A Profile of Smoking and Health in Wales

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Executive summary

ASH Wales in partnership with Cardiff Institute of Society and Health have re-analysed the WHS for 2008. The aim of the research was to compare current smokers, ex-smokers, and those who had never smoked in Wales in relation to selected health conditions and health-related behaviours. Specifically we aimed to determine whether differences existed between smoking groups in terms of numbers reporting the health-related conditions and behaviours of interest, and to determine the extent to which current smokers and ex-smokers were more or less likely than those who had never smoked to report these conditions and behaviours. The data used for the study were obtained from the 2008 WHS.

The central findings are as follows:

1. Twenty four percent of respondents reported being a current smoker. This figure was consistent with that for 2007, and with the recently published findings from the 2009 Welsh Health Survey.

2. Smoking prevalence was slightly higher in males, with 55% of males reporting being either current or ex-smokers, compared to 48% of females.

3. Among both genders smoking rates were highest amongst 25-34 year olds, before decreasing with age.

4. Both male and female ex-smokers were significantly more likely than those who had never smoked to report currently being treated for a heart condition (excluding high blood pressure).

5. Female current smokers and ex-smokers were more likely than those who had never smoked to report being treated for a respiratory condition. Differences were not significant for males.

6. Current smokers were much more likely than those who had never smoked to report being treated for a mental illness. Taking all mental illnesses together, the difference between current smokers and those who had never smoked was more noticeable among females than among males.

7. Female current smokers and ex-smokers were more likely than those who had never smoked to report being treated for arthritis. Differences were again not significant among males.

8. Both male and female current smokers and ex-smokers were more likely than those who had never smoked to report suffering from a long term limiting illness.

9. Both current smokers and ex-smokers were more likely than those who had never smoked to report both drinking above the guidelines and binge drinking. The difference was particularly noticeable when comparing current smokers to those who had never smoked, and was more pronounced for binge drinking. Differences between current smokers and those who had never smoked were also more marked among females than among males, both for drinking above the guidelines and for binge drinking.

10. Current smokers were less likely than those who had never smoked to report eating five or more portions of fruit or vegetables on the previous day. This difference was slightly more noticeable among females than among males.

11. There was no difference between smoking groups in terms of numbers reporting meeting the physical activity guidelines.

12. Ex-smokers were more likely than those who had never smoked to report being both overweight/obese and obese. Current smokers, on the other hand, were less likely to report overweight or obesity. Differences between smoking groups were more noticeable among males than females, and in fact the difference between female current smokers and those who had never smoked was not significant for overweight/obesity, and the difference between ex-smokers and those who had never smoked was not significant for obesity.

13. Both male and female current smokers were more likely than those who had never smoked to report attending hospital because of an accident, injury or poisoning in the last three months.

14. Both male and female current smokers, and male ex-smokers, were more likely than those who had never smoked to report attending the casualty department in the last 12 months.

15. Female current and ex-smokers were more likely than those who had never smoked to report attending hospital as an inpatient in the last 12 months. For males, differences were only significant when comparing ex-smokers with those who had never smoked.

16. Female current and ex-smokers were more likely than those who had never smoked to report attending hospital as an outpatient in the last 12 months. Differences between groups were not significant for males.

17. Female current smokers and ex-smokers were more likely than those who had never smoked to report talking to their GP in last two weeks. For males, differences were only significant when comparing ex-smokers with those who had never smoked.

18. Both male and female ex-smokers more likely than those who had never smoked to report using a pharmacist in past 12 months. Differences were not significant for either gender when comparing current smokers to those who had never smoked.

19. Both male and female current smokers were less likely than those who had never smoked to report both using a dentist and using an optician in the last 12 months. Differences for both of these items were more noticeable among males than among females.

Introduction

The Welsh Health Survey (WHS) is an annually collected source of information about the health of people living in Wales, the way they use health services, and the things that can affect their health. The WHS provides an insight into the health of the Welsh population. It meets a range of needs, including the provision of data for monitoring health and health-related lifestyles and measuring progress towards targets. It also provides evidence for informing policies and underpinning strategies for promoting better health. Furthermore, it provides a direct measurement of need for health care resource allocation in Wales[1].

ASH Wales in partnership with Cardiff Institute of Society and Health have re-analysed the WHS for 2008. The aim of the research was to compare current smokers, ex-smokers, and those who had never smoked in Wales in relation to selected health conditions and health-related behaviours. Specifically we aimed to determine whether differences existed between smoking groups in terms of numbers reporting the health-related conditions and behaviours of interest, and to determine the extent to which current smokers and ex-smokers were more or less likely than those who had never smoked to report these conditions and behaviours. The data used for the study were obtained from the 2008 WHS.

The WHS is based on a representative sample of people living in private households in Wales and uses a self-completed questionnaire, so relates to respondents' own perceptions of their health as opposed to using any clinical or objective measurements. Only data relating to adults was used.

This publication refers to data collected between January and December 2008 from approximately 13,000 adult respondents. The topics covered are health conditions, health-related behaviours and health service use.

N.B. For definitions relevant to the results presented in this report please see Appendix 1.

For full methods, limitations and further detailed statistical analyses please refer to Appendix 2: Welsh Health Survey 2008 Technical Report compiled by Dr Sarah Whitehead, Cardiff Institute of Society and Health.

[1] Welsh Health Survey, 2008

Background

Smoking continues to be the largest single preventable cause of ill health and premature death in Wales, causing around 5,650 deaths each year[2]. Smoking is also a leading cause of health inequalities, having been identified as the main cause for the gap in life expectancy between rich and poor[3]. There is a significant burden of illness due to smoking which has major costs for the NHS in Wales[4].

Research shows that approximately 20% of all admissions and bed days in Wales are attributable to people suffering from smoking related diseases[5]. A recent study commissioned by ASH Wales and the British Heart Foundation Cymru indicates that treating smoking related diseases cost NHS Wales an estimated £386 million in 2007/08; equivalent to £129 per head and 7% of total healthcare expenditure in Wales[6]. Smoking also has significant costs to the NHS through working days lost. A review of the health and well-being of the NHS workforce found that among NHS employees, the likelihood of sickness absence is nearly twice as high for smokers compared to non-smokers and the likelihood of absence for a period greater than one day is significantly increased among smokers[7].

Such sickness absence costs are also found in the wider economy, which along with the costs of welfare benefit payments for smoking related illness, increase costs to the economy. Every year in England and Wales 34 million working days are lost as a result of smoking related illnesses[8]. Other associated costs include the cost of damages caused by fire started by cigarettes. Reducing smoking levels will impact on NHS costs as well as those for the wider economy.

Most smokers start smoking during adolescence. Two thirds of adults who have ever smoked in the UK say that they started before they were 18[9]. Those under the age of 18 are particularly vulnerable consumers as the younger a person starts smoking the greater the risk of smoking related diseases[10].

Although smoking among adults in Wales has declined over the last decade, since 2007 the percentage of adult smokers has remained the same at 24% in 2008 and 2009 Welsh Health

[2] *Chief Medical Officer for Wales Annual Report 2009* accessed at http://www.wales.nhs.uk/documents/CMO-annual-report-2009-e.pdf
[3] Smoking in Wales: current facts 2007 http://www.wales.nhs.uk/sites3/Documents/568/WCH%20smoking%20ban%20report%20E%20final.pdf
[4] Phillips, C.J. and Bloodworth, A. Cost of smoking to the NHS in Wales. ASH Wales and British Heart Foundation Cymru, 2009
[5] Phillips, C.J. and Bloodworth, A. Cost of smoking to the NHS in Wales. ASH Wales and British Heart Foundation Cymru, 2009
[6] Phillips, C.J. and Bloodworth, A. Cost of smoking to the NHS in Wales. ASH Wales and British Heart Foundation Cymru, 2009
[7] Boorman, S. Health and Well-being of the NHS Workforce. The Boorman Review. Presentation at One Wales Task Force meeting, March 2010
[8] Parrott S, Godfrey C (2004) Economics of Smoking Cessation *BMJ* v328 947-949
[9] Smoking and drinking among adults. General Household Survey 2006. ONS, 2007 http://www.smokefreeaction.org.uk/plain-packaging.html#7
[10] Royal College of Physicians, 1992. Smoking and the Young. London: Royal College of Physicians

Surveys[11]. Adults in more deprived areas (as defined using the Welsh Index of Multiple Deprivation) are more likely to smoke than those in less deprived areas[12].

[11] Welsh Health Survey, 2007, 2008, 2009.
[12] Welsh Health Survey, 2007, 2008, 2009.

Methods

Data presented in this report were taken from the 2008 WHS, relating to data collected between January and December 2008. The WHS is an annual survey that started in October 2003. It is based on a representative sample of people living in private households in Wales. Information is collected at two levels: household, through a short interview offered in English or Welsh, and individual, through English or Welsh self-completion questionnaire. During the 2008 period, a household interview was obtained with 74% of eligible households in the sample, and self-completion questionnaires were obtained for 78% of adults, giving a total sample size of 13,313.

The topics covered are health conditions, health-related behaviours and health service use.

Data analyses

Data were analysed using two techniques. Firstly tables were produced showing the percentages and numbers of respondents reporting the outcome variable of interest according to whether they were current smokers, ex-smokers, or had never smoked (see Appendix 1 for definitions relating to smoking status). Chi-squared measures of association were used to identify significant differences between smoking groups for each of these variables. Age standardisation was carried out for these analyses. When the different smoking groups are compared in respect of a variable on which age has an influence, as is the case with many of the variables examined here, any differences in age distributions between the groups are likely to affect the observed differences in the proportions of interest. Age standardisation therefore enabled the smoking groups to be compared after adjusting for the effects of any differences in their age distributions. Age standardisation was carried out using the age groups 16-24, 25-34, 35-44, 45-54, 55-64, 65-74, and 75 and over.

Further information about the age standardisation approach is available in the Welsh Health Survey 2008 report at http://wales.gov.uk/topics/statistics/publications/publication-archive/healthsurvey2008/?lang=en.

Secondly, logistic regression analyses were carried out to examine the odds of current smokers and ex-smokers reporting the outcome of interest when compared to those who had never smoked. To control for the effects of age, gender, socio-economic status, and level of highest educational qualification, each of these factors was first entered separately into a logistic regression model. Those items that were found to be significantly associated with the outcome variable of interest were then entered into the final model along with smoking status. The results presented in this report are the odds ratio for the variable of interest after adjusting for the various socio-demographic factors. For all logistic regression

analyses data were weighted to adjust for non-response. Analyses were carried out both on whole sample and for males and females separately.

Descriptive statistics

The sample for analysis comprised 13,313 adults aged 16 years and above. 48% (6,418) of respondents were male and 52% (6,895) were female. Table 1 shows the age distribution of respondents by gender and for the whole sample.

Table 1: Age group breakdowns of males, females, and the whole sample

	Male	Female	All
16-24	16.2% (1,037)	14.2% (980)	15.2% (2,017)
25-34	14.0% (898)	13.2% (912)	13.6% (1,811)
35-44	17.4% (1,114)	17.1% (1,181)	17.2% (2,295)
45-54	16.3% (1,049)	15.9% (1,094)	16.1% (2,143)
55-64	16.3% (1,048)	15.7% (1,082)	16.0% (2,131)
65-74	11.3% (726)	11.5% (791)	11.4% (1,516)
75+	8.5% (545)	12.4% (855)	10.5% (1,400)
Total	100% (6,418)	100% (6,895)	100% (13,313)

Smoking prevalence

Table 2 shows the respondents' reported smoking behaviour, broken down by age and sex. Overall, 24% of respondents reported that they currently smoked, 28% reported being ex-smokers, and 49% reported that they had never smoked. Smoking prevalence was slightly higher in males, with 25% of males reporting that they currently smoked compared to 22% of females. The proportion of respondents reporting being current smokers peaked among 25-34 year olds, and then decreased with age.

Table 2: Respondents' reported smoking behaviour, by age and sex

	Smoker	Ex-smoker	Never smoked
Male			
16-24	25% (255)	8% (77)	68% (693)
25-34	37% (326)	17% (153)	46% (411)
35-44	30% (334)	24% (263)	46% (508)
45-54	25% (256)	29% (303)	46% (479)
55-64	22% (230)	43% (440)	35% (365)
65-74	16% (115)	53% (382)	31% (219)
75+	10% (54)	58% (304)	32% (170)
Total	25% (1,569)	30% (1,922)	45% (2,844)
Female			
16-24	27% (257)	12% (118)	61% (591)
25-34	30% (270)	23% (205)	48% (431)
35-44	28% (327)	22% (257)	50% (590)
45-54	25% (271)	23% (251)	52% (567)
55-64	21% (224)	33% (349)	47% (500)
65-74	13% (104)	34% (261)	53% (410)
75+	9% (72)	35% (291)	56% (459)
Total	22% (1,523)	26% (1,732)	52% (3,547)
All			
16-24	26% (511)	10% (194)	65% (1,283)
25-34	33% (596)	20% (358)	47% (842)
35-44	29% (660)	23% (520)	48% (1,098)
45-54	25% (526)	26% (554)	49% (1,046)
55-64	22% (454)	37% (789)	41% (865)
65-74	15% (218)	43% (642)	42% (629)
75+	9% (126)	44% (595)	47% (628)
Total	24% (3,092)	28% (3,654)	49% (6,391)

Summary of results

Heart conditions

Both male and female ex-smokers were significantly more likely than those who had never smoked to report currently being treated for a heart condition (excluding high blood pressure). Both current and ex-smokers were significantly more likely than those who have never smoked to report having ever been treated for a heart attack, angina, and heart failure. Of all respondents, ex-smokers were significantly more likely to report being treated for high blood pressure compared to current smokers.

Respiratory conditions

Amongst all respondents both current smokers and ex-smokers were significantly more likely to report being treated for a respiratory condition compared to those who had never smoked. Female current smokers and ex-smokers were significantly more likely than those who had never smoked to report being treated for a respiratory condition. This difference was more noticeable across all three smoking groups for females compared to males.

Mental illness

Current smokers were much more likely than ex-smokers and those who had never smoked to report being treated for a mental illness (depression, anxiety, and any other mental illness). Taking all mental illnesses together, the difference between current smokers and those who had never smoked was more noticeable among females than among males.

Other illnesses

Both current smokers and ex-smokers were significantly more likely than those who had never smoked to report current treatment for arthritis. Female current smokers and ex-smokers were more likely than those who had never smoked to report being treated for arthritis.

Of all respondents, ex-smokers were more likely than both current smokers and those who had never smoked to report being treated for diabetes.

Both male and female current smokers and ex-smokers were more likely than those who had never smoked to report suffering from a long term limiting illness.

Health related behaviours

Both current smokers and ex-smokers were more likely than those who had never smoked to report both drinking above the guidelines and binge drinking. The difference was

particularly noticeable when comparing current smokers to those who had never smoked, and was more pronounced for binge drinking. Differences between current smokers and those who had never smoked were also more marked among females than among males, both for drinking above the guidelines and for binge drinking.

Current smokers were less likely than those who had never smoked to report eating five or more portions of fruit or vegetables on the previous day. This difference was slightly more noticeable among females than among males.

Ex-smokers were more likely than those who had never smoked to report being both overweight and obese. Current smokers, on the other hand, were less likely to report overweight or obesity. Differences between smoking groups were more noticeable among males than females.

Use of secondary care services

Both male and female current smokers were more likely than those who had never smoked to report attending hospital because of an accident, injury or poisoning in the last three months. Both male and female current smokers, and male ex-smokers, were more likely than those who had never smoked to report attending the casualty department in the last 12 months. Female current smokers and ex-smokers (and male ex-smokers) were more likely than those who had never smoked to report attending hospital as an inpatient in the last 12 months. Female current smokers and ex-smokers were more likely than those who had never smoked to report attending hospital as an outpatient in the last 12 months.

Use of primary care services

Of all respondents, ex-smokers and current smokers were more likely to report talking to their GP in the last two weeks compared to those who had never smoked. Female current smokers and ex-smokers were more likely than those who had never smoked to report talking to their GP in last two weeks. For males, differences were significant when comparing ex-smokers with those who had never smoked. Both male and female ex-smokers were more likely than those who had never smoked to report using a pharmacist in past 12 months. Both male and female current smokers were less likely than those who had never smoked to report both using a dentist and visiting an optician in the last 12 months. Differences for both using a dentist and visiting an optician were more noticeable among males than among females.

Results

Report of being treated for a Heart condition

Heart and circulatory disease (cardiovascular disease or CVD) is Wales' biggest killer. In 2007 CVD accounted for over 11,000 deaths: that's over a third of all deaths in Wales with nearly 6,000 women dying from heart and circulatory disease in Wales[13]. Smoking, physical inactivity, obesity and diabetes are major risk factors for CVD and smokers are almost twice as likely to have a heart attack as people who have never smoked[14]. Estimates suggest smoking causes over 25,000 deaths from CVD in the UK a year[15]. Regular exposure to second-hand smoke increases the risk of CVD by around 25%[16].

Findings from the WHS

Respondents were classified as having any heart condition if they reported ever having been treated for a heart attack, or currently being treated for angina, heart failure, or "another heart condition".

All respondents

- Ex-smokers were the most likely to report being treated for all the heart conditions examined (heart attack, angina, heart failure and high blood pressure). Both current and ex-smokers were significantly more likely than those who had never smoked to report being treated for a heart condition (excluding high blood pressure). Amongst all respondents, ex-smokers were the most likely to report currently being treated for a heart condition (excluding high blood pressure) (at 10.3%), followed closely by current smokers (at 9.9%), and compared to those who had never smoked (at 7.3%).
- Both current and ex-smokers were significantly more likely than those who have never smoked to report having ever been treated for a heart attack (ex-smoker 5.3%, current smoker 5%, never-smoked 2.5%), angina (ex-smoker 4.9%, current smoker 4.8%, never-smoked 3.3%), and heart failure (ex-smoker 1.8%, current smoker 1.7%, never-smoked 0.9%).
- Ex-smokers (20%) were significantly more likely to report being treated for high blood pressure than current smokers (at 17.8%).

