# Annual Report of the Chief Medical Officer 2015

On the State of the Public's Health
**Baby Boomers: Fit for the Future**

This year my independent surveillance report focuses on those people who are currently circa 50-70 years of age; a generation often called the 'Baby Boomers'. They have experienced extraordinary change in their lifetimes, with life expectancy rising and major improvements to their healthcare occuring including better screening and immunisation opportunities and better cancer care. At the same time, this generation also matured as the obesogenic environment developed and one in three Baby Boomers is currently obese.

A lot more can be done to improve the health of Baby Boomers, and to improve their chances of better health as they age. Some of this activity needs to happen at a system level. Employers, for example, have a role to play here as staying in good quality work has beneficial health effects. Likewise, we need to build on the fantastic successes of some of our screening and immunisation programmes to reach even more people.

There are also many opportunities for those of us in this age group to continuously help ourselves, if we decide to. The choices we make every day will have an impact on how we age. Those of us who are Baby Boomers can embrace these opportunities to be healthier, and get 'fit' for our own futures. By doing so we can improve our chances of a comfortable and enjoyable older age.

Prof Dame Sally C Davies

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# Editors and authors

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Chapter 1

# Chief Medical Officer's summary

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# 1. Introduction

This year my surveillance report focuses on the 'Baby Boomers'; largely corresponding to adults who are 50–70 years old in 2016. The phenomenon of the baby boom occurred post-war, between 1946 and 1964. Coupled with increases in life expectancy, it is contributing to an important change in the structure of our population and has societal implications, as well as consequences for our economy and health and social services.

Adults in this generation are rich in experience. They have lived through tremendous change; from being the first generation to experience significant ethnic diversification of the population, to experiencing significant changes in traditional household and family structures. They have also lived through enormous technological advances; while the majority spent their childhood and early working lives without a computer, they have progressed through the advent of the internet, mobile phones and social media to the extent that they exist today.

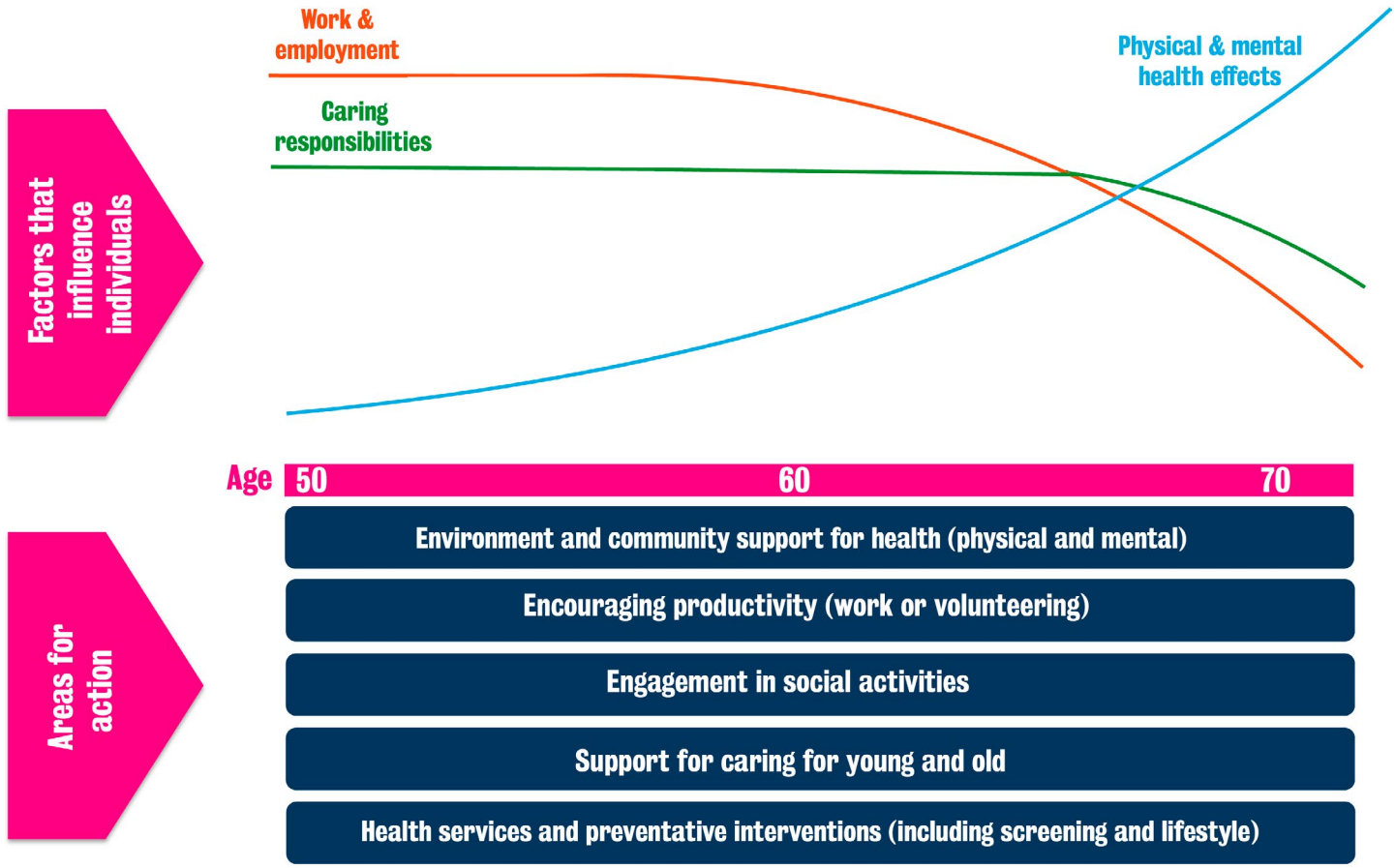
The social and demographic changes experienced by the Baby Boomers during their lifetimes affect them as wider determinants of health. For example, while those born in the first half of the baby boom will have experienced rationing, which ended with the de-rationing of sugar in autumn 1953 followed by the lifting of meat rations the following summer, the group as a whole has also lived through the subsequent increase in the availability of food; from fresh fruit and vegetables to the energy-dense convenience foods that are prevalent today.

I believe this generation still has a lot to offer and can contribute actively to both our society and the economy. Yet they are a group with specific health and social needs and much can be done to improve these both now and in anticipation of 'old age'. This is a period of life when morbidity increases and major life events, such as retirement, an increase in caring responsibilities, changing family structures and the loss of friends and relatives through bereavement, are experienced.

In my first surveillance report,[1] I presented a novel representation of the life course model inspired by that of Sir Michael Marmot in *Fair Society, Healthy Lives*.[2] This is further developed in Figure 1.1 to focus specifically on Baby Boomers and reflect their changing circumstances.

In Figure 1.1, the curves of the diagram exhibit high-level rather than individual-level trends, representing significant influences at this stage of life; those that undergo major transition during this period rather than those that exert an

**Figure 1.1 Factors that affect the 'Baby Boomer' generation along their life course and areas for policy action**



effect throughout life such as income, lifestyle or the physical environment. The effect of work remains relatively constant until the early 60s, after which it drops off coincident with the average age of retirement (64.6 years of age in men and 62.3 years in women in 2010).[3] It does not fall to zero, as some individuals continue to work beyond the state pension age or undertake more informal types of work, including volunteering. A peak in caring responsibilities is also demonstrated between 50 and the early 60s; this tails off but does not completely cease.

While the most common age for 'sandwich caring', where individuals are concurrently caring for ageing parents and dependent children, is between 40 and 44 for women and 45 and 49 for men, the overall prevalence of caring for someone else still peaks between the ages of 50 and 64.[4] Women in this age group are more likely to have caring responsibilities than men, with one in four caring for someone else compared with one in six men.[5] Caring responsibilities become less common later in life, yet there are still an estimated 1.3 million carers aged 65 and over in England and Wales.[6] Caring can be rewarding; however, it can also bring significant pressure and there is evidence that caring for 10 or more hours per week has a detrimental impact on employment outcomes for men and women in England between the ages of 50 and state pension age.[7]

The upward-sloping curve for physical and mental health reflects how disability and disease increase with age. While the life course approach is based on the premise that action early in life generates great benefits, the data in this report indicate that even at this stage there is the potential for intervention to reduce modifiable risk factors.

The lower section of the graph outlines actions which could be applied broadly, or focused towards specific groups with exposure to particular health risks. They could also be seen as levers for both successful ageing and retirement where applicable.

Adequate health services are required to reduce disability, morbidity and mortality in this sizeable population. The opportunity to live healthily, modify risk factors and access preventative measures, including screening programmes, should be encouraged and supported. In combination with formal (policy and workplace-based) and informal support for those who have caring responsibilities, this has the potential to affect quality of life and also productivity.

Maintaining productivity may be considered formally through employment; enabling people to stay in work longer can have personal, financial and societal benefits. Moreover, enabling people to have control over their retirement is advantageous in terms of health outcomes compared with forced or involuntary retirement.[8,9] Other forms of productivity exist that do not involve employment. Baby Boomers may have productive roles among family and friends and within the community. Some studies have reported an association with engaging in volunteering and positive outcomes in terms of both mental health and mortality in older people.[10,11]

Volunteering can confer a feeling of independence and offers the opportunity for social engagement. Social relationships have been reported to have a positive influence on health and mortality.[12] A recent survey of almost 1,400 people aged 50 and over by the Centre for Ageing Better found that social connections were felt to be a key dimension of a 'good later life'.[13] Facilitating these interactions requires not only policy interventions but also elements of societal change. However, the data presented suggest that there are probably substantial benefits to be reaped from doing so.

Ensuring that the lives of the Baby Boomers are as healthy and rewarding as possible is not just the responsibility of the individuals themselves, their employers and the public services they interact with. It is also important to consider how policy can create an environment and communities that are more conducive to good health at this age, including or especially for more disadvantaged groups. Variation in access to health services by age, region and level of deprivation still persists.[14] Health and care services should be accessible via adequate transport, and information about personal health and services should be communicated through effective channels. Further, how neighbourhoods are designed and whether this facilitates an active lifestyle and the formation of strong and supportive communities should also be a concern of policymakers.

The data in my report demonstrate that while this generation benefits from advances made in life expectancy and mortality reduction, there are several opportunities for health improvement. Lifestyle factors such as physical activity and tobacco consumption, modifiable risk factors such as obesity and overweight, and focusing of services (for example, for mental and sexual health) are all relevant considerations. Optimisation of health in the Baby Boomers is beneficial not only to ensure that they lead lives that are as fulfilling and productive as possible, but also to allow them to continue this in the context of advancing age. Maintaining independence both now and in the later years will serve to enhance their ability to work, to care for others and to participate in an active social life.

Everyone's life experiences and every-day choices affect both their short-term health and their chances of a healthier older age. All age groups benefit from being physically and mentally active, and I hope this report reminds Baby Boomers that, if they want to, they can make positive changes to their own futures.

Staying active can include staying in good work. Clearly everyone's ability and desire to continue to work differs, however those who do want to remain in, or gain, employment should be supported. And we should celebrate activity and those who wish to volunteer in retirement, as this can build important social connections. Whether unemployed, employed, or retired I would encourage people to strive to be physically, mentally, and socially active. This can help us all live better for longer, and enjoy ourselves more in the process.

## 2. Demography

The authors of Chapter 2 outline the two periods of increasing birth rates within the baby boom period, leading to peaks in 1947 and 1964. In 2014, 8% of the total population of England were aged 75 and over; by 2039 this will have risen to 13.1%, primarily due to the size of the baby boom population, along with changes in their life expectancy. Undoubtedly, this will alter demands on health and social care services. These will be experienced differently by area, given the geographical variation in the proportion of Baby Boomer residents. Currently, the South and South West of England are the areas with the highest proportion of such residents. This emphasises the need for service planning based on local area profiling which encompasses accurate population projections.

The majority of Baby Boomers are couples, with or without children. However, the move towards living without children or living alone increases with age among this group. Along with the reduction in the family size of Baby Boomers compared with previous generations, this changing household structure has implications not only in terms of social interaction, but also for the availability of informal care via partners and adult children. This will have an effect on the services that may be required in the future. The percentage of men aged 60–64 years of age living alone has increased from 9.6% in 1985 to 21.8% in 2009.[15] Given that living alone is increasingly evident in men in this age group, there is a potential for inequality to arise by gender. On the other hand, one in five adults in their 50s are a couple living with a non-dependent child and there is evidence that a high proportion of Baby Boomers parents are supporting children over 16 years of age who are not living with them.[16] This suggests that Baby Boomers are continuing to provide support and take responsibility for adult children at a time when their own support requirements are changing.

Baby Boomers are displaying increasing use of technology such the internet. 49% of 55–64 year-olds had a social media profile in 2014, the most common of which was a Facebook profile. Baby Boomers are also much more likely to use other forms of media such as radio, television and newspapers compared with younger age groups and are slightly more likely to gather health-related information from the news. This has implications for how this generation receives health messages and such data should be used to inform methods to maximise delivery of health promotion messages to these adults.

## 3. Health and employment

The changing structure of the population has significant impact on the employment sector. By 2020 it is estimated that a third of British workers will be over 50 years of age.

The authors of Chapter 3 describe the assertion that 'good' work is good for health and self-esteem. Yet workers over 55 years of age report the highest rates of illness caused or exacerbated by work. Cumulative exposure to occupational risk factors can result in disease presentation such as work-related hearing loss and even cancer in this age group. Clearly, it is imperative that promotion of good working conditions continues for both Baby Boomers and their successors to ensure that 'good' work is the standard for as many people as possible.

While people are working for longer than they used to and more people over the age of 50 are in work than previously, in the UK, one in five men and one in twelve women still leave work in the five years before they reach state pension age. A chronic health condition is a contributory factor in nearly half of men between the ages of 55 and state pension age who are no longer working. The authors highlight that 42% of 50–64 year-olds who are employed are living with at least one health condition and of these 24% have more than one. The most prevalent conditions affecting adults in this age group are stated as musculoskeletal (21%), circulatory (17%) and depression and anxiety (8%). The prevalence of multimorbidity increases with age. It therefore becomes a priority that steps are taken not only to decrease morbidity in these adults but also to support those with health conditions to remain productive and in employment, through prevention and supportive interventions such as flexible working practices.

Several of my annual reports have referred to the impact of work on health and vice versa. In my 2014 advocacy report *Annual Report of the Chief Medical Officer, 2014, The Health of the 51%: Women*,[17] I highlighted the important role of the workplace and employers in the effective management of moderate to severe menopausal symptoms.

In my 2013 advocacy report *Public Mental Health Priorities: Investing in the Evidence*,[18] the two-way association of employment with mental illness and barriers faced by people with mental illness in relation to employment were outlined. Clearly, these barriers exist for Baby Boomers: only 43% of those between 50 and state pension age with mental health problems such as depression are able to stay in work compared with 67% of those with circulatory conditions. This is half the rate of those with no conditions. A specific focus on supporting these adults to stay in work remains vital.

# 4. Physical health

The authors of Chapter 4 have used data from the Global Burden of Disease study to perform a bespoke analysis of the physical health of Baby Boomers. A key finding is that whilst life expectancy in 2013 increased compared with that of men and women in the same age group in 1990, overall morbidity remained unchanged.

The data report substantially decreased death rates from each of the leading causes of disease in both male and female adults aged 50–69 years in 2013 compared with people who were in the same age group in 1990. These declines in mortality are success stories. In particular, mortality rates from ischaemic heart disease (IHD) fell by over three- quarters in 50–70 year-olds during this time. Nevertheless, the fact that it still remains the leading cause of mortality in this age group is indicative of another issue; the leading risk factors for premature mortality in this group are IHD risk factors that are all modifiable, the top three being smoking, poor diet and high body mass index. The cancer types (oesophageal cancer in men, uterine cancer and liver cancer) that thwart the downward trend in premature mortality from cancer also have associations with modifiable risk factors such as alcohol and obesity.

In terms of morbidity, risk factors responsible for a remarkable 45% of disease burden in 50–69 year-olds in 2013 were again modifiable, with the leading three risks for both men and women being poor diet, tobacco consumption and high body mass index (BMI). The implication of this is huge: a large proportion of the disease burden in Baby Boomers is amenable to prevention.

Perhaps most striking is the case of diabetes. Morbidity from diabetes rose by 97% among men and 57% among women aged 50–69 years between 1990 and 2013. Although this definition includes both type 1 and type 2 diabetes, the attributable risk from factors including obesity, diet and low physical activity rose by 70%. There is a deprivation inequality in diabetes, as there is with all the leading causes of morbidity and indeed life expectancy. However, with diabetes the gap is decreasing, showing that this is an increasing problem regardless of social stratum. Interestingly, compared with tobacco consumption, which is strongly socially stratified, body mass index is now less socially stratified in terms of the size of the attributable burden of risk factors. These data suggest that it is extremely important that we strive to reduce inequalities in the health of Baby Boomers. In addition, weight and obesity must be addressed across the board.

Despite the fact that tobacco consumption in adults overall is decreasing, it remains an important risk factor in this group, remaining the leading risk factor for premature mortality and the second leading cause of total disease burden. Socio-economic inequalities in tobacco consumption and related illnesses are well recognised and exemplified in this group. However, an additional inequality is the fact that the decline in premature mortality from lung cancer in women is less than half that in men.

Several issues highlighted in my previous surveillance reports hold true for Baby Boomers. My concerns, as Chief Medical Officer, about the increase in premature mortality in England due to liver disease in England (compared with mortality figures for our European counterparts) have been echoed by the trend in premature mortality from liver cancer in this age group. My calls for more robust systems for surveillance of high burden diseases, such as musculoskeletal disease, and sensory (visual and hearing) impairment, which impact more on quality of life and productivity than on premature mortality, are strengthened. Sensory impairment is the second highest cause of morbidity in this age group in men and the fifth in women. Yet needs are likely to be unmet, given the considerably lower prevalence of hearing aid use compared with the estimated prevalence of objective hearing loss. Musculoskeletal disease has again been highlighted as having a lack of high-quality routine information at a national level. However, we do know that the burden is high, demonstrated by the tripling in the rate of elective admissions for back pain and primary knee replacement in 50–70 year-old adults between 1995/96 and 2013/14.

Datasets on oral health are also limited. While the improved oral health of Baby Boomers compared with that of their predecessors is a considerable triumph, it is important that we have sufficient data to inform the provision of services given that, counterintuitively, this success may mean that demand increases.

# 5. Lifestyle factors

The authors of Chapter 5 analyse data concerning Baby Boomers generated from the Health Survey for England 2013 and the English Longitudinal Study of Ageing (ELSA, 2012/13), a wealth of information on adults over 50 years of age. They analyse key factors affecting health such as smoking, alcohol, diet, physical activity and obesity, all of which are modifiable.

Baby Boomers had lower rates of smoking than those of the same age 20 years previously. The extent of the difference between the rates increases with age within the cohort. This is despite data from the physical health chapter which identify tobacco consumption as a leading cause of both mortality and morbidity in Baby Boomers. I find it shocking that, by this stage in their lives, in current and ex-smokers, 66% of baby boomer men and 71% of baby boomer women have never been recommended to stop smoking by a doctor or nurse. There is an unquestionable need for adequate support for smokers trying to quit and this questions whether services are targeting and reaching those who require them. Continued provision of Stop Smoking services is vital. A sustained decrease in the prevalence of smoking risks underestimating the needs of the baby boomer population for these services. They have lived through the height of the tobacco era and continue to experience substantial ill-effects from it. Locally appropriate services are also essential to reduce the resounding socio-economic inequalities and the geographical variation evident in smoking prevalence among Baby Boomers.

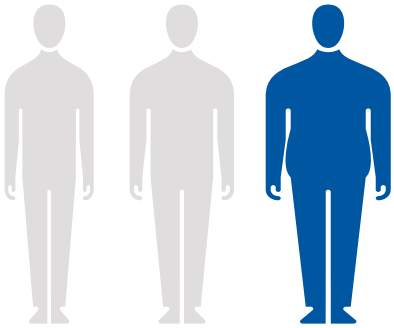
The UK Chief Medical Officers published new guidelines on low risk drinking in August 2016. For both men and women the guideline is that to keep health risks from alcohol to a low level it is safest not to drink regularly more than 14 units a week and that for those who drink as much as 14 units per week it is best to spread this evenly over three days or more, and that several drink-free days in the week aid cutting intake. Although in terms of units per week, baby boomer men were drinking less than those in the same age group 20 years earlier, the proportion of men now drinking on five days a week increased with age, with the highest rate of 30% in 65–69 year-olds. Whilst still within the guidance for low risk drinking it is of concern to me that, on average, baby boomer women reported drinking more than women of the same age 20 years previously, with a maximum difference of 3 units per week (from, on average, 4.5 units per week in 1993 to 7.5 units in 2012-13) in women aged 60-64 years

Given the increase in obesity rates seen in recent years, it is of little surprise that overweight and obesity levels were significantly increased in Baby Boomers compared with adults of the same age 20 years earlier. The authors found that nearly half of baby boomer men and over a third of baby boomer women were overweight. These figures increased to a startling 80% and 92% in women if central obesity using raised waist circumference (defined as 102cm in men and 88cm in women), a risk factor for diabetes, was used instead of BMI (with 77% of men and 83% of women being classified as obese by 65–69 years of age using this criterion). These statistics are staggering. If these adults are to reduce their current risk and maintain their health through older age, it is critical that this is addressed. I have previously expressed my concern regarding the 'normalisation' of overweight and obesity, referring to the increasing difficulty in discerning what is normal from abnormal due to the fact that being either above a healthy weight or obese is now so commonplace. The fact that 1 in five men and nearly half of women classified as having a 'normal' BMI were in fact found to be centrally obese is extremely concerning, and underlines the importance of promoting awareness of metabolic risk factors such as increased waist circumference, in addition to BMI.

The UK Chief Medical Officers' guidelines on physical activity recommend that adults participate in 150 minutes of moderate intensity, aerobic, physical activity every week (see Infographic from Chapter 5 of this report, reproduced here). Physical activity was found to be low among Baby Boomers. Not only did the authors find that people in their 50s were less active than those of the same age 10 years earlier, they also found that two-thirds of all Baby Boomers in their sample had undertaken no physical activity lasting more than 30 minutes in the past month. Significant geographical, socio-economic and ethnic inequalities exist in physical activity. I was surprised, for instance, to find that rates of inactivity were as high as 80% in Gateshead and Stoke on Trent. Physical activity has benefits in terms of cardiovascular health, mobility, weight management and even cognition.[19] Clearly, this age group could benefit greatly from optimising physical activity levels to maximise their health both currently and in impending 'older age'.

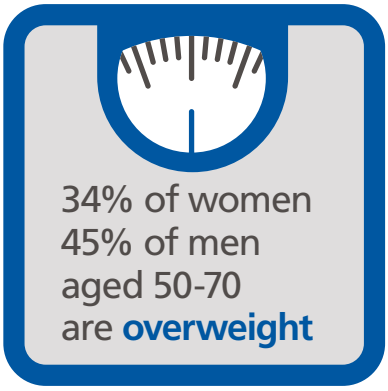
# Lifestyle of older adults in England

## Physical activity and weight



**1 in 3**

OF THOSE AGED 50-70 ARE OBESE



34% of women
45% of men
aged 50-70
are **overweight**



**65.6%**
of Baby Boomers have not engaged in any moderate physical activity lasting 30 minutes or longer in the past month

## Alcohol

Amongst 50-60 year olds:

Men are drinking approx. 4-5 units a week **less** than 20 years earlier

Women are drinking approx. 2 units a week **more** than 20 years earlier

## Smoking (by Baby Boomers)

**18%** women and **19%** of men smoke


who are smokers/ex smokers have never been asked to stop smoking by a doctor or nurse

# 6. Screening and immunisation

The national screening and immunisation programmes in England contain several programmes that specifically target Baby Boomers.

Uptake among Baby Boomers exceeds 70% in all screening programmes except for bowel cancer screening, which experiences the lowest uptake and coverage. The low popularity of bowel cancer screening is of concern given bowel cancer's status as the second most common cause of cancer death (with the majority of people diagnosed being over 50 years of age). This warrants activity to increase awareness of the screening programme and its importance. This is particularly applicable to men, who have higher cancer rates but appear to have a lower uptake of screening. Nevertheless, I am pleased that a new single test is being introduced which may increase the acceptability and ease of the screening process.

While maintaining its target rate, the breast screening programme has seen a decline in coverage since 2011. Although the cause is not certain, it is reported that 20%–25% of NHS breast screening units do not invite all women for their screening within the required three-year timeframe. Clearly this is suboptimal and requires further action. Uptake has been declining in women aged 53–64 years in particular. Further investigation into reasons for the decline is essential in order to target efforts to raise awareness of the benefits of breast cancer screening in this group. Despite the outcome of the 2012 Independent Breast Screening Review,[20] which confirmed that the UK screening programme conferred significant benefits over harms, the test may not be sufficiently known about, acceptable or convenient for some women. Efforts to establish explanations for a decline in coverage would also be valuable with respect to the cervical cancer screening programme which has seen a particular decline in five-year coverage of women born between 1951 and 1955 (83% in 2005 to 72% in 2015).

A deprivation gradient in uptake has been demonstrated in the abdominal aortic aneurysm, breast cancer and bowel cancer screening programmes. It is imperative that these inequalities are tackled, particularly given the increasing prevalence of abdominal aortic aneurysm with increasing deprivation.

The authors of the immunisation section outline approaches to control of influenza and pneumococcal disease. Vaccine coverage in over-65 year-olds is more than 70% for both pneumococcal and influenza vaccines. Pneumococcal and more recently influenza vaccination are also offered within the childhood immunisation schedule. The authors outline a reduction in the incidence of invasive pneumococcal disease in 50–70 year-olds caused by the serotypes now vaccinated against in the routine childhood schedule. Initial results of pilot studies testing the introduction of the influenza vaccine at various stages into the childhood immunisation programme suggest a possible decrease in influenza-like illness consultation rates in 50–70 year-olds.

There are data challenges within these programmes, particularly in age stratification. I am surprised to learn that data for influenza vaccination cannot be broken down by age groups other than 'over-65 year-olds' as a whole, or '16–64 year-olds' with a risk factor. Given that factors affecting uptake may differ significantly in 65 year-olds compared with the oldest people eligible for the vaccine, this limits the potential for comprehensive programme evaluation and targeting of interventions in order to make improvements. The national screening programme also encounters data challenges. It is envisaged that some, such as the national team having no access to data by age group for the diabetic eye screening programme, will be resolved with a new national IT system. Others persist, such as the fact that data on the confirmed cancers detected through the cervical screening programme are not available by age. Adequate evaluation of the success of screening programmes requires access to data on appropriate outcomes. It is important that steps are taken by Public Health England and partners to address these data issues so that we can ensure these programmes reach their optimal potential.

# 7. Mental health

The authors of the Chapter 7 use important datasets (the Adult Psychiatric Morbidity Survey, ELSA and the British Social Attitudes Survey) to present a picture of the current state of the mental health of Baby Boomers. Baby Boomers' mental health needs are substantial in many respects. Data from 2007 demonstrate high levels of both overall and specific types of common mental disorders, with 18% of Baby Boomers reported to have experienced depression or anxiety severe enough to warrant intervention. This is double the proportion reported in the generation born before 1945.

In terms of age, depression prevalence peaks in the early 50s. Overall, suicide rates are highest among baby boomer men born between 1954 and 1968 – a clear target group for support and intervention. While suicide rates are lower in women compared with men, baby boomer women born between 1957 and 1963 have the highest rates of suicidal ideation. They also have the highest rates of completed suicide and age-adjusted rates for common mental disorders in females.

Baby Boomers are more likely to report self-perceived cognitive problems than older cohorts. Complaints of poor memory/concentration increased markedly in the baby boomer population between 1993 and 2007 compared with other cohorts.

Baby Boomers also experience conditions often associated with younger age groups. The authors highlight that autism is as common among Baby Boomers as it is in children. Attention deficit and hyperactivity disorder, another condition commonly associated with children and young people, persists into adulthood. These are important findings and should alert service providers to the likelihood of unmet need in this age group.

