATUS

Self- reported dental health

Table 11 presents self-reported dental health status for both groups. Potential parents were more likely to report "good" or "very good" oral health compared with emergency dental service users ($\chi 2 = 37.7$, df=4, p=0.000, statistically significant). However, the combined total of 57% for potential parents is lower than the 79% reported by the 2009 ADHS for those aged 16-24[6]. This suggests that younger potential parents in Wales (aged 18-25) have poorer oral health than the wider population.

ONS data has shown that younger parents are more likely to be single parents bringing up children alone[8]. This group is therefore more likely to be socio-economically disadvantaged compared with two parent households and suggests that potential parents aged 18-25 would have poorer oral health than the wider population.

Table 11 Self-reported dental health status

Wales oral health survey of 18-25 year olds (Yr 1) Dental health status						
Dental Health	**(Potential) Parents**	***%***	**Emergency Dental**	***%***	**Total**	***%***
Very Good	26	*10*	16	*7*	42	*8*
Good	127	*47*	61	*25*	188	*37*
Fair	76	*28*	101	*41*	177	*35*
Bad	32	*12*	44	*18*	76	*15*
Very Bad	7	*3*	22	*9*	29	*6*
WALES	**268**		**244**		**512**	

Brushing status and oral hygiene

The ADHS 2009 found that 69% of 16-24 year olds were brushing their teeth twice a day or more frequently[6]. Whereas only 55% of participants in the Welsh dental survey of 18-25 year olds were brushing their teeth both morning and evening everyday (Table 12).

Table 12 Brushing frequency in morning and evening (all participants)

		Brush teeth morning				
		Every Day	***4 or More Times a Week***	***3 or Fewer Times a Week***	***Never***	***Total***
Brush Teeth Evening	***Every Day***	280	22	3	4	309
	4 or More Times a Week	49	12	3	1	65
	3 or Fewer Times a Week	60	10	15	2	87
	Never	37	5	6	3	51
	Total	**426**	**49**	**27**	**10**	**512**

Oral Hygiene was assessed by the examining dentist and graded from very good to very poor using the plaque index of Silness and Loe. The emergency dental service users showed poorer oral hygiene than potential parents ($\chi 2 = 11.3$, df=4, p=0.023, statistically significant, Table 13).

Table 13 Oral hygiene status by setting

Oral Hygiene	**(Potential) Parents**	***%***	**Emergency Dental**	***%***	**Total**	***%***
Very Good	53	*20*	25	*10*	78	*15*
Good	90	*34*	83	*34*	173	*34*
Fair	84	*31*	82	*34*	166	*32*
Poor	30	*11*	42	*17*	72	*14*
Very Poor	11	*4*	12	*5*	23	*4*
Total	**268**		**244**		**512**	

Table 14 Oral hygiene status by morning toothbrushing frequency

			Brush in the morning				Total
			Never	3 or Fewer Times a Week	4 or More Times a Week	Every Day	
Oral hygiene status	Good or better	Count	1	5	14	231	251
		% within brushing frequency	10.0%	18.5%	28.6%	54.2%	49.0%
	Fair or worse	Count	9	22	35	195	261
		% within brushing frequency	90.0%	81.5%	71.4%	45.8%	51.0%
Total		Count	10	27	49	426	512
		% within brushing frequency	100.0%	100.0%	100.0%	100.0%	100.0%

The relationship between self-reported frequency of brushing of teeth and the oral hygiene assessment of the examining dentist is explored in Table 14. More frequent brushing was associated with better oral hygiene and less frequent brushing with poorer oral hygiene ($\chi 2 = 29.0$, df=3, p=0.000, statistically significant, Table 14). Even so 46% of those who said they brushed every morning demonstrated fair, poor or very poor oral hygiene. Evening brushing (Table 15) demonstrated a similar but less stark pattern ($\chi 2 = 29.0$, df=3, p=0.000, statistically significant, Table 15).