[13] BHF. Wales Coronary Heart Disease statistics 2009-2010. BHF. Accessed at: http://www.bhf.org.uk/publications/view_publication.aspx?ps=1001142
[14] BHF. Wales Coronary Heart Disease statistics 2009-2010. BHF. Accessed at: http://www.bhf.org.uk/publications/view_publication.aspx?ps=1001142
[15] BHF. Wales Coronary Heart Disease statistics 2009-2010. BHF. Accessed at: http://www.bhf.org.uk/publications/view_publication.aspx?ps=1001142
[16] BHF. Wales Coronary Heart Disease statistics 2009-2010. BHF. Accessed at: http://www.bhf.org.uk/publications/view_publication.aspx?ps=1001142

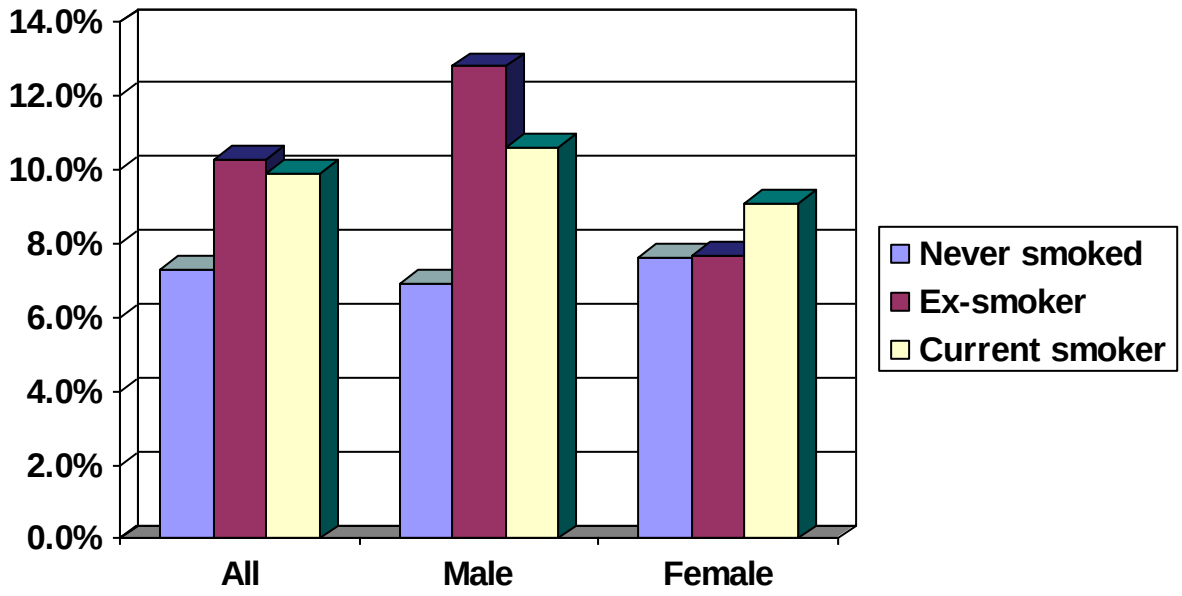
Men

- Amongst males there were more ex-smokers (at 12.8%) and more current smokers (at 10.6%) reporting being treated for a heart condition (excluding high blood pressure) compared to those who had never smoked (at 6.9%).
- Male ex-smokers (22.6%) were significantly more likely to report being treated for high blood pressure than current smokers (at 16.6%) and those who have never-smoked (at 16.3%).
- Amongst males both current smokers and ex-smokers were more likely than those who had never smoked to report having ever been treated for a heart attack (ex-smoker 7.9%, current smoker 6.5%, never-smoked 3.2%), angina (ex-smoker 6.1%, current smoker 4.5%, never-smoked 2.4%), and heart failure (ex-smoker 2.3%, current smoker 1.6%, never-smoked 0.8%)

Women

- Current smokers were the most likely to report being treated for a heart condition (excluding high blood pressure) (at 9.1%), with similar numbers between ex-smokers (at 7.7%) and those who had never smoked (at 7.6%).
- Female current smokers were more likely than those who had never smoked to report having ever been treated for a heart attack (current smoker 3.5%, ex-smoker 2.6%, never-smoked 1.9%) and heart failure (current smoker 1.9%, ex-smoker 1.2%, never-smoked 0.9%).

Report of being treated for a heart condition (excluding high blood pressure)



Conclusions

Smoking is a known risk factor for CVD, as the results above indicate with a high proportion of current smokers reporting being treated for a heart condition, a heart attack, angina and heart failure compared to those who have never smoked. However perhaps what is more surprising is that amongst all respondents ex-smokers were the most likely to report being treated for the various heart conditions in Wales (heart attack, angina and heart failure), and most likely to be treated for high blood pressure compared to current smokers. These patterns were also evident when looking at males. This is somewhat surprising as evidence shows that a year after stopping smoking the risk of a heart attack falls to about half that of a smoker[17]. However research also shows that stopping smoking may lead to hypertension in those at risk[18] due to weight gain associated with quitting smoking[19].

Another possible explanation for the results is that smokers and in particular male smokers may be quitting smoking after having a cardiac episode. Further research would be required to identify the reasons for these findings.

When looking at just females, current smokers were the most likely to report being treated for a heart condition, a heart attack, angina and heart failure compared to female ex-smokers and current smokers.

[17] W.P. Castelli, (1984) Epidemiology of coronary heart disease: The Framingham study Volume 76, Issue 2, Part A, Pages 4-12

[18] TA Gerace, J Hollis, JK Ockene, K Svendsen Smoking cessation and change in diastolic blood pressure, body weight, and plasma lipids Preventive Medicine, 1991, 20, 5, 602-620

[19] Yudkin et al., 2003. Abstinence from smoking eight years after participation in randomised controlled trial of nicotine patch. *BMJ 2003;327:28*

Report of being treated for a Respiratory condition

Chronic Obstructive Pulmonary Disease (COPD) is a progressively disabling disease characterised by airflow obstruction that interferes with normal breathing. Smoking is the most common cause of COPD, accounting for approximately 80% of COPD cases[20]. Around one fifth (24,000) of premature deaths every year caused by smoking are from COPD[21]. More than 1,600 people in Wales die from COPD every year – approximately one every 5 hours[22]. Around half of cigarette smokers develop some airflow obstruction and 10-20% develops clinically significant COPD[23]. The risk of death due to the disease increases with the number of cigarettes smoked[24]. The prevalence of diagnosed COPD in women is increasing whereas in men it appears to have reached a plateau since the mid 1990s[25].

Findings from the WHS

Respondents were classified as having any respiratory illness if they reported currently being treated for asthma, emphysema, pleurisy, bronchitis, or "another respiratory illness".

All respondents

- Amongst all respondents both current smokers (14.6%) and ex-smokers (14.3%) were significantly more likely to report being treated for a respiratory condition compared to those who had never smoked (11.6%).
- Higher proportions of females than males across all three smoking groups (ex-smokers, current smokers, never-smoked) reported being treated for a respiratory condition.

Men

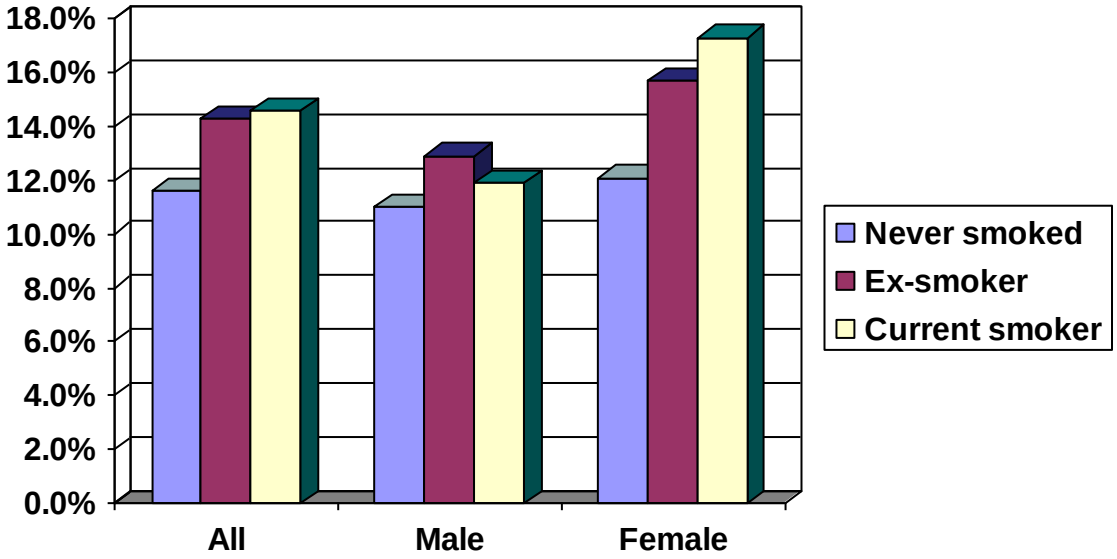
- Ex-smokers were the most likely to report having a respiratory condition (at 12.9%), followed by current smokers (at 11.9%) and those who had never smoked (at 11%).

[20] ASH 2008. Smoking and respiraory disease. Accessed at: http://www.ash.org.uk/files/documents/ASH_110.pdf
[21] Peto R et al. Mortality from smoking in developed countries, 1950-2000 (2nd edition). Oxford University Press, Oxford
[22] BLF Wales. COPD Policy briefing. Accessed at: http://www.lunguk.org/ONESTOPCMS/Core/CrawlerResourceServer.aspx?resource=2DDB8CF4-7473-4F78-96BC-123A2BC2D19F&mode=link&guid=0e58b8b290574d0db128e6e10d67e8aa
[23] Devereux, G. ABC of chronic obstructive pulmonary disease. Definition, epidemiology and risk factors. BMJ 2006; 332: 1142-1144
[24] ASH 2008. Smoking and respiraory disease. Accessed at: http://www.ash.org.uk/files/documents/ASH_110.pdf
[25] ASH 2008. Smoking and respiraory disease. Accessed at: http://www.ash.org.uk/files/documents/ASH_110.pdf

Women

- A high proportion of female current smokers reported being treated for a respiratory condition (at 17.3%), followed by ex-smokers (at 15.7%). Both current smokers and ex-smokers were more significantly more likely than those who had never smoked (at 12.1%) to report being treated for a respiratory condition.

Report of being treated for a respiratory condition



Conclusions

As expected, current smokers and ex-smokers are significantly more likely to report being treated for a respiratory condition compared to those who have never smoked, as smoking is the most common cause of COPD[26]. Higher proportions of females than males in Wales report being treated for a respiratory condition, especially amongst current smokers. Women are more susceptible to developing COPD than men - their lung function worsens with less duration of smoking or intensity of smoking than men[27]. Women's airways are also more sensitive to smoke than men's, possibly because they are smaller[28]. The high proportion of female current smokers reporting being treated for a respiratory condition could also be explained by the fact that women are more likely to present themselves to be diagnosed than men at the GP[29].

[26] ASH 2008. Smoking and respiraory disease. Accessed at: http://www.ash.org.uk/files/documents/ASH_110.pdf
[27] Femme Fatality. The rise of COPD in women. BLF 2005.
[28] Femme Fatality. The rise of COPD in women. BLF 2005.
[29] Young, H, Grundy, E. O'Reilly, D. Boyle, P. (2010) "Self-rated health and mortality in the UK: results from the first comparative analysis 11 of the England and Wales, Scotland and Northern Ireland Longitudinal Studies."Population Trends 139, Office for National Statistics, p. 11-36.

Report of being treated for a Mental illness

There is a strong association between smoking and mental health disorders. The highest levels of smoking in any population group occur among inpatients in mental health units where up to 70% smoke, with 50% smoking heavily[30]. People with mental health problems smoke significantly more, have increased levels of nicotine dependency and are therefore at even greater risk of smoking-related harm than the general population. Smoking is associated with an increased prevalence of all mental health illnesses and higher suicide rates[31]. It is not clear whether smoking is the cause or effect of mental illness. However, some researchers believe that smoking could act as a trigger for mental ill-health[32].

In the UK, smoking rates among adults with depression are about twice as high as among adults without depression[33]. Cigarette smoking is linked with a wide range of psychiatric diagnoses including anxiety, agoraphobia and panic disorder but especially with depression[34]. Levels of dopamine are often low in people with depression, who may then use cigarettes as a way of temporarily increasing their dopamine supply (to increase pleasurable feelings). However, smoking adversely affects the brain's own mechanism for making dopamine so that in the long term, the supply decreases, which in turn prompts people to smoke more[35]. Currently there are no Wales- specific statistics on smoking prevalence for those with mental health problems.

Findings from the WHS

Respondents were classified as having any mental illness if they reported currently being treated for depression, anxiety, or "another mental illness".

All respondents

- Current smokers (14.3%) are much more likely than either ex-smokers (8%) or those who had never smoked (7.7%) to report being treated for a mental illness.
- Current smokers were significantly more likely than ex-smokers and those who had never smoked to report being treated for depression (current smokers 11.9%, ex-smokers 6.3%, never-smoked 5.7%) and anxiety (current smokers 8.9%, ex-smokers 4.5%, never-smoked 4.2%).

[30] Jochelson, J, Majrowski B. Clearing the air. Debating smoke-free policies in psychiatric units. King's Fund, 2006.
[31] Mental health and smoking. A position statement. Faculty of Public Health, London, 2008.
[32] West, R. Jarvis, M. Tobacco smoking and mental disorder. Italian Journal of Psychiatry & Behavioural Science 2005; 15: 10-17
[33] Smoking & mental health. Mental Health Foundation, London, 2007.
[34] Meltzer H et al. The prevalence of psychiatric morbidity among adults living in private households. London, HMSO, 1995. OPCS surveys of Psychiatric Morbidity in Great Britain, Report 1.
[35] Smoking & mental health. Mental Health Foundation, London, 2007.

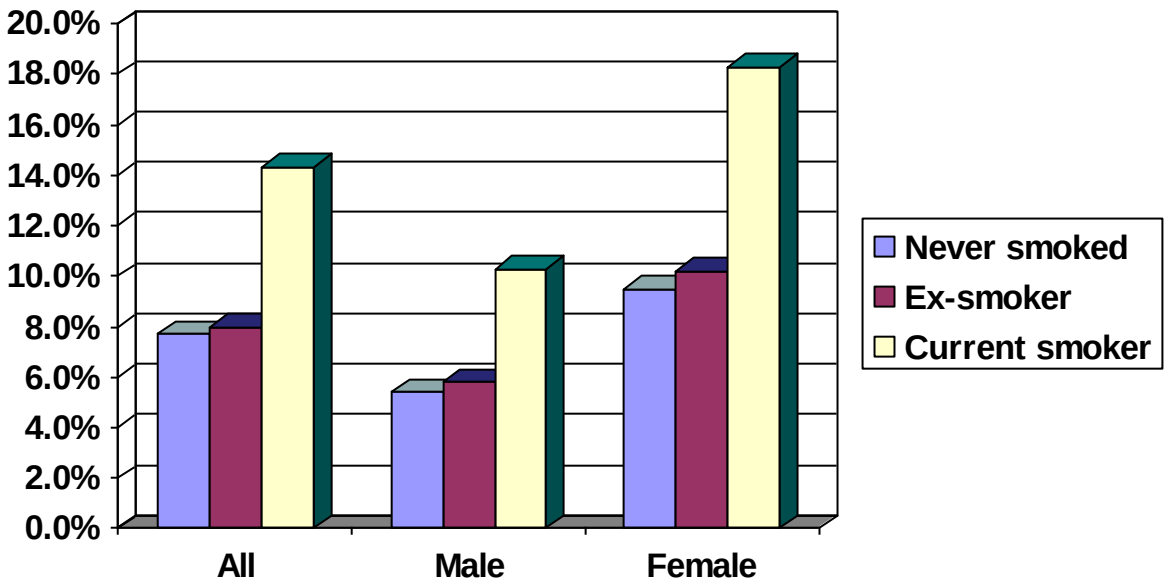
Men

- Among males, current smokers were more likely than both those who had never smoked and ex-smokers to report being treated for depression (current smokers 8.5%, ex-smokers 4.6%, never-smoked 3.6%), anxiety (current smokers 6.4%, ex-smokers 3.1%, never-smoked 2.8%) and any mental condition (current smokers 10.3%, ex-smokers 5.8%, never-smoked 5.4%).

Women

- Current smokers were more likely than both those who had never smoked and ex-smokers to report being treated for depression (current smokers 10.3%, ex-smokers 5.8%, never-smoked 5.4%), anxiety (current smokers 10.3%, ex-smokers 5.8%, never-smoked 5.4%), and any mental condition (current smokers 10.3%, ex-smokers 5.8%, never-smoked 5.4%).
- Higher numbers of females across all smoking categories (current smokers and ex-smokers, never-smoked) reported being treated for a mental illness compared to those male respondents.

Report of being treated for a mental illness



Conclusions

The strong association between smoking and mental health disorders was again reflected in these results with current smokers being much more likely than either ex-smokers or those who had never smoked to report being treated for a mental illness, to report being treated for depression and to report being treated for anxiety. This was true for both men and women although higher numbers of females across all smoking categories (current smokers,

ex-smokers, and those who have never-smoked) reported being treated for a mental illness compared to those male respondents.

It is not yet fully understood why people with mental health conditions smoke more than the general population, it is likely that a number of factors are involved. Smoking by the individual might contribute to or cause mental health problems but it is also possible that there might be common aetiologies to both smoking and the illness. It has been found that daily smoking is associated with an increased risk of the first occurrence of a panic attack[36]. There is also evidence that, for some illnesses, nicotine through smoking is used as self-medication[37]. Nicotine stimulates the release of some neurotransmitters which may counteract depression. In addition, nicotine helps alleviate some of the negative symptoms of Schizophrenia[38].

[36] Breslau, N. and Klein, D. F. (1999). Smoking and panic attacks: an epidemiologic investigation. *Archives of General Psychiatry* 56: 1141-7.
[37] Patkar, A. A., Gopalakrishnan, R., Lundy, A., Leone, F. T., Certa, K. M. and Weinstein, S. P. (2002).
Relationship between tobacco smoking and positive and negative symptoms in schizophrenia. *Journal of Nervous and Mental Disease* 190: 604-10.
[38] Patkar, A. A., Gopalakrishnan, R., Lundy, A., Leone, F. T., Certa, K. M. and Weinstein, S. P. (2002).
Relationship between tobacco smoking and positive and negative symptoms in schizophrenia. *Journal of Nervous and Mental Disease* 190: 604-10.

Other illnesses

Respondents reporting currently being treated for:

Report of being treated for Arthritis

Studies have found that smoking is a major risk factor for rheumatoid arthritis and may reduce the effectiveness of anti-tumour necrosis factor (anti-TNF) inhibitors which are used to treat the disease[39].

Findings from the WHS

Respondents were asked if they were currently being treated for arthritis.