As with physical illness, modifiable risk factors are extremely important in Baby Boomers with respect to mental illness. Cognitive impairment was found to be specifically associated with vascular disorders in an analysis of 50–74 year-olds. In addition, the premature mortality seen in people with severe mental illness becomes apparent in this age group. Addressing modifiable risk factors, for example for cardiovascular disease, therefore has the potential to lead to improved outcomes. Requiring assistance with activities of daily living appears to be associated with high levels of psychiatric comorbidity. Of course it is difficult to discern which of these is chicken or egg. Nevertheless, in either case, both disease prevention measures and optimisation of physical health remain paramount.

# 8. Sexual health

Infections in Baby Boomers account for a small proportion of the burden of sexually transmitted infections (STI) in England. In 2014, only 4% of the total number of new diagnoses of STIs were in 50-70 year olds. Nevertheless, diagnoses are increasing and have risen by more than a third in the 50–70 year-old age group over the last decade. Reasons for this have been little studied but could include increased re-partnering due to factors such as increasing divorce rates, increased testing, or decreased use of barrier methods of contraception due to loss of fertility. The key significance is that Baby Boomers remain sexually active and have under-recognised needs. Health promotion messages related to sexual health traditionally focus on the young and it is imperative that they are inclusive so that they address the needs of adults within this age group.

In terms of absolute numbers, the greatest increase in STIs in this age group in genitourinary medicine settings has been in men who have sex with men (MSM). A 112% increase (from 1,868 to 3,962 new diagnoses of STIs) was reported in this group between 2010 and 2014. Within the whole population, the proportion of STI diagnoses attributable to MSM increases with age.

The proportion of new diagnoses of human immunodeficiency virus (HIV) in 50–70 year-olds has increased; from 9% (626/7,366) of total new diagnoses in 2005 to 16% (901/5,559) in 2014. In addition, as treatment has advanced, the initial high rates of premature mortality seen with the disease have decreased and we are now seeing an ageing population of people with HIV. The proportion of people aged 50–70 years living with HIV has doubled over the past decade, with population projections indicating that more than half of people accessing HIV care will be over 50 years of age by 2028 (over double the proportion in 2013). The level of co-morbidity (related to age, treatment or other factors) in these patients is likely to increase. This has implications for services, as well as for the training and knowledge requirements of health professionals providing care for those with HIV.

There is an inverse association between frequency of sexual activity and age. This may be in part related to the effects of physical co-morbidities on sexual function, particularly in men. Over a quarter of men and women in the 50–70 year-old age group report difficulties with sexual function, with the same proportions reporting declining sexual function. Functional sexual problems can affect quality of life, yet they remain a source of taboo. It is possible that the data underestimate the extent of sexual health problems in this age group because of their reluctance to seek help, due to embarrassment or stigma. This underlines the need to raise awareness and address taboos, to support adults in this age group seeking help for problems related to sexual activity or sexual function which may have a significant impact on quality of life.

# 9. References


1. Davies SC (2012). Annual Report of the Chief Medical Officer, Volume One, 2011, On the State of the Public's Health. London: Department of Health.
2. Marmot M (2010). Fair Society, Healthy Lives: The Marmot Review.
3. The Office for National Statistics (February 2012). Summary – Chapter 4: The labour market and retirement. Pension Trends (2012 edition). London: ONS. Online: www.ons.gov.uk/ons/rel/pensions/pension-trends/chapter-4--the-labour-market-and-retirement--2012-edition-/sum-pensiontrends.html. Accessed 16 May 2016.
4. Carers UK (2015). Facts about carers 2015. Online: www.carersuk.org/for-professionals/policy/policy-library/facts-about-carers-2015. Accessed 9 May 2016.
5. Carers UK (2015). Facts about carers 2015. Online: www.carersuk.org/for-professionals/policy/policy-library/facts-about-carers-2015. Accessed 9 May 2016.
6. Carers UK (2015). Facts about carers 2015. Online: www.carersuk.org/for-professionals/policy/policy-library/facts-about-carers-2015. Accessed 9 May 2016.
7. King D, Pickard L. When is a carer's employment at risk? Longitudinal analysis of unpaid care and employment in midlife in England. Health & Social Care in the Community 2013; 21(3): 303-314.
8. Van Solinge H, Henkens K. Couples' adjustment to retirement: A multi-actor panel study. Journals of Gerontology Series B: Psychological Sciences and Social Sciences 2005; 60(1): S11-S20.
9. Bender, KA. An analysis of well-being in retirement: The role of pensions, health, and 'voluntariness' of retirement. Journal of Socio-Economics 2012; 41(4): 424-433.
10. Lum T, Lightfoot E. The effects of volunteering on the physical and mental health of older people. Research on Aging 2005; 27(1): 31-55.
11. Jenkinson C, Dickens A, Jones K, Thompson-Coon J, Taylor R, Rogers M, Bambra C, Lang I, Richards S. Is volunteering a public health intervention? A systematic review and meta-analysis of the health and survival of volunteers. BMC public health 2013; 13(1): 773.
12. Holt-Lunstad J, Smith TB, Layton JB. Social relationships and mortality risk: a meta-analytic review. PLoS Med. 2010 Jul 27;7(7):e1000316. doi: 10.1371/journal.pmed.1000316.
13. Centre for Ageing Better (December 2015). Later life in 2015: An analysis of the views and experiences of people aged 50 and over. Online: http://laterlife.ageing-better.org.uk/resources/cfab_IIi_2015_ipsos_mori_report.pdf. Accessed 16 May 2016.
14. Goddard M. Quality in and Equality of Access to Healthcare Services in England. CHE Research Paper 40. York: Centre for Health Economics, University of York; 2008.
15. Demey D, Berrington A, Evandrou M, Falkingham J. Pathways into living alone in mid-life: Diversity and policy implications. Advances in Life Course Research 2013; 18(3): 161–174.
16. Siegler V, Njeru R, Thomas J (2015). Inequalities in Social Capital by Age and Sex, July 2015. Available from: www.ons.gov.uk/ons/dcp171766_410190.pdf.
17. Davies SC (2015). Annual Report of the Chief Medical Officer, 2014, The Health of the 51%: Women. London: Department of Health.
18. Davies SC (2014). Annual Report of the Chief Medical Officer 2013, Public Mental Health Priorities: Investing in the Evidence. London: Department of Health.
19. Department of Health (2011). Start Active, Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers. London: Department of Health.
20. Marmot M (2010). Fair Society, Healthy Lives: The Marmot Review.

Chapter 2

# Demography

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# Demography of older adults in England

## WHO LIVES WITH WHOM?

People **50-54** years old

**14.7%** LIVE ALONE

**25.9%** LIVE AS PART OF A COUPLE, **WITHOUT** CHILDREN IN THE HOUSEHOLD

**41%** LIVE AS PART OF A COUPLE, **WITH** CHILDREN IN THE HOUSEHOLD

People **65-69** years old

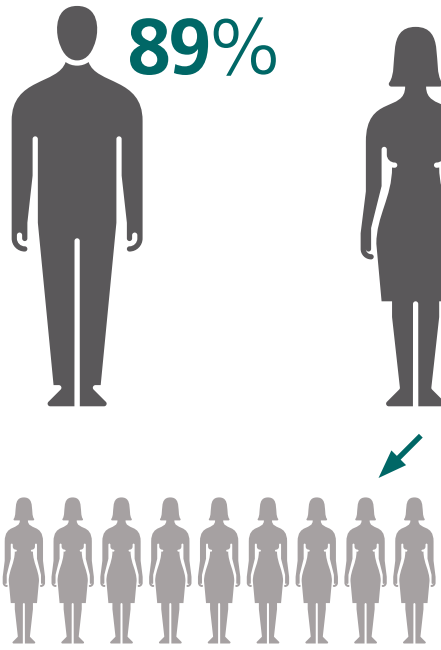
**21.4%** LIVE ALONE

**59.5%** LIVE AS PART OF A COUPLE, **WITHOUT** CHILDREN IN THE HOUSEHOLD

**9.9%** LIVE AS PART OF A COUPLE, **WITH** CHILDREN IN THE HOUSEHOLD

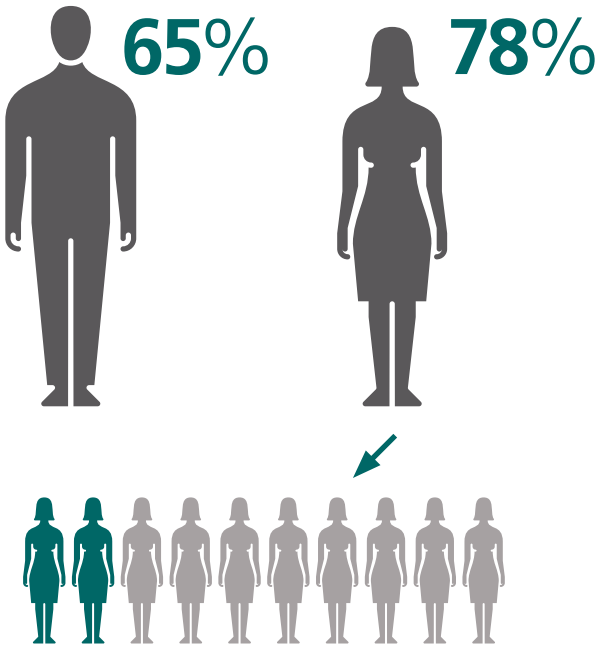
## WHO WAS MARRIED BY AGE 40?

Born **1945**




**10%** of these women childless

Born **1965**




**20%** of these women childless

# 1. Overview – who are the Baby Boomers?

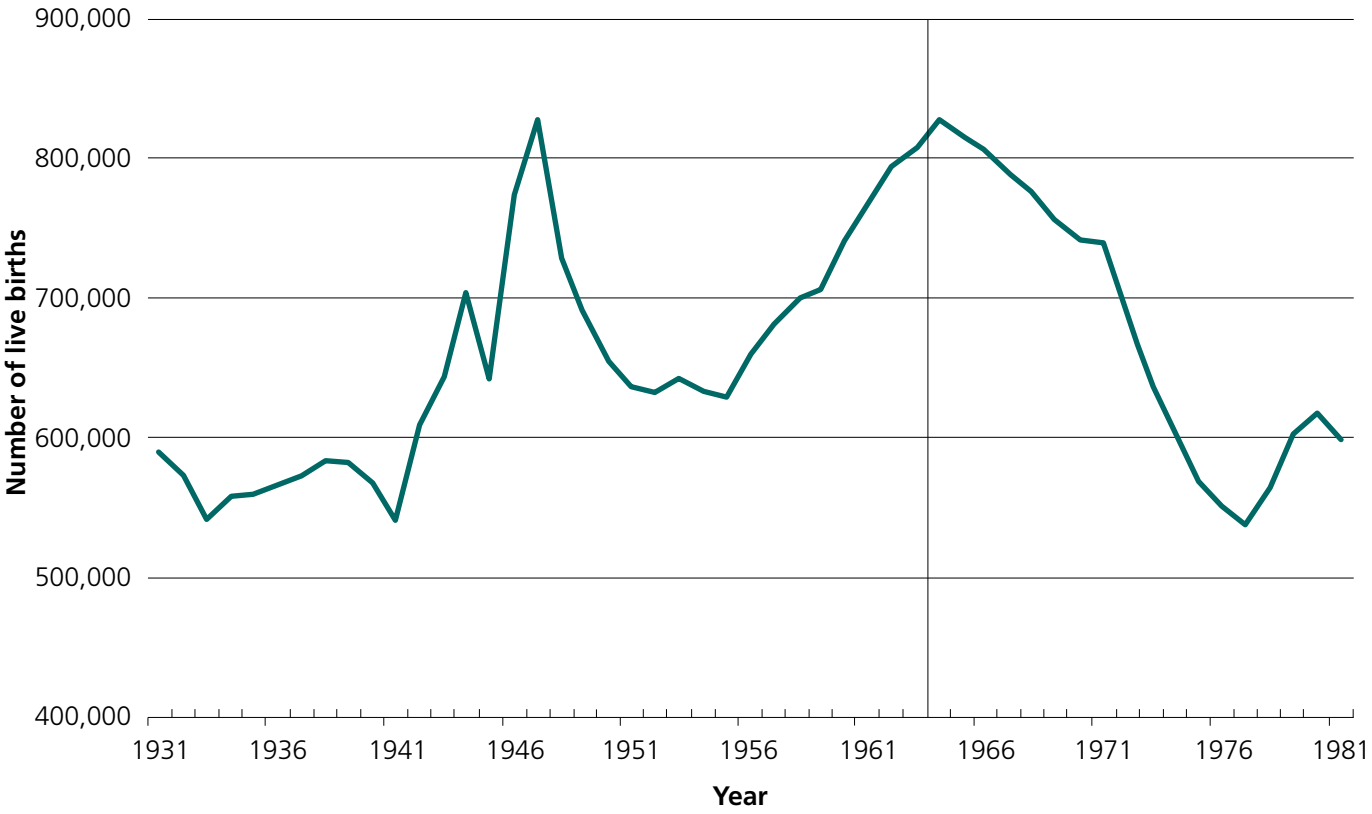
This year the Annual Report of the Chief Medical Officer focuses on the health of the Baby Boomers in England, reporting data on people born in the period 1946–1964 and who were aged circa 50–68 in 2014. This chapter examines who the Baby Boomers are and how they will affect the age structure of the population over the next 25 years. Figure 2.1 shows the annual number of births that took place in England over the 50-year period from 1931 to 1981. The post-Second World War baby boom cohorts are clearly visible. In England, the immediate rise in births in 1946 and 1947 was followed by a drop in births during the 1950s and it was only from the late 1950s onwards that births rose again, peaking in 1964. This contrasts with the situation in the USA, where the baby boom following the return of soldiers from Europe and across the globe was sustained right through the late 1940s and the 1950s. Thus, England can be thought of as having experienced two distinct baby boom cohorts: the first born in the mid to late 1940s and the second born in the 1960s.[1]

It is important to distinguish between the two baby boom cohorts as they have experienced very different economic and social environments at different life stages.[2] The first baby boomers (1945–49) were born in a period of post-war austerity, experiencing rationing and selective education. However, when they entered the labour market the economy was entering a period of relative prosperity. Not only was there a buoyant job market, but the rapid expansion of higher education in the 1960s also meant that a growing number stayed on at school and entered university.

In contrast, the second baby boom cohort (1960–64) were born in a period of prosperity, experiencing the consumer spending boom of the 1960s and comprehensive secondary education. However, by the time this generation came to enter the labour market at the end of the 1970s, the economy was entering a recession, resulting in sharp rises in unemployment. Individuals born during the peak birth year of 1964 reached school leaving age in 1979, at the height of recession. These very different economic and social environments have affected the respective life chances of the different cohorts, as well as cohort members' expectations of employment, the welfare state and life in general.[2]

When using 2011 Census data, which is largely available in five-year age groups, we have used the age range 45–64 years (birth years 1947–1966) as this corresponds most appropriately with the baby boomers.

**Figure 2.1 Annual number of live births 1931-1981 England**




**Source** *Vital Statistics: Population and Health Reference Tables, Office for National Statistics, Summer 2015 update*

# 2. Ageing of the Baby Boomers

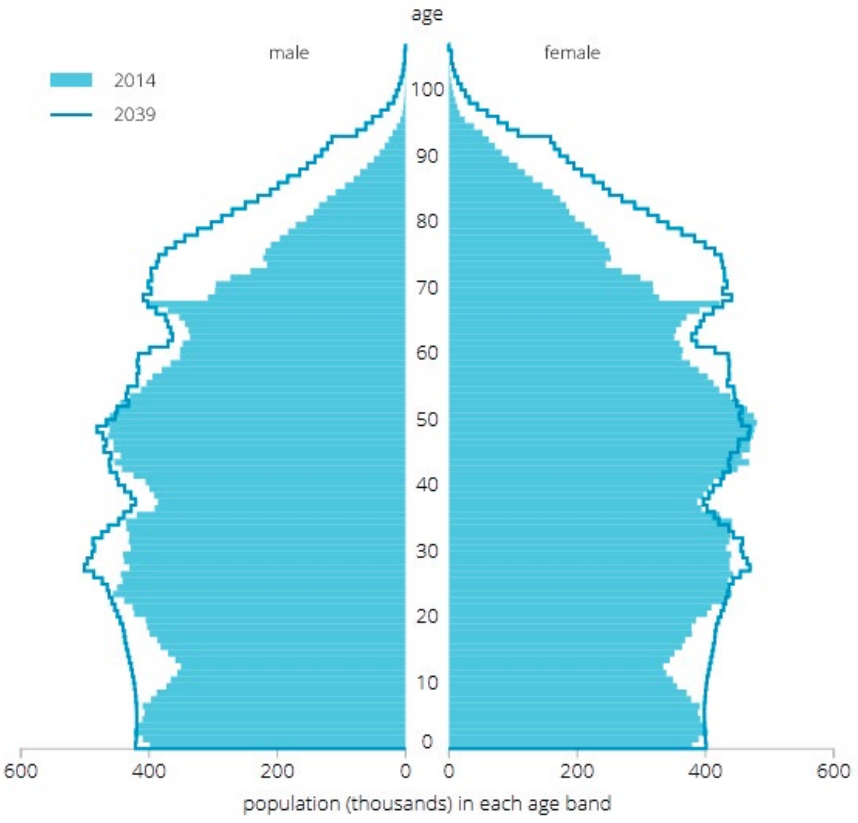
Figure 2.2 shows the population pyramid for England in 2014 and 25 years later in 2039.[i] The two baby boom cohorts are clearly visible in the 2014 population pyramid. As these large cohorts age, the proportion of England's population that is aged 75 and over increases dramatically. In 2014, 8% of the total population of England were aged 75 and over; by 2039, this will have risen to 13.1%. In other words, just under one in eight people living in England will be aged 75 and over.[3]

- Cohort born 1945–1949 are aged 65–69 in 2014; will be aged 90–94 in 2039.
- Cohort born 1950–1954 are aged 60–64 in 2014; will be aged 85–89 in 2039.
- Cohort born 1955–1959 are aged 55–59 in 2014; will be aged 80–84 in 2039.
- Cohort born 1960–1964 are aged 50–54 in 2014; will be aged 75–79 in 2039.

Over the next 25 years, as the Baby Boomers age, there is no doubt that 'this generational bulge will start to contribute significantly to the overall death rate and to health and social care costs'.[4] However, the extent to which healthcare costs escalate will be influenced by the current physical, mental and sexual health of the Baby Boomers, and how these relate to employment and other lifestyle factors.

i This uses the ONS 2014-based principal population projections. The projections are based on the estimated population of England at the middle of 2014 and a set of demographic assumptions about future fertility, mortality and migration based on analysis of trends and expert advice. Fertility, as measured by average completed family size, is assumed to continue at 1.89 children per woman, annual rates of improvement in mortality rates are assumed to converge to 1.2% by 2039, and the long-term assumed level of annual net international migration to England is +170,500, with new arrivals disproportionately concentrated at younger working ages (ie 20s and 30s).

**Figure 2.2 Population per thousand in each age band, England 2014 and 2039 projection**




**Source** *National Population Projections, England, 2014 and 2039, Office for National Statistics*

# 3. Geography

Figure 2.3 shows the percentage of the population that is currently aged 50–69 for each local authority in England. There is substantial regional variation, with Tower Hamlets having just 11.6% of its population in the age range 50–69 compared with West Somerset, which has nearly one-third (32.5%) of its population in this age range. The 10 local authorities with the lowest percentage of Baby Boomers in their overall population are all located in London, with the exception of Manchester (15.5%, sixth lowest %) and Oxford (16.1%, eighth lowest %), while those local authorities with the highest proportions are generally found in the South and South-West.

These patterns in part reflect recent patterns of both international and internal migration, with London and the large metropolitan areas being the main receiving destinations for recent immigrants from the A8 countries[ii] and from outside Europe. The majority of these new international migrants are aged in their 20s and 30s, contributing to lowering the average age of the population where they live.

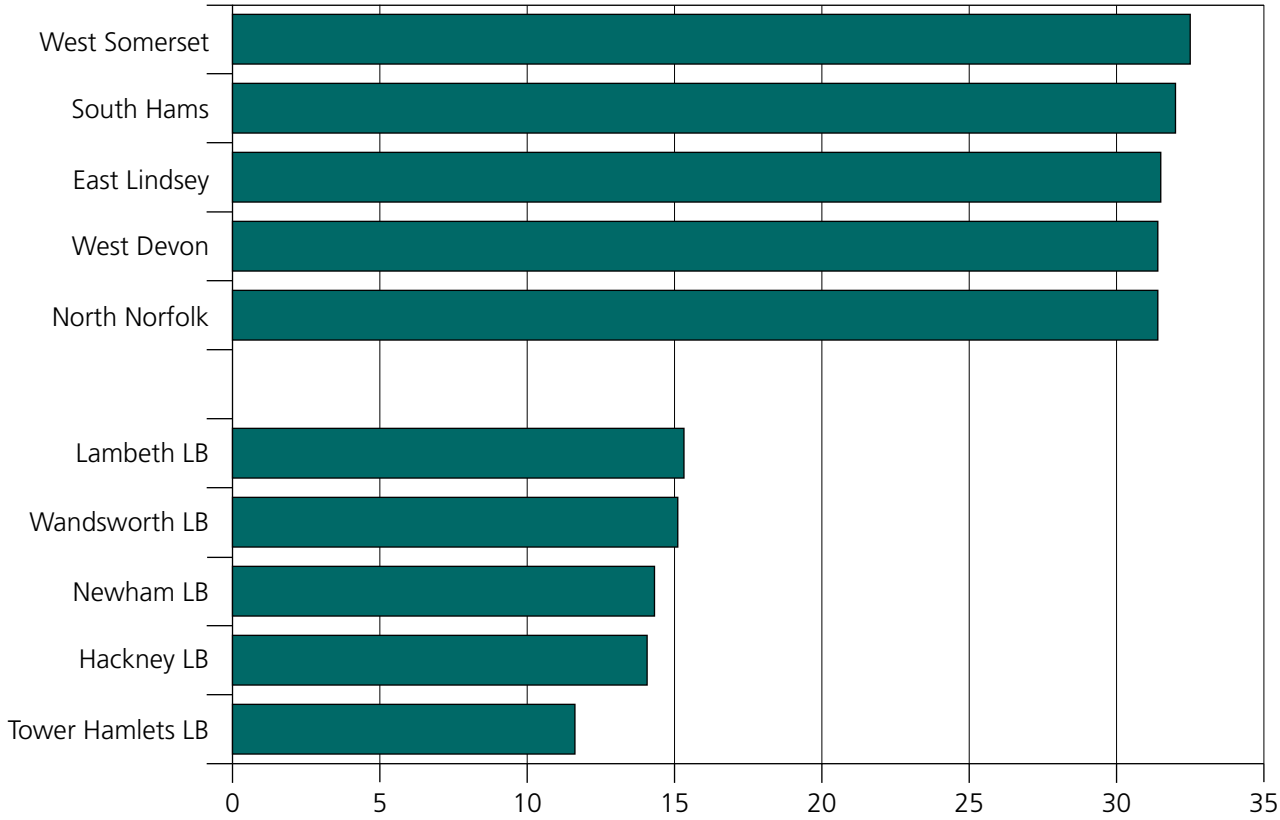
This trend is reinforced as, being of reproductive age, the new migrants contribute to birth rates. In contrast, those areas where the Baby Boomers constitute a high proportion of the population are areas marked by both the outward migration of young people to larger cities in search of employment and the inward migration of people in their 50s and 60s, coinciding with retirement and/or taking up new forms of flexible work including self-employment.

**Table 2.1 Baby Boomers' share in the overall population by local authority**

| Top 5 local authorities with highest percentage of Baby Boomers | | Top 5 local authorities with lowest percentage of Baby Boomers | |
|---|---|---|---|
| West Somerset | 32.5% | Tower Hamlets | 11.6% |
| South Hams | 32.0% | Hackney | 14.1% |
| East Lindsey | 31.5% | Newham | 14.3% |
| West Devon | 31.4% | Wandsworth | 15.1% |
| North Norfolk | 31.4% | Lambeth | 15.3% |

ii Czech Republic, Poland, Hungary, Slovakia, Slovenia, Estonia, Latvia and Lithuania.

**Figure 2.3 Proportion of the population aged 50 to 69 years by Local Authority (5 highest, 5 lowest proportions), England, 2014**




**Source** *Office for National Statistics, 2015*

# 4. Ethnicity

One of the most notable changes in England's overall population over the past 50 years has been its increasing ethnic diversity. Britain's ethnic diversity has origins in its history of immigration, particularly in the period after the Second World War. The second half of the 20th century saw the arrival in Britain of people from former colonies and the Commonwealth who settled and built lives in Britain.[5] As these migrants found jobs and formed families of their own, this added to the diversity. Today many individuals of ethnic minority heritage have been born in Britain, and it is the children and grandchildren of the migrants who form a large part of Britain's rich ethnic diversity.[6]

Table 2.2 shows the distribution by ethnic group of those aged 45–64 in 2011 (corresponding to birth years 1947–1966) as reported at the time of the 2011 Census of England.[iii] The distribution for the total population of England is included as a comparator. Of the general population, 80% identified themselves as being 'White British'; however, among all those aged 45–64 this figure was higher with 87% of all this age group identifying as White British. There are marked differences within the Baby Boomer population, with the proportion reporting being 'non-White' increasing across successive cohorts, varying from 5% for those aged 60–64 (born in the late 1940s) to 11% for those aged 45–49

iii Published data on ethnicity by single year of age from the 2011 Census are not available. The cohorts born in the period 1945–1964 are exactly match the baby boomer cohorts but the age group 60–64 may be thought to represent the first baby boom and 45–49 the second baby boom.

**Table 2.2 Proportion of the population by ethnicity and age group, 2011**

| Ethnic group | All ages | Age 45 to 49 | Age 50 to 54 | Age 55 to 59 | Age 60 to 64 |
|---|---|---|---|---|---|
| **All categories** | **100.0%** | 100.0% | **100.0%** | **100.0%** | **100.0%** |
| **Total population** | 53,012,456 | 3,879,815 | 3,400,095 | 2,996,992 | 3,172,277 |
| **White: Total** | **85.4%** | 88.2% | **89.6%** | **91.3%** | **94.4%** |
| English/Welsh/Scottish/Northern Irish/British | 79.8% | 83.5% | 85.2% | 87.2% | 90.9% |
| Irish | 1.0% | 1.1% | 1.1% | 1.4% | 1.5% |
| Gypsy or Irish Traveller | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Other White | 4.6% | 3.6% | 3.2% | 2.6% | 2.0% |
| **Mixed/multiple ethnic group: Total** | **2.3%** | 1.3% | **0.9%** | **0.6%** | **0.4%** |
| White and Black Caribbean | 0.8% | 0.5% | 0.3% | 0.2% | 0.1% |
| White and Black African | 0.3% | 0.2% | 0.1% | 0.1% | 0.1% |
| White and Asian | 0.6% | 0.3% | 0.2% | 0.2% | 0.1% |
| Other Mixed | 0.5% | 0.3% | 0.2% | 0.2% | 0.1% |
| **Asian/Asian British: Total** | **7.8%** | 5.6% | **5.7%** | **5.5%** | **3.6%** |
| Indian | 2.6% | 2.2% | 2.4% | 2.4% | 1.7% |
| Pakistani | 2.1% | 1.1% | 1.2% | 1.2% | 0.6% |
| Bangladeshi | 0.8% | 0.4% | 0.4% | 0.3% | 0.2% |
| Chinese | 0.7% | 0.6% | 0.6% | 0.5% | 0.4% |
| Other Asian | 1.5% | 1.3% | 1.1% | 1.0% | 0.8% |
| **Black/African/Caribbean/Black British: Total** | **3.5%** | 4.1% | **3.1%** | **1.9%** | **1.1%** |
| African | 1.8% | 1.7% | 1.3% | 0.8% | 0.4% |
| Caribbean | 1.1% | 1.8% | 1.4% | 1.0% | 0.6% |
| Other Black | 0.5% | 0.6% | 0.4% | 0.2% | 0.1% |
| **Other ethnic group: Total** | **1.0%** | 0.8% | **0.7%** | **0.6%** | **0.4%** |
| Arab | 0.4% | 0.3% | 0.3% | 0.2% | 0.1% |
| Any other ethnic group | 0.6% | 0.5% | 0.5% | 0.4% | 0.3% |

**Source** *2011 Census, Table DC2101E*

(born in the early to mid 1960s) – again demonstrating the importance of distinguishing between the different baby boom cohorts.