Table 15 Oral hygiene status by evening toothbrushing frequency

			Brush in the evening				Total
			Never	3 or Fewer Times a Week	4 or More Times a Week	Every Day	
Oral hygiene status	Good or better	Count	18	24	31	178	251
		% within brushing frequency	35.3%	27.6%	47.7%	57.6%	49.0%
	Fair or worse	Count	33	63	34	131	261
		% within brushing frequency	64.7%	72.4%	52.3%	42.4%	51.0%
Total		Count	51	87	65	309	512
		% within brushing frequency	100.0%	100.0%	100.0%	100.0%	100.0%

Gingival Health

Just under a third of survey participants had healthy gums, and just over a third showed mildly inflamed gums. The remaining 30% showed more severe gum inflammation. Gingival

health status was similar across the potential parents and emergency dental groups (NS, Table 16).

Table 16 Gingival health status by setting

Gingival Health	(Potential) Parents	%	Emergency Dental	%	Total
Normal healthy	86	*32*	75	*31*	161
Mild inflammation	110	*41*	88	*36*	198
Moderate inflammation	50	*19*	58	*24*	108
Severe inflammation	21	*8*	23	*9*	44
Total	**267**		**244**		**511**

Although gingival health was similar across the two settings (Table 16), there were relationships between good oral hygiene and healthy gums (Table 17, $\chi 2 = 197.5$, df=4, p=0.000, statistically significant), which is in turn related to frequency of brushing the teeth (Tables 14 and 15). These findings are in line with the evidence base for gingival health, and highlight the opportunities for improved oral hygiene and gingival health amongst 18-25 year olds in Wales.

Table 17 Relationship of gingival health and oral hygiene on day of participation

			Gingival Inflammation				
			Normal healthy	Mild	Moderate	Severe	Total
Oral hygiene status	Good or better	Count	142	95	13	1	251
		% by Gingival Inflammation	88.2%	48.0%	12.0%	2.3%	49.0%
	Fair or worse	Count	19	103	95	43	260
		% by Gingival Inflammation	11.8%	52.0%	88.0%	97.7%	51.0%
Total		Count	161	198	108	44	511
		% by Gingival Inflammation	100.0%	100.0%	100.0%	100.0%	100.0%

DENTAL CARIES

Table 18 presents data on decayed and restored teeth for the two groups surveyed. The first point to note is that the Filled Teeth (FT) experience of potential parents and emergency dental service users are similar, 70% have some FT with an average of just over 2.5 FT per person. The big difference in caries experience of these two groups is accounted for by the active caries (Decayed Teeth, DT) with 30% more experiencing decay in the emergency dental service users and a mean number of DT of 3.42 compared with 1.31 for the potential parents. The emergency dental service users are more likely to have active decay and more decayed teeth.

The proportions of participants who were free of visually obvious decay were 16.4% for potential parents and 8.6% for emergency dental service users. These rates are considerably lower than would be expected in the wider 18-25 Welsh population (based on analysis of unweighted data from the ADHS 2009 where 84.5% of 16-24 year olds across England, Wales and Northern Ireland were free of visually obvious decay).

Table 18 also refers to those who had decayed teeth, filled teeth and advanced restorations (DAFT). Advanced restorations include crowns, bridge abutments and veneers. These made up only a small proportion of the burden of restoration of teeth (DAFT score – DFT score).

Table 18 Dental caries experience by setting

SETTING	Indicator	%	mean	mean for those with
Potential Parents	Active caries (DT)	46.3	1.31	2.83
	Filled teeth (FT)	72.8	2.58	3.54
	Free of visually obvious decay	16.4		
	DFT	83.6	3.88	4.64
	DAFT*	84.3	3.97	4.71
Emergency dental service users	Active caries (DT)	76.2	3.42	4.49
	Filled teeth (FT)	68.0	2.53	3.72
	Free of visually obvious decay	8.6		
	DFT	91.4	5.95	6.51
	DAFT*	91.4	5.98	6.54
*DAFT = Decayed, Advanced restored and simple Filled Teeth				

PUFA

Open pulps (P), traumatic ulceration (U), fistulae (F) and abscesses (A) are all potential advanced complications of dental caries. Given the much higher prevalence of caries amongst emergency dental service users seen in Table 18, the higher incidence of PUFA conditions amongst this group compared with potential parents (Tables 19 & 20) is not surprising.