All respondents

- Both current smokers and ex-smokers were significantly more likely than those who had never smoked to report current treatment for arthritis. Current smokers were the most likely to report being treated for arthritis (at 14.8%), followed by ex-smokers (at 13.2%), and those who had never smoked (at 11.8%).

Men

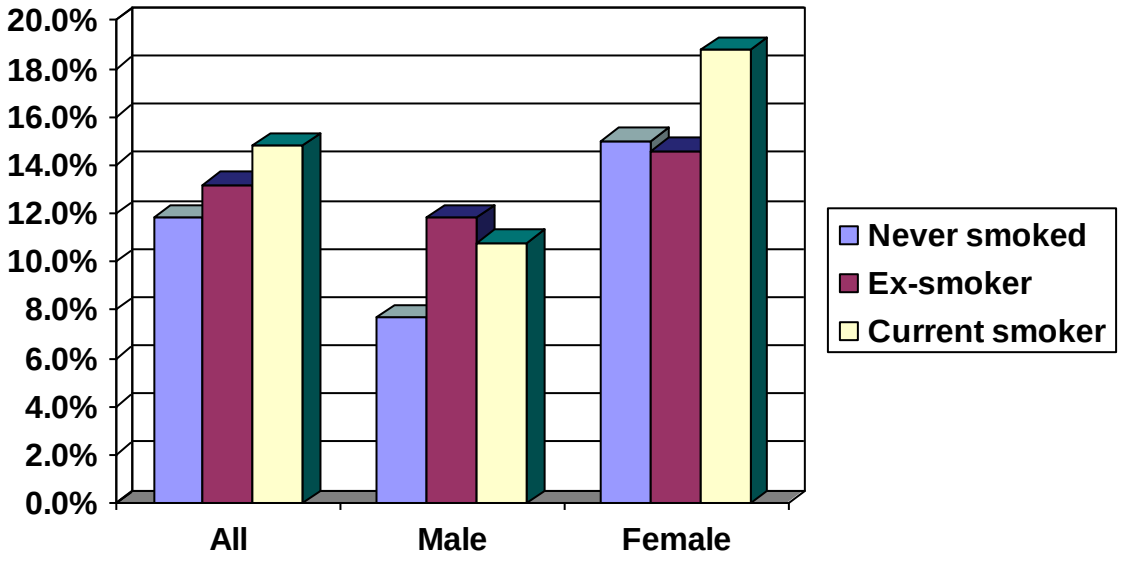
- Among males, both ex-smokers (11.8%) and current smokers (10.8%) were more likely than those who had never smoked (7.7%) to report being treated for arthritis.

Women

- Female current smokers (at 18.8%) were significantly more likely than both ex-smokers (at 14.6%) and those who had never smoked (at 15%) to report being treated for arthritis.
- More females than males across all smoking categories were much more likely to report being treated for arthritis.

[39] Arthiritis Reesreah UK. http://www.arthritisresearchuk.org/about_us/arthritis_news/articles/smoking_may_reduce.aspx

Report for being treated for arthritis



Conclusions

Current smokers were significantly more likely than those who had never smoked to report currently being treated for arthritis. Research shows that smoking is a major risk factor for arthritis[40] and that smokers have twice the risk of developing rheumatoid arthritis[41]. However ex -smokers were also significantly more likely than those who had never smoked to report currently being treated for arthritis perhaps suggesting that despite quitting, they are still at risk or had developed arthritis prior to quitting.

[40] Arthiritis Reesreah UK. http://www.arthritisresearchuk.org/about_us/arthritis_news/articles/smoking_may_reduce.aspx
[41] Arthiritis Reesreah UK. http://www.arthritisresearchuk.org/about_us/arthritis_news/articles/smoking_may_reduce.aspx

Report of being treated for Diabetes

There is a growing body of evidence to suggest that smoking is an independent risk factor for diabetes[42]. Several hypotheses have been proposed to explain this link. Smoking has been identified as a risk factor for insulin resistance, a precursor for diabetes[43]. Smoking has also been associated with a risk of chronic pancreatitis and pancreatic cancer, suggesting that tobacco smoke maybe toxic to the pancreas[44].

Compared to non-smokers with diabetes, people with diabetes who smoke have twice the risk of premature death[45]. Furthermore, the risk of complications associated with tobacco use and diabetes in combination is nearly 14 times higher than the risk of either smoking or diabetes alone[46].

Findings from the WHS

Respondents were asked if they were currently being treated for diabetes, making no distinction between type 1 and type 2 diabetes.

All respondents

- Ex-smokers (at 7.9%) were more likely than both current smokers (at 6.3%) and those who had never smoked (at 5.4 %) to report being treated for diabetes.

Men

- Male ex-smokers (10.3%) were much more likely than both current smokers (6.7%) and those who had never smoked (4.8%) to report currently receiving treatment for diabetes.

Women

- Reporting rates for women being treated for diabetes were similar amongst ex-smokers (at 5.4%), current smokers (at 5.8%) and those who had never smoked (at 5.9%).

Conclusions

Of all respondents, ex-smokers were more likely than both current smokers and those who have never-smoked to report being treated for diabetes. These results were also true for

[42] Ko G & Cockram C. Cause as well as effect: smoking and diabetes. Diabetes Voice: . Smoking and diabetes special issue 2005; 50: 19-22
[43] ASH 2009. Smoking and diabetes. Accessed at: http://www.ash.org.uk/files/documents/ASH_128.pdf
[44] Cancer Stats. Pancreatic cancer – UK. Cancer Research UK, March 2006
[45] ASH 2009. Smoking and diabetes. Accessed at: http://www.ash.org.uk/files/documents/ASH_128.pdf
[46] Haire-Joshu D & Thomas J. Gambling with addiction: Dangerous beliefs about smoking and diabetes. Diabetes Voice Smoking and diabetes special issue 2005; 50: 15-18

men. Researchers have found that those who gave up smoking had a 70% increased risk of developing type-two diabetes in the first six years without cigarettes compared with non-smokers[47]. The research found the risk of developing type-two diabetes was highest in the first three years after quitting smoking[48] due to the associated weight gain with giving up smoking. If quitters avoided developing the condition for 10 years, then their long-term risk returned to normal[49]. People who continue to smoke have a constant 30% increased risk of type-two diabetes compared with non-smokers.

[47] Yeh HC, Duncan BB, Schmidt MI, et al. Smoking, smoking cessation, and risk for type 2 diabetes mellitus. A cohort study. *Ann Intern Med* 2010; 152:10-17
[48] Yeh HC, Duncan BB, Schmidt MI, et al. Smoking, smoking cessation, and risk for type 2 diabetes mellitus. A cohort study. *Ann Intern Med* 2010; 152:10-17
[49] Yeh HC, Duncan BB, Schmidt MI, et al. Smoking, smoking cessation, and risk for type 2 diabetes mellitus. A cohort study. *Ann Intern Med* 2010; 152:10-17

Report of being treated for a Long-term limiting illness

Findings from the WHS

Participants were asked if they had any long-term illness, health problem or disability which limited their daily activity or work they could do. They were asked to include problems due to old age and, if responding positively, were asked for the main cause of this limitation.

All respondents

- Both current smokers (at 30.2%) and ex-smokers (at 28.8%) were more likely than those who had never smoked (at 24.6%) to report being treated for a long term limiting illness.

Men

- Male ex-smokers (at 29.4%) and male current smokers (at 28.3%) were both more likely than those who had never smoked (at 20.9%) to report being treated for a long term limiting illness.

Women

- Female current smokers (32.1%) and ex-smokers (28.1%) were both more likely than those who had never smoked (27.5%) to report being treated for a long term limiting illness.

Conclusions

Ex-smokers and current smokers were more likely to present with long-term limiting illness.

Health related behaviours

Report of Drinking above the recommended guidelines

Alcohol consumption in Wales, as in the rest of the UK, has increased markedly in the last 70 years[50]. 45% of adults in Wales admit to drinking above the recommended guidelines and 28% admit to binge drinking[51]. Around 1,000 deaths are attributable to alcohol per year in Wales[52].

Findings from the WHS

Alcohol consumption: Respondents were asked to indicate how many measures of various types of alcohol they had consumed on their heaviest drinking day the previous week. The number of units drunk on that day were then calculated based on their responses. The following definitions of drinking above the guidelines and binge drinking were used, based on this heaviest drinking day in the past week:

- Drinking above the guidelines: men drinking more than four units; women drinking more than three units

All respondents

- Both current smokers (at 50.2%) and ex-smokers (at 49.6%) were more likely than those who had never smoked (39.3%) to report drinking above the guidelines on at least one day in the last week.

Men

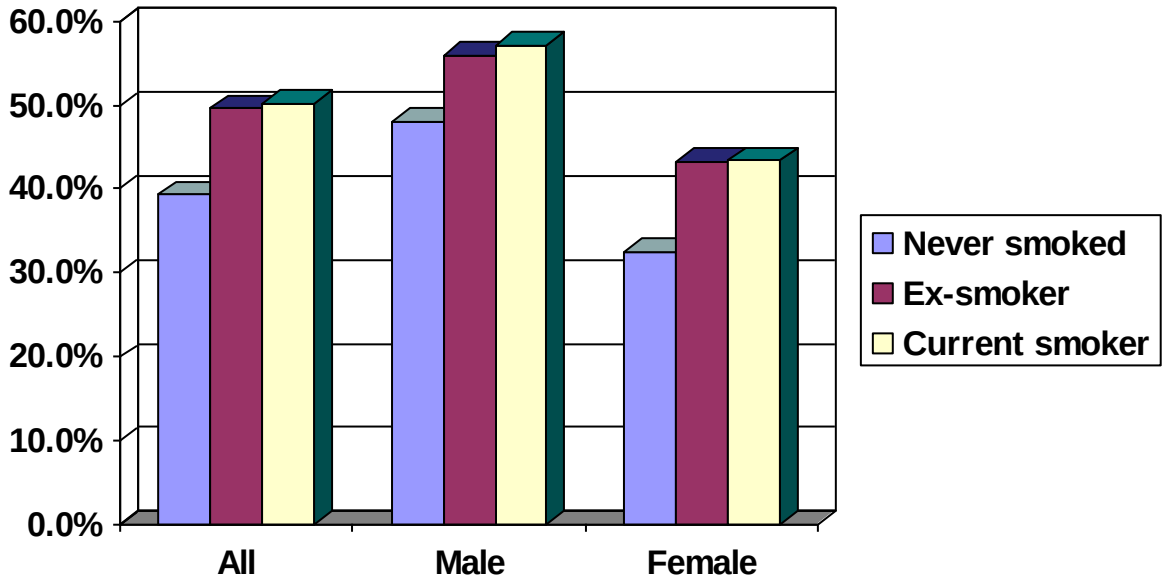
- Among males, current smokers (at 57.1%) and ex-smokers (at 55.9%) were significantly more likely than those who had never smoked (at 48%) to report drinking above the guidelines on at least one occasion in the past week.

Women

- Among females, current smokers (at 43.4%) and ex-smokers (at 43.2%) were more likely than those who had never smoked (at 32.5%) to report drinking above the guidelines on at least one occasion in the past week.

[50] A profile of Alcohol and Health in Wales. Wales centre for health April 2009. Accessed at: http://www.wales.nhs.uk/sites3/Documents/568/Alcohol%20and%20Health%20in%20Wales_WebFinal_E.pdf
[51] Welsh Assembly Government (2008) *Chief medical officer for Wales - annual report 2007* Cardiff: Welsh Assembly Government http://wales.gov.uk/docs/phhs/publications/cmoreport07/081201cmoreporten.pdf
[52] A profile of Alcohol and Health in Wales. Wales centre for health April 2009. Accessed at: http://www.wales.nhs.uk/sites3/Documents/568/Alcohol%20and%20Health%20in%20Wales_WebFinal_E.pdf

Report of drinking above the guidelines



Conclusions

Current and ex-smokers are more likely to report drinking above the recommended guidelines compared to those who have never smoked. This was true for both males and females however differences between current smokers and those who had never smoked were more marked among females than for males.

Report of Binge drinking

Findings from the WHS

- Binge drinking: men drinking more than eight units, women drinking more than six units

All respondents

- Both current (at 35.2%) and ex-smokers (at 31.4%) were more likely than those who had never smoked (at 23.3%) to report binge drinking at least one day in the last week.

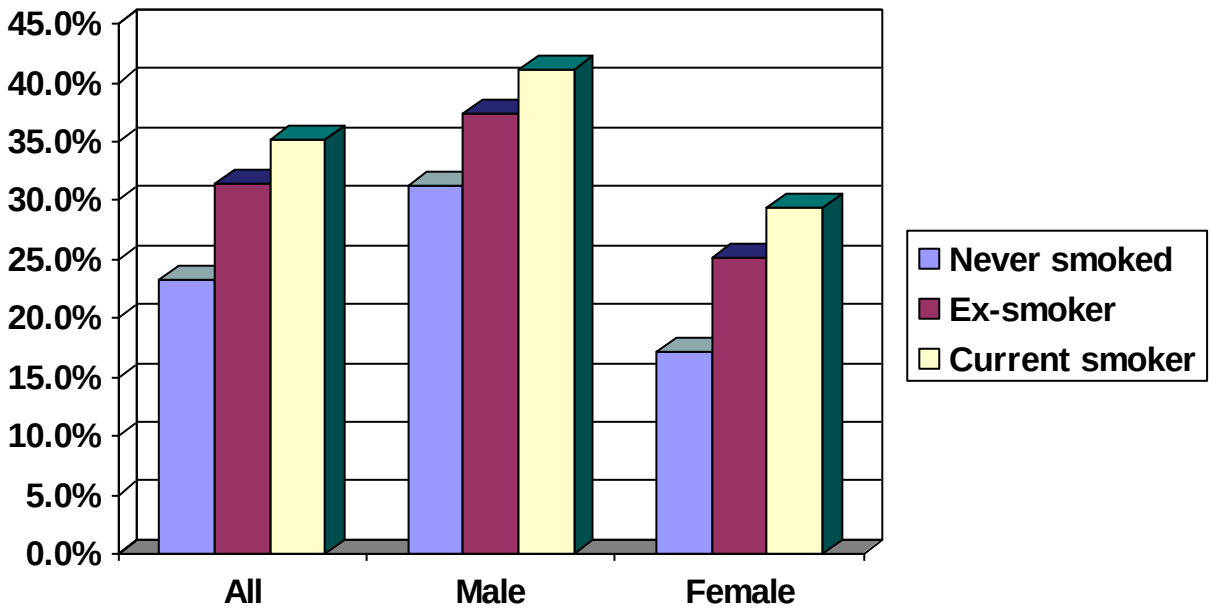
Men

- Both current (at 41.1%) and ex-smokers (at 37.3%) were significantly more likely to report binge drinking at least once in the last week than those who had never smoked (at 31.2%).

Women

- Among females, current smokers (at 29.4%) and ex-smokers (at 25.2%) were more likely than those who had never smoked (at 17.1%) to report binge drinking at least once in the last week.

Report of binge drinking



Conclusions

Again current and ex-smokers were more likely than those who have never smoked to report binge drinking at least one day in the last week, although a higher percentage of current smokers were more likely to do this than ex-smokers. As with drinking above the recommended guidelines, differences between female current smokers and those who had never smoked were more marked than for males.

Report of eating five or more fruit and vegetables

Only 36% of adults report eating the recommended five portions of fruit and vegetables a day in Wales[53]. People in higher socio-economic groups are more likely to eat a healthy diet including the recommended five portions of fruit and vegetables per day compared to those in lower socioeconomic groups in Wales[54].

Findings from the WHS

Respondents were asked to indicate quantities of various fruit and vegetables consumed the previous day, based on everyday measures such as tablespoons of vegetables, small bowls of salad, or medium sized fruit such as apples. The format of the questions was based on the concept of portions of 80g each and the information collected was converted into standard portions. The total number of portions consumed by each respondent was then calculated and participants were categorised according to whether or not they had eaten five or more portions of fruit and vegetables on the previous day, in line with current guidelines.

All respondents

- Current smokers (at 28.1%) were much less likely than both those who had never smoked (at 39%) and ex-smokers (at 38.1%) to report eating at least five portions of fruit and vegetables on the previous day.

Men

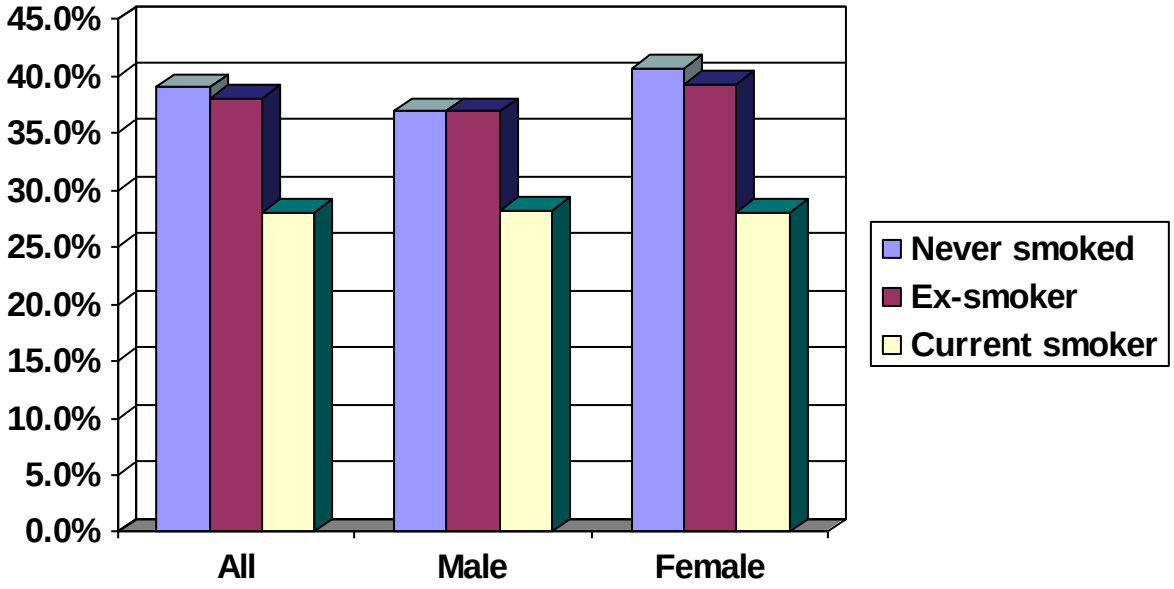
- Male current smokers (at 28.2%) were much less likely than both those who had never smoked (at 36.9%) and ex-smokers (at 36.9%) to report eating at least five portions of fruit and vegetables on the previous day.