Among those aged 45–49 in 2011 (ie the second baby boom cohort), 6% were of Asian heritage and 4% were of Black, Caribbean or African heritage compared with 3% and 1% respectively among those aged 60–64 (ie the first baby boomers). These differences reflect the timing of various waves of immigration to the UK, along with births to those migrants. The first substantial group of migrants from the Caribbean arrived in the UK in 1948 aboard the Empire Windrush. The majority of these migrants were in their 20s, and thus now comprise older cohorts than those under consideration here. However, the children of the Windrush generation, born in England during the 1950s and 1960s, account for many of those of Caribbean heritage now aged in their 50s. Another landmark migration occurred in the 1970s following the expulsion of Asian Ugandans by President Idi Amin in 1972. Those East Africans Asians who were in their 20s when they arrived in the early 1970s would also now be in the focus age cohorts.

When thinking about differences in health across groups, it is interesting to look not only at ethnicity, but also at country of birth and time spent in the UK. While country of birth and time in the UK may reflect environmental and cultural factors, ethnicity may also be linked to genetically mediated effects on health.[7] Overall, of the total population aged 45–64 living in England in 2011, 1,748,370 people were born outside the UK, comprising 13% of the age group. The share of the non-UK population varies by age, generally being higher among the younger age groups within the cohort, ranging from 14.3% of those aged 50–54 to 10.2% of those aged 60–64.

Table 2.3 shows the country of birth of those non-UK-born 45–64 year-olds living in England in 2011; one in five were born in Europe (18% in the EU and 3% elsewhere), and a further one in five (22%) were born in Africa (including 4.3% in Kenya, 2.7% in Nigeria and 1.9% in Ghana). Just over a third (36%) were born in Asia and in the Middle East (including 11.0% India, 7.0% Pakistan, 2.4% Bangladesh and 1.9% Hong Kong), 6% were born in the Caribbean (3.4% in Jamaica), 3.4% in North America and 1.9% in Australasia.[iv] Among this age group, the links with the Commonwealth are very clear. As the baby boom cohorts age, in future a higher proportion of older people will be of non-White heritage, some of whom will have been born in the UK. This will have implications for the design and delivery of culturally sensitive health and social care services, which local authorities and public health departments need to plan for.

iv Proportions in brackets relate to all non-UK-born 45–69-year-olds as a denominator.

**Table 2.3 Top 10 countries of birth for non-UK-born 45–64-year-olds, England, 2011**

| Country of birth | Number of 45–64-year-olds from selected country living in England in 2011 |
|---|---|
| India | 191,868 |
| Pakistan | 131,269 |
| Ireland | 123,411 |
| Kenya | 75,090 |
| Germany | 61,217 |
| Jamaica | 58,997 |
| Poland | 55,077 |
| Nigeria | 47,244 |
| Bangladesh | 41,926 |
| USA | 40,445 |

**Source** *2011 Census, Table DC2109E*

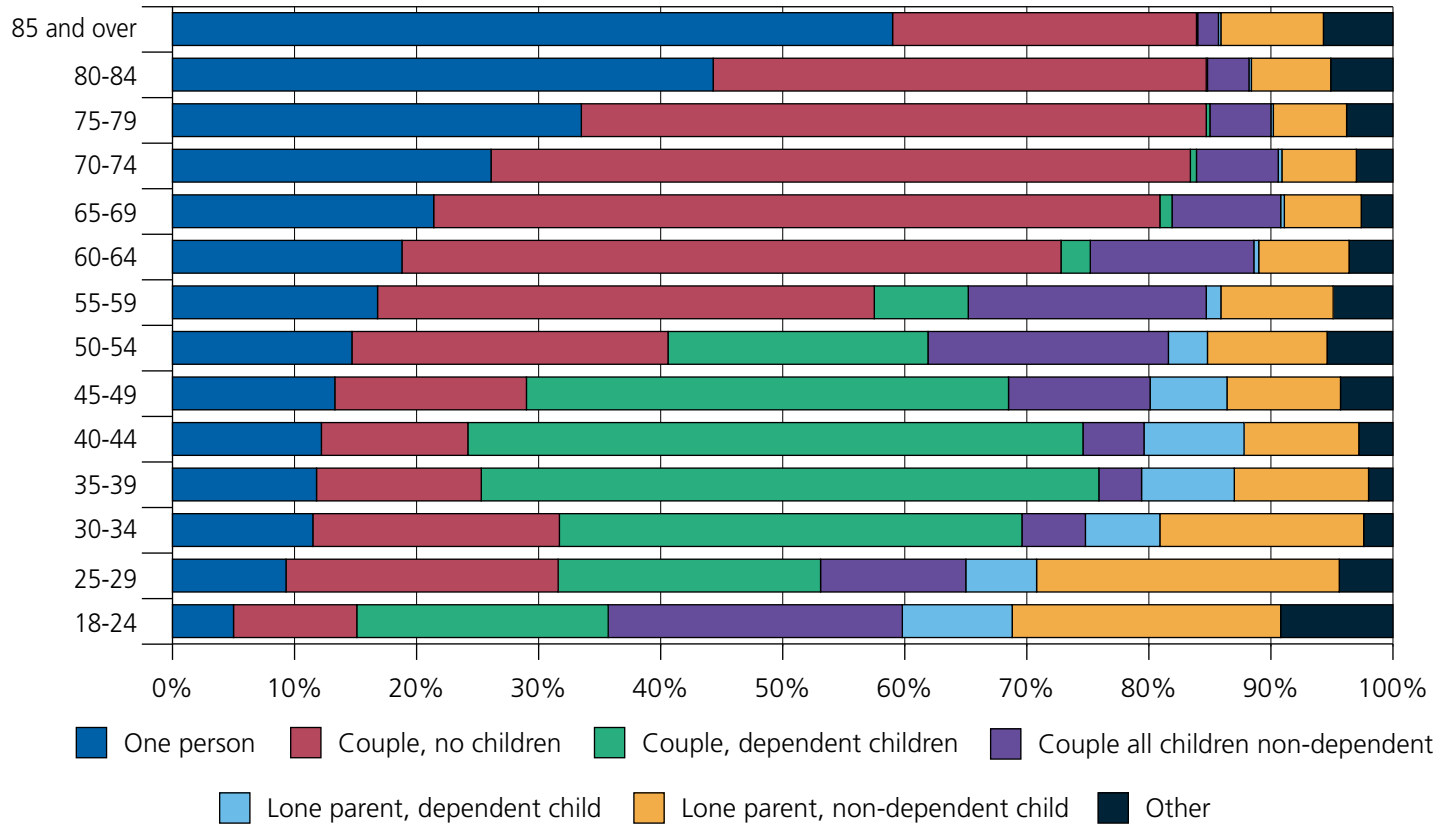
# 5. Living arrangements

Over the past two decades, substantial changes have occurred in the patterns of family formation and dissolution in England, as has been the case elsewhere across Europe. Declining marriage, increasing cohabitation, delayed fertility and increasing childlessness have resulted in British families becoming considerably more diverse. Figure 2.4 shows the proportion of individuals living in different family types in England by age group. Focusing on the Baby Boomers, ie those aged 45–64 in 2011, the majority are living as part of a couple (whether married, in a civil partnership or cohabiting), either with or without children.

There is a notable move from living with dependent children at age 45–49, to living as a couple only at age 60–64. Among those aged 45–49, 13.3% are living alone; however, among those aged 60–64 this proportion is higher at 18.8%. Interestingly, around one in five individuals aged 50–54 and 55–59 are living as a couple with a non-dependent child, ie a child who is aged 16–17 and not in full-time education or aged 18 and over. Key determinants of returning to the parental home are associated with turning points in an individual's life course such as leaving full-time education, unemployment, or partnership dissolution.[8] This is particularly salient in the context of the recession in the late 2000s, increased university tuition fees, and rising student debt, with the result that a notable proportion of Baby Boomers find their adult children returning home in their 20s and 30s, when they themselves are in their 50s and 60s.

There is also evidence that parents in their 50s and 60s continue to provide support to their adult children who have left home. Around two-thirds of parents aged 50–64 reported regularly giving help to a child aged 16 and over who was not living with them,[9] suggesting that flows of support from parents to adult children endure long after they have grown up and left home.

**Figure 2.4 Living arrangements: family type by age, England, 2011**




**Source** *2011 Census, England*

# 6. Changes in the family and implications for future social support

The main sources of social care and other forms of emotional and practical support in later life are from a partner and adult children.[10] Looking at the differences in partnership formation and dissolution across the cohorts allows us to consider what the living arrangements of the Baby Boomers might look like in the future, and to comment on their potential situation with regard to the availability of informal care from adult children or partners.

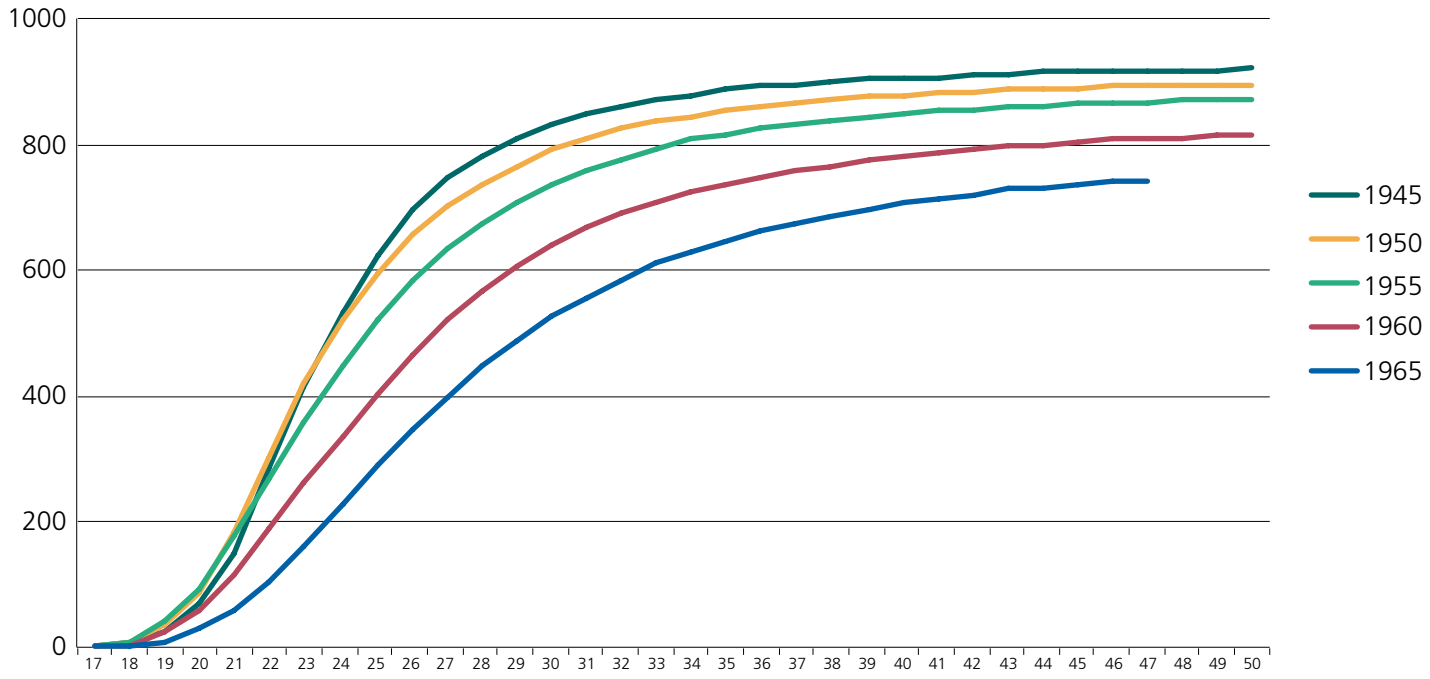
Figures 2.5a and 2.5b show the proportion of men and women ever married by a certain age by birth cohort for England and Wales, while Figures 2.6a and 2.6b show the proportion who had ever divorced.[v] Successive cohorts of men and women have both married later and marriage has become less common overall. The majority of men (89%) and women (95%) born in 1945 had married by age 40; however, among those born in 1965 around 35% of men and 22% of women had not entered into a first marriage by age 40. This in part reflects the trend towards increasing cohabitation, but recent research has also shown that around 5% of men had never partnered by their 50s.[11]

Divorce has become more common (Figures 2.6a and 2.6b). Of those men born in 1945, almost 25% had divorced at least once by age 50; this had risen to almost 30% among men born in 1955. Moreover, among those born in 1955, the proportion ever divorced continued to increase through their 50s, at a higher rate compared with those born in 1945, highlighting that divorce is becoming more common later in the life course than previously.

Figures 2.7a and 2.7b show the proportion of men and women who have ever remarried. The proportion who have ever remarried increases steadily from around the age of 25 in all birth cohorts. The proportion remarried increased for those born in 1955 compared with those born in 1945, but has decreased for those born in 1965. For example, 82 per 1,000 men born in 1945 had remarried by the age of 35. This increased to 97 per 1,000 men born in 1955 before falling to 57 per 1,000 men born in 1965. There are similar trends for women. In part, this reflects the fact that it is more common for more recent cohorts to cohabit with a partner instead of getting married than it was for previous cohorts. Fewer marriages leads to a lower proportion ever divorced and therefore there are fewer people available to remarry at each age. In addition, more people who have divorced are choosing to cohabit rather than remarry.

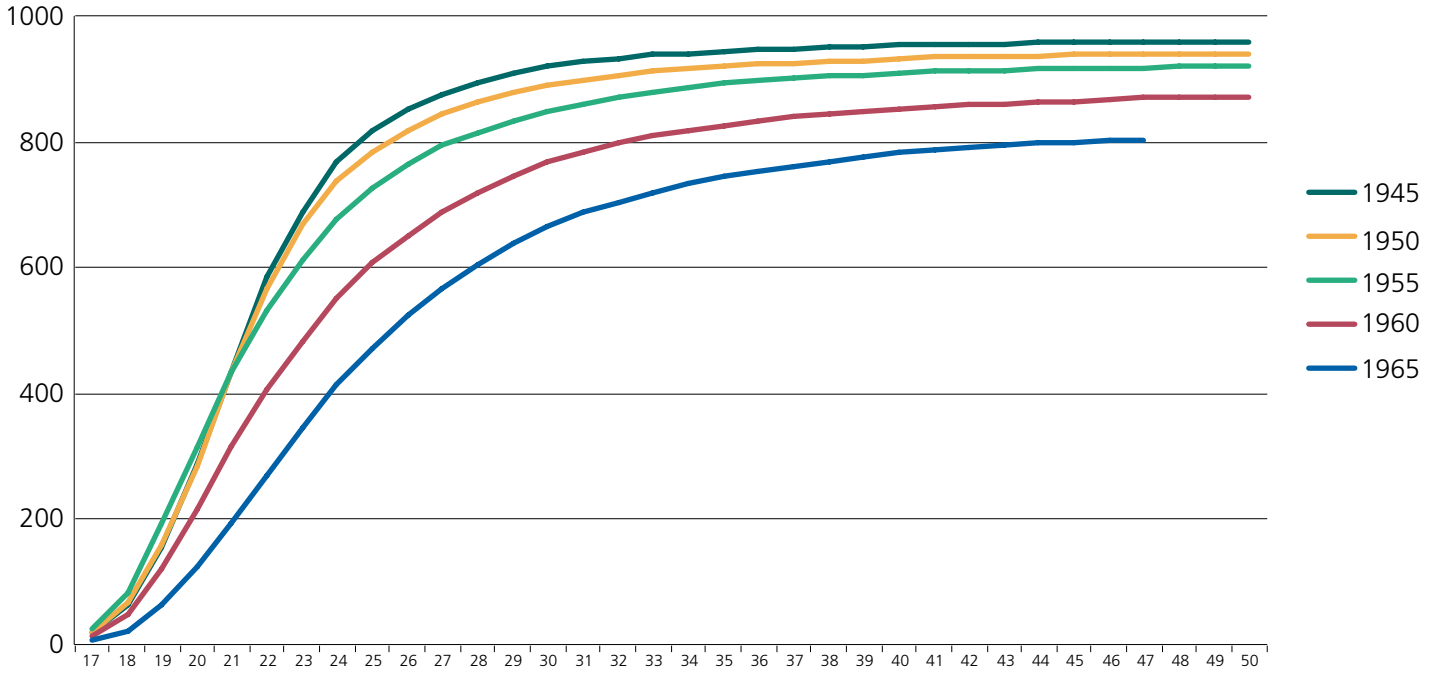
v The data for the youngest cohort, ie those born in 1965, are censored as they were aged 48 in 2013, which is the latest year of data available.