Table 19 Advanced complications of dental caries in emergency dental service users

	EMERGENCY DENTAL SERVICE USERS			
	Open Pulp	**Traumatic ulceration**	**Fistula**	**Abscess**
Open Pulp	33	0	2	11
Traumatic ulceration		5	0	1
Fistula			1	3
Abscess				17
Open pulp, Fistula & Abscess	**3**			

Table 20 Advanced complications of dental caries in prospective parents

	PROSPECTIVE PARENTS			
	Open Pulp	**Traumatic ulceration**	**Fistula**	**Abscess**
Open Pulp	5	0	5	0
Traumatic ulceration		2	0	0
Fistula			1	0
Abscess				2
Open pulp, Fistula & Abscess	**0**			

PAIN

The commonest reason for people attending for emergency dental care is relief of pain. Table 21 demonstrates this clearly.

Table 21 Pain or other problems on day of participation

Setting	**Reported Problem**	**Frequency**	**Percent**
(Potential) Parents	None	186	69.4
	Pain	44	16.4
	Problem no pain	38	14.2
	Sub-total	268	100.0
Emergency Dental	None	5	2.0
	Pain	215	88.1
	Problem no pain	24	9.8
	Sub-total	244	100.0

DENTAL ACCESS

Table 22 provides a full picture of how survey participants have secured a routine dental appointment over the previous year. Potential parents were more likely to already have a dentist or not to have tried to secure a dental appointment.

Table 22 Effort required to secure a dental appointment in the previous year

Setting		Frequency	Percent
(Potential) Parents	Already Had NHS Dentist	125	46.6
	First Tried	15	5.6
	Made 2 to 4 Visits/Calls	34	12.7
	Made 5 or More Visits/Calls	11	4.1
	Not Tried	83	31.0
	Sub-total	268	100.0
Emergency Dental	Already Had NHS Dentist	41	16.8
	First Tried	42	17.2
	Made 2 to 4 Visits/Calls	69	28.3
	Made 5 or More Visits/Calls	38	15.6
	Not Tried	53	21.7
	Sub-total	243	100.0

Table 23 compares the efforts taken to obtain a dental appointment amongst those who did not already have an NHS dentist but have tried to make an appointment. Across the two groups just over a quarter obtained an appointment with the first NHS dental practice they approached. Just over half of participants made 2-4 attempts to secure an appointment and just under a quarter needed 5 or more attempts to secure an appointment.

Table 23 Effort required to secure a dental appointment in the previous year

Setting		Frequency	Percent
(Potential) Parents	First Tried	15	25.0
	Made 2 to 4 Visits/Calls	34	56.7
	Made 5 or More Visits/Calls	11	18.3
	Sub-total	60	100.0
Emergency Dental	First Tried	42	28.2
	Made 2 to 4 Visits/Calls	69	46.3
	Made 5 or More Visits/Calls	38	25.5
	Sub-total	149	100.0

DENTAL ANXIETY - MDAS

In this survey data on dental anxiety was captured using the modified dental anxiety scale (MDAS). Emergency dental service users and potential parents had similar patterns of dental anxiety. Just over 40% had low anxiety, a similar proportion demonstrated moderate anxiety and about 16% had high anxiety scores (Table 24).

Table 24 Dental anxiety by setting

DENTAL ANXIETY – MDAS category (score)		Setting		Total
		(Potential) Parents	Emergency Dental	
Low anxiety (0-9)	Count	109	101	210
	% within Setting	40.7%	41.6%	
Moderate anxiety (10-18)	Count	121	96	217
	% within Setting	45.1%	39.5%	
High anxiety (19 or more)	Count	38	46	84
	% within Setting	14.2%	18.9%	
Chi-square = 2.73, (df=2) p=0.255, NS	Total	268	243	511

In 2009 amongst 16-24 year olds the UK ADHS reported 55% with low anxiety, 31% with moderate anxiety and 13% with high anxiety[9].

NEXT STEPS

This report concludes the initial analysis of findings from the first year of data collection from 18-25 year olds in Wales. Further analysis of this data alongside data collected in Year 2 of the survey will follow in due course. When this is completed details will be posted via the WOHIU website, under the Projects tab.

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