Women

- Female current smokers (at 28%) were much less likely than both those who had never smoked (at 40.7%) and ex-smokers (at 39.3%) to report eating at least five portions of fruit and vegetables on the previous day.

[53] Wales Public Health Observatory (2010). *Lifestyle and Health: Wales and it's health boards.* Public Health Wales: Cardiff.
[54] CMO for Wales Annual report 2009. http://wales.gov.uk/docs/phhs/report/101005cmoreporten.pdf

Report of eating five or more fruit and vegetables



Conclusions

Current smokers were much less likely than both those who had never smoked and ex-smokers to report eating at least five portions of fruit and vegetables on the previous day. This was the case for both men and women although the difference was slightly more noticeable among females than among males.

Report of meeting the physical activity guidelines

There is a clear link between physical activity and health. The benefits of physical activity include contributing to the prevention and management of certain conditions, as well as the positive effects on mental health[55]. People who are physically active have up to half the risk of developing a major chronic disease such as coronary heart disease, stroke, diabetes and some cancers[56]. The 2008 Welsh Health Survey indicates that only 30% of adults (38% of men, 22% of women) reported that they met the guidelines for physical activity in the previous week[57].

Findings from the WHS

Respondents were asked to indicate on which days in the past week they did at least 30 minutes of light, moderate, and vigorous physical activity. They were informed that blocks of activity lasting more than 10 minutes which were done on the same day counted toward the full 30 minutes. They were asked to include activity which is part of their job. Based on their responses participants were categorised according to whether or not they met the physical activity guideline of at least 30 minutes of at least moderate intensity physical activity on five or more days of the week.

All respondents

- Current smokers (at 31.5%) were more likely than both those who had never smoked (at 28.8%) and ex-smokers (at 28.9%) to report meeting the physical activity guidelines of at least 30 minutes of at least moderate intensity activity on five or more days of the week.

Men

- A much greater proportion of males than females reported meeting the physical activity guidelines.
- There was very little difference between current smokers (at 39.1%), ex-smokers (at 36.4%) and those who had never smoked (at 38.4%) in terms of numbers reporting meeting the physical activity guidelines.

Women

- A slightly higher proportion of female current smokers (at 23.8%) reported meeting the physical activity guidelines than either ex-smokers (at 21.3%) or those who had never smoked (at 21.3%).

[55] CMO for Wales Annual report 2009. http://wales.gov.uk/docs/phhs/report/101005cmoreporten.pdf
[56] CMO for Wales Annual report 2009. http://wales.gov.uk/docs/phhs/report/101005cmoreporten.pdf
[57] Welsh Health Survey, 2008.

Conclusions

Overall, current smokers were slightly more likely than both those who had never smoked and ex-smokers to report meeting the physical activity guidelines of at least 30 minutes of at least moderate intensity activity on five or more days of the week. It should be noted however that differences between the three smoking groups were fairly small. In addition, the definition of physical activity as described in the Welsh Health Survey for 2008 asks people to include activity which is part of their job. Men and women in manual socio-economic groups are more likely to smoke than people in non-manual occupations. For example, data from the General Household Survey for 2002 found that 20% of men and 18% of women in the professional and managerial groups smoked compared with 32% of men and 31% of women in routine and manual groups[58]. It may be that this reporting of occupationally based physical activity among manual workers contributed to a slightly higher proportion of smokers meeting the physical activity guidelines than might otherwise have been seen.

[58] *Living in Britain: Results from the 2002 General Household Survey, Office for National Statistics, 2004 (http://www.statistics.gov.uk/lib)*

Report of being overweight or obese (excluding pregnant women)

Obesity is steadily increasing in Wales, and has been described as a worldwide epidemic. Obesity is a major public health issue affecting all ages and its likely impact is currently unknown. Starting in childhood and adolescence, poor diet and a sedentary lifestyle are the main causes[59]. Currently almost 3 in every 5 people in Wales are obese or overweight[60].

Findings from the WHS

Overweight and obesity were calculated based on adults' self-reported height and weight. Body Mass Index was calculated as weight (kg) divided by squared height (m^2). A BMI of 25 to under 30 was categorised as overweight, and a BMI of 30 and over was categorised as obese.

All respondents

- Current smokers (at 51.4%) were the least likely out of ex-smokers (at 61.6%) and never-smoked (at 56.4%) to report being overweight.
- Current smokers (at 16.7%) were the least likely out of ex-smokers (at 23.9%) and never-smoked (at 20.3%) to report being obese.
- A higher proportion of men than women reported being overweight.

Men

- Ex-smokers (at 68.2%) were the most likely to report being overweight when compared to those who had never smoked (at 61.3%), and to current smokers (at 53.5%).
- Ex-smokers (at 24.2%) were the most likely to report being obese when compared to those who had never smoked (at 20%), and to current smokers (at 15.8%).

Women

- Ex-smokers (at 54.3%) were the most likely to report being overweight when compared to those who had never smoked (at 52.5%), and to current smokers (at 49.3%).
- Ex-smokers (at 23.6%) were the most likely to report being obese when compared to those who had never smoked (at 20.5%), and to current smokers (at 17.7%).

Conclusions

Current smokers were the least likely to report being overweight or obese. Ex-smokers were the most likely to report being overweight or obese when compared to those who had

[59] Nutrition and Obesity HNA 2006. Public Health Waless. Accessed at: http://www.wales.nhs.uk/sitesplus/888/page/43658
[60] CMO for Wales Annual report 2009. http://wales.gov.uk/docs/phhs/report/101005cmoreporten.pdf

never smoked. These results were true for both men and women. However, a higher proportion of men than women reported being overweight. Studies have shown that quitting smoking can mean approximately a 7kg increase in weight compared to smokers over the same time period[61]. Quitters tend to put on weight because smoking acts to suppress appetite which then exposes them to hypertension and type 2 diabetes risk. However there is an improvement in mortality irrespective of weight gain[62].

[61] Yudkin et al., 2003. Abstinence from smoking eight years after participation in randomised controlled trial of nicotine patch. *BMJ 2003;327:28*
[62] Doll R, Hill AB. (1954). "The mortality of doctors in relation to their smoking habits". *BMJ* **328** (7455): 1529)

Use of secondary care services

Report of various types of hospital attendance

Findings from the WHS

Participants were asked whether they'd had any accident, injury or poisoning needing hospital treatment or a visit to casualty/A&E in the last three months.

Participants were asked if they had attended the casualty/A&E department of a hospital as a patient during the last 12 months.

Respondents were asked if they had stayed in hospital as an inpatient, overnight or longer, during the last 12 months.

Respondents were asked if they had attended the outpatient department of a hospital as a patient (apart from straightforward ante- or post-natal visits) during the last 12 months.

All respondents

- Current smokers (at 6%) were more likely than both ex-smokers (at 3.9%) and those who had never smoked (at 4.3%) to report attending hospital because of an accident, injury or poisoning in the last three months.
- Current smokers (at 19.5%) were more likely than both ex-smokers (at 15.7%) and those who had never smoked (at 13.9%) to report attending casualty in the last 12 months.
- Both current smokers (at 10.6%) and ex-smokers (at 11%) were more likely than those who had never smoked (at 8.7%) to report staying in hospital as an inpatient in the last 12 months.
- Ex-smokers (at 32.6%) were more likely than both current smokers (at 30.2%) and those who had never smoked (at 29.9%) to report attending hospital as an outpatient in the last 12 months.
- Slightly higher proportions of men than women reported attending hospital because of an accident, injury or poisoning in the last three months or attending casualty in the last 12 months.
- Higher proportions of women than men reported attending hospital either as an inpatient or an outpatient in the last 12 months.

Men

- Male current smokers (at 6.7%) were more likely than both ex-smokers (at 4.1%) and those who had never smoked (at 5%) to report attending hospital because of an accident, injury or poisoning in the last three months.
- Male current smokers (at 20.2%) were more likely than both ex-smokers (at 16.6%) and those who had never smoked (at 15.3%) to report attending casualty in the last 12 months.
- Ex-smokers (at 10.2%) were more likely than both current smokers (at 8.9%) and those who had never smoked (at 7.6%) to report attending hospital as an inpatient in the last 12 months.
- Ex-smokers (at 31.1%) were more likely than both current smokers (at 26.4%) and those who had never smoked (at 26.9%) to report attending hospital as an outpatient in the last 12 months.

Women

- Female current smokers (at 5.2%) were more likely than both ex-smokers (at 3.6%) and those who had never smoked (at 3.7%) to report attending hospital because of an accident, injury or poisoning in the last three months.
- Female current smokers (at 18.7%) were more likely than both ex-smokers (at 14.8%) and those who had never smoked (at 12.8%) to report attending casualty in the last 12 months.
- Both current smokers (at 12.4%) and ex-smokers (at 11.7%) were more likely than those who had never smoked (at 9.6%) to report attending hospital as an inpatient in the last 12 months.

Conclusions

Current smokers were more likely to report attending hospital because of an accident, injury or poisoning in the last three months and to report attending casualty in the last 12 months. Current and ex-smokers were more likely to report staying in hospital as an inpatient in the last 12 months. Ex-smokers were more likely to report attending hospital as an outpatient in the last 12 months.

Higher proportions of men than women reported attending hospital because of an accident, injury or poisoning in the last three months or attending casualty in the last 12 months and reported attending hospital either as an inpatient or an outpatient in the last 12 months.

Research shows that the impact of smoking on hospitalisations in Wales amounts to over £235 million in 2006/07, which represent 22% of total expenditure on in-patients[63]. It is known that smoking is a major causal factor in relation to cancer, circulatory disease and respiratory disease. These diseases account for 96% of the expenditure incurred on patients admitted to hospital as a result of their smoking, with respiratory disease accounting for 41%; circulatory disease accounting for 41% and cancer accounting for 14%[64].

Nearly a third of all hospital bed days used to treat diseases caused by smoking are occupied with patients suffering from chronic airway obstruction, representing 6 per cent of all bed-days occupied for smoking related diseases[65].

[63] Phillips, C.J. and Bloodworth, A. Cost of smoking to the NHS in Wales. ASH Wales and British Heart Foundation Cymru, 2009
[64] Phillips, C.J. and Bloodworth, A. Cost of smoking to the NHS in Wales. ASH Wales and British Heart Foundation Cymru, 2009
[65] A Summary of the Health Impact of Smoking and the Short Term Benefits of Pre-operative Smoking Cessation in Wales. WAG 2007.

Use of primary care services

Report of using health-related services

Report of talking to a GP

Participants were asked if they had talked to a family doctor (GP) about their own health, either in person or by telephone, during the two weeks ending the day before they completed the questionnaire.

Findings from the WHS

All respondents

- Both ex-smokers (at 19.2%) and current smokers (at 18.8%) were more likely to report talking to their GP in the last two weeks than those who had never smoked (at 15.3%).

Men

- Both ex-smokers (at 17.2%) and current smokers (at 15.2%) were more likely than those who had never smoked (at 12.2%) to report visiting their GP in the last two weeks

Women

- Both ex-smokers (at 21.4%) and current smokers (at 22.4%) were more likely than those who had never smoked (at 17.7%) to report visiting their GP in the last two weeks

Conclusions

Ex-smokers and current smokers were more likely to report talking to their GP in the last two weeks compared to those who had never smoked. This was true for both men and women.

A recent study commissioned by ASH Wales and the British Heart Foundation Cymru indicates that GP visits due to smoking cost NHS Wales an estimated £43,093,442, which represents over 13% of all costs in the age-group 16 years and over[66].

[66] Phillips, C.J. and Bloodworth, A. Cost of smoking to the NHS in Wales. ASH Wales and British Heart Foundation Cymru, 2009

Report of using a Pharmacist

Findings from the WHS

Respondents were asked if they had used a pharmacist for themselves, including local pharmacists and those in large stores and supermarkets, during the last 12 months. Examples of pharmacist use were given, including picking up prescribed medicine, asking for advice, and buying medicines kept behind the counter.

All respondents

- Ex-smokers (at 73.3%) were the most likely to report using a pharmacist in the last 12 months compared to both current smokers (at 67.5%) and those who had never smoked (at 68.2%).

Men

- Ex-smokers (at 67.9%) were more likely to report visiting their pharmacist in the last 12 months compared to both current smokers (at 58.9%) and those who had never smoked (at 58.4%).

Women

- Ex-smokers (at 78.7%) were more likely to report visiting their pharmacist in the last 12 months compared to both current smokers (at 76.1%) those who had never smoked (at 75.7%).

Conclusions

Ex-smokers were the most likely to report using a pharmacist in the last 12 months compared to both current smokers and those who had never smoked. This was again true for both men and women.

Report of using a Dentist

Findings from the WHS

Respondents were asked whether they had used a dentist for themselves in the last 12 months, either under the NHS or privately.

All respondents

- Current smokers (at 56.4%) were much less likely than either ex-smokers (at 72.2%) or those who had never smoked (at 75.1%) to report using a dentist in the last 12 months.

Men

- Current smokers (at 50%) were the least likely to report visiting a dentist in the last 12 months compared to ex-smokers (at 70%)and those who had never smoked (at 71.5%).

Women

- Current smokers (at 62.8%) were the least likely to report visiting a dentist in the last 12 months compared to ex-smokers (at 74.5%) and those who had never smoked (at 78%).

Conclusions

Current smokers were much less likely than either ex-smokers or those who had never smoked to report using a dentist in the last 12 months. Differences were more noticeable among males than among females.

Report of visiting an Optician

Findings from the WHS

Respondents were asked whether they had used an optician for themselves in the last 12 months.

All respondents

- Current smokers (at 42.1%) were much less likely than either ex-smokers (at 51.3%) or those who had never smoked (at 51.1%) to report visiting an optician in the last 12 months.

Men

- Current smokers (at 35%) were the least likely to report visiting an optician in the last 12 months compared to ex-smokers (at 48.24%) and those who had never smoked (at 43.9%).

Women

- Current smokers (at 49.2%) were the least likely to report visiting an optician in the last 12 months compared to ex-smokers (at 54.6%) and those who had never smoked (at 56.6%).

Conclusions

Current smokers were much less likely than either ex-smokers or those who had never smoked to report visiting an optician in the last 12 months. Differences were more noticeable among males than among females.

Public health implications of the research

Smoking is an important public health issue, causing around 5,650 deaths each year in Wales alone, and being a major contributor to health inequalities[67]. The current rates of smoking have remained at 24% for the last three years in Wales[68] with adults in more deprived areas more likely to smoke than those in less deprived areas[69]. Smoking has been known for a numbers of years to be associated with a number of chronic health conditions such as cardiovascular disease, chronic obstructive lung disease and diabetes. In the WHS for 2008, smoking was found to be associated with a number of poor health conditions, especially among women, including a number of heart conditions, respiratory conditions, arthritis, diabetes, mental illnesses, and long term limiting illnesses.

Ex-smokers also reported high levels of ill health in this report, particularly for all heart conditions including high blood pressure, respiratory conditions, arthritis, diabetes, long-term limiting illness. In addition, they also were the most likely to report being overweight or obese. The finding that ex-smokers were more likely than those who had never smoked to report being treated for a heart condition may well be reflective of current smokers being diagnosed with a heart condition and then giving up smoking, by which time the damage of several years of smoking may well already have been done. Research also shows that stopping smoking may lead to hypertension[70] in the short term and an increased risk of diabetes in those at risk due to weight gain associated with quitting smoking[71]. However there is an improvement in mortality irrespective of weight gain[72].

The findings from this report also demonstrate a clustering of health-related behaviours, with current smokers being more likely than non-smokers to report excessive alcohol consumption and poor diet. Whole lifestyle approaches to tackling multiple health risk behaviours may well prove to be more fruitful than attempts targeting single behaviours in isolation, and efforts to improve the health profile and well-being of people in Wales should take this into consideration.

This report shows the extent to which both current and ex-smokers are more likely than those who have never smoked to report various types of hospital attendance and use of health-related services. The cross-sectional nature of this survey means that we cannot be sure of the reasons for these various activities, and whether they were smoking related or

[67] Smoking in Wales: current facts 2007 http://www.wales.nhs.uk/sites3/Documents/568/WCH%20smoking%20ban%20report%20E%20final.pdf
[68] Welsh Health Survey, 2007, 2008, 2009.
[69] Welsh Health Survey, 2007, 2008, 2009.
[70] TA Gerace, J Hollis, JK Ockene, K Svendsen Smoking cessation and change in diastolic blood pressure, body weight, and plasma lipids Preventive Medicine, 1991, 20, 5, 602-620
[71] Yudkin et al., 2003. Abstinence from smoking eight years after participation in randomised controlled trial of nicotine patch. *BMJ 2003;327:28*
[72] Doll R, Hill AB. (1954). "The mortality of doctors in relation to their smoking habits". *BMJ* **328** (7455): 1529)

not. However, smoking is already known to be a huge a drain on the NHS through people suffering from smoking related diseases and on the wider economy through the likelihood of smoking related sickness absence and costs associated from smoking related fires. The findings in this report demonstrate the many ways in which already over-stretched resources are used to address smoking-related illness. Reducing smoking levels will impact on NHS costs as well as those for the wider economy.

Conclusions

In this report smoking was found to be associated with a variety of health conditions, with poor health-related behaviours, and with greater hospital attendance and use of health-related services. All of these factors combine to paint a poor picture of the overall health profile for smokers in Wales, and to indicate the many ways in which the cost of smoking can add up. Given the fact that smoking rates in Wales have remained constant over recent years, it is vital that attempts continue to reduce prevalence rates.

In order to build a healthier nation in Wales there needs to be an investment in and focus on health prevention and promotion policies that will have long term benefits. There needs to be a move from a reactive health service treating ever more and more patients suffering the adverse health effects of smoking, to a more proactive public health service, promoting and protecting people's health throughout their lives and preventing the uptake of smoking in Wales.

A systematic approach is needed from all, to include a Health in all Policies approach to their work. This approach requires the coordination and partnership of all agencies whose policies influence the determinants of health. Tackling tobacco, alcohol, nutrition and fitness are undoubtedly key areas requiring positive action. Investment in tackling these key policy areas through a Health in all Policies approach will return significant benefits to the Welsh people and economy. Also, given that fact that smokers are using hospital and primary care services it may be an idea to use these "teachable moments" in order to decrease smoking prevalence.