**Figure 2.5a Proportion of men (per 1,000) ever married by a certain age, by birth cohort**



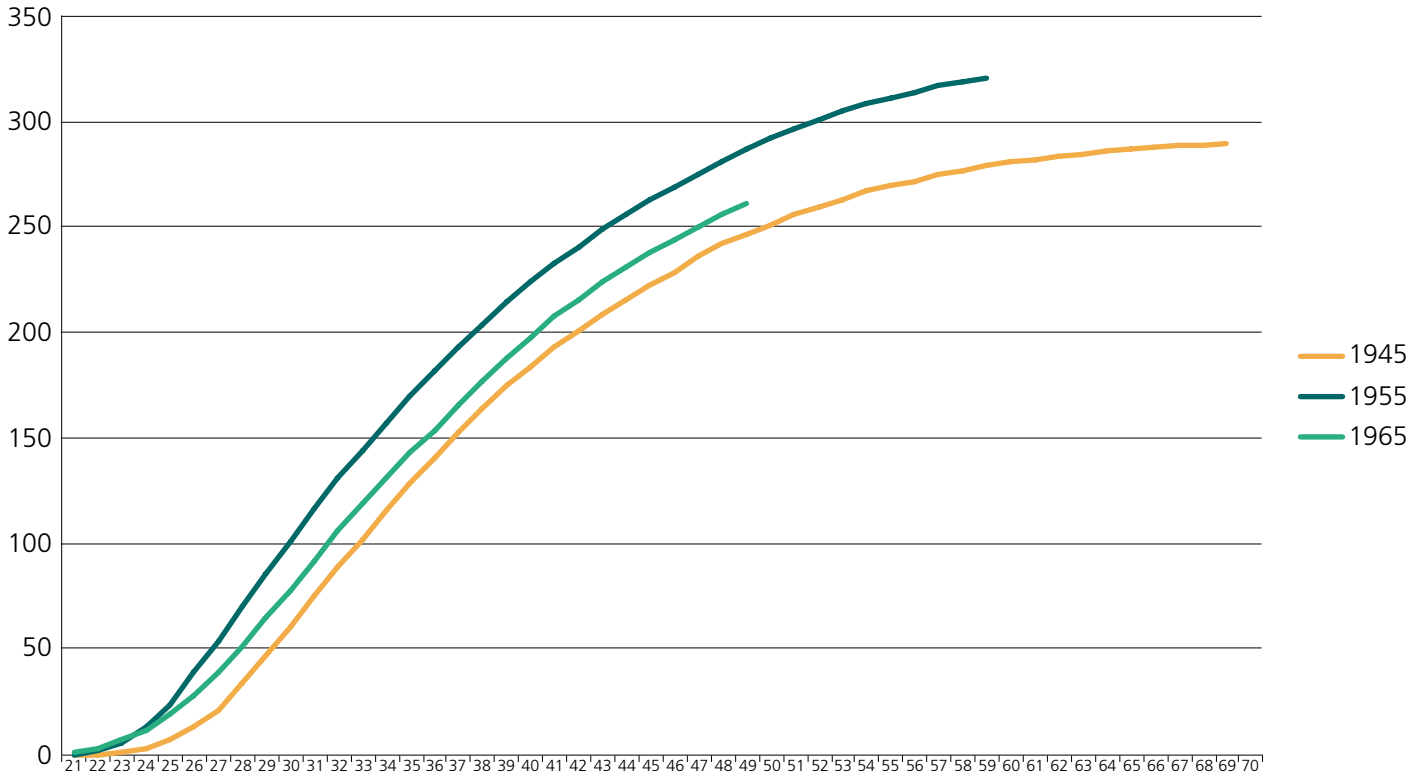

**Source** *ONS Marriage and Divorce Statistics*

**Figure 2.5b Proportion of women (per 1,000) ever married by a certain age, by birth cohort**



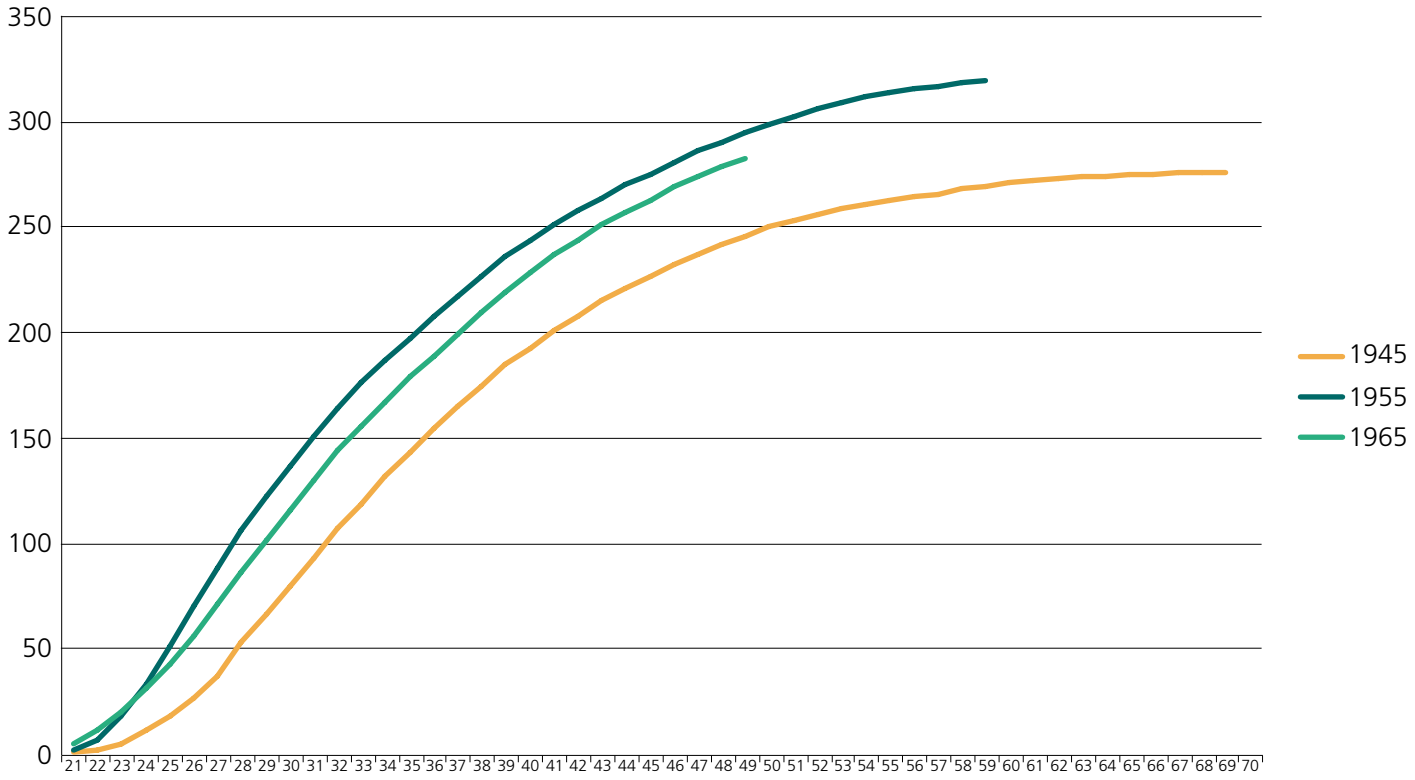

**Source** *ONS Marriage and Divorce Statistics*

**Figure 2.6a Proportion of men (per 1,000) ever divorced by age, by birth cohort**



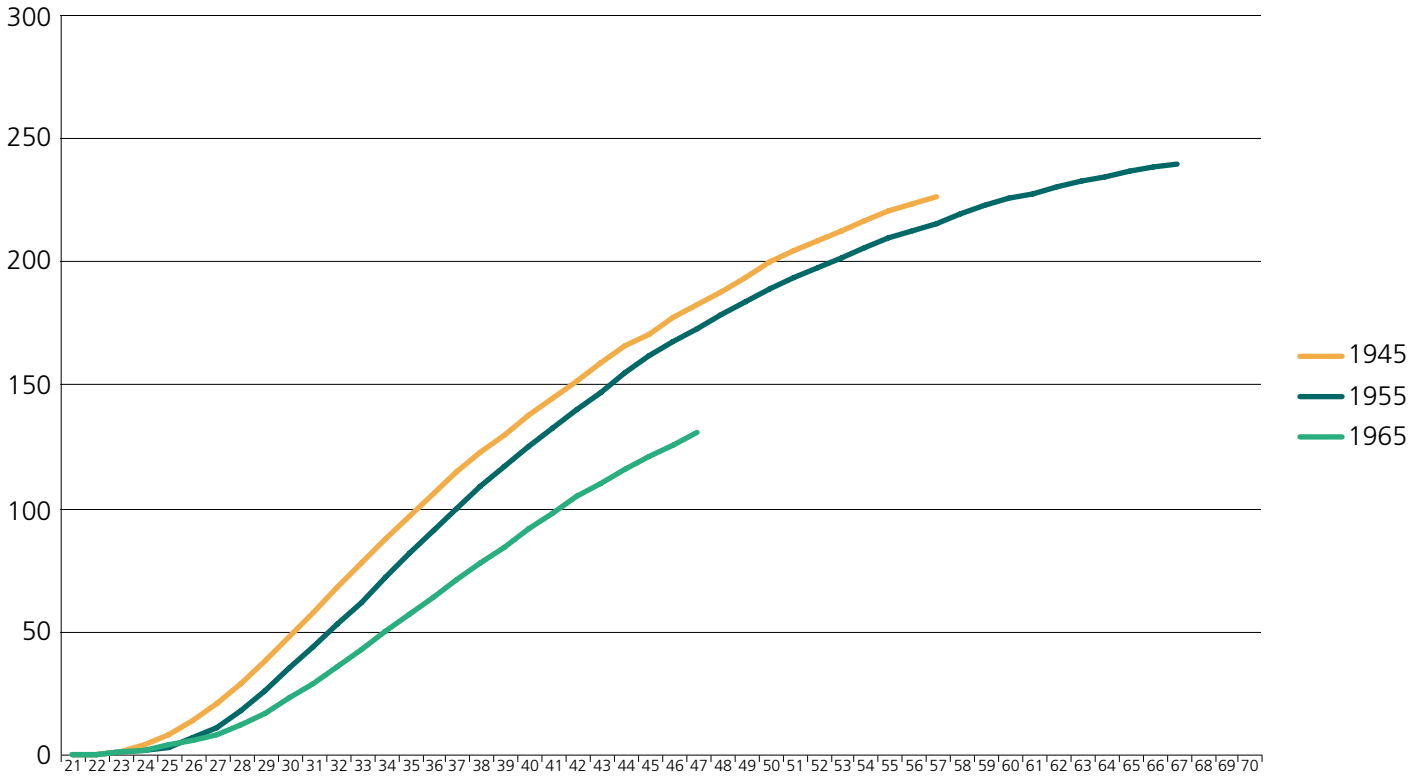

**Source** *ONS Marriage and Divorce Statistics*

**Figure 2.6b Proportion of women (per 1,000) ever divorced by age, by birth cohort**



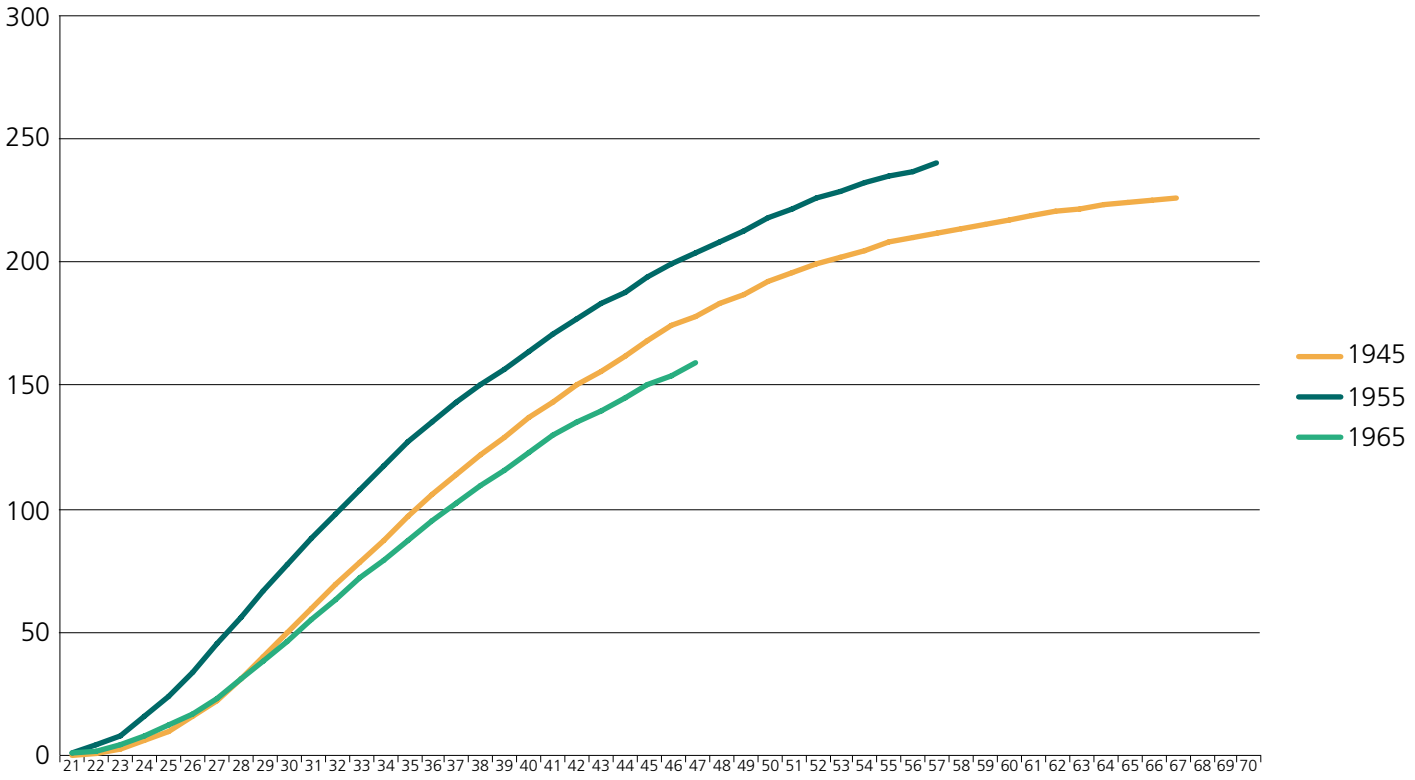

**Source** *ONS Marriage and Divorce Statistics*

**Figure 2.7a Proportion of men (per 1,000) ever remarried by age, by birth cohort**




**Source** *ONS Marriage and Divorce Statistics*

**Figure 2.7b Proportion of women (per 1,000) ever remarried by age, by birth cohort**




**Source** *ONS Marriage and Divorce Statistics*

Solo living in one's 50s and 60s, especially among men, has become more common among successive cohorts; in 1985, 9.6% of men aged 60–64 were living alone; by 2009, this had risen to 21.8% within the same age group, with dissolution of a marriage with children being the dominant pathway into mid-life (age 45–64) solo living.[11]

From a policy perspective, the rise in living alone in their 50s and 60s is of concern since those who are living alone in later life are less likely to receive support from informal sources, having no co-residential partner, and display a higher use of formal services than those who are not living alone.[12] Moreover, living alone is itself related to poor physical health.[13,14]

Recent demographic changes among the baby boomer generation may also affect support from the other main source of social support in later life, namely adult children. As Table 2.4 shows, the average completed family size has fallen from 2.19 children among women born in 1945 to 1.91 among those born in 1965. Interestingly, there has been little change in the percentage of women with large families across cohorts. Rather, it is the decision to have any children at all that has changed, with one in five of women born in 1965 being childless at age 45[vi] compared with one in ten of those born in 1945.[vii]

The fact that a high proportion of the 1940s cohort ever married (with the 1945–49 birth cohort having the highest proportion ever married of all cohorts since the 1920s), and had children, means that a high proportion of this cohort will have surviving adult children in later life. Therefore potentially the availability of informal care in later life is likely to be higher among this cohort than for previous generations. However, the picture is much less clear-cut for those Baby Boomers born in the 1960s. Changes in partnership behaviour may mean that more people from the 1960s cohort enter later life without a partner than in previous cohorts and a higher proportion will be childless.

**Table 2.4 Completed family size among women, by birth cohort 1945–1965, England and Wales**

| Year of birth of woman | Average family size | Number of live-born children (percentages) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Childless | 1 | 2 | 3 | 4+ | Total |
| **1945** | 2.19 | 10 | 14 | 43 | 21 | 12 | 100% |
| **1950** | 2.07 | 14 | 13 | 44 | 20 | 10 | 100% |
| **1955** | 2.02 | 16 | 13 | 41 | 19 | 11 | 100% |
| **1960** | 1.98 | 19 | 12 | 38 | 20 | 11 | 100% |
| **1965** | 1.91 | 20 | 13 | 38 | 19 | 10 | 100% |

**Source** *ONS Birth Statistics*

vi 45 is generally taken to be the upper reproductive age limit; although it is recognised that a small number of women may have their first child after this age, this is unlikely to affect the average for the cohort as a whole.

vii ONS only publishes data on fertility by cohort for women.

# 7. Social networks

To what extent may social networks offer emotional, practical and financial support? Table 2.5, drawing on analysis provided by ONS extending the recent report on *Inequalities in Social Capital*,[9] sheds light on the extent to which people feel they can rely on support within their own social network of family, friends and neighbours in the case of a serious problem. Among those who have a partner, the majority report that they feel able to rely on them in the case of a serious problem; however, a notable minority especially among women (around one in five) do not. Women feel slightly less able to rely on their partner in the case of a serious problem than men, but feel more able to rely on family and friends than men of the same age do. Around a third of baby boomer men and half of baby boomer women indicate that they could rely on friends in the case of a serious problem, indicating that two-thirds of men and half of women do not have such support. Interestingly, there seems to be little difference in the proportion of people in their 50s and 60s who report that they could rely on friends when compared with the total population aged 16 and over.

**Table 2.5 Proportion of people who feel they can rely a lot on their partner[a], family and friends in case of a serious problem, by age and sex, 2013/14**

| | Can rely a lot on partner[a] | | Can rely a lot on family | | Can rely a lot on friends | |
|---|---|---|---|---|---|---|
| | Men | Women | Men | Women | Men | Women |
| 50 to 54 | 83.8 | 78.7 | 45.2 | 57.7 | 29.9 | 49.8 |
| 55 to 59 | 86.5 | 79.2 | 49.7 | 61.6 | 32.3 | 48.5 |
| 60 to 64 | 87.9 | 81.9 | 54.0 | 66.3 | 36.2 | 50.7 |
| 65 to 69 | 88.9 | 81.3 | 58.3 | 68.7 | 34.9 | 50.8 |
| All ages 16 and over | 83.1 | 77.9 | 55.5 | 64.8 | 34.9 | 49.9 |

[a] *Among those who have a husband, wife or partner with whom they live.*

**Source** *Understanding Society, The UK Household Longitudinal Study*

# 8. Use of technology

One area where we might expect to see generational differences is in the use of technology. Figure 2.8 and Table 2.6 present some summary results from the most recent ONS data on computer use between 2006 and 2015 and internet access in 2015. In 2006, 65% of those aged 65 and over had never used a computer but just nine years later this had fallen to 32%. Among those aged 55–64 in 2015, only 12% had never used a computer and just 7% of those aged 45–54 had never done so. Moreover, between 2006 and 2015 the proportion of individuals aged 55–64 who reported using a computer daily or almost every day increased from 36% to 72%, indicating that the Baby Boomers are entering later life with higher computer literacy than previous generations of older people. Approximately three-quarters (74%) of those aged 45–54 in 2015 have accessed the internet 'on the go', with two-thirds using a mobile phone to do so and just under half reporting use of a laptop or tablet to access the internet while away from home or work.[15] Data from Ofcom also corroborate a rapid increase in use of technology by baby boomers. According to Ofcom data, the most rapid increase in internet use since 2005 has been among adults aged 55–64 years, with the proportion accessing the internet on any device in any location increasing by 35% to stand at 84% in 2014.[16] This compares with a proportion of 98% among those aged 35–44. Adults aged 55 years and above do, however, use the internet for fewer hours each week than the average internet user (20.5 hours per week across the whole sample, compared with 15.4 hours per week in 55–64-year-olds, decreasing with age to 9.7 hours per week in those aged 65–74 years).[16]

According to ONS data, in 2015 the most common use of the internet among people aged 45–54 was for email (78%) and the second most common internet activity was finding information about goods and services (76%).[15] Data from Ofcom indicate that in adults aged over 55 years in 2014, levels of internet use to find health-related information was 14%, similar to the levels among the 16–24-year-old age group (12%).[16] Thus, it appears that the 1960s Baby Boomers are increasingly likely to use technology to access information or stay in touch, which has implications both for their social networks and their engagement with information and services in later life.

Baby boomers are increasingly using social media, with 49% of 55–64-year-olds having a social media profile in 2014 (an increase from 33% in 2013). This compares with 28% of those aged 65 years and above, 68% of 45–54-year-olds and 93% of 16–24-year-olds.[16] The most common use of social media is in the form of a Facebook profile (with over 80% of adults with a social media profile over the age of 45 years considering this to be their main social media site) rather than a profile for other sites such as Twitter or Instagram.[16]

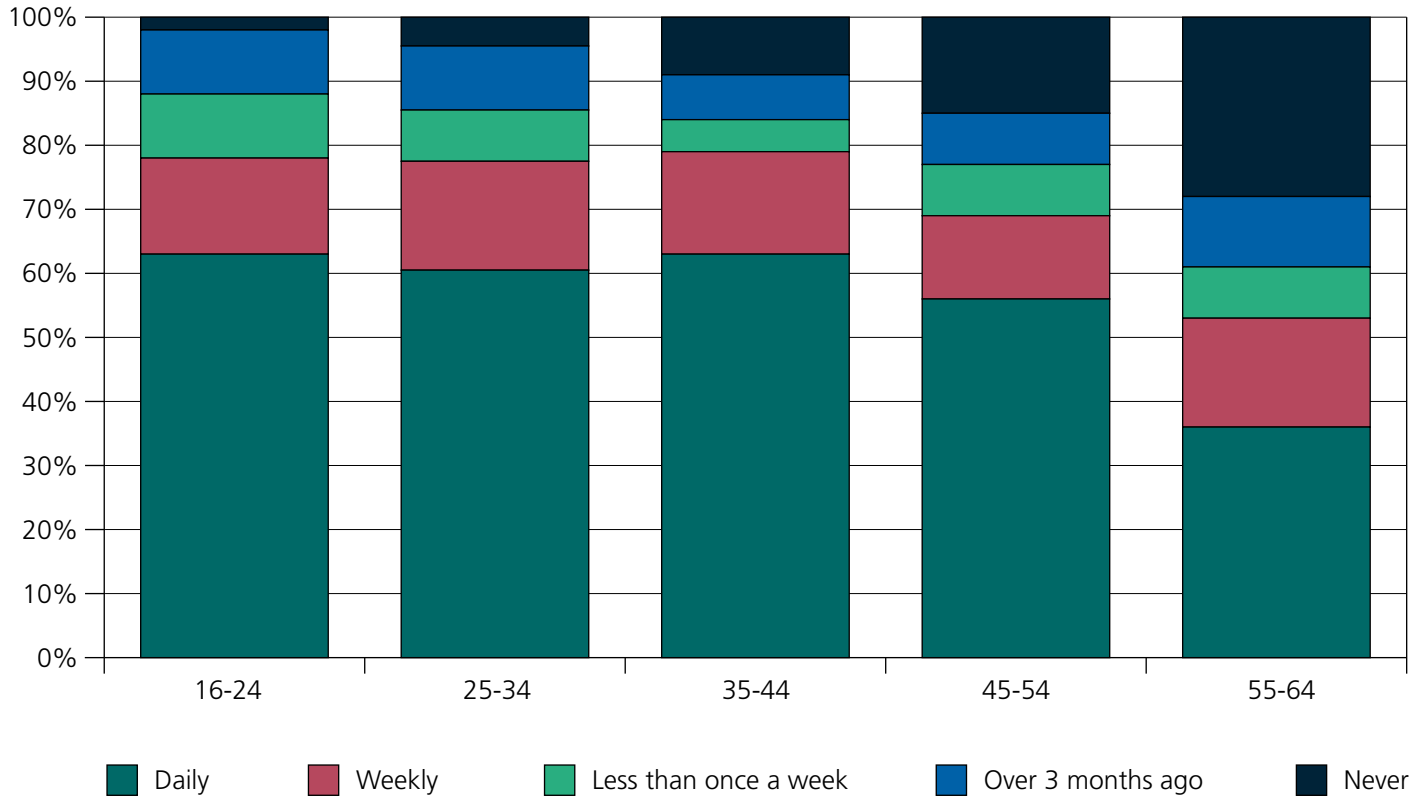
Unlike younger age groups, baby boomers have seen less of a decline in the use of other media such as television and radio. They are also more likely to obtain news items from these sources. For example, in 2014 the average number of hours spent watching news on television was 25 in people aged 16–24 years compared with 189 in those aged over 55 years.[17] Print readership of newspapers also increases with age, being 55% in 55–64-year-olds compared with 29.3% in 15–24s and 45.4% of adults aged 45–54 years.[18] This may be relevant in terms of obtaining health information. Ofcom's 2015 *News Consumption in the UK* report found that over a quarter (26%) of adults aged over 55 years gave 'for information about daily life, eg travel, health, taxes, education' as a reason for following the news (21% in 16–24-year-olds).[18]

**Table 2.6 Percentage reporting accessing the internet 'on the go' using a mobile phone, portable computer and/or handheld device, by age group, 2015**

| | Age group | | | | | |
|---|---|---|---|---|---|---|
| | **16–24** | **25–34** | **35–44** | **45–54** | **55–64** | **65+** |
| Have accessed the internet 'on the go' | 96 | 93 | 90 | 74 | 60 | 29 |
| **Devices used** | | | | | | |
| Mobile phone or smartphone | 90 | 91 | 87 | 66 | 49 | 16 |
| Portable computer (eg laptop, tablet) | 57 | 54 | 54 | 43 | 41 | 22 |
| Other handheld device (eg PDA, MP3, e-book reader, games console) | 20 | 19 | 25 | 16 | 13 | 6 |

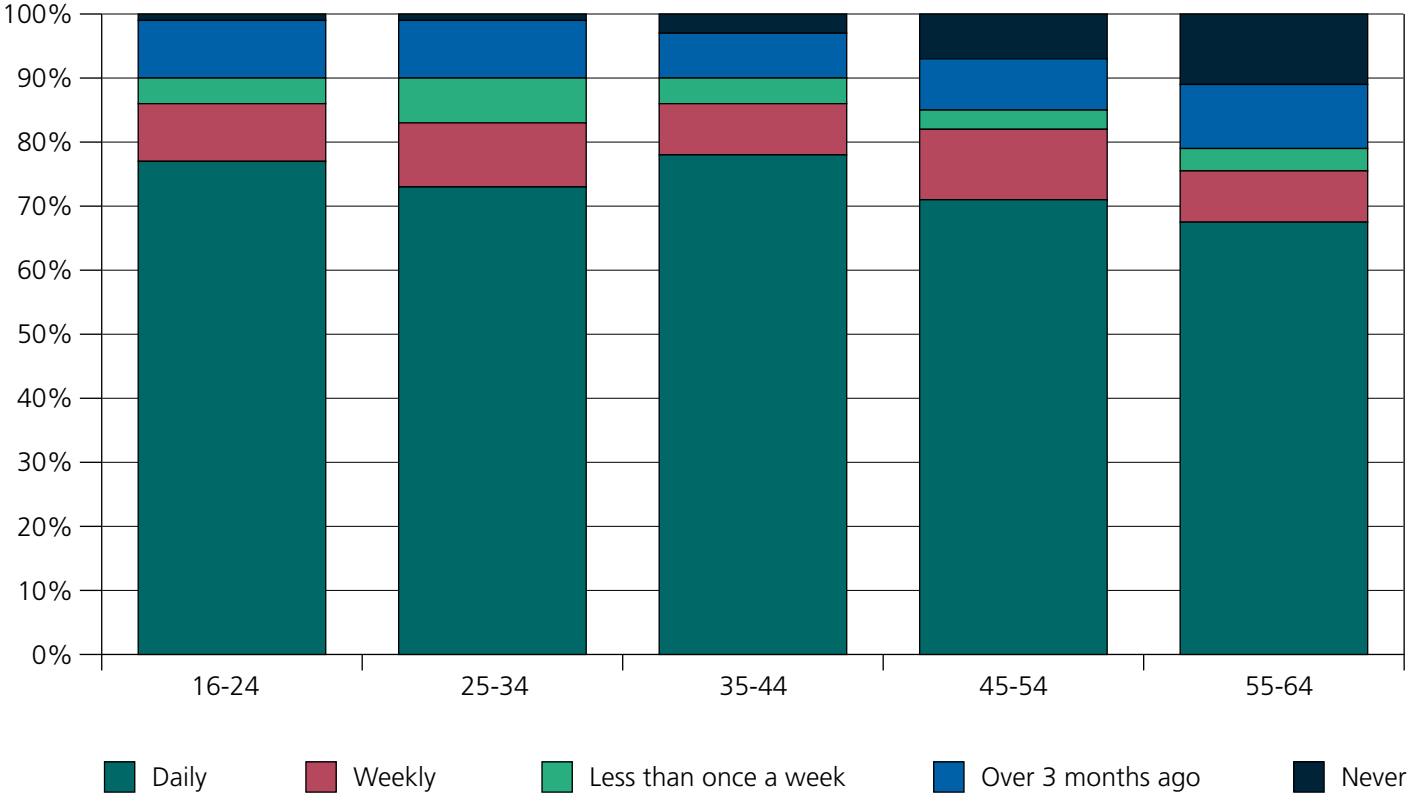
**Source** *ONS (2015c) Internet Access – Households and Individuals, 2015*

**Figure 2.8a Frequency of computer use (%) by age group, 2006**




**Source** *ONS Internet user, 2015*

**Figure 2.8b Frequency of computer use (%) by age group, 2015**




**Source** *ONS Internet user, 2015*

# 9. References


1. Falkingham J. Who are the baby boomers: A demographic profile. In: Evandrou M (ed.) (1997). *Baby-boomers Ageing in the 21st Century.* London: Age Concern England.
2. Evandrou M, Falkingham J. Looking back to look forward: Lessons from four birth cohorts for ageing in the 21st century. *Population Trends* 2000; 99:21–30.
3. ONS (2015). *Summary Results, 2014-based National Population Projections.*
4. Appleby J (2013). *Spending on health and social care over the next 50 years: Why think long term?* London: The King's Fund; p. 8.
5. Diamond I, Clarke S. Demographic patterns among Britain's ethnic groups. In: Joshi H (ed.) (1989). *The Changing Population of Britain.* Oxford: Basil Blackwell.
6. Finney N, Catney G. Ethnic diversity, Chapter 9. In: Champion T, Falkingham J (eds) (2016). *The Changing Population of Britain 25 Years On.* London: Rowman and Littlefield.
7. Jayaweera H (2014). *Health of Migrants in the UK: What do we know?* The Migration Observatory, University of Oxford.
8. Stone J, Berrington A, Falkingham J. Gender, turning points, and boomerangs: Returning home in young adulthood in Great Britain. *Demography* 2014; 51(1): 257–276.
9. Siegler V, Njeru R, Thomas J (2015). *Inequalities in Social Capital by Age and Sex, July 2015.* Available from: www.ons.gov.uk/ons/dcp171766_410190.pdf.
10. Evandrou M, Falkingham J, Robards J, Vlachantoni A (2015). *Who cares? Continuity and change in the prevalence of caring and characteristics of informal carers, in England and Wales 2001–2011.* CPC Working Paper 68, ESRC Centre for Population Change, UK.
11. Demey D, Berrington A, Evandrou M, Falkingham J. Pathways into living alone in mid-life: Diversity and policy implications. *Advances in Life Course Research* 2013; 18(3): 161–174.
12. Evandrou M, Falkingham J. (2005) *A secure retirement for all? Older people and New Labour.* In: Hills J, Stewart K (eds). *A More Equal Society? New Labour, Poverty, Inequality and Exclusion.* Bristol: Polity Press; pp. 167–188.
13. Glaser, K. Murphy, M. and Grundy, E. (1997) 'Limiting long-term illness and household structure among people aged 45 and over, Great Britain 1991' Aging and Society 17(1): 3-19.
14. Hughes, M. and Waite, L. (2002) 'Health in household context: living arrangements and health in late middle age' Journal of Health and Social Behavior 43(1):1-21.
15. ONS (2015c) *Internet Access – Households and Individuals, 2015.* Available from: www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-373604.
16. Ofcom. *Adults' Media Use and Attitudes Report 2015.* Ofcom. May 2015. Online: http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/media-lit-10years/2015_Adults_media_use_and_attitudes_report.pdf. Accessed 13 May 2016.
17. Ofcom. *The Communications Market Report.* Ofcom. August 2015. Online: http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr15/CMR_UK_2015.pdf. Accessed 13 May 2016.
18. Ofcom. *News consumption in the UK: research report.* Ofcom. December 2015. Online: http://stakeholders.ofcom.org.uk/binaries/research/tv-research/news/2015/News_consumption_in_the_UK_2015_report.pdf. Accessed 13 May 2016.

Chapter 3

# Health and employment

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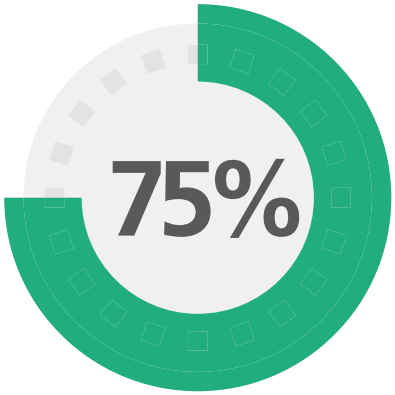
# Health and employment of older adults in England

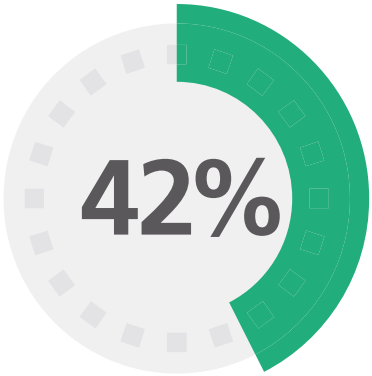
## Who is working?

**OF PEOPLE BETWEEN 50 YEARS OF AGE AND STATE PENSION AGE:**




OF PEOPLE ARE **IN WORK** OR **LOOKING FOR WORK**

**OF EMPLOYED PEOPLE BETWEEN 50-64YEARS OF AGE:**




ARE LIVING WITH 1 OR MORE **HEALTH CONDITION OR DISABILITY**

## Work and health

**'GOOD' WORK CONTRIBUTES TO:**

- SELF ESTEEM
- COGNITIVE BENEFITS
- ECONOMIC BENEFITS TO WIDER SOCIETY

## Future of the workforce

**BY 2020**

# One Third

OF THE WORKFORCE WILL BE OVER 50 YEARS OLD

# 1. Overview

By 2020, it is estimated that a third of British workers will be over the age of 50 years.[1,2] Labour market participation is currently over 75% among those between 50 and state pension age (SPA[i]) and over 12% for those beyond.[3]

In the past 50 years, since many joined the labour market, the worlds of work and health have changed dramatically. Jobs in mining and quarrying have reduced by over 90%, and in manufacturing by 70%; flexible or part-time working has grown from 4% to 25% of total employment; and the ratio of women to men in employment has increased from 30% to 46% of the working population.[4] Since the 1970s, work-related fatalities have fallen by 86%; and since the 1990s, self-reported work-related illness has fallen overall by 33%; at the same time, the rates of musculoskeletal and stress-related illness reported have risen by 57% and 80% respectively.[5]

Today, there is an increasing body of evidence that for most people 'good work'[ii,6] is good for personal health, organisational productivity and economic prosperity.[7,8,9] Since many people define themselves and their position in society in terms of their job, staying in employment is also a significant contributor to self-esteem.[10]

It remains the case, however, that not all work is good for all people. There are considerable data gaps where further research is needed to better understand and overcome the barriers to healthy work for people over 50 years of age. Unplanned, premature and health-related exits from employment, or being forced out of work, can be financially catastrophic for them and their families; the impacts extend throughout their later years and have costs for individuals, families and society. For nearly half (46%) of men in the UK between the ages of 55 and SPA (65 years for men, and approximated at 61 years for women in 2013) who are no longer working, a contributory factor in their retirement is a chronic health.[11] Age itself is a poor discriminator of functional capability, reinforcing the need for an evidence base for fitness for work decisions to overcome the wide variation between individuals' cognitive, aerobic and physical function at different ages.[12]

Some work can itself be damaging to health. Workers aged over 55 years report the highest rates of illness caused or made worse by their work (4,620 men and 4,580 women per 100,000 employed).[13] Rates of self-reported stress, depression or anxiety caused or made worse by work are highest for men and women in the age band 45–54 years. A significant number of cancers diagnosed in people aged 50–70 are attributable to work; over half the melanomas occurring between 50 and 70 years of age could have been avoided had preventive measures been taken at the time to reduce the effects of occupational exposures in outdoor workers;[14] for lung and breast cancer alone, approximately 2,500 cancers could still be prevented (each year) by controlling exposure to workplace hazards.[15]

Furthermore, the health impacts from an early exit from the labour market are not evenly borne; for those in lower socio-economic groups, compulsory retirement or economic insecurity in retirement may adversely affect health, wellbeing and survival, whereas planned early retirement may bring health benefits to those in higher socio-economic groups, particularly those who are economically secure.[8,16]

There is a lack of data and evidence to reliably tailor and adapt work for workers over 50 years of age to maximise their longevity in the workplace and potential productivity to employers. There is a need to understand which skills and ways of working would increase their flexibility to choose work that supports and improves their health; there is also a need to determine the actions that would increase the capabilities needed from them by employers seeking improved productivity.[17,18,19]

Permanent retirement from the world of work is in itself a significant life transition. Some studies have shown retirement to have long-term health consequences and associations with increased social isolation and vulnerability.[20,21] However, other studies have suggested that transition to retirement can be associated with improvements in some mental health conditions and fatigue, together with reduced use of antidepressants.[20,22] Although these appear to be independent of retirement age, there remains limited understanding about which groups are most likely to benefit from an early retirement and in what circumstances retirement is the best option for an individual.

There is promising evidence that the continued social engagement that some people find in employment may defer the onset of cognitive decline[23] and the risk of dementia.[24] Currently, more than 40,000 people in the UK who are under the age of 65 are estimated to be living with dementia, many of whom can continue to work with appropriate support and reasonable adjustment. With the total number of people with dementia in the UK set to exceed one million by 2025,[25] the burden of dementia in workplaces is realised through its impact on individuals and carers. The potential loss to business from the impact of dementia on employees is estimated to rise from £628 million to £1.16 billion by 2030.[26]

As the UK workforce ages, works longer and retires later, the burden of ill-health in the working age population is set to increase and dementia is likely to become a more visible issue requiring management in the workplace.

i References to state pension age (SPA) take into account the incremental increases in female state pension age since 2010.

ii This can mean work characterised by opportunities for learning, autonomy, variety, control and discretion, a voice at work, positive social relations, security and fairness, and a balance between efforts and rewards.

# 2. Trends in the nature of work and the workforce

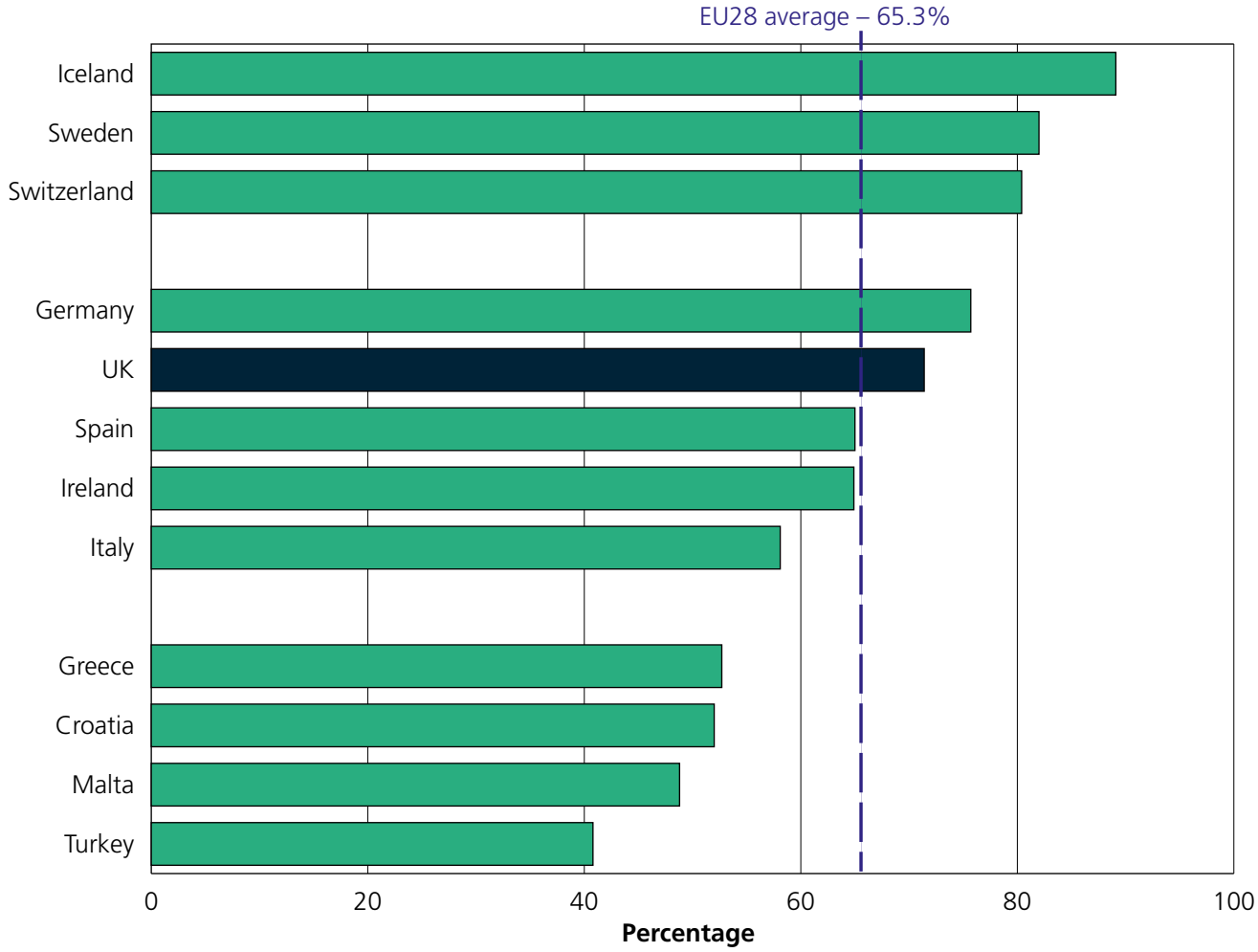
Baby Boomers, born between 1945 and 1964, have experienced increasing life expectancy over the past half century together with falling birth rates.[27] Over the same period there have been significant changes in the type of work available. A shift away from full-time working and manufacturing jobs has been accompanied by increases in self-employment, part-time working and employment in retail and service sectors.[4] There has been an overall increase in the proportion of men and women between 50 and SPA who participate in the labour market, such that more people are over 50 and in employment than ever before; labour market data for the UK show there were 4,860,000 men and 4,140,000 women over 50 years of age in employment in 2014, and increases of 465,000 and 469,000 respectively between 2010 and 2014.[28] A projected fall in the 'dependency ratio' (the ratio of those working to those not in the labour force) from 3.21 to 2.74 people of working age for every person over SPA between 2012 and 2037 makes it more economically important than ever to help more people stay healthy and stay in good jobs for longer.[3] Although this may be a personal choice, it may be a financial necessity.

Changes to retirement age affecting a significant proportion of men and women reaching the age of 50 years after 2003 and 2000 respectively mean that they will not receive the state pension as early as they may have expected.[29]

People are already working longer than they used to; from 2004 to 2010 the average age men and women left work rose by a year to 64.6 for men and 62.3 for women.[30] The last 20 years (to the end of 2014) have seen a gradual increase to 75.3% in the proportion of people aged 50–64 years working or looking for work.[31] The Department for Work and Pensions (DWP) set an aspirational target of 80% in 2007,[32] which is well ahead of the current European Union average of 65.3% (see Figure 3.1, Table 3.1).

Despite the growth in employment for older workers, 20.4% of men and 8.5% of women still leave work in the five years before they reach SPA. In addition to the personal financial impacts, this also has an impact on the public purse, since £7 billion is paid each year in out-of-work benefits to people between the age of 50 years and SPA.[28]

**Figure 3.1 Labour force participation rates in Europe, age group 50–64, April to June 2014**




**Note** European Analysis is not available for the age range 50-State Pension Age so 50-64 has been used

**Source** *Adapted from an original image by Eurostat*

**Table 3.1 Employment participation rate of those aged 50-64, by countries within Europe in 2008 and 2014**

| | % | | *Percentage points* |
|---|---|---|---|
| | Participation Rate[1,2] | | Percentage point change between 2008 and 2014 |
| | 2008 | 2014 | |
| **EU28** | **59.5** | **65.3** | **5.8** |
| Austria | 57.1 | 63.9 | 6.8 |
| Belgium | 49.3 | 58.1 | 8.8 |
| Bulgaria | 59.0 | 64.4 | 5.4 |
| Croatia | 51.4 | 52.0 | 0.6 |
| Cyprus | 65.7 | 64.7 | -1.0 |
| Czech Republic | 63.2 | 67.5 | 4.3 |
| Denmark | 69.3 | 73.3 | 4.0 |
| Estonia | 71.4 | 74.5 | 3.1 |
| Finland | 69.3 | 71.8 | 2.5 |
| Former Yugoslav Republic of Macedonia | 55.5 | 58.5 | 3.0 |
| France | 56.2 | 62.9 | 6.7 |
| Germany | 69.1 | 75.7 | 6.6 |
| Greece | 54.1 | 52.7 | -1.4 |
| Hungary | 46.4 | 55.5 | 9.1 |
| Iceland | 88.6 | 89.1 | 0.5 |
| Ireland | 63.3 | 64.9 | 1.6 |
| Italy | 49.1 | 58.1 | 9.0 |
| Latvia | 71.7 | 71.1 | -0.6 |
| Lithuania | 65.1 | 71.6 | 6.5 |
| Luxembourg | 54.5 | 59.9 | 5.4 |
| Malta | 40.2 | 48.8 | 8.6 |
| Netherlands | 64.8 | 72.3 | 7.5 |
| Norway | 75.5 | 77.5 | 2.0 |
| Poland | 48.4 | 55.2 | 6.8 |
| Portugal | 64.2 | 64.8 | 0.6 |
| Romania | 54.7 | 54.0 | -0.7 |
| Slovakia | 59.1 | 62.4 | 3.3 |
| Slovenia | 51.7 | 55.1 | 3.4 |
| Spain | 58.4 | 65.0 | 6.6 |
| Sweden | 77.7 | 82.0 | 4.3 |
| Switzerland | 76.7 | 80.4 | 3.7 |
| Turkey | 36.1 | 40.8 | 4.7 |
| United Kingdom | 67.7 | 71.4 | 3.7 |

**Source** *Eurostat*
*Notes:*
*[1] Uses Q2/April-June datasets*
*[2] Age band 50-64*

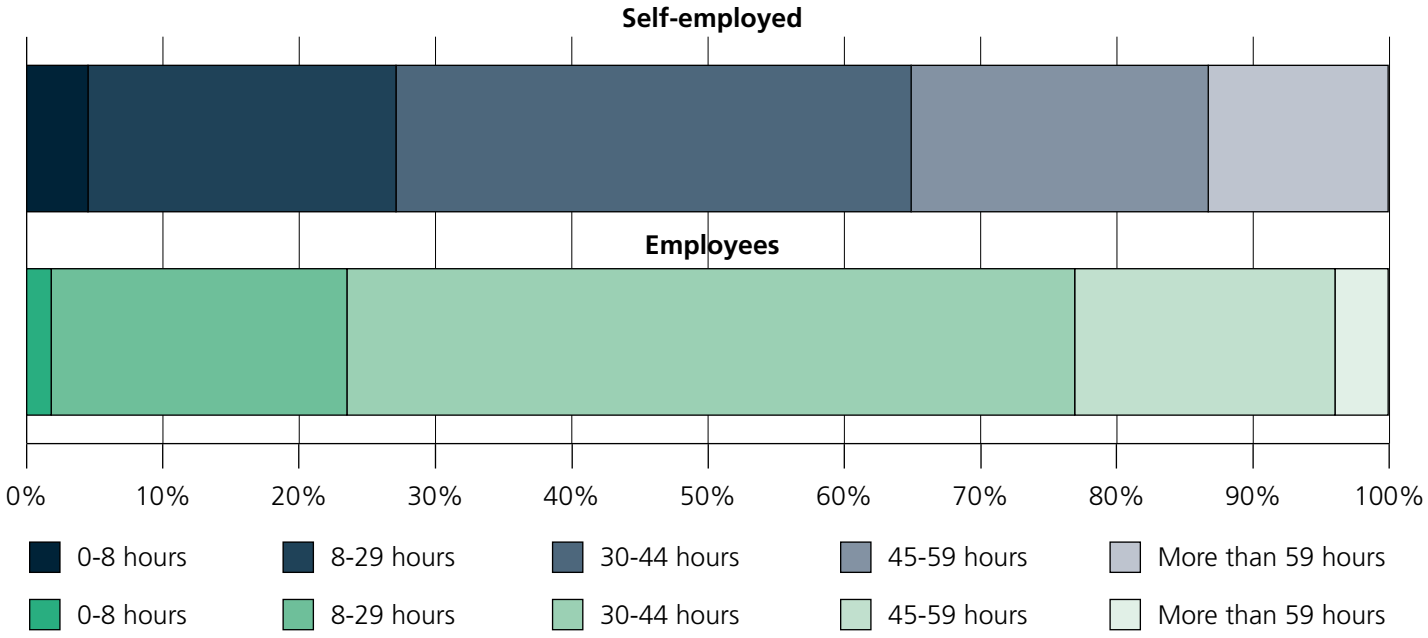
# 3. Trends in patterns of work

With the exception of the 18–24-year age group, people over 50 are the most likely to be working part time or flexibly. 26% of UK workers between the ages of 50 and 64 work part time, and 22% are able to work with flexibilities in employment. This makes it essential to ensure that workplaces are suitable for such working practices if their capability is to be retained.

About 2 million out of approximately 9 million workers aged 50 years or over work for themselves (see Figure 3.2).[33] Workers aged 50 to 64 are also more likely to be in self-employment (18%) than other age groups, particularly those who continue to work beyond the age of 65 years.[34]

At 5%, unemployment rates for people aged 50–64 are low when compared with those who are younger (19% for 18–24-year-olds; 6% for 25–49- year-olds). When those who are unable to work are asked why, 10% of people aged 50–64 years cite sickness or disability as the barrier to employment and 4% cite other family commitments.[35]

**Figure 3.2 Median number of hours worked by people over 16 years of age who are employeees/self-employed, April to June 2014**




**Notes**
1 Total usual hours worked in main job, including overtime
2 Self-employed and employees are aged 16 and over
3 Percentage of all employed people aged 16 or over that are self-employed and employees

**Source** *ONS Self-employed workers in the UK, 2014*

# 4. Labour market position of people aged 50 to SPA

Each year, approximately 330,000 people move from work onto Employment Support Allowance (ESA). Of these people, 92% have a health condition and a third of them are over 50 years old. A further 80,000 people join ESA from self-employment each year, of whom 37% are over 50 years old; their condition is more likely to be long term rather than rapid onset, particularly if they left from a manual (47% vs 38%) rather than non-manual (38 vs 35%) occupation (see Table 3.2). This suggests that specific actions may be needed to enable manual workers over 50 to remain healthy and employed.

By 2020, it has been estimated that a third of British workers will be over the age of 50 years.[2] Multiple factors are believed to affect whether they will stay in employment up to and beyond SPA. Three of the strongest factors are suggested to be:

- their health (physical and mental)
- their financial circumstances
- their domestic and caring responsibilities.[36]

**Table 3.2 People in work before ESA claim by duration of illness and age group, 2009**

| | | | | | % | *Percentage* | | |
|---|---|---|---|---|---|---|---|---|
| | Age Group | | | | | Gender | | |
| | 16-24 | 25-34 | 35-49 | 50-54 | 55+ | All Men | All Women | Total |
| Born with it or birth injury (including heredity illnesses) | [15] | [13] | 9 | [6] | [5] | 8 | 10 | 9 |
| Work-related accident or injury (including traffic accidents at work) | [6] | 16 | 16 | [12] | 14 | 19 | 7 | 14 |
| Non-work related traffic accident or injury | [12] | [10] | 6 | [6] | [4] | 9 | [3] | 7 |
| Household, leisure and sports accident or injury (non-work related) | [11] | [6] | 4 | [3] | [3] | 5 | [3] | 4 |
| Work-related diseases and illnesses | [3] | [6] | 14 | [12] | 19 | 14 | 10 | 13 |
| Non-work-related diseases and illnesses | 45 | 44 | 44 | 54 | 49 | 39 | 60 | 47 |
| Don't know | 8 | [5] | 8 | [7] | [5] | 7 | 6 | 7 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| *Base* | *127* | *225* | *560* | *196* | *346* | *926* | *537* | *1,463** |

*Base: Respondents reporting a health condition, baseline survey.*

** Base total by age is 1,454 due to missing data on age in nine cases.*

**Source** *Sissons, Barnes and Stevens, Routes onto Employment and Support Allowance 2011*

# 5. Impacts of health on work

Almost half (46%) of people aged 55–64 in the UK who are no longer working retired due to at least one chronic medical condition.[11]

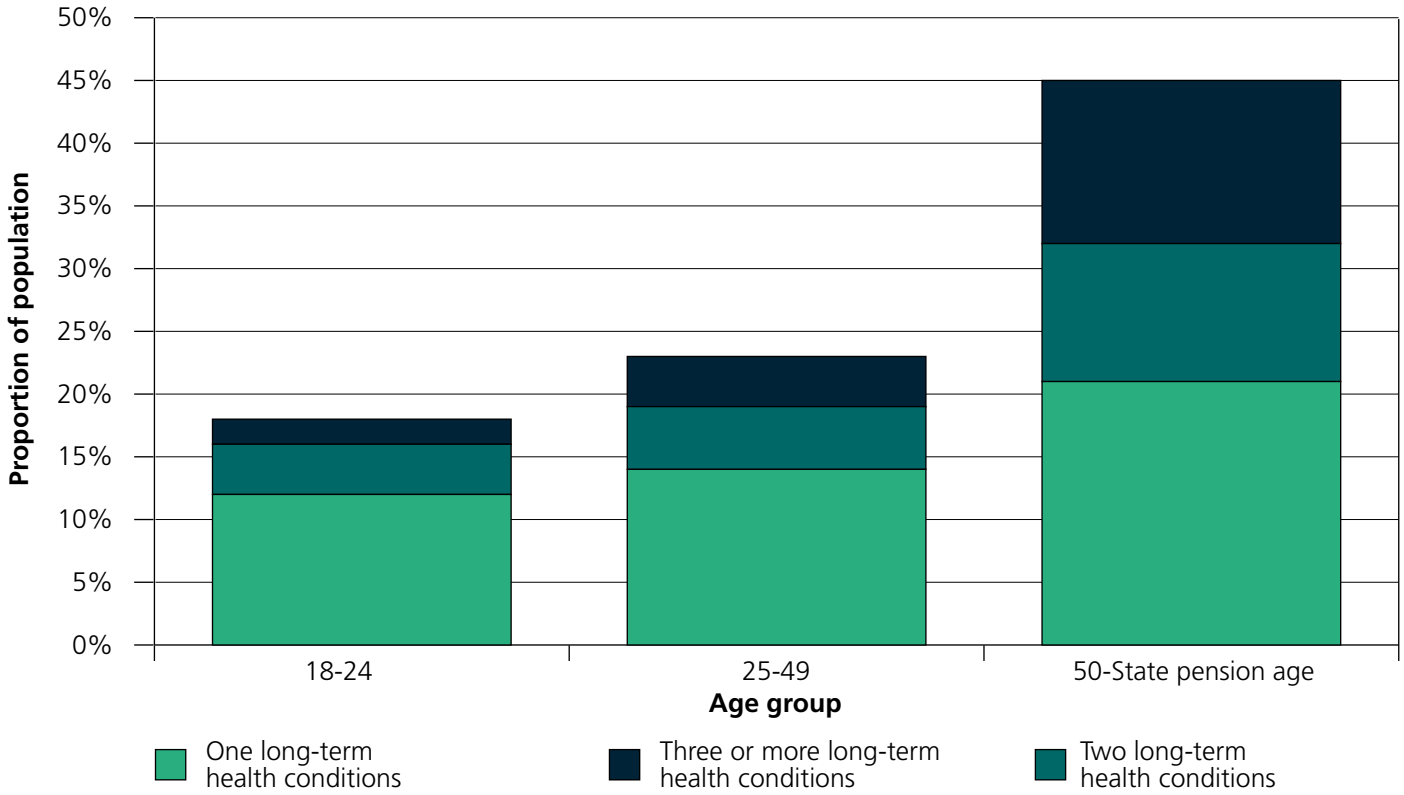
Of the 7.2 million people aged 50–64 who are employed, 42% report that they are living with at least one health condition or disability.[13,37] Of these, 24 % have more than one condition. These data are consistent with those reported in a study of patients registered with their GP in Scotland, which found that about 30% of those aged 50–64 have multiple physical or mental co-morbidities, and 12% have both physical and mental health co-morbidities.[38]

Many people who develop physical or mental health conditions during their working lives are able to maintain employment without additional assistance, although this differs significantly by condition. The most prevalent health conditions affecting people aged 50–64 are musculoskeletal conditions (21%), cardiovascular conditions (17%) and depression and anxiety (8%). Whereas 83% of people with no long-term condition aged 50 to SPA are employed, 54% of those with musculoskeletal problems remain in employment and 67% with circulatory problems, but only 43% of those with mental health problems such as depression are able to do so (half the rate of 'healthy' people of comparable age). This suggests that the barriers to maintaining employment for those who have or develop a mental health condition are more significant than those for other long-term conditions.

This has important implications, since the proportion of people over 50 reporting long-term health problems or disability is projected to increase substantially from 43% in 2004 to 58% by 2020.[39]

The fact that fewer than one in three UK employees with a long-term condition have discussed it with their employer suggests that there may be stigma associated with chronic conditions in workers.[40] According to Age UK, 65% of older workers (people over the age of 65 years, unless otherwise specified) believe age discrimination still exists in the workplace.[41] A UK telephone study of 50–75-year-olds identified attitudes and structures, rather than specifically identifying health status, as the barrier to continued employment.[42] It is important to recognise that age discrimination and unconscious bias can result in both positive and negative stereotypes; older workers may be described by some as more loyal, reliable and calm under pressure, and by others as less flexible, less productive and slower to adapt to new technology than younger workers.[43]

**Figure 3.3 Proportion of population with 1 to 3 long-term health conditions, by age, United Kingdom, 2013 Q2–Q4**




**Note** Due to definition change for disability from April 2013, 3 quarters worth of data have been used as there was a discontinuity in the reporting of health data between Q1 and Q2 in 2013. Therefore Q1 has been ommitted from the analysis.

**Source** *Labour Force Survey 3 quarter average 2013 Q2–Q4*

There is some evidence to suggest that older employees' attendance at work is lower than that of younger workers, though this may not reflect their productivity; those over 55 years have the highest number of recorded days lost per worker at 1.45 days per year, per worker.[13] Furthermore, these data may not independently relate to age alone; days lost reflect both carer leave and sickness absence.

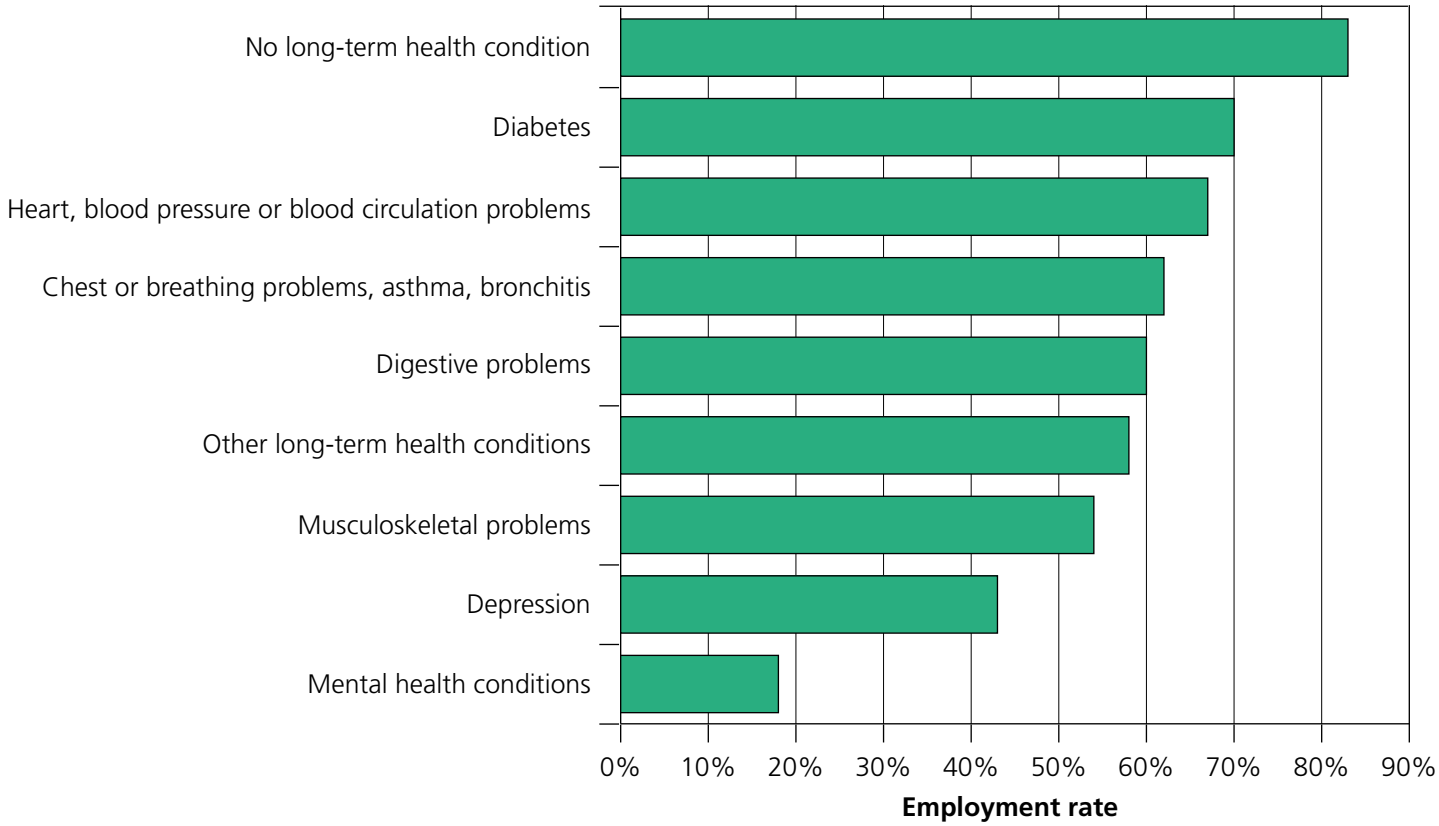
In terms of physical fitness for work, although there are changes in visual acuity, hearing, and aerobic, physical and cardiovascular fitness with age, age itself is a very poor predictor of functional capacity. Up to the age of 40 years, peak muscle force remains relatively constant with only a slight decline to age 65 years; age-related decreases in cardiovascular fitness can be considerably lessened with training, and there is evidence to suggest that as workers age they compensate for cognitive decline often with little or no impact on job performance.[12] The life course paradigm reinforces the need for individuals to invest in their physical and mental resilience to maintain their capacity and capability as they age and minimise any decline in functionality.

## Impact of financial circumstances

Since 2014, there has been an increasing trend for retired people to re-start work, either because of a change of heart about work (16.8%) or because of financial pressures (7.4%).[31] Approximately 30% of people who stopped work between age 50 and SPA between 2008 and 2010 saw their income immediately drop by more than half. Reduced pension contributions are also likely to increase the risk of lower incomes later in retirement.[28]

Although there is not a consistent definition of self-reported wellbeing, nor has its correlation to measures of mental health been determined,[44] self-reported financial situation has been found to correlate well with self-reported mental wellbeing measured by responses to the General Health Questionnaire, GHQ12;[45] people over 50 who were 'finding it very difficult' to manage financially were almost eight times more likely to have poor self-reported mental wellbeing compared with those who reported that they were 'living comfortably'. Other factors associated with poorer self-reported mental wellbeing in the over-50s were unemployment, absence from work through long-term sickness or having a disability when compared to those in paid work. In addition, the over-50s who were still repaying a mortgage on their home were 1.2 times more likely ($P<0.001$) to have poor self-reported mental wellbeing than people who owned their own home.