Appendix 1: Definitions relevant to the results presented in the report

Smoking

Smoking status was determined as follows:

- Current smoker: self-report of currently smoking daily or occasionally
- Ex-smoker: self-report of having used to smoke daily or occasionally but not smoking at all now
- Never smoked: self-report of having never smoked

Heart conditions

Respondents were classified as having any heart condition if they reported having ever been treated for a heart attack, or currently being treated for angina, heart failure, or "another heart condition". Analyses were also carried out to include ~~H~~high blood pressure, which is a risk factor for heart disease rather than an actual heart condition. Results have been presented both including and excluding ~~H~~high blood pressure.

Respiratory conditions

Respondents were classified as having any respiratory illness if they reported currently being treated for asthma, emphysema, pleurisy, bronchitis, or "another respiratory illness".

Mental illness

Respondents were classified as having any mental illness if they reported currently being treated for depression, anxiety, or "another mental illness".

Arthritis

Respondents were asked if they were currently being treated for arthritis.

Diabetes

Respondents were asked if they were currently being treated for diabetes, making no distinction between type 1 and type 2 diabetes.

Limiting long-term illness

Participants were asked if they had any long-term illness, health problem or disability which limited their daily activity or work they could do. They were asked to include problems due to old age and, if responding positively, were asked for the main cause of this limitation.

Alcohol consumption

Respondents were asked to indicate how many measures of various types of alcohol they had consumed on their heaviest drinking day the previous week. The number of units drunk on that day were then calculated based on their responses. The following definitions of drinking above the guidelines and binge drinking were used, based on this heaviest drinking day in the past week:

- Drinking above the guidelines: men drinking more than four units; women drinking more than three units
- Binge drinking: men drinking more than eight units, women drinking more than six units

Fruit and vegetable consumption

Respondents were asked to indicate quantities of various fruit and vegetables consumed the previous day, based on everyday measures such as tablespoons of vegetables, small bowls of salad, or medium sized fruit such as apples. The format of the questions was based on the concept of portions of 80g each and the information collected was converted into standard portions. The total number of portions consumed by each respondent was then calculated and participants were categorised according to whether or not they had eaten five or more portions of fruit and vegetables on the previous day, in line with current guidelines.

Physical activity

Respondents were asked to indicate on which days in the past week they did at least 30 minutes of light, moderate, and vigorous physical activity. They were informed that blocks of activity lasting more than 10 minutes which were done on the same day counted toward the full 30 minutes. They were asked to include activity which is part of their job. Based on their responses participants were categorised according to whether or not they met the physical activity guideline of at least 30 minutes of at least moderate intensity physical activity on five or more days of the week.

Overweight and obesity

Overweight and obesity were calculated based on adults' self-reported height and weight. Body Mass Index was calculated as weight (kg) divided by squared height (m^2). A BMI of 25 to under 30 was categorised as overweight, and a BMI of 30 and over was categorised as obese.

Accident, injury or poisoning

Participants were asked whether they'd had any accident, injury or poisoning needing hospital treatment or a visit to casualty/A&E in the last three months.

Casualty attendance

Participants were asked if they had attended the casualty/A&E department of a hospital as a patient during the last 12 months.

Inpatient hospital stays

Respondents were asked if they had stayed in hospital as an inpatient, overnight or longer, during the last 12 months.

Outpatient hospital visits

Respondents were asked if they had attended the outpatient department of a hospital as a patient (apart from straightforward ante- or post-natal visits) during the last 12 months.

GP use

Participants were asked if they had talked to a family doctor (GP) about their own health, either in person or by telephone, during the two weeks ending the day before they completed the questionnaire.

Pharmacist use

Respondents were asked if they had used a pharmacist for themselves, including local pharmacists and those in large stores and supermarkets, during the last 12 months. Examples of pharmacist use were given, including picking up prescribed medicine, asking for advice, and buying medicines kept behind the counter.

Use of a dentist

Respondents were asked whether they had used a dentist for themselves in the last 12 months, either under the NHS or privately.

Use of an optician

Respondents were asked whether they had used an optician for themselves in the last 12 months.

Appendix 2: Welsh Health Survey 2008 Technical Report compiled by Dr Sarah Whitehead, Cardiff Institute of Society and Health, Cardiff University

Introduction

Smoking continues to be the largest single preventable cause of ill health and premature death in Wales, causing around 6,000 deaths each year (Dolman, Gibbon, & Roberts, 2007). Smoking is also a leading cause of health inequalities, having been identified as the main cause for the gap in life expectancy between rich and poor (Dolman et al., 2007).

Every year in England and Wales 34 million working days are lost as a result of smoking related illnesses (Parrott & Godfrey, 2004). Research also shows that approximately 20% of all admissions and bed days in Wales are attributable to people suffering from smoking related diseases (Furlong, 2005).

Estimates of the cost to the NHS of treated smoking related diseases in the UK vary. Whereas Parrott, Godfrey, Raw, et al., (1998) estimated the cost to be in the region of £1.5 billion a year, a more recent estimate has put the annual cost at £5.2 billion (Allender, Balakrishnan, Scarborough, et al., 2009). Recent data from Wales indicated that treating smoking related diseases cost NHS Wales an estimated £386 million in 2007/08; equivalent to £129 per head and 7% of total healthcare expenditure in Wales (Phillips & Blodworth, 2009).

Smoking also has significant costs to the NHS through working days lost: a review of the health and well-being of the NHS workforce found that among NHS employees, the likelihood of sickness absence was nearly twice as high for smokers compared to non-smokers, and the likelihood of absence for a period greater than one day was significantly increased among smokers (Boorman, 2010). Such sickness absence costs are also found in the wider economy, which along with the costs of welfare benefit payments for smoking related illness, increase costs to the economy. Other associated costs include the cost of damages caused by fire started by cigarettes. Reducing smoking levels will impact on NHS costs as well as those for the wider economy.

Although smoking among adults in Wales has declined in recent years, data from the Welsh Health Survey show that since 2007 the percentage of adult smokers has remained the same at 24% (Welsh Assembly Government, 2010). Figures from the Welsh Health Survey also show that smoking rates vary according to socio-economic group and area deprivation level: 15% of adults in managerial and professional households reported being a current smoker in 2009, compared with 31% of adults in households headed by someone in routine or manual work, and 44% of adults in households headed by someone who had never worked or was long-term unemployed. Similarly, 15% of adults in households in the least

deprived fifth of the population (measured using the Welsh Index of Multiple Deprivation) reported being current smokers, compared with 33% of adults in households in the most deprived fifth. Smoking prevalence increased in a linear fashion as deprivation level increased.

The aim of this project was to compare current smokers, ex-smokers, and those who had never smoked in Wales in relation to selected health conditions and health-related behaviours. Specifically we aimed to determine whether differences existed between smoking groups in terms of numbers reporting the health-related conditions and behaviours of interest, and to determine the extent to which current smokers and ex-smokers were more or less likely than those who had never smoked to report these conditions and behaviours. The data used for the study were obtained from the 2008 Welsh Health Survey.

Methods

Data for the analyses presented in this report were taken from the 2008 Welsh Health Survey (WHS), relating to data collected between January and December 2008. The WHS is an annual survey that started in October 2003. It is based on a representative sample of people living in private households in Wales. Information is collected at two levels: household, through a short interview offered in English or Welsh, and individual, through English or Welsh self-completion questionnaire. Questionnaires can be completed by all adults aged 16 years and over and by a maximum of two children in each selected household. Only the information provided by adults has been used in the analyses presented here. During the 2008 period, a household interview was obtained with 74% of eligible households in the sample, and self-completion questionnaires were obtained for 78% of adults, giving a total sample size of 13,313. Data were downloaded from the Economic and Social Data Service website at http://www.esds.ac.uk/government/whs/ and were provided as a mixture of original responses plus derived variables.

Questions asked in the survey focussed on the following topics: health service use, medicines, illnesses, general health and well-being, smoking, alcohol, fruit and vegetable consumption, exercise, carers, sex and age, height and weight, ethnicity, and qualifications. The household reference person was also asked about their employment status and socio-economic classification, using the National Statistics Socio-Economic Classification (NS-SEC). This is an occupationally based classification of social position introduced in 2001 for use in official statistics and surveys. Full details of NS-SEC are available from the Office for National Statistics website at http://www.statistics.gov.uk/nsbase/methods_quality/ns_sec/default.asp. All analyses presented here use the three-class version of NS-SEC, based on the current or former occupation of the household reference person. The questions used in these analyses

related to self-report of various health conditions, health-related behaviours, and health service use. Sample questionnaires can be downloaded from the Welsh Assembly Government website at http://wales.gov.uk/topics/statistics/theme/health/health-survey/?lang=en. Definitions relevant to the analyses presented in this report are available in Appendix A.

Weighting

The survey results were weighted to take account of unequal selection probabilities, and for differential non-response, i.e. to ensure that the age and sex distribution of the responding sample matched the population of Wales.

The sample design led to the respondents having unequal chances of selection for two reasons: the probability of selecting an address varied by unitary authority and, where addresses contained four or more households, three households were selected for inclusion in the survey.

Weights were also calculated to correct for non-response. Response rates differed between groups; for example, men were under-represented in the sample, and women were over-represented. Weighting compensates for these differences, and corrects any resulting bias in the survey estimates.

Two sets of non-response weights were generated, household weights and individual weights. The household weights adjusted for noncontact and refusals of entire households. The individual weights adjusted for non-response among individuals within responding households.

Detailed information on the weighting approach used is provided in the technical report published by the National Centre for Social Research, who carried out the survey on behalf of the Welsh Assembly Government. This report is available at http://wales.gov.uk/topics/statistics/publications/publication-archive/healthsurvey2008/?lang=en.

Analyses

Data were analysed using two techniques. Firstly tables were produced showing the percentages and numbers of respondents reporting the outcome variable of interest according to whether they were current smokers, ex-smokers, or had never smoked (see Appendix A for definitions relating to smoking status). Chi-squared measures of association were used to identify significant differences between smoking groups for each of these variables. Age standardisation was carried out for these analyses. When the different smoking groups are compared in respect of a variable on which age has an influence, as is

the case with many of the variables examined here, any differences in age distributions between the groups are likely to affect the observed differences in the proportions of interest. Age standardisation therefore enabled the smoking groups to be compared after adjusting for the effects of any differences in their age distributions. Age standardisation was carried out using the age groups 16-24, 25-34, 35-44, 45-54, 55-64, 65-74, and 75 and over. Further information about the age standardisation approach is available in the Welsh Health Survey 2008 report at http://wales.gov.uk/topics/statistics/publications/publication-archive/healthsurvey2008/?lang=en.

Secondly, logistic regression analyses were carried out to examine the odds of current smokers and ex-smokers reporting the outcome of interest when compared to those who had never smoked. To control for the effects of age, gender, socio-economic status, and level of highest educational qualification, each of these factors was first entered separately into a logistic regression model. Those items that were found to be significantly associated with the outcome variable of interest were then entered into the final model along with smoking status. The results presented in this report are the odds ratio for the variable of interest after adjusting for the various socio-demographic factors. For all logistic regression analyses data were weighted to adjust for non-response. Analyses were carried out both on whole sample and for males and females separately.

Results

Descriptive statistics

The sample for analysis comprised 13,313 adults aged 16 years and above. Forty eight percent (6,418) of respondents were male and 52% (6,895) were female. Table 1 shows the age distribution of respondents by gender and for the whole sample.

Table 1: Age group breakdowns of males, females, and the whole sample

	Male	Female	All
16-24	16.2% (1,037)	14.2% (980)	15.2% (2,017)
25-34	14.0% (898)	13.2% (912)	13.6% (1,811)
35-44	17.4% (1,114)	17.1% (1,181)	17.2% (2,295)
45-54	16.3% (1,049)	15.9% (1,094)	16.1% (2,143)
55-64	16.3% (1,048)	15.7% (1,082)	16.0% (2,131)
65-74	11.3% (726)	11.5% (791)	11.4% (1,516)
75+	8.5% (545)	12.4% (855)	10.5% (1,400)
Total	100% (6,418)	100% (6,895)	100% (13,313)

Smoking prevalence

Table 2 shows the respondents' reported smoking behaviour, broken down by age and sex. Overall, 24% of respondents reported that they currently smoked, 28% reported being ex-smokers, and 49% reported that they had never smoked. Smoking prevalence was slightly higher in males, with 25% of males reporting that they currently smoked compared to 22% of females. The proportion of respondents reporting being current smokers peaked among 25-34 year olds, and then decreased with age.

Table 2: Respondents' reported smoking behaviour, by age and sex

	Smoker	Ex-smoker	Never smoked
Male			
16-24	25% (255)	8% (77)	68% (693)
25-34	37% (326)	17% (153)	46% (411)
35-44	30% (334)	24% (263)	46% (508)
45-54	25% (256)	29% (303)	46% (479)
55-64	22% (230)	43% (440)	35% (365)
65-74	16% (115)	53% (382)	31% (219)
75+	10% (54)	58% (304)	32% (170)
Total	25% (1,569)	30% (1,922)	45% (2,844)
Female			
16-24	27% (257)	12% (118)	61% (591)
25-34	30% (270)	23% (205)	48% (431)
35-44	28% (327)	22% (257)	50% (590)
45-54	25% (271)	23% (251)	52% (567)
55-64	21% (224)	33% (349)	47% (500)
65-74	13% (104)	34% (261)	53% (410)
75+	9% (72)	35% (291)	56% (459)
Total	22% (1,523)	26% (1,732)	52% (3,547)
All			
16-24	26% (511)	10% (194)	65% (1,283)
25-34	33% (596)	20% (358)	47% (842)
35-44	29% (660)	23% (520)	48% (1,098)
45-54	25% (526)	26% (554)	49% (1,046)
55-64	22% (454)	37% (789)	41% (865)
65-74	15% (218)	43% (642)	42% (629)
75+	9% (126)	44% (595)	47% (628)
Total	24% (3,092)	28% (3,654)	49% (6,391)

Heart conditions

Whole sample

Table 3 shows the age-standardised percentages and numbers of respondents reporting currently being treated for a heart condition according to smoking status. From this table we can see that ex-smokers were the most likely to report being treated for all the heart conditions examined. Current smokers were more likely than those who had never smoked to report being treated for each of the conditions with the exception of High blood pressure. Here the proportion of respondents reporting currently being treated was actually lowest among smokers.

Chi-squared tests were carried out to identify significant between group differences for each of the heart conditions. Ex-smokers were found to be significantly more likely to report being treated for High blood pressure than current smokers (x^2=5.37, p=.021). No significant differences existed between those who had never smoked and either current or ex-smokers (x^2=3.48, p=.062 and x^2=0.57, p=.450 respectively). Both current and ex-smokers were more likely than those who had never smoked to report being treated for any heart condition excluding High blood pressure (x^2=16.81, p<.000 and x^2=25.00, p<.000 respectively); there was no significant difference here between current and ex-smokers (x^2=0.32, p=.573). Ex-smokers were more likely than both those who had never smoked and current smokers to report being treated for any heart condition including High blood pressure (x^2=4.61, p=.032 and x^2=4.36, p=.037 respectively).

Both current and ex-smokers were more likely than those who had never smoked to report having ever been treated for a heart attack (x^2=39.82, p<.000 and x^2=51.72, p<.000 respectively), angina (x^2=13.49, p<.000 and x^2=16.42, p<.000 respectively), and heart failure (x^2=13.21, p<.000 and x^2=15.69, p<.000 respectively). These findings should be treated with caution, however, owing to the low numbers of participants reporting being treated for these conditions.

Table 3: Age standardised percentages and numbers of respondents reporting currently being treated for a heart condition according to smoking status

	High blood pressure	Any heart condition excluding hbp	Any heart condition including hbp
Smoking status			
Never smoked	19.4% (1208)	7.3% (443)	22.6% (1403)
Ex-smoker	20.0% (713)	10.3% (353)	24.5% (867)
Current smoker	17.8% (527)	9.9% (285)	22.3% (656)
	Heart attack – ever treated	Angina	Heart failure
Smoking status			
Never smoked	2.5% (154)	3.3% (199)	0.9% (52)
Ex-smoker	5.3% (185)	4.9% (171)	1.8% (61)
Current smoker	5.0% (148)	4.8% (141)	1.7% (50)

Table 4 shows the adjusted odds ratios for report of being treated for a heart condition. From this we can see that ex-smokers were more likely than those who had never smoked to report being treated for any heart condition both excluding and including ~~H~~high blood pressure. Current smokers were only around three quarters as likely as those who had never smoked to report being treated for ~~H~~high blood pressure, but were one and a quarter times more likely than those who had never smoked to report being treated any heart condition excluding ~~H~~high blood pressure. The small numbers of participants reporting being treated for a heart attack, angina, or heart failure meant that it was not possible to carry out logistic regression analyses for these conditions.

Table 4: Odds ratios for report of currently being treated for a heart condition, adjusted for gender, age, level of highest qualification, and socio-economic classification

	High blood pressure OR (95%CI, p)	Any heart condition excluding hbp OR (95%CI, p)	Any heart condition including hbp OR (95% CI, p)
Smoking status			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.04 (0.92-1.17, p=.576)	1.42 (1.20-1.68, p<.000)	1.13 (1.01-1.28, p=.038)
Current smoker	0.77 (0.66-0.90, p=.001)	1.25 (1.01-1.56, p=.043)	0.88 (0.76-1.02, p=.085)

Gender specific findings

Table 5 shows the age-standardised numbers of respondents reporting being treated for a heart condition when the data are separated by gender. Examination of the data by gender revealed some interesting differences. Whereas amongst males ex-smokers were the most likely to report being treated for the various conditions, this pattern was not evident for females, with current smokers being the most likely to report being treated for heart conditions excluding ~~H~~high blood pressure, and those who had never smoked being most likely to report being treated for conditions including ~~H~~high blood pressure.

Chi-squared tests showed that male ex-smokers were significantly more likely than both current smokers and those who had never smoked to report being treated for ~~H~~high blood pressure (x^2=18.27, p<.000 and x^2=28.10, p<.000 respectively). Ex-smokers were also more likely than both those who had never smoked and current smokers to report currently being treated for any heart condition including ~~H~~high blood pressure (x^2=44.96, p<.000 and x^2=17.14, p<.000 respectively). Both current smokers and ex-smokers were more likely than those who had never smoked to report suffering from any heart condition excluding ~~H~~high blood pressure (x^2=17.45, p<.000 and x^2=43.87, p<.000).

Amongst males both current smokers and ex-smokers were more likely than those who had never smoked to report having ever been treated for a heart attack (x^2=26.12, p<.000 and x^2=50.37, p<.000 respectively), angina (x^2=14.59, p<.000 and x^2=39.32, p<.000 respectively), and heart failure (x^2=4.53, p=.033 and x^2=16.66, p<.000 respectively). No significant

differences emerged between current and ex-smokers for these three conditions. Again, these results need to be treated with extreme caution due to the very low numbers of respondents reporting being treated for these conditions.