**Figure 3.4 Employment rate by chronic condition, 2013 Q2–Q4**




**Source** *DWP (2014), Fuller Working Lives – Background evidence (reference data tab 4.3)*

# 6. Access to work

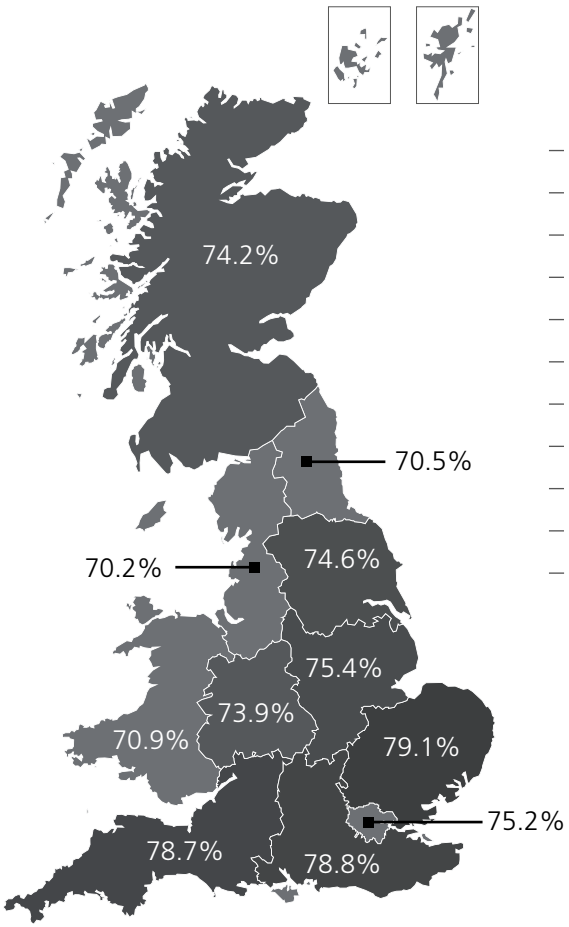
Considerable regional variations in labour force participation for those aged over 50 years may reflect variations in access to good work. Labour force participation is defined by the Office for National Statistics (ONS) as either 'being in employment' or 'unemployed and searching for work'.[46]

The highest percentage participation in those over 50 years in England is to be found in the South East of England at 77.9%; the lowest rates are in the North-East of England at 69.8%.[47] The top three employment sectors for over-50s are professional occupations, senior managers, and associate professional and technical occupations. Among those working beyond SPA, the top three occupational groups are the professional occupations, administrative and secretarial, and senior managers. Sales and customer service occupations are the least represented among those aged 50 to SPA, and process and plant machine operatives among those working beyond the SPA.[31]

The prevalence of long-term unemployment among the over-50s remains high, with almost half of all UK long-term unemployment accounted for by people over 50 years old.[48] Research by Age UK and the Centre for Economic and Social Inclusion (CESI)[49] also highlights that job outcome success for those people on the Government's 'Work Programme'[iii] declines steeply with age and condition for both men and women; job outcome success for older workers (50+) with mental health conditions, musculoskeletal disorders, and conditions of the nervous and circulatory systems are especially poor. The outcomes measured included job entry, retention, benefit receipts and participant experience.

iii An integrated welfare-to-work programme for unemployed and economically inactive people, implemented across Great Britain from June 2011.

**Figure 3.5 Labour participation rates of those aged 50 + by regions and devolved nations of Great Britain in 2008 and 2014**




| | | Percentage point change 08-14 (1 decimal point) |
|---|---|---|
| East of England | 79.1% | 1.1 |
| South East | 78.8% | -0.8 |
| South West | 78.7% | 0.5 |
| East Midlands | 75.4% | 0.4 |
| London | 75.2% | 2.8 |
| Yorkshire and The Humber | 74.6% | 2.2 |
| Scotland | 74.2% | 0.4 |
| West Midlands | 73.9% | -0.8 |
| Wales | 70.9% | 3.0 |
| North East | 70.5% | 1.9 |
| North West | 70.2% | 0.4 |

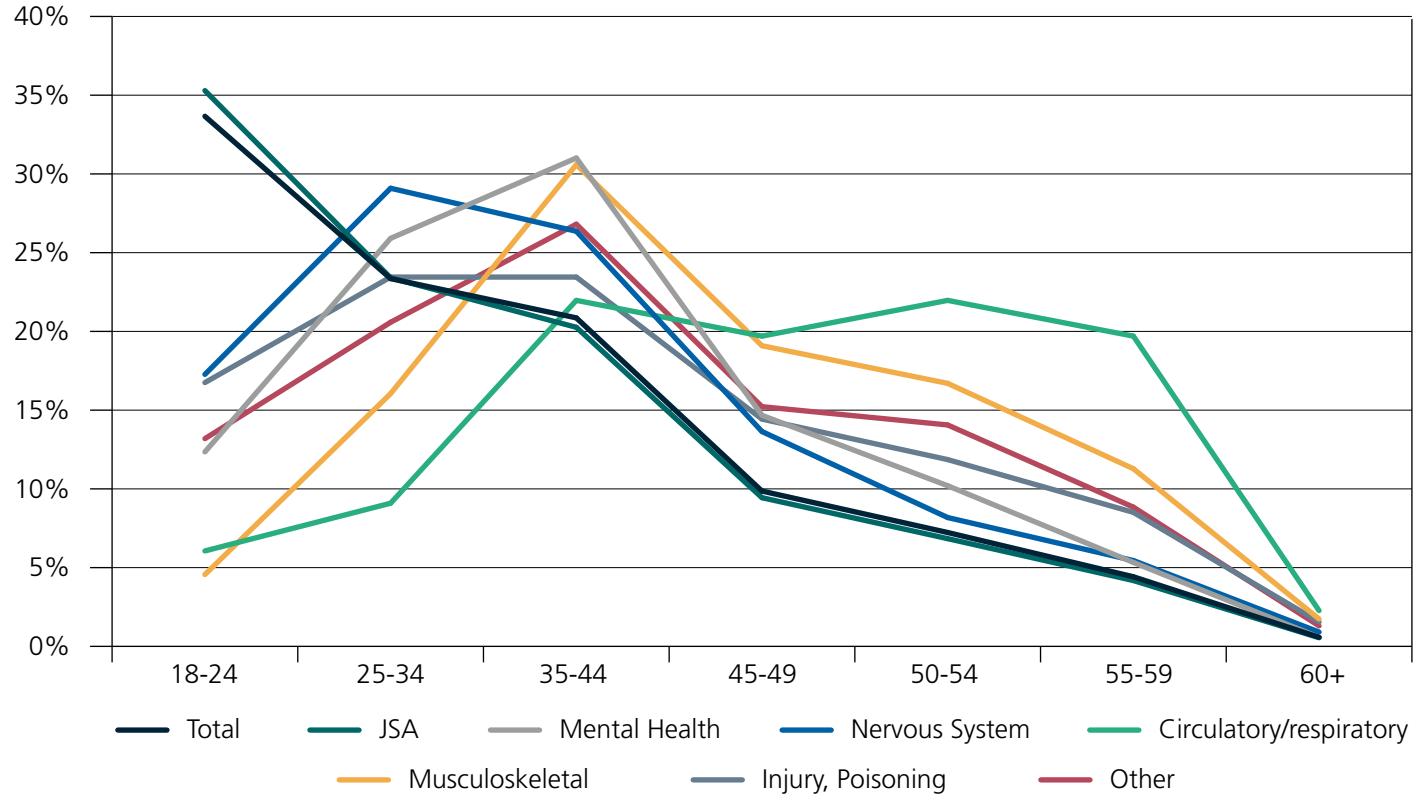
1 In 2014, 79.1% of people aged between 50 and State Pension Age in the East of England were participaring in the labour market

2 Wales has seen the largest percentage point increase in participation between 2008 and 2014 of 3.0 percentage points


Note: Excludes Northern Ireland due to small sample sizes

**Source** *ONS, Annual Population Survey datasets, 2015*

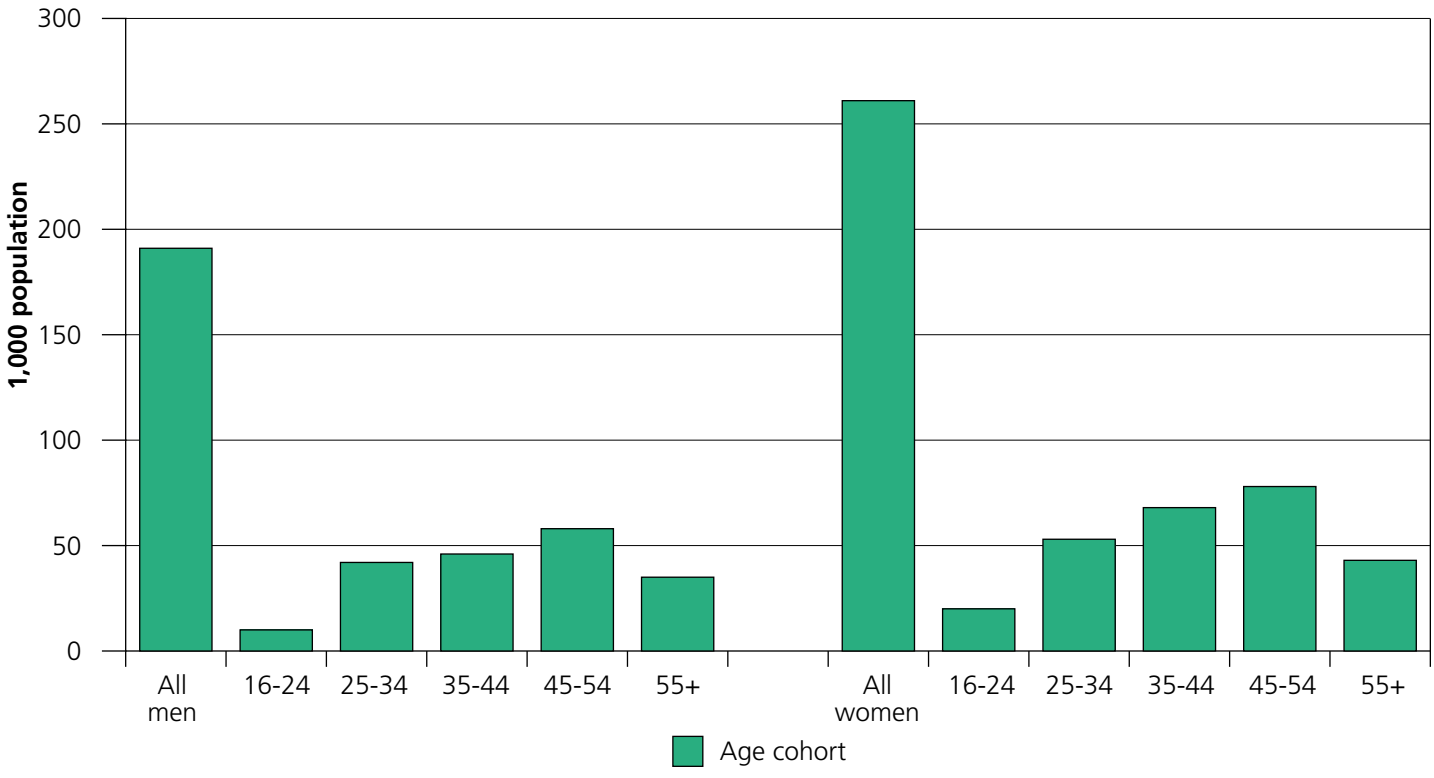
**Figure 3.6 Work Programme job outcome rates by age and health conditions (ESA claimants only)**




**Note** Data (in thousands) up to and including=DEC15

**Source** *Age UK/CESI, 2014*

**Figure 3.7 Estimated prevalence of self-reported stress, depression or anxiety caused or made worse by work, by age and gender, for people working in the last 12 months, averaged 2011/12, 2013/14, 2014/15**




**Note** No ill health data collected in 2012/13.

**Source** *Health and Safety Executive (www.hse.gov.uk/statistics/lfs/strage1_3yr.xlsx)*

## Impacts of work on health

Although there is evidence that work is, in most cases, beneficial to health,[8] we know that some work can also have a deleterious impact on health, especially for some older workers. Workers aged over 55 years report the highest rates of illness caused or made worse by their work (4,620 men and 4,580 women per 100,000 employed) of any age group. Those people aged 16–24 years had the lowest rates (1,490 men and 2,300 women per 100,000).[13]

There are important differences in physical and psychological health exposures between older workers and their younger colleagues. Working men aged 55 and over, and those employed in construction and building trades, report the highest rates of work-related musculoskeletal disorders. For women the highest self-reported rates are in the 45–54-year age band, shortly followed by the 55-plus age group.[13]

With increasing age there is increased opportunity for cumulative exposure to workplace hazards. The physical demands of work among many over-50s also remain significant. Recent data from the European Working Conditions Survey (EWCS), which includes the UK,[50] show that more than one in five workers over 50 are frequently exposed to loud noise, chemicals or other substances, and high and low temperatures at work. More than a third are exposed to tiring or painful working positions and carrying or moving heavy loads, and over half are doing jobs that involve exposure to repetitive hand or arm movements.

Over 50 years, rates of self-reported stress, depression or anxiety, caused or made worse by work, peak in the age band 45–54, for both men and women.

Data from 'The Health and Occupational Reporting' (THOR) network, and in particular from surveillance of occupational stress and mental illness (SOSMI) by psychiatrists who contribute to the Health and Safety Executive (HSE) data, suggest that the incidence of anxiety, depression and work-related stress peaks at age 50. Women aged 45–54 consistently report more work-related stress than all other groups.[13] The reasons are not absolutely clear, since reporting itself may be increased in women. At the same time, women aged 45–54 are more likely to have increased domestic and caring responsibilities, which may also contribute to their stress. One in four women aged 50–64 have caring responsibilities, compared with one in six men.[51]

Self-reported stress appears to fall slightly after 55 years, which is largely due to significantly lower levels reported by the over-60s.[52] With respect to other demands at work, the EWCS data[50] show that four in ten UK workers over 50 work more than 10 hours a day at least once a month (similar to their under-35 colleagues), one in three report working to very tight deadlines and one in four say they cannot choose or change the pace or rate of their work. Almost one in five report working nights at least once a month and one in six say that they have to work at very high speed almost all of the time.

Reported incidences of occupational illness vary by condition, age and reporting clinician. For example, many more cases of occupational dermatitis, musculoskeletal disorders and mental health conditions are reported to THOR by general practitioners (THOR- GPs) than by specialists such as dermatologists (EPIDERM), rheumatologists (MOSS, Musculoskeletal Occupational Surveillance Scheme) and psychiatrists (SOSMI), whereas the more severe cases are seen in tertiary care settings. The data from these surveillance schemes see a fall in contact dermatitis and mental health conditions over 55 years of age.[53]

Diseases of long latency are, by definition, less likely to present in younger workers. Each year approximately 12,000 people die from work-related respiratory diseases; about two-thirds of these have long latency such as asbestos-related diseases or chronic obstructive pulmonary disease (COPD).[54] Research commissioned by the HSE[55] estimates that 5.3% of all cancer deaths in men and women are related to occupational exposure. When the top 10 cancers in terms of occupation-attributable risk[iv] over 2% are considered (bladder, breast, larynx, lung, mesothelioma, nasopharynx, non-melanoma skin cancer, oesophagus, sino-nasal, and soft tissue sarcoma), improved control of

iv The proportion of cases that would not have occurred in the absence of exposure.

**Table 3.3 Reported incidences of occupational illness per 100,000 persons employed, England and Wales**

| Scheme | Time period | Diagnostic category | <55 years* | >55 years* |
|---|---|---|---|---|
| SOSMI | 2000–09 | Mental ill-health | 106.4 | 98.3 |
| MOSS | 2000–09 | Musculoskeletal | 20.9 | 28.3 |
| EPIDERM | 2006–14 | Contact dermatitis | 11.3 | 9.0 |
| THOR-GP | 2006–14 | Mental ill-health | 974 | 824 |
| THOR-GP | 2006–14 | Musculoskeletal | 1,387 | 1,287 |
| THOR-GP | 2006–14 | Contact dermatitis | 180 | 69 |

**Source** *Annual average incidence rates (per 100,000 persons employed, England and Wales) using Labour Force Survey data as denominator (2006–14 for EPIDERM and THOR-GP; 2000–09 for MOSS and SOSMI) for work-related mental ill-health (reported by psychiatrists to SOSMI and GPs to THOR-GP), musculoskeletal disorders (reported by consultant rheumatologists to MOSS and GPs to THOR-GP) and contact dermatitis (reported by consultant dermatologists to EPIDERM and GPs to THOR-GP) by age (<55 years and >55 years)*

exposure had the potential to prevent future deaths in the current 50–70 population. This constitutes approximately 2,500 avoidable deaths from lung and breast cancer (each year) had workplace exposure been controlled for the general working population.[15] Work-related exposure is estimated to account for approximately 57% of malignant melanomas occurring between 50 and 70 years of age, with employment in construction and agriculture conferring the highest risk. A recent study of work-related neoplasia related to solar radiation found the median time between first exposure to sun and symptom onset to be more than 40 years for all relevant neoplasia categories.[56]

A review of national occupational illness reporting schemes found the mean age of presentation to occupational physicians with work-related, noise-induced hearing loss was 51 years, and to audiologists 59 years; the highest incidence rates were in males over 65 years (30.1/100,000 persons employed).[57]

# 7. Reducing age-related health-related barriers

Structured interviews show that the aspirations of workers change over their life course.[58] Older workers (aged 50–64) generally look for flexibility and work/life balance, before trust, recognition and freedom which are a higher priority for younger workers. This may reflect increases in work/health limitations, caring or domestic responsibilities with age.

Just over one in five workers over 50 years of age are able to stay at work because of flexible working arrangements, such as flexible working hours (flexitime), job sharing, or nine-day fortnights. Flexible working practices, together with consideration of workplace ergonomics, have been shown to promote age diversity in workplaces.[59]

The training needs of older workers differ from those of younger workers, with some evidence that they prefer practical, 'hands-on' rather than passive learning.[60] Mid-life career reviews that include training and health may improve employability in later years. An evaluation of more than 3,000 people mostly aged between 45 and 64 demonstrated improved motivation to make changes and explore career options after such a review.[61]

As employers chase older workers to find the capability they seek for enhanced productivity, three areas of focus to increase age friendliness have been identified:

1. Retain – keep older workers and their skills in the workplace through, for example, flexible working.
2. Retrain – provide ongoing workplace training irrespective of age, and opportunities for mid-life career reviews.
3. Recruit – stamp out age discrimination from the recruitment process.8143

Most workers aged 50 or older work for themselves (20–47% of men and 10–28% of women between the ages of 50 and 70) or for small (<50 employees) and medium-sized enterprises (50–250 employees), and it is estimated that only one in five employed in SMEs have access to occupational health advice compared with three out of five working in larger employers.[40] The absence of such access means that many employees may not get the support they need to stay in work when their health is compromised.[62,63] Where complex, fitness for work judgements are required, the advice of an occupational health practitioner should be sought since age alone is a poor criterion in determining functional capacity in connection with fitness for work decisions.[57]

# 8. Improving health through workplace interventions

As the UK workforce continues to age and stay in work longer, and more workers develop long-term health conditions, policymakers, employers, clinicians and older workers themselves will need to work together to improve both their health and employment outcomes. The workplace itself is an environment where 'healthy behaviours' can be fostered. In some cases, changes in health habits may be 'nudged' by making the healthier option the easier choice.[64]

Although age by itself does not have to be a barrier to a healthy working life, older workers continue to face employment challenges. With more evidence-based prevention throughout life, and focused interventions, there is no reason why good work and good health should not be within the grasp of most people aged 50 to 70 and beyond.

# 9. References


1. ONS (2006). *Projections of the UK Labour Force, 2006 to 2020*.
2. Taylor P (2007). *Employment and Labour Market Policies for an Ageing Workforce and Initiatives at the Workplace. National overview report: United Kingdom.* London: European Foundation for the Improvement of Living and Working Conditions.
3. ONS (2015*). Population and Migration – Find out more*. Available from: www.ons.gov.uk/ons/guide-method/compendiums/compendium-of-uk-statistics/population-and-migration/find-out-more/index.html#3.
4. Philpott J (2012). *Britain at Work in the Reign of Queen Elizabeth II.* London: Chartered Institute of Personnel and Development. Available from: https://www.cipd.co.uk/binaries/britain-at-work-in-the-reign-of-queen-elizabeth-ii_2012.pdf.
5. Leigh D (2015). *Trends in Work-Related Injuries and Ill Health in Great Britain since the Introduction of the Health and Safety at Work Act 1974*. London: HSE.
6. Coats D, Max C (2005). *Healthy Work: Productive workplaces – why the UK needs more 'good jobs'.* Lancaster: The Work Foundation.
7. Marmot M (2010). *Fair Society Healthy Lives.* London: The Marmot Review.
8. Waddell G, Burton A (2006). *Is Work Good for Your Health and Wellbeing?* London: TSO.
9. Black C (2008). *Working for a Healthier Tomorrow.* London: TSO.
10. Commission on Social Determinants of Health (2008). *Closing the Gap in a Generation: Health equity through action on the social determinants of health.* Geneva: WHO. Available from: www.who.int/social_determinants/final_report/csdh_finalreport_2008.pdf.
11. DWP (June 2014). *Fuller Working Lives – Background evidence.* Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/458861/fuller-working-lives.pdf.
12. Milligan G, Greig C, Tipton M (2014). *A Literature Review on the Ageing Workforce.* Portsmouth: University of Portsmouth and Energy Institute.
13. HSE (October 2015). *LFS – Labour Force Survey – Self-reported work-related ill health and workplace injuries.* Available from: www.hse.gov.uk/statistics/lfs/#illness.
14. Rushton L, Hutchings S (2015). *The Burden of Occupational Cancer in Great Britain: Cutaneous malignant melanoma and occupational exposure to solar radiation*. IOSH. MRC-HPA Centre for Environment and Health Department of Epidemiology and Biostatistics, Imperial College London.
15. ONS (10 July 2013). *Cancer Registration Statistics, England 2013*. Available from: www.ons.gov.uk/ons/dcp171778_409714.pdf.
16. Mein G, Martikainen P, Hemingway H, Stansfeld S, Marmot M. Is retirement good or bad for mental and physical health functioning? Whitehall II Longitudinal study of civil servants. *Journal of Epidemiology and Community Health* 2003; 57: 46–49.
17. Crawford J, Graveling R, Cowie H, Dixon K. The health safety and health promotion needs of older workers. *Occupational Medicine* 2010; 60: 184–192.
18. Farrow A, Reynolds F. Health and safety of the older worker. *Occupational Medicine* 2012; 62: 4–11.
19. Palmer K (2014). *Centre for Musculoskeletal Health and Work: The HEAF study.* Available from: www.mrc.soton.ac.uk/cmhw/southampton-hub/research-projects-led-by-the-southampton-hub/the-heaf-study.
20. Westerlund H et al. Effect of retirement on major chronic conditions and fatigue: French GAZEL occupational cohort study. *BMJ* 2010.
21. Van den Berg T., Schuring M, Avedano M, Mackenbach J, Burdorf A. The impact of ill health on exit from paid employment in Europe among older workers. *Occupational and Environmental Medicine* December 2010; *67*(12): 845–852.
22. Olesen K, Naja Hulvej R, Madsen I E, Bonde J P, Rugulies R. Does retirement reduce the risk of mental disorders? *Occupational and Environmental Medicine* 2015; 72: 366–372. Available from: www.ncbi.nlm.nih.gov/pmc/articles/PMC4413684/pdf/oemed-2014-102228.pdf.
23. Lupton M K, Stahl D, Archer N, Foy C, Poppe M, Lovestone S, et al. Education, occupation and retirement age effects on the age of onset of Alzheimer's disease. *Int J Geriatr Psychiatry* 2009.
24. Coley N. Dementia prevention: Methodological explanations for inconsistent results. *Epidemiol Review* 2008; 30: 35–66.
25. Alzheimer's Society (November 2014). *Dementia UK Update: Second Edition.* Available from: https://www.alzheimers.org.uk/site/scripts/download_info.php?fileID=2323.
26. CEBR (2014). *The Economic Cost of Dementia to English Businesses: A report for the Dementia Friends campaign.* Centre for Economics and Business Research.
27. ONS (2012). *Mortality in England and Wales: Average life span, 2010.* London: ONS. Available from: www.ons.gov.uk/ons/dcp171776_292196.pdf.
28. DWP (13 June 2014). *Fuller Working Lives – A framework for action.* Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/458861/fuller-working-lives.pdf.
29. Thurley D, McInnes R (2015). *State Pension Age Increases.* London: House of Commons Library. Available from: http://researchbriefings.files.parliament.uk/documents/SN06546/SN06546.pdf.

30. ONS (16 February 2012). *The Labour Market and Retirement.* Available from: www.ons.gov.uk/ons/rel/pensions/pension-trends/chapter-4--the-labour-market-and-retirement--2012-edition-/sum-pensiontrends.html.
31. Penfold M, Foxton F (2015). *Participation Rates in the UK – 2014–3. Older people.* London: ONS. Available from: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/dcp171766_398868.pdf.
32. DWP (2007). *In Work, Better Off: Next steps to full employment.* London: TSO.
33. ONS (2014). *Self-Employed Wworkers in the UK – 2014.* London: ONS. Available from: www.ons.gov.uk/ons/dcp171776_374941.pdf.
34. DWP (2013). *Older Workers Statistical Information Booklet.* London: Department for Work and Pensions.
35. Redden S. (12 December 2013). *Older Workers Statistical Information Booklet 2013: Official statistics.* Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/264899/older-workers-statistical-information-booklet-2013.pdf.
36. Banner N. (2011). *An Ageing Workforce.* London: Parliamentary Office of Science and Technology.
37. Phillips, C. (2013). Single Month Labour Force Survey Estimates, October 2013. London: Office for National Statistics.
38. Barnett K. Epidemiology of multimorbidity and implications for healthcare, research, and medical education: A cross-sectional study. *Lancet* 2012; 380:37–43.
39. Pillai R (March 2007). *DISABILITY 2020: Opportunities for the full and equal citizenship of disabled people in Britain in 2020.* Available from IPPR: www.ippr.org/files/images/media/files/publication/2011/05/Disability_2020_full_1568.pdf?noredirect=1.
40. Steadman K, Wood M, Silvester H (2015). *Health and Wellbeing at Work: A survey of employees.* Department for Work and Pensions. London: TSO.
41. Harrop A, Jopling K (2009). *One Voice – Shaping our ageing society.* London: Age UK. Available from: www.ageuk.org.uk/documents/en-gb/for-professionals/research/one%20voice%20(2009)_pro.pdf?dtrk=true.
42. Maitland A (2010). *Working Better: The over 50s, the new work generation.* London: Equality and Human Rights Commission. Available from: www.equalityhumanrights.com/sites/default/files/documents/publications/workingbetter_over_50s.pdf.
43. Altmann, R. (2015). *A New Vision for Older Workers: Retain, retrain, recruit.* London: Department for Work and Pensions. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411420/a-new-vision-for-older-workers.pdf
44. Davies S (2014). *Annual Report of the Chief Medical Officer 2013, Public Mental Health Priorities: Investing in the evidence.* Department of Health. London: Crown copyright. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/413196/CMO_web_doc.pdf.
45. Hayes D (2014). *The Relationship between Mental Wellbeing and Financial Management among Older People.* University of Bristol, Personal Finance Research Centre. London: ILC.
46. ONS (2014). *Labour Market Participation Rates by Age Groups and Highest Qualification, 1997 to 2015.* UK Statistics Authority, Office for National Statistics. London: ONS. Available from: www.ons.gov.uk/ons/search/index.html?newquery=participation+rates+labour+market.
47. ONS (2015). *Regional Labour Market, January.* Office for National Statistics. London: ONS. Available from: www.ons.gov.uk/ons/dcp171778_430978.pdf.
48. *SAGA Press Release* (18 February 2014). Available from: www.saga.co.uk/newsroom/press-releases/2015/feb/almost-half-of-the-long-term-unemploymed-are-aged-over-50.aspx.
49. Foster et al. (2014). *Work Programme Evaluation: Operation of the commissioning model, finance and programme delivery.* Centre for Economic and Social Inclusion. London: DWP. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/425301/rr893-report.pdf.
50. EWCS (2015). *Sixth European Working Conditions Survey.* Eurofound.
51. Office for National Statistics, 2011 Census: Digitised Boundary Data (England and Wales) [computer file]. UK Data Service Census Support. Available from: http://edina.ac.uk/census
52. Griffiths A, Knight A, Nor Mohd Mahudin D (2009). *Ageing, Work-Related Stress and Health: Reviewing the evidence.* University of Nottingham, Institute of Work, Health and Organisations. Nottingham: The Age and Employment Network.
53. Agius R, et al. (15 January 2015). *Personal Correspondence.* University of Manchester, Centre for Occupational and Environmental Health, Manchester. Available from: www.coeh.man.ac.uk/thor.
54. HSE (October 2015 ). *Work-Related Respiratory Disease in Great Britain 2014.* Available from HSE: www.hse.gov.uk/statistics/causdis/respiratory-diseases.pdf.
55. Rushton L, Bagga S, Bevan S, Brown T (2012). *The Burden of Occupational Cancer in Great Britain: Overview report.* Health and Safety Executive. Sheffield: HSE Books.
56. Turner S, Forman S, McNamee R, Wilkinson S, Agius R. Investigating work-related neoplasia associated with solar radiation. *Occupational Medicine* 2015; 65(1): 22–28.
57. Money A, Carder M, Turner S, Agius R. Incidence of work-related occupational hearing loss in the UK: OSSA. *Occupational Medicine* 2011; 61(4) 226–233.