Amongst females those who had never smoked were significantly more likely to report being treated for ~~H~~high blood pressure than both current and ex-smokers (x^2=5.17, p=.023 and x^2=14.04, p<.000 respectively). They were also more likely than ex-smokers to report being treated for any heart condition including ~~H~~high blood pressure (x^2=10.94, p=.001). Current smokers were more likely than those who had never smoked to report having ever been treated for a heart attack (x^2=10.57, p=.001) and heart failure (x^2=9.11, p=.003). No significant differences emerged between ex-smokers and either current smokers or those who had never smoked for any of these three conditions. As before, the findings for these three conditions should be treated with extreme caution.

Table 5: Age standardised percentages and numbers of males and females reporting currently being treated for a heart condition according to smoking status

	High blood pressure	Any heart condition excluding hbp	Any heart condition including hbp
Male			
Never smoked	16.3% (445)	6.9% (185)	19.4% (531)
Ex-smoker	22.6% (406)	12.8% (223)	28.0% (501)
Current smoker	16.6% (248)	10.6% (156)	21.7% (322)
Female			
Never smoked	21.8% (763)	7.6% (257)	25.1% (872)
Ex-smoker	17.4% (307)	7.7% (130)	21.0% (366)
Current smoker	19.0% (279)	9.1% (129)	23.0% (334)
	Heart attack – ever treated	Angina	Heart failure
Male			
Never smoked	3.2% (86)	2.4% (64)	0.8% (23)
Ex-smoker	7.9% (139)	6.1% (107)	2.3% (41)
Current smoker	6.5% (97)	4.5% (67)	1.6% (23)
Female			
Never smoked	1.9% (67)	4.0% (135)	0.9% (29)
Ex-smoker	2.6% (46)	3.7% (64)	1.2% (20)
Current smoker	3.5% (51)	5.1% (74)	1.9% (27)

The adjusted odds ratios for report of the various conditions by gender are shown in table 6. As with the whole sample it was not possible to carry out logistic regression analyses to examine the heart attack, angina, or heart failure variables due to low numbers of males and females reporting being treated for these conditions. For the males we can see a broadly similar pattern to that for the whole sample. Current smokers were again noticeably less likely than those who had never smoked to report currently being treated for High blood pressure, whilst ex-smokers were more likely to report being treated for any heart condition both excluding and including ~~H~~high blood pressure. For women, however, the odds of reporting being treated for a heart condition did not generally tend to vary according to smoking status. The one exception to this was that ex-smokers were around one and third times more likely than those who had never smoked to report being treated for any heart condition excluding High blood pressure.

Table 6: Odds ratios for males and females for report of currently being treated for a heart condition, adjusted for age, level of highest qualification, and socio-economic classification

	High blood pressure OR (95%CI, p)	Any heart condition excluding hbp OR (95%CI, p)	Any heart condition including hbp OR (95% CI, p)
Male			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.10 (0.93-1.31, p=.270)	1.51 (1.19-1.90, p=.001)	1.20 (1.01-1.42, p=.040)
Current smoker	0.73 (0.59-0.92, p=.007)	1.30 (0.97-1.75, p=.082)	0.85 (0.69-1.05, p=.132)
Female			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.00 (0.84-1.19, p=.969)	1.34 (1.04-1.71, p=.023)	1.05 (0.88-1.25, p=.580)
Current smoker	0.82 (0.66-1.02, p=.074)	1.21 (0.87-1.67, p=.253)	0.89 (0.72-1.11, p=.301)

Respiratory conditions

Whole sample

Table 7 shows the age-standardised numbers of respondents reporting currently being treated for a respiratory condition. Chi-squared tests showed that both current smokers and ex-smokers were more likely than those who had never smoked to report currently being treated for any respiratory condition (x^2=15.66, p<.000 and x^2=14.31, p<.000 respectively). From table 8 we can see that when the data were adjusted for demographic factors, ex-smokers were around one and a third times more likely than those who had never smoked to report being treated for a respiratory condition. Current smokers were slightly more likely than those who had never smoked to report being treated for a respiratory condition, although this figure did not quite reach significance.

Table 7: Age standardised percentages and numbers of respondents reporting currently being treated for a respiratory condition

	Respiratory condition
Smoking status	
Never smoked	11.6% (707)
Ex-smoker	14.3% (499)
Current smoker	14.6% (426)

Table 8: Odds ratios for report of currently being treated for a respiratory condition, adjusted for gender, age, level of highest qualification, and socio-economic classification

	Respiratory condition OR (95% CI, p)
Smoking status	
Never smoked	1.00
Ex-smoker	1.32 (1.15-1.50, p<.000)
Current smoker	1.16 (1.00-1.34, p=.051)

Gender specific findings

Table 9 shows the age-standardised proportions of males and females reporting currently being treated for a respiratory condition. We can see from this table that a larger proportion of female current smokers and ex-smokers reported being treated for a respiratory condition when compared to the other groups. In addition, whereas there was little difference between the three smoking groups among males, female ex-smokers and current smokers were much more likely than those who had never smoked to report currently being treated for a respiratory condition. The chi-squared analyses showed these differences to be highly significant both when comparing current smokers with those who had never smoked (x^2=23.85, p<.000), and when comparing ex-smokers with those who had never smoked (x^2=12.78, p<.000).

Table 9: Age standardised percentages and numbers of males and females reporting currently being treated for a respiratory condition

	Respiratory condition
Male	
Never smoked	11.0% (295)
Ex-smoker	12.9% (228)
Current smoker	11.9% (175)
Female	
Never smoked	12.1% (411)
Ex-smoker	15.7% (271)
Current smoker	17.3% (252)

Table 10 shows the adjusted odds ratios for report of being treated for a respiratory condition. Again this shows no significant differences between smoking categories among males. When adjusted for demographic factors, however, both current and ex- female smokers were around one and half times as likely as those who had never smoked to report being treated for a respiratory condition.

Table 10: Odds ratios for males and females for report of currently being treated for a respiratory condition, adjusted for age, level of highest qualification, and socio-economic classification

	Respiratory condition OR (95% CI, p)
Male	
Never smoked	1.00
Ex-smoker	1.05 (0.86-1.28, p=.653)
Current smoker	0.83 (0.66-1.04, p=.098)
Female	
Never smoked	1.00
Ex-smoker	1.50 (1.25-1.80, p<.000)
Current smoker	1.47 (1.21-1.79, p<.000)

Mental illnesses

Whole sample

Table 11 shows the age-standardised numbers of respondents reporting currently being treated for mental illnesses. Chi-squared tests showed that current smokers were significantly more likely than those who had never smoked to report being treated for depression (x^2=106.13, p<.000), anxiety (x^2=82.06, p<.000), and any mental illness (x^2=96.08, p<.000). The same pattern emerged when comparing current smokers with ex-smokers (x^2=62.35, p<.000 for depression, x^2=52.68, p<.000 for anxiety, and x^2=65.06, p<.000 for any mental illness). As can be seen from table 3a, the numbers of ex-smokers reporting currently being treated for a mental illness were only marginally higher than among those who had never smoked. None of these differences was significant (x^2=1.23, p=.268 for depression, x^2=0.33, p=.568 for anxiety, and x^2=0.21, p=.646 for any mental illness).

Table 11: Age standardised percentages and numbers of respondents reporting currently being treated for a mental illness

	Depression	Anxiety	Any mental illness
Smoking status			
Never smoked	5.7% (353)	4.2% (258)	7.7% (476)
Ex-smoker	6.3% (220)	4.5% (155)	8.0% (279)
Current smoker	11.9% (351)	8.9% (261)	14.3% (421)

Examination of the adjusted odds ratios showed that current smokers were some two times more likely than those who had never smoked to report currently being treated for depression or anxiety, and almost two times more likely to report being treated for any mental illness. Again, differences between ex-smokers and those who had never smoked were almost non-existent. These figures are shown in table 12.

Table 12: Odds ratios for report of currently being treated for a mental illness, adjusted for gender, age, level of highest qualification, and socio-economic classification.

	Depression OR (95%CI, p)	Anxiety OR (95%CI, p)	Any mental illness OR (95% CI, p)
Smoking status			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.14 (0.95-1.38, p=.167)	1.06 (0.85-1.32, p=.602)	1.06 (0.90-1.25, p=.484)
Current smoker	2.11 (1.77-2.51, p<.000)	2.00 (1.64-2.45, p<.000)	1.82 (1.56-2.14, p<.000)

Gender specific findings

From table 13 we can see that whereas the pattern of current smokers being much more likely to report being treated for a mental illness is evident among both genders, higher proportions of women than men reported being treated for a mental illness across all smoking groups. Chi-squared tests carried out separately for each gender supported the same pattern as in the whole sample. Among males current smokers were more likely than

both those who had never smoked and ex-smokers to report being treated for depression (x^2=45.96, p<.000 and x^2=20.63, p<.000 respectively), anxiety (x^2=29.93, p<.000 and x^2=18.34, p<.000 respectively), and any mental condition (x^2=33.53, p<.000 and x^2=22.11, p<.000 respectively). The same findings applied for females, with current smokers being more likely than both those who had never smoked and ex-smokers to report being treated for depression (x^2=73.86, p<.000 and x^2=42.67, p<.000 respectively), anxiety (x^2=60.51, p<.000 and x^2=34.16, p<.000 respectively), and any mental condition (x^2=74.34, p<.000 and x^2=42.97, p<.000 respectively).

Table 13: Age standardised percentages and numbers of males and females reporting currently being treated for a mental illness

	Depression	Anxiety	Any mental illness
Males			
Never smoked	3.6% (98)	2.8% (77)	5.4% (148)
Ex-smoker	4.6% (82)	3.1% (56)	5.8% (103)
Current smoker	8.5% (127)	6.4% (93)	10.3% (152)
Females			
Never smoked	7.4% (255)	5.3% (181)	9.5% (328)
Ex-smoker	8.0% (138)	5.8% (99)	10.2% (176)
Current smoker	15.3% (225)	11.6% (168)	18.3% (269)

Adjusted odds ratios, as shown in table 14 again showed no significant difference between ex-smokers and those who had never smoked for report of being treated for a mental condition by either gender. Current smokers of both genders were around two times more likely than those who had never smoked to report being treated for depression or anxiety. Whereas male current smokers were around 1.6 times more likely than those who had never smoked to report being treated for any mental illness, however, female current smokers were around twice as likely as those who had never smoked to report currently receiving treatment.

Table 14: Odds ratios for males and females for report of currently being treated for a mental illness, adjusted for age, level of highest qualification, and socio-economic classification

	Depression OR (95%CI, p)	Anxiety OR (95%CI, p)	Any mental illness OR (95% CI, p)
Male			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.26 (0.91-1.75, p=.167)	1.05 (0.73-1.53, p=.790)	1.01 (0.76-1.33, p=.973)
Current smoker	2.18 (1.60-2.97, p<.000)	1.83 (1.29-2.58, p=.001)	1.62 (1.24-2.12, p<.000)
Female			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.07 (0.85-1.35, p=.590)	1.08 (0.824-1.41, p=.581)	1.08 (0.88-1.33, p=.467)
Current smoker	2.06 (1.66-2.56, p<.000)	2.11 (1.64-2.71, p<.000)	1.94 (1.59-2.37, p<.000)

Other illnesses

Whole sample

Table 15 shows the age-standardised numbers of respondents reporting currently being treated for arthritis, diabetes, or a long term limiting illness. Both current smokers and ex-smokers were more likely than those who had never smoked to report currently being treated for arthritis (x^2=16.15, p<.000 and x^2=3.97, p=.046 respectively). Although current smokers were slightly more likely than ex-smokers to report being treated for arthritis, this difference was not significant (x^2=3.54, p=.060). Ex-smokers were more likely than both current smokers (x^2=6.26, p=.012) and those who had never smoked (x^2=22.93, p<.000) to report being treated for diabetes. Both current smokers and ex-smokers were more likely than those who had never smoked to report being treated for a long term limiting illness (x^2=32.02, p<.000 and x^2=20.14, p<.000 respectively).

Table 15: Age standardised percentages and numbers of respondents reporting currently being treated for arthritis, diabetes or a long term limiting illness

	Arthritis	Diabetes	Long term limiting illness
Smoking status			
Never smoked	11.8% (733)	5.4% (345)	24.6% (1552)
Ex-smoker	13.2% (466)	7.9% (285)	28.8% (1032)
Current smoker	14.8% (434)	6.3% (192)	30.2% (914)

Adjusted odds ratios, as shown in table 16, showed that current smokers were almost 1.4 times more likely and ex-smokers almost 1.3 times more likely than those who had never smoked to report being treated for arthritis. Ex-smokers were almost 1.4 times more likely than those who had never smoked to report currently being treated for diabetes; there was no difference between current smokers and those who had never smoked in terms of numbers being treated for this condition. Both current smokers and ex-smokers were around 1.3 times more likely than those who had never smoked to report being treated for a long term limiting illness.

Table 16: Odds ratios for report of currently being treated for arthritis, diabetes, or a long term limiting illness, adjusted for gender, age, level of highest qualification, and socio-economic classification

	Arthritis OR (95% CI, p)	Diabetes OR (95% CI, p)	Long term limiting illness OR (95% CI, p)
Smoking status			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.26 (1.09-1.45, p=.002)	1.38 (1.16-1.65, p<.000)	1.32 (1.18-1.47, p<.000)
Current smoker	1.38 (1.16-1.63, p<.000)	0.97 (0.77-1.23, p=.815)	1.27 (1.13-1.44, p<.000)

Gender specific findings

Table 17 shows the age-standardised proportions of males and females reporting being treated for arthritis, diabetes, or a long term limiting illness. From this table we can see that women across all smoking categories were much more likely than men to report being treated for arthritis, and amongst women current smokers were more likely than both ex-smokers and those who had never smoked to report being treated for this condition. Ex-smokers, on the other hand, were the highest reporting group amongst males. Chi-squared tests carried out for each gender separately showed that among males, both ex-smokers and current smokers were more likely than those who had never smoked to report being treated for arthritis (x^2=21.69, p<.000 and x^2=11.58, p=.001 respectively). Amongst females, the differences between current smokers and both ex-smokers and those who had never smoked were both found to be significant (x^2=10.49, p=.001 and x^2=11.13, p=.001 respectively).

Turning to diabetes, whereas reporting rates were similar across women in all smoking categories, male ex-smokers were much more likely than both current smokers and those who had never smoked to report currently receiving treatment (x^2=13.40, p<.000 and x^2=50.59, p<.000 respectively). Current smokers were more likely than those who had never smoked to report being treated for diabetes (x^2=6.84, p=.009).

Overall, slightly higher proportions of women than men reported being treated for a long term limiting illness. When looking at each gender individually, male current smokers and ex-smokers were both more likely than those who had never smoked to report being treated for a long term limiting illness (x^2=29.47, p<.000 and x^2=43.06, p<.000 respectively). The pattern was slightly different amongst women, with significant differences here being found between current smokers and both ex-smokers and those who had never smoked (x^2=6.05, p=.014 and x^2=10.45, p=.001 respectively).

Table 17: Age standardised percentages and numbers of males and females reporting currently being treated for arthritis, diabetes or a long term limiting illness

	Arthritis	Diabetes	Long term limiting illness
Male			
Never smoked	7.7% (210)	4.8% (134)	20.9% (578)
Ex-smoker	11.8% (211)	10.3% (188)	29.4% (534)
Current smoker	10.8% (159)	6.7% (103)	28.3% (430)
Female			
Never smoked	15.0% (523)	5.9% (211)	27.5% (974)
Ex-smoker	14.6% (255)	5.4% (96)	28.1% (498)
Current smoker	18.8% (275)	5.8% (89)	32.1% (484)

Table 18 shows that after adjusting for demographic factors, between group differences were not significant for males for report of being treated for arthritis. Among females, however, ex-smokers and current smokers were around one and a third and one and a half times more likely respectively to report currently being treated for arthritis than females who had never smoked. The pattern was different for diabetes, this time with no significant differences emerging between the three groups for females, but with male ex-smokers being around 1.7 times more likely than those who had never smoked to report currently receiving treatment. Patterns were similar between males and females for report of being treated for a long term limiting illness, with ex-smokers and current smokers of both genders being around 1.3 times more likely than their non-smoking counterparts to report current treatment.

Table 18: Odds ratios for males and females for report of currently being treated for arthritis, diabetes, or a long term limiting illness, adjusted for age, level of highest qualification, and socio-economic classification

	Arthritis OR (95% CI, p)	Diabetes OR (95% CI, p)	Long term limiting illness OR (95% CI, p)
Male			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.23 (0.98-1.54, p=.074)	1.71 (1.33-2.20, p<.000)	1.31 (1.12-1.54, p=.001)
Current smoker	1.25 (0.96-1.63, p=.101)	1.15 (0.84-1.59, p=.379)	1.24 (1.03-1.48, p=.020)
Female			
Never smoked	1.00	1.00	1.00
Ex-smoker	1.32 (1.10-1.59, p=.003)	1.12 (0.87-1.46, p=.378)	1.30 (1.12-1.51, p=.001)
Current smoker	1.50 (1.20-1.87, p<.000)	0.83 (0.58-1.17, p=.282)	1.30 (1.10-1.54, p=.002)

Health-related behaviours

Whole sample

Table 19 shows the age-adjusted numbers of respondents reporting a variety of health-related behaviours. Both current and ex-smokers were more likely than those who had never smoked to report both drinking above the guidelines on at least one day in the last week (x^2=97.16, p<.000 and x^2=97.95, p<.000 respectively), and binge drinking at least one day in the last week (x^2=144.84, p<.000 and x^2=76.67, p<.000 respectively). Current smokers were also more likely than ex-smokers to report binge drinking (x^2=10.80, p=.001). Conversely, current smokers were much less likely than both those who had never smoked and ex-smokers to report eating at least five portions of fruit and vegetables on the previous day (x^2=105.12, p<.000 and x^2=73.26, p<.000 respectively). There was no significant difference between ex-smokers and those who had never smoked in terms of numbers

reporting having eaten at least five fruit and vegetables the previous day (x^2=0.79, p=.373). Interestingly, when looking at physical activity, current smokers were more likely than both those who had never smoked and ex-smokers to report meeting the physical activity guidelines of at least 30 minutes of at least moderate intensity activity on five or more days of the week (x^2=6.96, p=.008 and x^2=5.15, p=.023 respectively).

Table 19: Age standardised percentages and numbers of respondents reporting health-related behaviours

	Drinking above guidelines	Binge drinking	Five or more fruit or veg	Meeting PA guidelines
Smoking status				
Never smoked	39.3% (2446)	23.3% (1447)	39.0% (2436)	28.8% (1817)
Ex-smoker	49.6% (1765)	31.4% (1115)	38.1% (1366)	28.9% (1045)
Current smoker	50.2% (1488)	35.2% (1043)	28.1% (832)	31.5% (950)

Logistic regression analyses showed that after adjusting for demographic factors current smokers were around twice as likely as those who had never smoked to report both drinking above the guidelines and binge drinking, whilst ex-smokers were around one and half times as likely as those who had never smoked to report these behaviours. Current smokers were only 0.7 times as likely as those who had never smoked to report eating five or more portions of fruit and vegetables on the previous day, but were slightly more likely to report meeting the physical activity guidelines. Little to no difference existed between ex-smokers and those who had never smoked in terms of fruit and vegetable consumption and physical activity behaviours. These results are shown in table 20.

Table 20: Odds ratios for report of health-related behaviours, adjusted for gender, age, level of highest qualification, and socio-economic classification

	Drinking above guidelines OR (95%CI, p)	Binge drinking OR (95%CI, p)	Five or more fruit or veg OR (95% CI, p)	Meeting PA guidelines OR (95% CI, p)
Smoking status				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.56 (1.41-1.71, p<.000)	1.55 (1.39-1.73, p<.000)	1.00 (0.91-1.10, p=.999)	0.97 (0.87-1.08, p=.562)
Current smoker	1.88 (1.70-2.08, p<.000)	2.05 (1.84-2.29, p<.000)	0.70 (0.63-0.78, p<.000)	1.13 (1.02-1.25, p=.024)

Gender specific findings

Table 21 shows the proportions of males and females reporting the various health related behaviours. Although the pattern of current and ex-smokers being more likely than those who had never smoked to report both drinking above the guidelines and binge drinking was replicated among both males and females, higher proportions of males than females overall reported these behaviours. Interestingly, the chi-squared tests also showed the magnitude of the differences between the smoking groups to be greater for women than for men. For males significant between group differences were found between both current smokers and ex-smokers and those who had never smoked for drinking above the guidelines at least once in the past week (x^2=31.56, p<.000 and x^2=26.66, p<.000 respectively). A similar pattern emerged for binge drinking, with both current and ex-smokers being more likely to report binge drinking at least once in the last week than those who had never smoked (x^2=41.68, p<.000 and x^2=18.40, p<.000 respectively). In addition, current smokers were more likely than ex-smokers to report binge drinking at least once in the last week (x^2=4.87, p=.027). Among females, current and ex-smokers were again more likely than those who had never smoked to report drinking above the guidelines on at least one occasion in the past week (x^2=54.11, p<.000 and x^2=58.03, p<.000 respectively), and binge drinking at least once in the last week (x^2=95.84, p<.000 and x^2=49.14, p<.000 respectively). Again, significant differences were also observed between current smokers and ex-smokers for binge drinking (x^2=6.89, p=.009).

Less difference was evident between the two genders with regard to fruit and vegetable consumption, and current smokers of both genders were less likely to report having consumed at least five portions of fruit and vegetables on the previous day than ex-smokers

or those who had never smoked. Chi-squared tests revealed differences between current smokers and both ex-smokers and those who had never smoked for both males (x^2=28.21, p<.000 and x^2=32.49, p<.000 respectively) and females (x^2=46.04, p<.000 and x^2=71.85, p<.000 respectively).

Overall, a much greater proportion of males than females reported meeting the physical activity guidelines. Examination by gender revealed little difference between the three smoking groups in terms of numbers reporting meeting the physical activity guidelines for either males or females. For males the chi-squared tests showed there to be no significant between group differences. A slightly higher proportion of female current smokers reported meeting the physical activity guidelines than either ex-smokers or those who had never smoked, and this difference just reached significance when comparing the current smokers with those who had never smoked (x^2=4.00, p=.046).

Table 21: Age standardised percentages and numbers of males and females reporting health-related behaviours

	Drinking above guidelines	Binge drinking	Five or more fruit or veg	Meeting PA guidelines
Males				
Never smoked	48.0% (1315)	31.2% (853)	36.9% (1006)	38.4% (1059)
Ex-smoker	55.9% (1009)	37.3% (674)	36.9% (666)	36.4% (663)
Current smoker	57.1% (843)	41.1% (607)	28.2% (418)	39.1% (588)
Females				
Never smoked	32.5% (1131)	17.1% (594)	40.7% (1430)	21.3% (757)
Ex-smoker	43.2% (756)	25.2% (442)	39.3% (701)	21.3% (382)
Current smoker	43.4% (645)	29.4% (436)	28.0% (415)	23.8% (362)

Adjusted odds ratios, as shown in table 22, revealed a similar picture to the chi-squared tests. Ex-smokers of both genders were around one and half times more likely than those who had never smoked to report both drinking above the guidelines and binge drinking at least one day in the last week. The differences between current smokers and those who had never smoked were slightly more marked for women than for men for these two behaviours, with female current smokers almost two times more likely than those who had

never smoked to report drinking above the guidelines at least once in the last week, and 2.3 times more likely to report binge drinking. Male current smokers were around 1.8 times more likely than those who had never smoked to report both drinking above the guidelines and binge drinking. The adjusted odds rations also showed female current smokers to be only around two thirds as likely as those who had never smoked to report eating at least five portions of fruit and vegetables on the previous day, whilst for men current smokers were around three quarters as likely as those who had never smoked to report this behaviour. When demographic factors were adjusted for, there were no significant differences between smoking groups in terms of numbers reporting meeting the physical activity guidelines for either males or females.

Table 22: Odds ratios for males and females for report of health-related behaviours, adjusted for age, level of highest qualification, and socio-economic classification

	Drinking above guidelines OR (95%CI, p)	Binge drinking OR (95%CI, p)	Five or more fruit or veg OR (95% CI, p)	Meeting PA guidelines OR (95% CI, p)
Male				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.51 (1.32-1.73, p<.000)	1.48 (1.28-1.72, p<.000)	0.98 (0.86-1.13, p=.789)	1.05 (0.91-1.21, p=.491)
Current smoker	1.79 (1.55-2.06, p<.000)	1.83 (1.59-2.11, p<.000)	0.75 (0.65-0.87, p<.000)	1.14 (0.99-1.31, p=.078)
Female				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.56 (1.35-1.79, p<.000)	1.54 (1.30-1.81, p<.000)	1.02 (0.89-1.16, p=.799)	0.90 (0.77-1.06, p=.202)
Current smoker	1.96 (1.70-2.27, p<.000)	2.31 (1.96-2.71, p<.000)	0.65 (0.56-0.76, p<.000)	1.13 (0.97-1.33, p=.125)

Overweight and obesity (excluding pregnant women)

Whole sample

Table 23 shows the age-standardised numbers of respondents reporting being overweight/obese or obese. Current smokers were the least likely of all three groups to report overweight/obesity or obesity. They were significantly less likely than those who had never smoked to report overweight/obesity (x^2=19.24, p<.000) or obesity (x^2=15.67, p<.000); the same findings applied when comparing current smokers with ex-smokers (x^2=64.78, p<.000 for overweight/obesity and x^2=48.47, p<.000 for obesity). Ex-smokers were the most likely to report being overweight/obese or obese (x^2=23.65, p<.000 and x^2=16.69, p<.000 respectively when compared to those who had never smoked).

Table 23: Age standardised percentages and numbers of respondents reporting being overweight/obese or obese

	Overweight/obesity	Obesity
Smoking status		
Never smoked	56.4% (3343)	20.3% (1203)
Ex-smoker	61.6% (2085)	23.9% (810)
Current smoker	51.4% (1450)	16.7% (472)

After adjusting for demographic factors logistic regression analyses showed ex-smokers to be around 1.2 times more likely than those who had never smoked to report both overweight/obesity and obesity. Current smokers, on the other hand, were only around three quarters as likely as those who had never smoked to report either overweight/obesity or obesity. These results are summarised in table 24.

Table 24: Odds ratios for report of overweight/obesity or obesity, adjusted for gender, age, level of highest qualification, and socio-economic classification

	Overweight/obesity OR (95% CI, p)	Obesity OR (95% CI, p)
Smoking status		
Never smoked	1.00	1.00
Ex-smoker	1.23 (1.12-1.36, p<.000)	1.19 (1.07-1.33, p=.002)
Current smoker	0.77 (0.70-0.85, p<.000)	0.72 (0.64-0.82, p<.000)

Gender specific findings

Separate analyses by gender revealed that a higher proportion of men than women were overweight or obese, but roughly equal numbers of both genders reported being obese. For males, significant differences emerged between all groups for both overweight/obesity and obesity. Ex-smokers were the most likely to report being both overweight/obese and obese (x^2=22.02, p<.000 for overweight/obesity and x^2=11.26, p=.001 for obesity when compared to those who had never smoked, and x^2=72.67, p<.000 for overweight/obesity and x^2=34.57, p<.000 for obesity when compared to current smokers). In addition, those who had never smoked were also more likely than current smokers to report both overweight/obesity and obesity (x^2=23.40, p<.000 and x^2=10.76, p=.001 respectively).

The pattern of results was similar for females. Again ex-smokers were more likely than current smokers to report both overweight/obesity (x^2=7.70, p=.006) and obesity (x^2=15.94, p<.000); they were also more likely than those who had never smoked to report obesity (x^2=6.06, p=.014). Those who had never smoked were again more likely than current smokers to report both overweight/obesity and obesity (x^2=3.93, p=.048 and x^2=5.06, p=.024 respectively). These numbers of males and females reporting being overweight/obese and obese are summarised in table 25.

Table 25: Age standardised percentages and numbers of males and females reporting being overweight/obese or obese

	Overweight/obesity	Obesity
Male		
Never smoked	61.3% (1620)	20.0% (528)
Ex-smoker	68.2% (1204)	24.2% (428)
Current smoker	53.5% (768)	15.8% (227)
Female		
Never smoked	52.5% (1723)	20.5% (675)
Ex-smoker	54.3% (881)	23.6% (383)
Current smoker	49.3% (683)	17.7% (245)

Adjusted odds ratios for report of overweight/obesity or obesity are shown in table 26. From this table we can see that male ex-smokers are just over one and a third times more likely than those who have never smoked to report being overweight/obese and one and a quarter times more likely to report being obese. Current smokers, on the other hand, were around 0.7 times as likely report being both overweight/obese and being obese. The pattern for females was slightly less consistent. Whereas female ex-smokers were around 1.2 times more likely than those who had never smoked to report being overweight/ obese, differences between the two groups were not significant when looking at obesity. On the other hand, current smokers were roughly as likely as those who had never smoked to report being overweight/ obese, but were only around three quarters as likely to report being obese.

Table 26: Odds ratios for males and females for report of overweight/obesity or obesity, adjusted for age, level of highest qualification, and socio-economic classification

	Overweight/obesity OR (95% CI, p)	Obesity OR (95% CI, p)
Male		
Never smoked	1.00	1.00
Ex-smoker	1.36 (1.18-1.56, p<.000)	1.25 (1.06-1.46, p=.007)
Current smoker	0.69 (0.60-0.79, p<.000)	0.71 (0.59-0.85, p<.000)
Female		
Never smoked	1.00	1.00
Ex-smoker	1.21 (1.07-1.37, p=.003)	1.13 (0.97-1.32, p=.121)
Current smoker	0.99 (0.87-1.13, p=.932)	0.73 (0.61-0.87, p=.001)

Hospital attendance

Whole sample

Table 27 shows the age-standardised numbers of respondents reporting various types of hospital attendance. Chi-squared tests showed that current smokers were more likely than both ex-smokers and those who had never smoked to report both attending hospital because of an accident, injury or poisoning in the last three months x^2=16.00, p<.000 and x^2=12.80, p<.000 respectively), and attending casualty in the last 12 months (x^2=16.23, p<.000 and x^2=47.84, p<.000 respectively). Ex-smokers were also more likely than those who had never smoked to report attending casualty in the last 12 months (x^2=5.94, p=.015); there were no significant differences between these two groups in terms of the numbers reporting attending hospital for an accident, injury or poisoning (x^2=1.00, p=.318). Both current smokers and ex-smokers were more likely than those who had never smoked to report staying in hospital as in inpatient in the last 12 months (x^2=8.73, p=.003 and x^2=13.39, p<.000 respectively). Finally, ex-smokers were more likely than both current smokers and those who had never smoked to report attending hospital as an outpatient in the last 12 months (x^2=4.37, p=.036 and x^2=7.59, p=.006 respectively).

Table 27: Age standardised percentages and numbers of respondents reporting various types of hospital attendance

	Attending hospital because of an accident in the last three months	Attending the casualty department in the last 12 months	In hospital as an inpatient in the last 12 months	In hospital as an outpatient in the last 12 months
Smoking status				
Never smoked	4.3% (270)	13.9% (881)	8.7% (552)	29.9% (1889)
Ex-smoker	3.9% (140)	15.7% (567)	11.0% (397)	32.6% (1180)
Current smoker	6.0% (182)	19.5% (592)	10.6% (325)	30.2% (920)

Table 28 shows the odds ratios for report of various types of hospital attendance after adjusting for demographic factors. The results show that current smokers were around one and a half times more likely than those who had never smoked to report both attending hospital because of an accident, injury or poisoning in the last three months and attending the casualty department in the last 12 months. Ex-smokers were also 1.2 times more likely than those who had never smoked to report attending casualty in the last 12 months. Current smokers were around 1.3 times more likely than those who had never smoked to report attending hospital as an inpatient in the last 12 months, but were roughly equally as likely to report attending hospital as an outpatient. Ex-smokers, meanwhile were 1.4 times more likely than those who had never smoked to report attending hospital as an inpatient, and around 1.2 times more likely to report attending hospital as an outpatient.

Table 28: Odds ratios for report of various types of hospital attendance, adjusted for gender, age, level of highest qualification, and socio-economic classification

	Attending hospital because of an accident in the last three months OR (95%CI, p)	Attending the casualty department in the last 12 months OR (95%CI, p)	In hospital as an inpatient in the last 12 months OR (95% CI, p)	In hospital as an outpatient in the last 12 months OR (95% CI, p)
Smoking status				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	0.96 (0.77-1.19, p=.706)	1.20 (1.05-1.36, p=.006)	1.40 (1.20-1.62, p<.000)	1.19 (1.08-1.31, p<.000)
Current smoker	1.49 (1.23-1.80, p<.000)	1.50 (1.32-1.70, p<.000)	1.27 (1.08-1.50, p=.004)	1.09 (0.99-1.21, p=.093)

Gender specific findings

Table 29 shows the age-standardised numbers of males and females reporting various types of hospital attendance. Examination of the data by gender revealed that whereas slightly more men than women reported attending hospital because of an accident, injury or poisoning in the last three months or attending casualty in the last 12 months, higher proportions of women than men reported attending hospital either as an inpatient or an outpatient in the last 12 months.

For males, current smokers were more likely than both ex-smokers and those who had never smoked to report both attending hospital because of an accident in the last three months (x^2=11.15, p=.001 compared to ex-smokers and x^2=5.11, p=.024 compared to those who had never smoked) and attending casualty in the last 12 months (x^2=7.39, p=.007 compared to ex-smokers and x^2=16.39, p<.000 compared to those who had never smoked). Ex-smokers were more likely than those who had never smoked to report attending hospital as both an inpatient (x^2=9.76, p=.002) and an outpatient (x^2=9.40, p=.002) in the last 12 months. Ex-smokers were also more likely than current smokers to report attending hospital as an outpatient in the last 12 months (x^2=8.64, p=.003).

A similar pattern emerged for females, with current smokers being more likely than both ex-smokers and those who had never smoked to report both attending hospital because of an accident in the last three months (x^2=5.25, p=.007 compared to ex-smokers and x^2=6.25, p=.012 compared to those who had never smoked) and attending casualty in the last 12 months (x^2=9.07, p=.003 compared to ex-smokers and x^2=30.11, p<.000 compared to those who had never smoked). In addition, ex-smokers were more likely than those who had never smoked to report attending the casualty department in the last 12 months (x^2=4.15, p=.042). Those who had never smoked were the least likely to report attending hospital as an inpatient in the last 12 months, differences here were significant when compared both to current smokers (x^2=9.05, p=.003) and ex-smokers (x^2=5.68, p=.017). No significant between group differences emerged when looking at numbers reporting attending hospital as an outpatient in the last 12 months.

Table 29: Age standardised percentages and numbers of males and females reporting various types of hospital attendance

	Attending hospital because of an accident in the last three months	Attending the casualty department in the last 12 months	In hospital as an inpatient in the last 12 months	In hospital as an outpatient in the last 12 months
Male				
Never smoked	5.0% (139)	15.3% (425)	7.6% (210)	26.9% (744)
Ex-smoker	4.1% (75)	16.6% (303)	10.2% (187)	31.1% (568)
Current smoker	6.7% (102)	20.2% (307)	8.9% (136)	26.4% (405)
Female				
Never smoked	3.7% (132)	12.8% (456)	9.6% (342)	32.2% (1145)
Ex-smoker	3.6% (65)	14.8% (264)	11.7% (210)	34.0% (611)
Current smoker	5.2% (80)	18.7% (285)	12.4% (190)	33.9% (515)

Adjusted odds ratios for report of the various types of hospital attendance for males and females are shown in table 30. These results show that both male and female current smokers are around 1.5 times more likely than those who have never smoked in each gender groups to report having attended hospital because of an accident, injury or poisoning in the last three months or having attended casualty in the last 12 months. In addition, male ex-smokers were around one and a quarter times more likely than those who had never smoked to report attending casualty in the last 12 months. In terms of attending hospital as an inpatient in the last 12 months, both female current smokers and ex-smokers were around 1.3 times more likely than those who had never smoked to report this. Whereas male ex-smokers were also 1.3 times more likely than those who had never smoked to report attending hospital as an inpatient, the difference between current smokers and those who had never smoked was not significant for males. Interesting gender differences also arose in relation to report of attending hospital as an outpatient in the last 12 months. Whereas female current smokers and ex-smokers were both around 1.2 times as likely as those who had never smoked to report attending this behaviour, no significant between group differences were found for males.