58. CIPD (2015). *Managing An Age Diverse Workforce: What employers need to know.* London: CIPD.
59. Naegele G, Walker A (2006). *A Guide to Good Practice in Age Management.* Available from: .
60. Fisk A, Rogers W, Charness N, Czaja S, Sharit J. (2004). *Designing for Older Adults: Principles and creative human factors approaches.* Boca Raton, Florida: CRC Press.
61. Learning and Work Institute (13 June 2014). *NIACE's Mid-Life Career Review part of new Government strategy.*
62. Black C, Frost D (2011). *Health at Work: An independent review of sickness absence.* London: TSO.
63. McEnhill L, Steadman K (2015). *This Won't Hurt a Bit: Supporting small business to be healthy, wealthy and wise.* London: The Work Foundation.
64. The Health and Social Care Information Centre (2015). *Health Survey for England 2014.* London: HSCIC.

Chapter 4

# Physical health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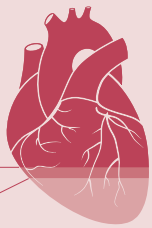
# Physical health of older adults in England

## TRENDS IN HEALTH OF THOSE **AGED 50-70** FROM 1990 TO 2013

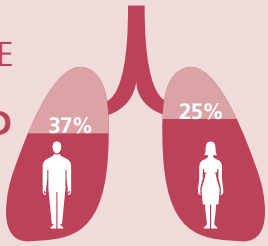
PREMATURE DEATH DUE HEART DISEASE **DECREASED** BY ABOUT

**75%** FOR MEN

**80%** FOR WOMEN



DISEASE BURDEN DUE TO COPD **DECREASED** BY




**33%**

**REDUCTION**

IN PREMATURE DEATH FROM CANCER

**INCREASE** IN LIFE EXPECTANCY

**4.8** YEARS FOR MEN

**3.3** YEARS FOR WOMEN


MORBIDITY DUE TO DIABETES **INCREASED** BY

**97%** FOR MEN

**57%** FOR WOMEN


PREMATURE DEATH FROM LIVER CANCER **INCREASED** BY

**30%**

# 1. Overview

People in England are living longer than ever before yet overall morbidity rates have remained unchanged since 1990. As people age and the population grows, morbidity and multi-morbidity make a larger contribution to the total health deficit (as opposed to that of acute mortal illness) and present a considerable challenge for health and social care services. This chapter describes the physical health of people born 1945–1964, a period of post-war recovery and increased birth rates. Over 12 sections it outlines and quantifies mortality and morbidity arising from some of the major diseases and risk factors in this population.

In 2013, men and women aged 50–70 years could expect to live an extra 4.8 years and 3.3 years respectively compared with 50–70-year-old adults in 1990. Men aged 60 in 2013 could expect to live until they are 82.6 years old, and women aged 60 until they are 85.3 years old. Between 1990 and 2013 there were substantial declines in death rates from each of the five leading causes of death in this age group, the top three being ischaemic heart disease (IHD), lung cancer and colorectal cancer in men, and lung cancer, breast cancer and IHD in women. Despite these improvements in mortality, estimates of overall morbidity rates among 50–69 year-olds remained unchanged with musculoskeletal problems, sensory impairment, diabetes (incorporating type 1 and 2 diabetes) and depressive disorders being the leading causes.[1]

Cancer accounted for 49% of all deaths among 50–69 year-olds in 2013 and individual cancers grouped by site made up five of the top 10 causes of premature mortality. Premature mortality rates from cancer improved by a third between 1990 and 2013 although deaths from oesophageal cancer in men (no change), uterine cancer (7% rise) and liver cancer in both men and women (both 30% rise) are notable exceptions to the downward trend.[1] Mortality rates from IHD are also falling among 50–70-year olds, having declined by 75% for men and 80% for women between 1990 and 2013. Despite these substantial declines, IHD is still the leading cause of mortality in this age group.[1,2] However, much of the remaining disease burden from IHD is also preventable. Tobacco smoke was the leading risk factor for premature mortality among 50–69-year olds in 2013, followed by poor diet, high body mass index (BMI), high blood pressure and high total cholesterol, all modifiable IHD risk factors.[1]

The leading causes of morbidity in 50–69 year-olds in 2013 were musculoskeletal conditions (and lower back pain in particular), sensory impairment and diabetes.[1] Back pain and joint replacements were accountable for 188,000 hospitalisations among 50–70 year-olds in 2013/14.[3] The disease burden from sensory impairment declined by 12% between 1990 and 2013 but overall rates in this age group mask significant variations by age, with 50–54 year-olds suffering from less than half of the burden of 65–69 year-olds.[1] In contrast to sensory impairment, morbidity from diabetes rose by 75% among 50–69-year- olds between 1990 and 2013, while premature mortality from diabetes fell by over 60%.[1] This chapter discusses each of these diseases in more detail, and also includes sections on oral health, osteoporosis, road traffic accidents and access to healthcare, providing data to help identify priorities for action.

Much of the data presented in this chapter draws on an analysis of the health of England's regions and areas defined by deprivation using the Global Burden of Disease study 2013 (GBD 2013), led by Public Health England and published in The Lancet in September 2015.[1] It can be assumed that GBD 2013 data have been used unless otherwise stated or referenced. Further data from the England GBD 2013 research can be viewed, manipulated and downloaded from the GBD Compare Public Health England data visualisation tool.[4]

### Box 4.1 Premature mortality, morbidity and disease burden

These terms relate to data taken from the Global Burden of Disease study 2013.

**Premature mortality:**

refers to years of life lost (YLLs), a measure of the number of years lost due to premature mortality based on the longest expected life expectancy for someone of that age and sex in countries with a population greater than 5 million (reference life expectancy at birth is 86 years).

**Morbidity:**

refers to years lived with a disability (YLDs). This is the length of time somebody has lived with a disability or in a state of ill-health; it is a weighted measure such that more severe conditions are attributed a higher value.

**Total disease burden:**

measured using disability-adjusted life years (DALYs). DALYs are the sum of both YLDs and YLLs – one DALY is one year of healthy life lost.

Results of GBD 2013 are available in pre-defined age categories, and analyses in this chapter use the category 50–69 years. This corresponds to adults born between 1944 and 1963. It is unlikely that results presented for adults aged 50–69 in 2013 differ significantly from those who were aged 50–69 in 2014, and a separate analysis of 2014 death rates showed no step shift in death rates for those born in 1944 compared with 1945. Therefore, when reporting GBD 2013 data, it is assumed that adults aged 50–69 years in 2013 are representative of the baby boomer generation. Finally, some regional analyses presented in this chapter are based on 45 population groups, derived by taking each of the nine English regions and dividing them by deprivation quintile based on national-level area of residence (using index of multiple deprivation, 2010).

# 2. Life expectancy

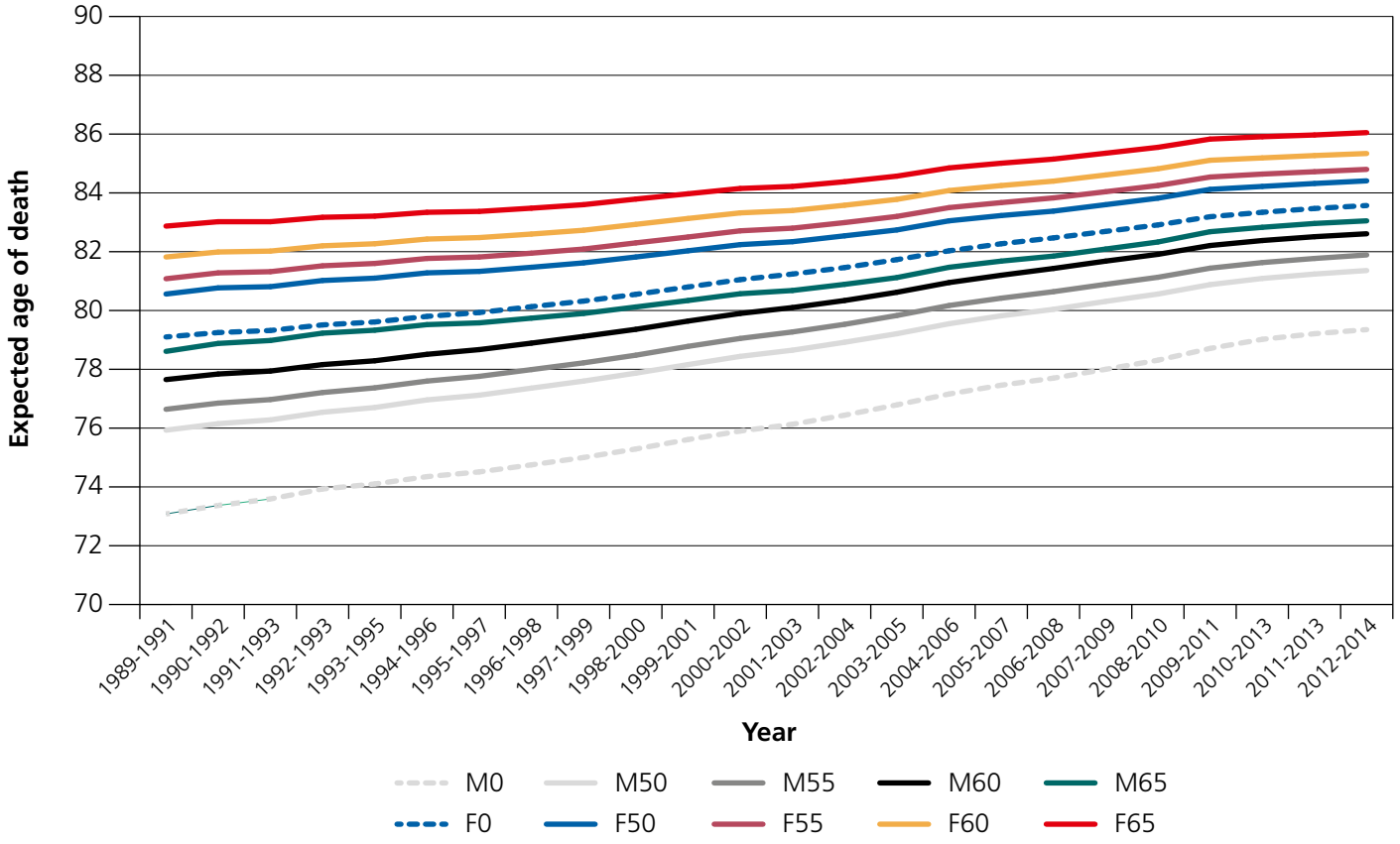
Life expectancy in England continues to rise. Between 1990 and 2013, life expectancy increased by 6.3 years for men to 79.4 years, and by 4.4 years for women to 83.1 years.[5] On average, women aged 50–70 years in 2013 can expect to live 3.3 years longer than those who were in this age group in 1990. The difference is more marked for 50–70-year-old men who can expect to live 4.8 years longer in 2013 than those aged 50–70 years in 1990 (see Figure 4.1).

Data from GBD 2013 indicate that the improvements in life expectancy have been driven primarily by declines in mortality from cardiovascular disease and neoplasms, both of which are covered later in this chapter.[1]

Improvements in life expectancy vary markedly by unitary and local authority. In 2012–14, men aged 65 in Manchester had the lowest life expectancy of all local authorities. They could expect to live until they were 80.9 years old, 5.7 years less than 65-year-old men in Kensington and Chelsea with the highest life expectancy (the analysis does not include City of London and Isles of Scilly).[6] Furthermore, the gap between the highest and lowest life expectancies among 65-year-old men by local authority has increased by 0.9 years since 2000–02. The gap in life expectancy by local authority is even more marked for women aged 65. Women aged 65 living in Camden in 2012–14 had the highest life expectancy of any English local authority of 89.6 years, 5.8 years more than Manchester, the local authority with the lowest life expectancy for this age group. The gap between the highest and lowest life expectancies by local authority also increased by 0.9 years since 2000–02 for women aged 65 years.

Analyses by GBD 2013 suggest that regional variation in life expectancy is mostly explained by differences in population deprivation across England.[1] This emphasises the importance of deprivation as a cause of health inequality in every region not just those regions with overall high levels of deprivation.

**Figure 4.1 Expected age of death at birth and for adults aged 50, 55, 60, and 65 years in England by sex, 1990-2013**




**Source** *ONS, National Life Tables, England, 1980-82 to 2012-2014. Published Sept 2015*

# 3. Mortality and morbidity

Commensurate with the increase in life expectancy, overall age-standardised death rates in England declined by 34% between 1990 and 2013. Among 50–69 year-olds, death rates fell by nearly 50% with greater declines for men than for women; male mortality rates fell by 51% from 1,590 deaths per 100,000 to 780 per 100,000, whereas female mortality rates fell by 44% from 940 deaths per 100,000 to 530 per 100,000.

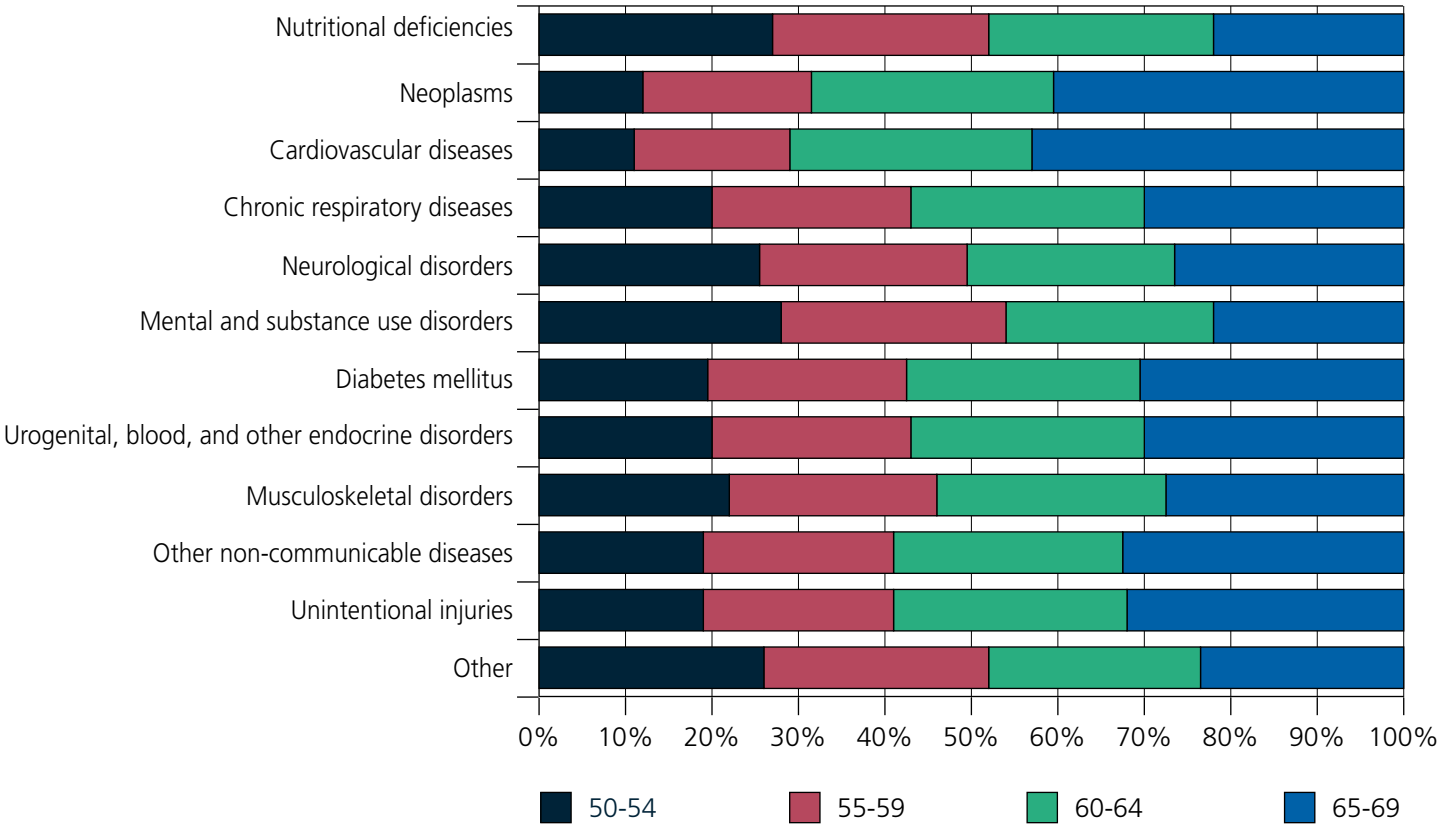
The leading causes of death for 50–69 year-olds in 2013 were cardiovascular disease, cancers and chronic respiratory disease. For men in this age group, the top five causes were IHD, lung cancer, colorectal cancer, chronic obstructive pulmonary disease (COPD) and stroke. For women, however, lung cancer was the leading cause of death, followed by breast cancer, IHD, COPD and stroke.

Across the 50–69-year age band, the relative contribution of individual causes of death varied substantially. Especially for women where breast cancer is the leading cause at younger ages (50–55 years), where it is responsible for nearly twice as many deaths as lung cancer. At older ages (65–69 years) lung cancer tops the list, followed by ischaemic heart disease and only then breast cancer. These differences chiefly reflect differences in incidence rather than survival, with breast cancer in particular being much more common than lung cancer in women aged 45–49 years and 50–54 years.[7]

Causes of morbidity for 50–69 year-olds are very different from those of mortality and overall levels for this age group did not change between 1990 and 2013. Leading causes of morbidity in 2013 for women were musculoskeletal conditions, depressive disorders and diabetes. For men they were musculoskeletal conditions, followed by sense organ disorders and diabetes. The leading causes of morbidity varied little by age within the 50–69-year-old age group; however, there was some variation by deprivation quintile. COPD was ranked more highly in the most deprived quintile where it was second and fourth for men and women respectively, but in the least deprived quintile it ranked 11th and 16th. This variation is part explained by known variation in smoking prevalence. Leading causes of morbidity are shown in Figure 4.2.

The fact that morbidity among 50–69 year-olds is stable despite other strongly favourable trends requires some explanation; individuals are both surviving conditions that would have historically been fatal (such as stroke and cancer) and living longer, thereby experiencing greater multi-morbidity. In the opinion of the authors, increasing focus must now be paid to reducing rates of non-fatal causes of significant disability and to mitigating their impact on quality of life and need for care services.

**Figure 4.2 Morbidity rates by age group (50–54, 55–59, 60–64, 65–69) and cause, England, 2013**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare – Public Health England. Seattlke, WA: IHME, University of Washington, 2015.*

# 4. Neoplasms

Cancer remains a leading cause of death in England, accounting for 49% of all deaths among 50–69 year-olds in 2013, and constituting five of the top 10 causes of premature mortality.

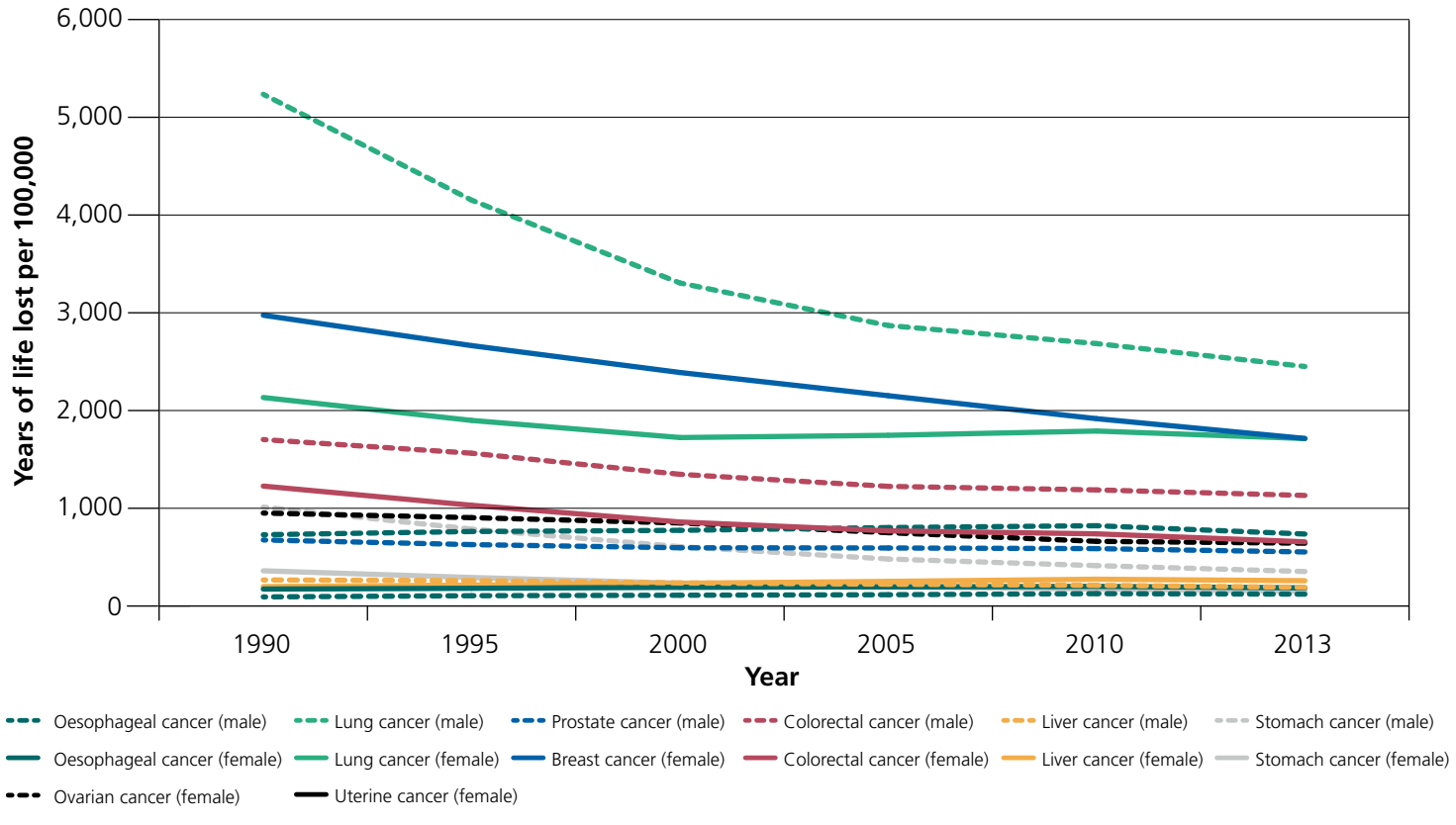
Overall, premature mortality from cancer declined by 33% in this age group between 1990 and 2013 although this varied by gender and cancer subtype (see Figure 4.3). Premature mortality from lung cancer declined by 53% for men aged 50–69 years, but by only 20% for women. This reflects the substantial time lag between smoking and development of lung cancer; women in England took up smoking later than men and the proportion of women who smoke has declined more slowly.[8,9] Conversely, for oesophageal cancer premature mortality remained unchanged in men but decreased in women by 28%. For stomach cancer premature mortality declined markedly in both men and women (by 65% and 58% respectively), likely in part to be attributable to declines in infection with the bacteria *Helicobacter pylori*.[10] Liver cancer did not follow the general downward trend in premature mortality; here it rose by 30% in men and women. This is consistent with the findings of the recent Lancet commission on liver disease and highlights the importance of prevention measures targeting alcohol, obesity and viral hepatitis.[11]

For women aged 50–69 years, the total disease burden from breast cancer declined by 41% between 1990 and 2013 (mainly from falls in premature mortality), yet breast cancer remains the leading form of cancer in women for both premature mortality and morbidity.

Ovarian and uterine cancer were the fourth and ninth leading cancer sites in terms of total disease burden in 2013 for women aged 50–69 years. Total disease burden from ovarian cancer declined between 1990 and 2013; however, mortality and morbidity from uterine cancer did not change. This may be due to a variety of reasons, including increasing obesity rates and trends in reproductive factors such as women in this age group having fewer pregnancies than the previous generation, and later age of first pregnancy.[12,13]

For men aged 50–69 years, prostate cancer was the fourth leading cause of overall disease burden in 2013, with rates falling by 12% since 1990. The decline in overall disease burden is due to declines in premature mortality of 18%. Over the same time period, morbidity increased by 32%, with the increase taking place between 1990 and 2005. This increase in estimated morbidity is likely to reflect increased diagnosis of non-fatal prostate cancer with the use of prostate-specific antigen testing since the 1990s.[14,15]

**Figure 4.3 Premature mortality rates for selected cancers, 50–69 year olds by sex, England, 1990-2013**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare - Public Health England. Seattle, WA: IHME, University of Washington, 2015.*

Overall, cancer mortality and morbidity rates are declining among 50–69 year-olds, reflecting general downward trends in mortality rates and upward trends in survival from neoplastic disease;[1,16] however, this is not true for all cancer sites. A particular focus needs to be placed on the prevention of those cancers whose disease burden is not in decline, such as liver, oesophageal and uterine cancer.

# 5 Diabetes

In 2013, diabetes (incorporating both type 1 and 2 diabetes) was the third leading cause of morbidity among men aged 50–69, and the fourth leading cause among women, accounting for 6% of all years lived with disability.

Health Survey for England (HSE) data show that between 2003 and 2014 prevalence of diabetes (type 1 and 2 together) rose from 8.1% to 12.7% among men aged 55–64, and from 4.7% to 7.2% among women of the same age.[17]

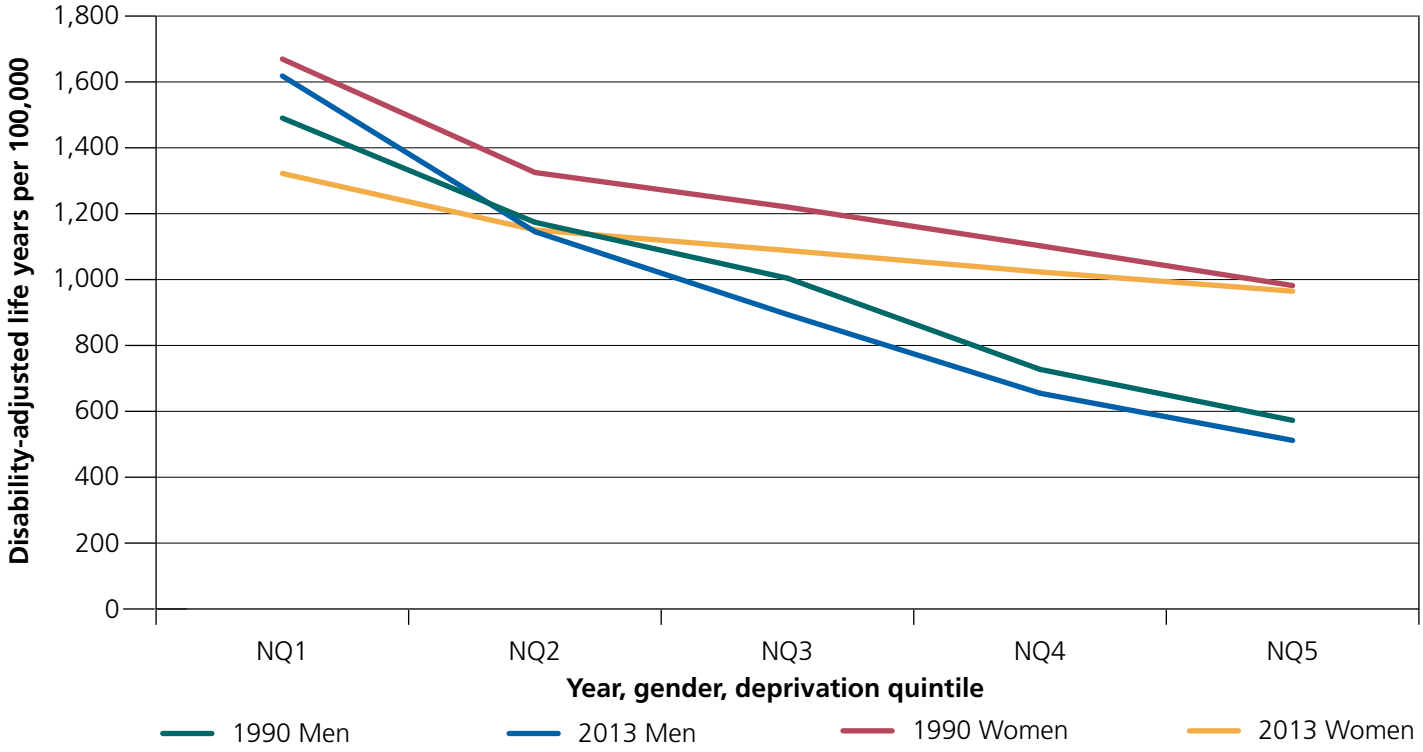
GBD 2013 data indicate that between 1990 and 2013, morbidity from diabetes among adults aged 50–69 rose by a remarkable 97% among men and by 57% among women; this is despite concurrent reductions of over 60% in premature mortality from diabetes for both men and women. Declining premature mortality and rising morbidity are a consequence of more people having known behavioural and metabolic risk factors and improved survival in those with diabetes. The burden of the major risk factors in this age group increased dramatically between 1990 and 2013. For example, the population attributable risk (the amount of disease in a population due to a risk factor) for diabetes morbidity from high fasting blood sugar, obesity, diet and low physical activity each rose by over 70%.