Table 30: Odds ratios for males and females for report of various types of hospital attendance, adjusted for age, level of highest qualification, and socio-economic classification

	Attending hospital because of an accident in the last three months OR (95%CI, p)	Attending the casualty department in the last 12 months OR (95%CI, p)	In hospital as an inpatient in the last 12 months OR (95% CI, p)	In hospital as an outpatient in the last 12 months OR (95% CI, p)
Male				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	0.96 (0.71-1.32, p=.812)	1.26 (1.06-1.51, p=.011)	1.30 (1.03-1.63, p=.027)	1.09 (0.94-1.25, p=.258)
Current smoker	1.52 (1.16-2.00, p=.002)	1.46 (1.22-1.74, p<.000)	1.15 (0.89-1.49, p=.282)	0.93 (0.79-1.09, p=.352)
Female				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.05 (0.77-1.45, p=.751)	1.14 (0.95-1.37, p=.166)	1.34 (1.10-1.64, p=.004)	1.21 (1.07-1.38, p=.003)
Current smoker	1.63 (1.20-2.21, p=.002)	1.56 (1.30-1.87, p<.000)	1.32 (1.06-1.65, p=.012)	1.22 (1.06-1.40, p=.006)

Use of health related services

Whole sample

Table 31 shows the age-standardised numbers of respondents reporting using various health related services. Chi-squared tests showed that both current smokers and ex-smokers were more likely to report talking to their GP in the last two weeks than those who had never smoked (x^2=18.71, p<.000 and x^2=26.51, p<.000 respectively). Ex-smokers were the most likely to report using a pharmacist in the last 12 months, being more likely than both current smokers and those who had never smoked to report this behaviour (x^2=25.11, p<.000 and x^2=27.14, p<.000 respectively). Current smokers were much less likely than

either ex-smokers or those who had never smoked to report either using a dentist in the last 12 months (x^2=174.58, p<.000 and x^2=322.98, p<.000 respectively) or visiting an optician in the last 12 months (x^2=54.69, p<.000 and x^2=64.24, p<.000 respectively). Ex-smokers were also less likely than those who had never smoked to report using a dentist in the last 12 months (x^2=9.64, p=.002) but there were no significant differences between these two groups in terms of numbers reporting seeing an optician (x^2=0.06, p=.804).

Table 31: Age standardised percentages and numbers of respondents reporting use of various health related services

	Talking to GP in last two weeks	Using a pharmacist in the last 12 months	Using a dentist in the last 12 months	Using an optician in the last 12 months
Smoking status				
Never smoked	15.3% (970)	68.2% (3995)	75.1% (4597)	51.1% (3134)
Ex-smoker	19.2% (700)	73.3% (2482)	72.2% (2513)	51.3% (1786)
Current smoker	18.8% (576)	67.5% (1881)	56.4% (1625)	42.1% (1233)

Logistic regression analyses showed that after adjusting for demographic factors ex-smokers were around 1.4 times more likely than those who had never smoked to report talking to their GP in the last two weeks. Current smokers were almost 1.3 times more likely than those who had never smoked to report this behaviour. Ex-smokers were almost one and half times more likely than those who had never smoked to report using a pharmacist in the last 12 months; current smokers were also slightly more likely than those who had never smoked to report using a pharmacist. Current smokers were only half as likely as those who had never smoked to report using a dentist in the last 12 months, and around three quarters as likely to report using an optician in the last 12 months. Ex-smokers were slightly more likely than those who had never smoked to report using an optician but the differences observed in the chi-squared tests between ex-smokers and those who had never smoked in terms of numbers reporting seeing a dentist were no longer observed once demographic factors had been accounted for. These findings are summarised in table 32.

Table 32: Odds ratios for report of use of various health related services, adjusted for gender, age, level of highest qualification, and socio-economic classification

	Talking to GP in last two weeks OR (95%CI, p)	Using a pharmacist in the last 12 months OR (95%CI, p)	Using a dentist in the last 12 months OR (95% CI, p)	Using an optician in the last 12 months OR (95% CI, p)
Smoking status				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.37 (1.22-1.54, p<.000)	1.43 (1.28-1.59, p<.000)	0.97 (0.87-1.08, p=.531)	1.11 (1.01-1.22, p=.031)
Current smoker	1.26 (1.11-1.44, p<.000)	1.13 (1.01-1.26, p=.027)	0.53 (0.48-0.59, p<.000)	0.77 (0.69-0.85, p<.000)

Gender specific findings

Age-standardised numbers of males and females reporting use of various health related services are shown in table 33. Men were generally less likely than women to report use of all of these services.

Amongst males ex-smokers were the most likely to report talking to their GP in the last two weeks. Both ex-smokers and current smokers were more likely than those who had never smoked to report visiting their GP in the last two weeks (x^2=22.70, p<.000 and x^2=7.70, p=.006 respectively). Ex-smokers were also the most likely to report visiting their pharmacist in the last 12 months, being more likely than both current smokers and those who had never smoked to report this behaviour (x^2=27.31, p<.000 and x^2=39.61, p=.006 respectively). Current smokers were by far the least likely to report visiting either a dentist or an optician in the last 12 months. These differences were significant when compared to both ex-smokers (x^2=1.341E2, p<.000 for visiting the dentist and x^2=57.92, p<.000 for visiting the optician) and those who had never smoked (x^2=1.892E2, p<.000 for visiting the dentist and x^2=31.49, p<.000 for visiting the optician). Ex-smokers were also found to be significantly more likely than those who had never smoked to report visiting an optician in the last 12 months (x^2=8.00, p=.005).

Among females current smokers were the most likely to report talking to their GP in the last two weeks. Again, both current and ex-smokers were significantly more likely to report talking to their GP than those who had never smoked (x^2=15.69, p<.000 and x^2=10.73,

p=.001 respectively). As with males, ex-smokers were the most likely to report visiting a pharmacist in the last 12 months, although this difference was only significant when compared to those who had never smoked (x^2=5.56, p=.018). Although the differences were not as marked as among males, female current smokers were again less than likely than ex-smokers or those who had never smoked to report visiting a dentist (x^2=49.72, p<.000 compared to ex-smokers and x^2=1.191E2, p<.000 compared to those who had never smoked) or an optician (x^2=9.40, p=.002 compared to ex-smokers and x^2=23.01, p<.000 compared to those who had never smoked) in the last 12 months. Ex-smokers were also significantly less likely than those who had never smoked to report visiting a dentist in the last 12 months (x^2=7.97, p=.005).

Table 33: Age standardised percentages and numbers of males and females reporting use of various health related services

	Talking to GP in last two weeks	Using a pharmacist in the last 12 months	Using a dentist in the last 12 months	Using an optician in the last 12 months
Male				
Never smoked	12.2% (339)	58.4% (1493)	71.5% (1932)	43.9% (1179)
Ex-smoker	17.2% (315)	67.9% (1153)	70.0% (1231)	48.2% (857)
Current smoker	15.2% (233)	58.9% (820)	50.0% (727)	35.0% (513)
Female				
Never smoked	17.7% (631)	75.7% (2502)	78.0% (2665)	56.6% (1955)
Ex-smoker	21.4% (385)	78.7% (1329)	74.5% (1282)	54.6% (930)
Current smoker	22.4% (343)	76.1% (1060)	62.8% (898)	49.2% (719)

Logistic regression analyses showed broadly similar pictures for males and females after adjusting for demographic factors. Both male and female ex-smokers were around 1.3 times more likely than their non-smoking counterparts to report having talked to their GP in the last two weeks. Female current smokers were also around 1.3 times more likely than those who had never smoked to report this behaviour. Ex-smokers of both genders were again more likely than those who had never smoked to report seeing a pharmacist in the

last 12 months, with the magnitude of difference being slightly higher in males than in females. Both male and female current smokers were only around half as likely as those how had never smoked to report having seen a dentist in the last 12 months. Differences between current smokers and those who had never smoked were slightly less marked among females for this behaviour than among males. Finally, male current smokers were around two thirds as likely as those who had never smoked to report seeing an optician in the last 12 months; female current smokers were just under 90% as likely as those how had never smoked to report this behaviour.

Table 34: Odds ratios for males and females for report of use of various health related services, adjusted for age, level of highest qualification, and socio-economic classification

	Talking to GP in last two weeks OR (95%CI, p)	Using a pharmacist in the last 12 months OR (95%CI, p)	Using a dentist in the last 12 months OR (95% CI, p)	Using an optician in the last 12 months OR (95% CI, p)
Male				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.35 (1.12-1.62, p=.001)	1.45 (1.26-1.67, p<.000)	1.00 (0.86-1.17, p=.963)	1.05 (0.92-1.20, p=.493)
Current smoker	1.18 (0.96-1.44, p=.119)	1.03 (0.89-1.18, p=.704)	0.49 (0.42-0.57, p<.000)	0.66 (0.57-0.77, p<.000)
Female				
Never smoked	1.00	1.00	1.00	1.00
Ex-smoker	1.29 (1.10-1.51, p=.001)	1.34 (1.15-1.57, p<.000)	0.86 (0.73-1.01, p=.059)	1.12 (0.98-1.27, p=.103)
Current smoker	1.30 (1.09-1.53, p=.003)	1.12 (0.96-1.31, p=.166)	0.57 (0.48-0.66, p<.000)	0.87 (0.76-1.00, p=.048)

Discussion

Summary of findings

The central findings are as follows:

1. Twenty four percent of respondents reported being a current smoker. This figure was consistent with that for 2007, and with the recently published findings from the 2009 Welsh Health Survey.
2. Smoking prevalence was slightly higher in males, with 55% of males reporting being either current or ex-smokers, compared to 48% of females.
3. Among both genders smoking rates were highest amongst 25-34 year olds, before decreasing with age.
4. Both male and female ex-smokers were significantly more likely than those who had never smoked to report currently being treated for a heart condition (excluding High blood pressure).
5. Female current smokers and ex-smokers were more likely than those who had never smoked to report being treated for a respiratory condition. Differences were not significant for males.
6. Current smokers were much more likely than those who had never smoked to report being treated for a mental illness. Taking all mental illnesses together, the difference between current smokers and those who had never smoked was more noticeable among females than among males.
7. Female current smokers and ex-smokers were more likely than those who had never smoked to report being treated for arthritis. Differences were again not significant among males.
8. Both male and female current smokers and ex-smokers were more likely than those who had never smoked to report suffering from a long term limiting illness.
9. Both current smokers and ex-smokers were more likely than those who had never smoked to report both drinking above the guidelines and binge drinking. The difference was particularly noticeable when comparing current smokers to those who had never smoked, and was more pronounced for binge drinking. Differences between current smokers and those who had never smoked were also more marked among females than among males, both for drinking above the guidelines and for binge drinking.
10. Current smokers were less likely than those who had never smoked to report eating five or more portions of fruit or vegetables on the previous day. This difference was slightly more noticeable among females than among males.
11. There was no difference between smoking groups in terms of numbers reporting meeting the physical activity guidelines.
12. Ex-smokers were more likely than those who had never smoked to report being both overweight/obese and obese. Current smokers, on the other hand, were less likely to report overweight or obesity. Differences between smoking groups were more noticeable among males than females, and in fact the difference between female current smokers and those who had never smoked was not significant for

overweight/obesity, and the difference between ex-smokers and those who had never smoked was not significant for obesity.

13. Both male and female current smokers were more likely than those who had never smoked to report attending hospital because of an accident, injury or poisoning in the last three months.
14. Both male and female current smokers, and male ex-smokers, were more likely than those who had never smoked to report attending the casualty department in the last 12 months.
15. Female current and ex-smokers were more likely than those who had never smoked to report attending hospital as an inpatient in the last 12 months. For males, differences were only significant when comparing ex-smokers with those who had never smoked.
16. Female current and ex-smokers were more likely than those who had never smoked to report attending hospital as an outpatient in the last 12 months. Differences between groups were not significant for males.
17. Female current smokers and ex-smokers were more likely than those who had never smoked to report talking to their GP in last two weeks. For males, differences were only significant when comparing ex-smokers with those who had never smoked.
18. Both male and female ex-smokers more likely than those who had never smoked to report using a pharmacist in past 12 months. Differences were not significant for either gender when comparing current smokers to those who had never smoked.
19. Both male and female current smokers were less likely than those who had never smoked to report both using a dentist and using an optician in the last 12 months. Differences for both of these items were more noticeable among males than among females.

Public health implications

Smoking is an important public health issue, causing around 6,000 deaths each year in Wales alone, and being a major contributor to health inequalities. Smoking has been known for a numbers of years to be associated with a number of chronic health conditions and the findings presented in this report reinforce this fact. Smoking was found to be associated with a number of poor health conditions, especially among women, including respiratory conditions, arthritis, mental illnesses, and long term limiting illnesses. In addition, the finding that ex-smokers were more likely than those who had never smoked to report being treated for a heart condition may well be reflective of current smokers being diagnosed with a heart condition and then giving up smoking, by which time the damage of several years of smoking may well already have been done.

The findings also demonstrate a clustering of health-related behaviours, with those who smoke also being more likely than non-smokers to report excessive alcohol consumption and poor diet. Whole lifestyle approaches to tackling multiple health risk behaviours may well prove to be more fruitful than attempts targeting single behaviours in isolation, and efforts to improve the health profile of people in Wales should take this into consideration.

The findings also show the extent to which both current and ex-smokers are more likely than those who have never smoked to report various types of hospital attendance and use of health-related services. The cross-sectional nature of this survey means that we cannot be sure of the reasons for these various activities, and whether they were smoking related or not. However, smoking is already known to be a huge a drain on the NHS and these findings demonstrate the many ways in which over-stretched resources are used by smokers and ex-smokers.

The issue of health inequalities cannot be ignored, with those from more deprived areas and from lower socio-economic groups being more likely to report smoking than less deprived people and those from higher socio-economic groups. With people from disadvantaged backgrounds often suffering poorer health profiles than those from more affluent backgrounds, and with smoking being associated with so many health conditions, continued engagement with people from low socio-economic backgrounds and from areas of high deprivation is vital in order to tackle the issue of smoking with them in an attempt to reduce these health inequalities.

The combined findings presented in this report show that we cannot afford to rest on our laurels when it comes to smoking. Smoking rates in Wales have remained constant at 24% since 2007 and it is vitally important that efforts to reduce the smoking prevalence rate are sustained, both via targeting cessation among those who already smoke, and through attempts to prevent the uptake of smoking among young people in the first place.

Limitations

There are several caveats to bear in mind when considering the findings presented in this report. The first limitation relates to the cross-sectional nature of the survey. Such a design means that we cannot imply causality, meaning that simply because a smoker or an ex-smoker reports a particular health-related condition or behaviour, we do not know that their smoking status necessarily caused that condition. Often when an apparent association exists between two variables it is the case that in fact a third confounding factor that has not been considered underlies them both. Although socio-demographic factors were accounted for in these analyses, several other factors that were not accounted for may have also been of relevance. It may also be the case that the smoking status and the condition exist in the same person entirely independently of one another. For example, attendance at the casualty or A&E department of the hospital may well be smoking related, but could also be due to a variety of other reasons that are not related to smoking at all. The nature of the survey does not allow us to know the reason for such events, only that they happened. Equally, it might be easy to imply from the findings presented here that smoking causes mental illnesses, but in fact it is not clear whether smoking is the cause or effect of mental illness. Indeed, some researchers believe that smoking could act as a trigger for mental ill-health (West and Jarvis, 2005). These considerations should all be kept in mind in relation

to the findings presented here. Notwithstanding this, however, the known relationships between smoking and such conditions as heart disease and respiratory illness allow us greater confidence in addressing the findings presented in this report.

A second consideration is the fact that the survey used a self-completion questionnaire design. The results, therefore, reflected people's own understanding of their health and of the services they have used, as opposed to relying or clinical or objective measures. Some degree of inaccuracy in response to the questions is likely.

Finally, the results presented here do not distinguish between those who smoke or smoked daily and those who smoke or smoked occasionally. Equally, current and ex-smokers were not asked about the amount of cigarettes smoked and so it was not possible to distinguish between those who smoke or smoked a lot and those who only smoke or smoked a little. Additionally, current smokers were not asked how long they had smoked for, and ex-smokers were not asked how long they smoked for before giving up and how long ago they gave up. All of these factors could well be related to an individual's current health conditions and health-related behaviours.

Conclusions

In conclusion, smoking is a serious public health issue. In this representative survey of people living in Wales, 24% of respondents reported being a current smoker, and 28% reported being an ex-smoker. Men were slightly more likely to report being a smoker than women, and smoking prevalence generally decreased with age. Smoking was found to be associated with a variety of health conditions, with poor health-related behaviours, and with greater hospital attendance and use of health-related services. All of these factors combine to paint a poor picture of the overall health profile for smokers in Wales, and to indicate the many ways in which the cost of smoking can add up. Given the fact that smoking rates in Wales have remained constant over recent years, it is vital that attempts continue to reduce prevalence rates, by targeting both cessation in those who already smoke and prevention of uptake among young people.

References

Allender, S., Balakrishnan, R., Scarborough, P., Webster, P., & Rayner, M. (2009). The burden of smoking-related ill health in the UK. *Tobacco Control,* 18, 262-267.

Boorman, S. (2010). *Health and Well-being of the NHS Workforce. The Boorman Review.* Presented at One Wales Task Force meeting, March 2010.

Di Franza J,R., Savageau, J.A., Fletcher, K., et al. (2007). Symptoms of tobacco dependence after brief intermittent use: the development and assessment of Nicotine Dependence in Youth-2 Study. *Archives of Pediatrics and Adolescent Medicine*, 161, 704-710.

Dolman, R., Gibbon, R., & Roberts, C. (2007). *Smoking in Wales: Current Facts*. Wales Centre for Health.

Furlong, C. (2005). *Preoperative smoking cessation: a model to estimate potential short term health gain and reductions in length of stay*. London Health Observatory.

Parrott, S. & Godfrey, C. (2004). Economics of smoking cessation. *British Medical Journal*, 328, 947-949.

Parrott, S., Godfrey, C., Raw, M., et al. (1998). Guidance for commissioners on the cost effectiveness of smoking cessation interventions. *Thorax,* 53, 2-37.

Phillips, C.J. & Blodworth, A. (2009). *Cost of smoking to the NHS in Wales*. ASH Wales and British Heart Foundation Cymru.

Royal College of Physicians. (1992). *Smoking and the Young*. London: Royal College of Physicians

Welsh Assembly Government (2009). *Welsh Health Survey 2008*. Cardiff: Welsh Assembly Government.

Welsh Assembly Government (2010). *Welsh Health Survey 2009*. Cardiff: Welsh Assembly Government.

West, R. & Jarvis, M. (2005). Tobacco smoking and mental disorder. *Italian Journal of Psychiatry & Behavioural Science*, 15, 10-17.