Within the 50–69-year age group, total disease burden due to diabetes increases with age. Disease burden per 100,000 people among those aged 65–69 years in 2013 was 1.7 times higher than those aged 50–54 years, and the burden continues to increase for adults aged over 70 years. There is also marked variation by deprivation and region. Disease burden among 50–69 year-olds varies across the country by a factor of 2.6, with the highest rates in the most deprived quintile in the West Midlands and lowest in the least deprived quintile in the North East of England. On average across the country, the disease burden among 50–69 year-olds in the most deprived quintile is 54% higher than in the least deprived, although the gap is narrowing with the burden unchanged between 1990 and 2013 in the most deprived quintile compared with an 80% increase in the least deprived (see Figure 4.4).

Risk factors for diabetes are also strongly socially stratified in 50–69 year-olds; there is a greater burden of impaired glucose tolerance, obesity, poor diet and low physical activity among those who are more deprived. However, the difference in the distribution of these risk factors across deprivation quintiles has declined since 1990. These findings are consistent with previous work by Mainous and colleagues who, using data from the HSE, found that the prevalence of prediabetes (defined as a glycated haemoglobin between 5.7% and 6.4%) increased from 11.6% to 35.3% between 2003 and 2011, and that increasing age and lower socio-economic group were both important risk factors.[18]

Prevalence of diabetes is increasing in contrast with the general trend for a decline in disease burden in England. Diabetes is likely to have increasingly significant health and economic consequences in the future unless known modifiable risk factors are effectively addressed at the population level.[19]

**Figure 4.4 Total disease burden from diabetes, adults aged 50-69 years, by deprivation quintile and sex, England, 1990-2013**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare – Public Health England. Seattle, WA: IHME, University of Washington, 2015.*

# 6. Ischaemic heart disease

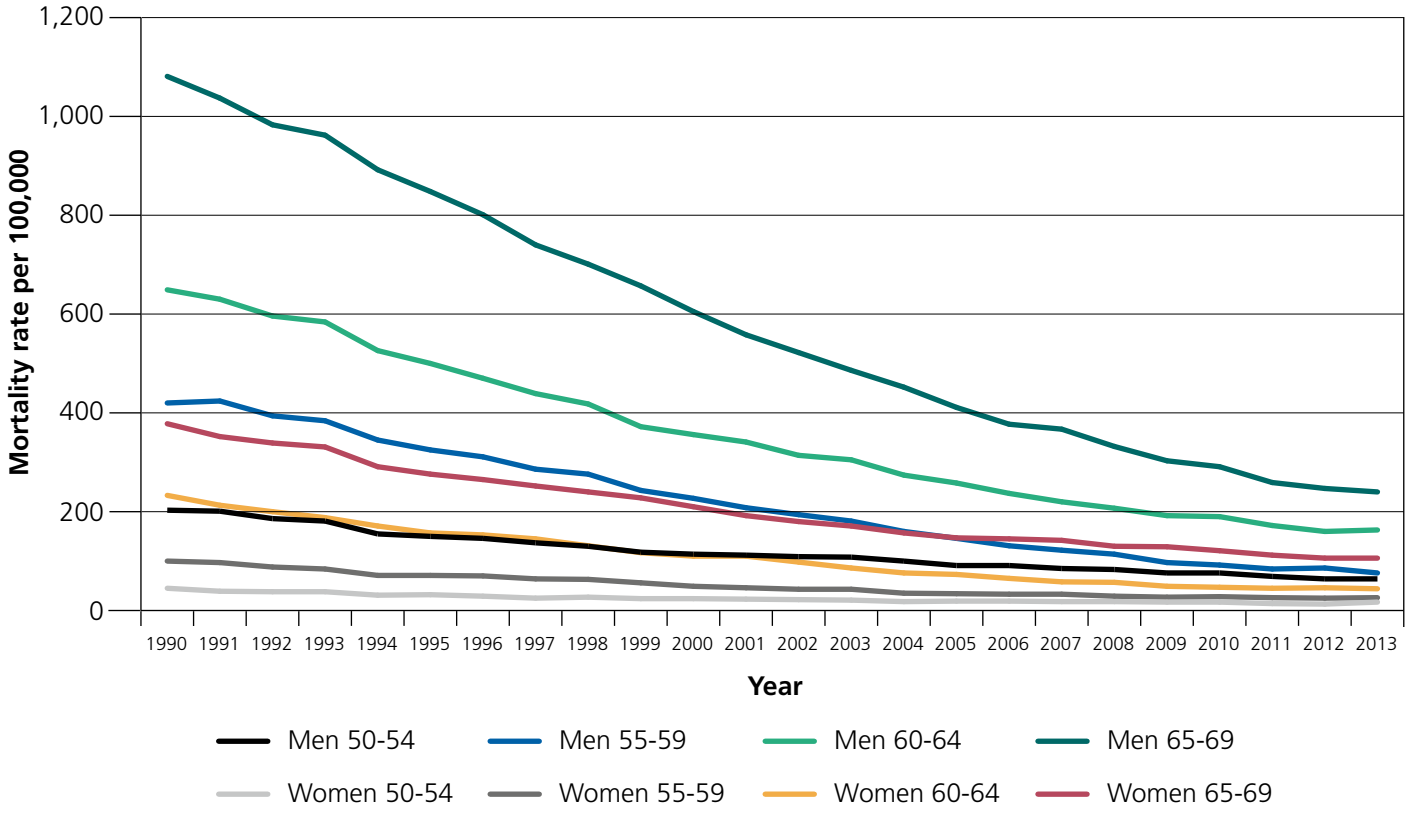
Data from the Office for National Statistics show that between 1990 and 2013 there were substantial decreases in mortality due to IHD (heart attacks and angina) both for men (75%) and women (80%) aged 50 to 69 years in England.[2] Although absolute IHD mortality rates increase with age, the largest declines between 1990 and 2013 within this age category were among 65–69 year-olds where rates in men fell by 78% and rates in women fell by 82%.

Between 2000 and 2013 the number of hospital admissions in England from IHD decreased for individuals aged 50–69 years by 14%, although admissions for men aged over 75 years increased by 30% and for women aged over 90 years by 38%.[3] This is in contrast to total admissions from cardiovascular disease (includes IHD and other heart conditions such as valve problems and heart failure, as well as all strokes) for 50–69 year-olds, which increased for men by 7% and showed little change for women between 2000 and 2013. Total all-cause hospital admissions for both sexes increased by 47% during this period.

Despite overall declines in IHD, mortality data demonstrate large regional variation in IHD mortality among 50–69 year-olds. Crude mortality rates for this age group averaged across 2011–2013 vary by a factor of four for men at the level of lower-tier unitary authority (not including City of London). The highest rates are more commonly found in Northern authorities (Manchester has the highest with 242 deaths per 100,000), and the lowest rates in Southern authorities (Woking has the lowest, 61 deaths per 100,000). The regional pattern is repeated for women but absolute death rates are lower with rates ranging from just 4 deaths per 100,000 to 99 per 100,000 (just one of the 10 local authorities with the lowest death rates is in a Northern region, compared to seven of the 10 with the highest death rates).

Treatment and prevention interventions have both contributed to declining coronary heart disease (CHD, includes IHD and other heart conditions) rates,[20]; however, CHD remains a leading cause of death and disability. As much as 91% of CHD in 50–69 year-olds is still attributed to known metabolic, behavioural and occupational risk factors, so prevention has substantial potential to reduce this disease burden even further.[1]

**Figure 4.5 Ischaemic heart disease mortality rates per 100,000 by age and sex, England, 1990-2013**




**Source** *Office for National Statistics*

# 7. Respiratory disease

The disease burden from chronic obstructive pulmonary disease (COPD) among those aged 50–69 years has declined by 37% among men and 25% among women between 1990 and 2013. Yet despite this, COPD remains a leading cause of overall disease burden in adults aged 50–69 years, ranking fourth among men and sixth among women in 2013.

The declines in overall disease burden from COPD between 1990 and 2013 are a result of a 51% fall in premature mortality from COPD among men aged 50–69 years, and a 36% fall among women; over the same time period morbidity has remained unchanged. However, premature mortality rates increase dramatically with age; in 2013, rates were over six times greater among adults aged 65–69 years than those aged 50–54.

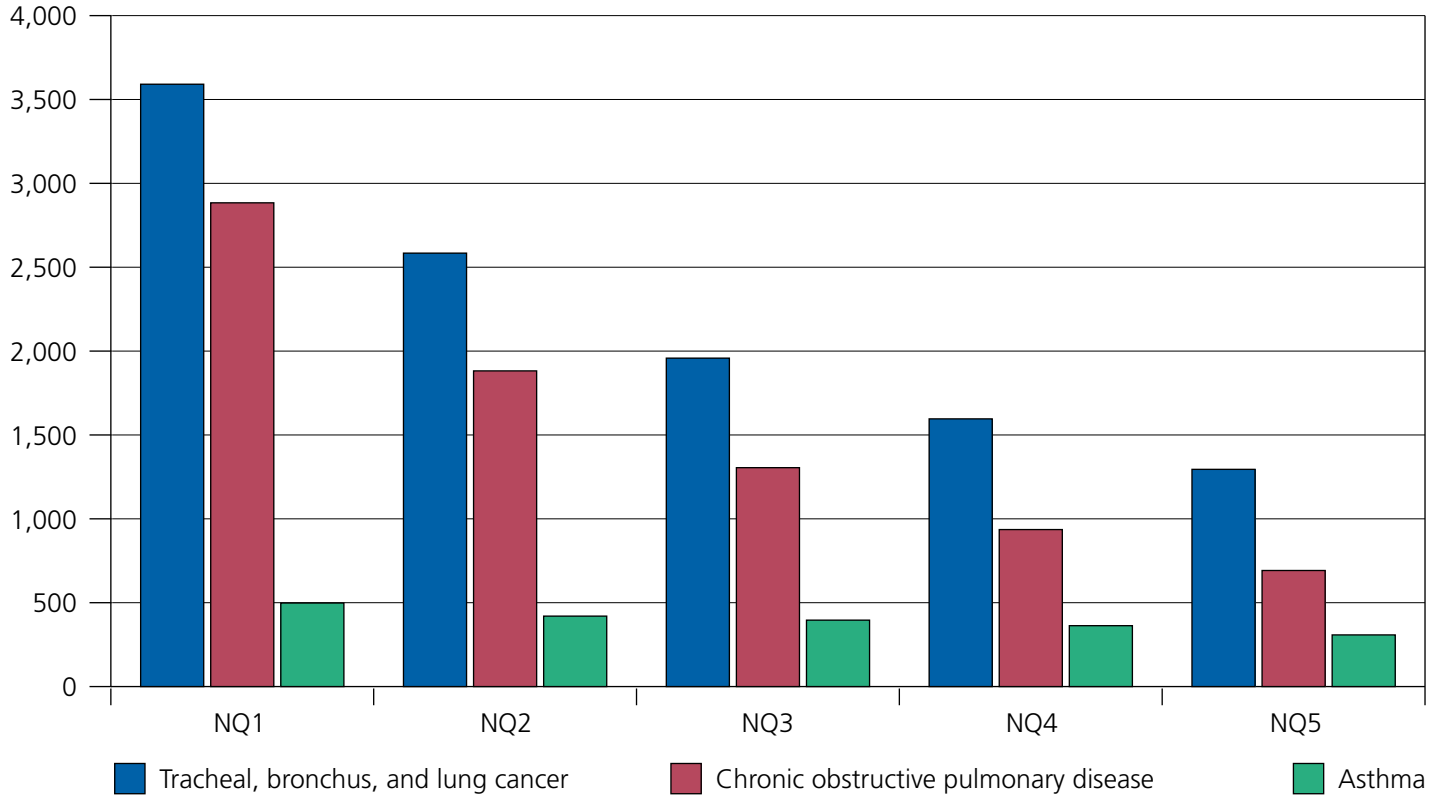
Morbidity from asthma also changed little among 50–69 year-olds between 1990 and 2013; morbidity declined by 8% among men and there was no change among women in this age group.

National data on COPD and asthma prevalence, as measured by the GP Quality and Outcomes Framework (QOF),[21] show that across all ages in England, QOF prevalence of COPD increased from 1.4% to 1.8% and prevalence of asthma increased from 5.8% to 6.0% between 2005–07 and 2013/14. These small increases may be in part due to better case detection rates and in part due to true changes in disease prevalence. The most recent QOF estimate of the true prevalence of COPD in England is 2.9% in 2011, and for asthma the most recent estimate is 9.1% in 2008.

The leading risk factor for respiratory disease is tobacco smoke. Among both men and women aged 50–69 years in 2013, tobacco smoke was the leading cause of premature mortality across all diseases and the second leading cause of total disease burden. This is despite adult smoking prevalence in Great Britain having declined from 30% in 1990 to 19% in 2013.[8]

Both chronic respiratory disease and smoking rates are strongly socially stratified, causing considerably more death and disability in those in more deprived socio-economic groups compared with those less deprived. For those aged 50–69 years, total disease burden from lung cancer was 2.8 times higher in the most deprived quintile in 2013 compared with the least, and the disease burden from COPD was 4.2 times higher. The disease burden from asthma is less socially stratified, with rates 1.6 times higher among those in the most deprived quintile compared with the least deprived. These differences are reflected in the risk factor analysis where tobacco smoke was the leading cause of overall disease burden among 50–69 year-olds in the most deprived quintile in 2013, responsible for twice as much disease as in the least deprived quintile, where tobacco smoke ranked third.

**Figure 4.6 Total disease burden from chronic respiratory disease, adults aged 50–69 years, by deprivation quintile, England, 2013**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare – Public Health England. Seattle, WA: IHME, University of Washington, 2015. Available from http://vizhub.healthdata.org/gbd-compare/england*

# 8. Oral disease

Oral health is a critical element of health as it facilitates social interaction, speaking and nutrition.[22,23] Adults with poor oral health will experience pain and loss of function that is shown to negatively impact on quality of life.[24]

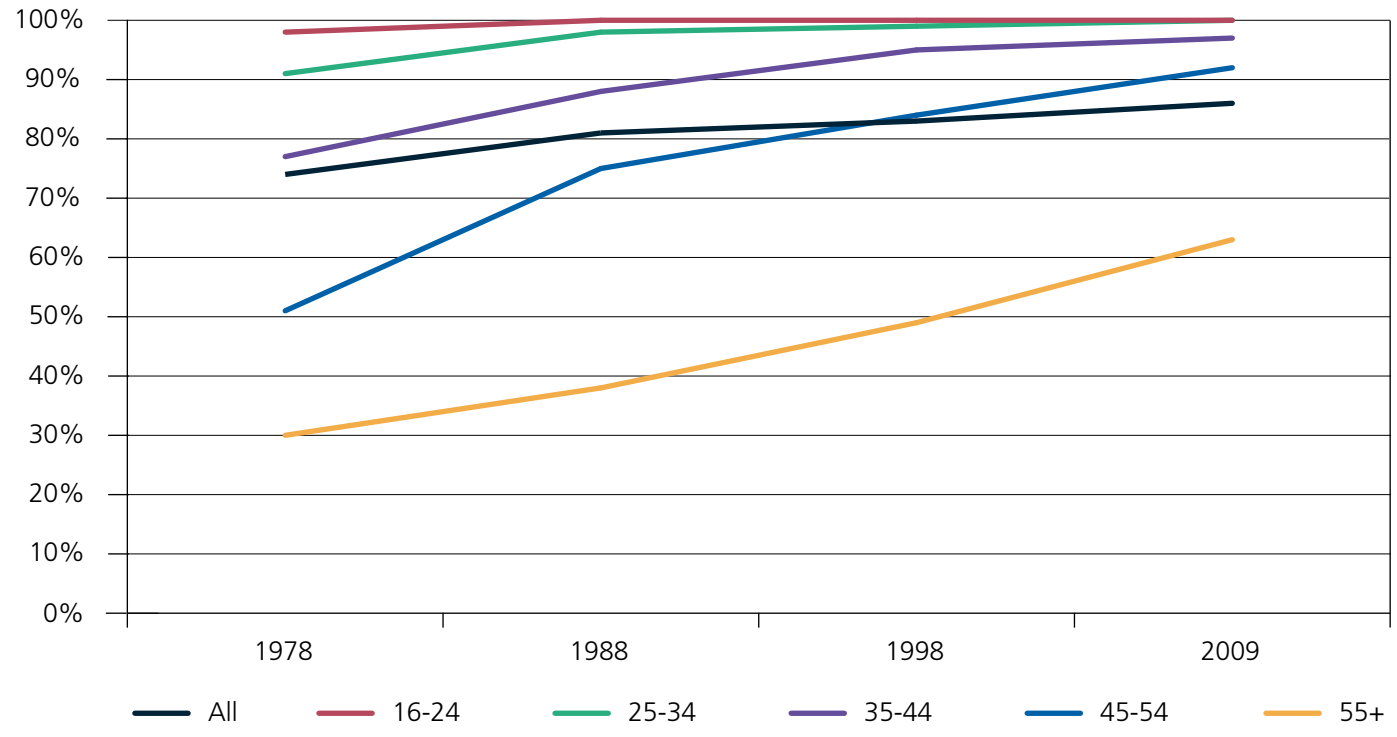
Oral health of the English population has improved considerably since the widespread introduction of fluoride in toothpaste in the late 1960s.[25] In 1978, between a quarter to a half of adults aged 45–64 had no teeth at all, yet, for adults aged 45–64 in 2009 who are now aged 50–69, this was less than 5%.[26,27] The retention of 21 or more teeth is recognised as a key indicator for oral function[28] and again there have been considerable improvements. In 1978, the percentage of adults aged 55 or over with 21 or more teeth was 30%, by 2009 the percentage of adults in this age group (aged 60 or over in 2014) had increased to 63% with 92% of those aged 45–54 (aged 50–59 years in 2014) retaining 21 or more teeth (see Figure 4.7). Increased access to dentistry, fluoride toothpaste (including higher fluoride toothpaste) and policies on prevention in primary care are all contributors to this improvement.[25] While this improvement in tooth retention is to be welcomed, it has an impact on dental service provision for adults who require increasing levels of care to maintain these teeth as they age.[29]

Alongside improvements in oral health, there remains a considerable burden of adult disease.[30] Serious gum disease (periodontal disease) remains a problem, with less than 15% of 45–64 year-olds (aged 50–69 in 2014) having healthy gums in 2009, largely unchanged from 1998.[30] Periodontal disease is not only associated with loss of oral function but also with some systemic diseases including cardiovascular disease and diabetes.[31–33]

Oral health is socially stratified;[34] across all age groups in 2009, 21% of adults in managerial and professional occupations did not have serious gum disease compared to just 12% in routine and manual occupations.[27] Furthermore, those in managerial and professional occupations were less likely to report dental pain on a frequent basis (6% vs 10% in routine and manual workers). In 2009, 10% of adults in routine and manual households had no natural teeth – this figure was only 2% in professional and managerial groups.[27]

The baby boomers are enjoying improved oral health compared with the previous generation, but considerable disease burden remains in a minority of the population, particularly those who are more socially deprived.[27] There is a need to continue to work with stakeholders across health and social care to address this inequality.

**Figure 4.7 Proportion of adults with 21 or more teeth, England 1978-2009**




**Source** *Adult Dental Health Survey, 2009; theme 1 published tables (tables 1.5.1; 1.5.3)*

# 9. Sensory disease

Among 50–69 year-olds, sensory impairment was a leading cause of morbidity in England in 2013, ranking as the second highest contributor among men (after low back and neck pain) and fifth highest among women (after low back and neck pain, other musculoskeletal disorders, depression and diabetes). Sensory impairment, within GBD 2013, comprises hearing and visual impairment, and morbidity increases significantly with age (see Figure 4.8).

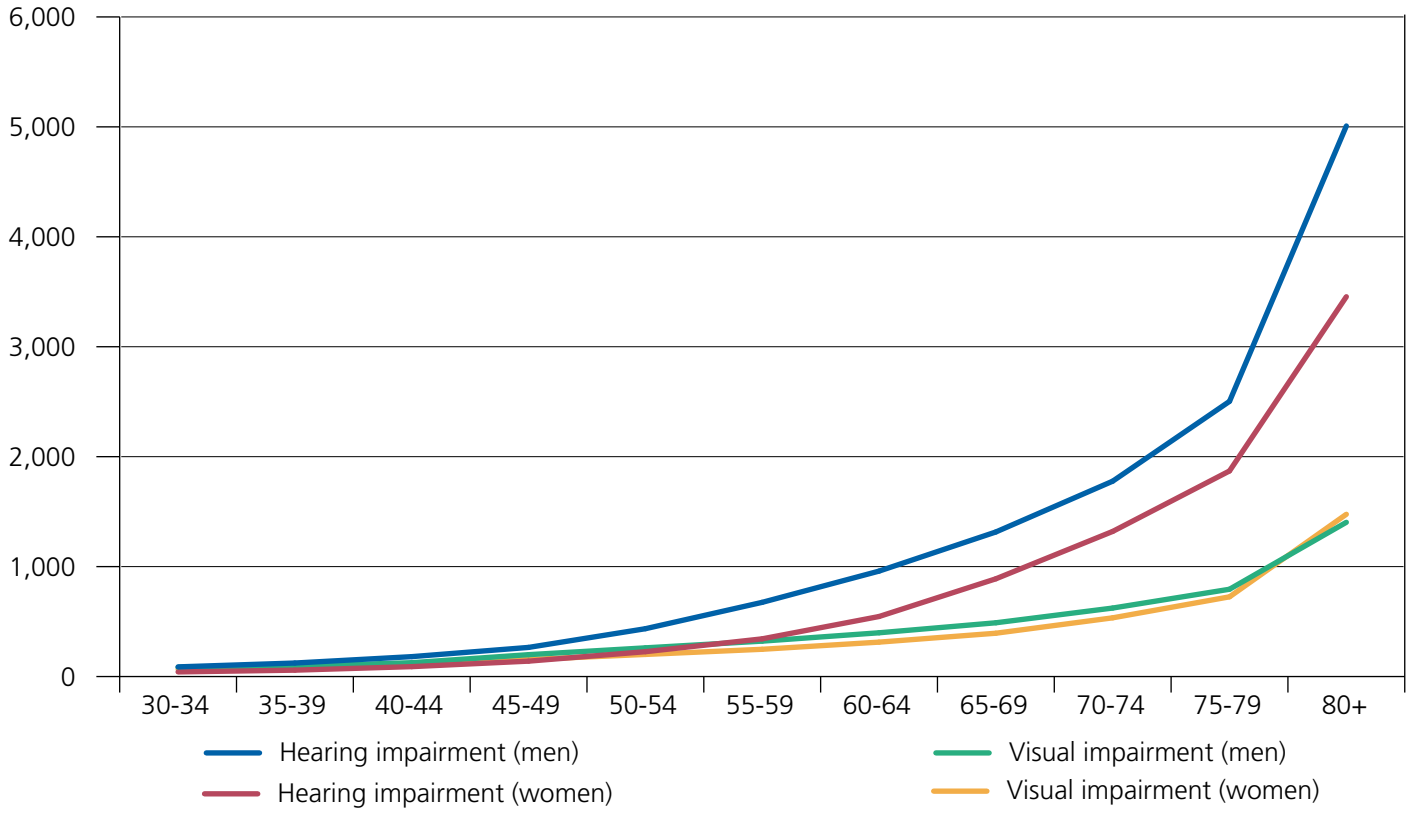
For those aged 50–69 years in 2013, sensory impairment accounted for 7.4% total morbidity among men and 5.0% among women, with rates having declined by 12% in both sexes since 1990. Morbidity rates vary by age: in 2013 morbidity was 2.6 times higher for 65–69 year-olds compared with 50–54 year-olds. Hearing loss was the largest contributor to sensory impairment for individuals aged 50–69 years, accounting for 66% of morbidity from sensory impairment for men and 57% for women. In the over-70s, hearing loss alone was the leading overall cause of morbidity. Data from the Health Survey for England (HSE), 2014 show that 10% of 45–54 year-olds and 15% of 55–64 year-olds have some degree of objective hearing loss.[35]

Results from GBD 2013 suggest some regional variation in hearing loss among 50–69 year-olds. Morbidity in 2013 in this age group was 23% higher in Greater London, and at least 42% higher in any other region in the country, compared with the South East England region. However, these data should be treated with caution due to low numbers of people included in the underlying datasets; by contrast, HSE 2014 data (based on over 5,000 adults) suggest that for all adults, the highest age-standardised prevalence of objective hearing loss is in the West Midlands (17% of adults) and the lowest is 10% in the East Midlands.[35]

HSE 2014 also reports that in adults of all ages there is variation in age-standardised prevalence of measured hearing loss (at 1kHz) by index of multiple deprivation quintile. For adults aged over 16 years, 19% of men are affected in the most deprived quintile, compared with 9% in the least deprived quintile. For women the figures are 22% and 14% respectively.[35]] Industrial noise continues to be the third most important occupational risk factor within GBD 2013, after ergonomic risk factors and injuries, for morbidity among 50–69 year-olds in 2013, as it was in 1990.

Despite high rates of hearing impairment, only 3% of adults aged 45–54 years and 8% aged 55–64 in 2014 had ever used a hearing aid.[35] The prevention and management of hearing and visual loss are particularly relevant to this age group to help maintain independence, prevent cognitive decline, stay in employment and to remain engaged with friends, family and colleagues.

**Figure 4.8 Morbidity from hearing and visual impairment by age and sex, England, 2013**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare – Public Health England. Seattle, WA: IHME, University of Washington, 2015.*

# 10. Musculoskeletal disease

Musculoskeletal conditions are the leading causes of pain and disability in England, particularly osteoarthritis and back pain.[1,36,37] These conditions accounted for the second largest annual NHS clinical commissioning group budget spend of £4.7 billion in 2013/14 and result in substantial productivity losses.[38,39]

Musculoskeletal conditions are a leading cause of sickness absence. People with musculoskeletal conditions are less likely to be employed than others,[40] and tend to have lower household income and retire earlier.[41,42] In 2013, 30.6 million lost working days were attributed to musculoskeletal conditions.[43]

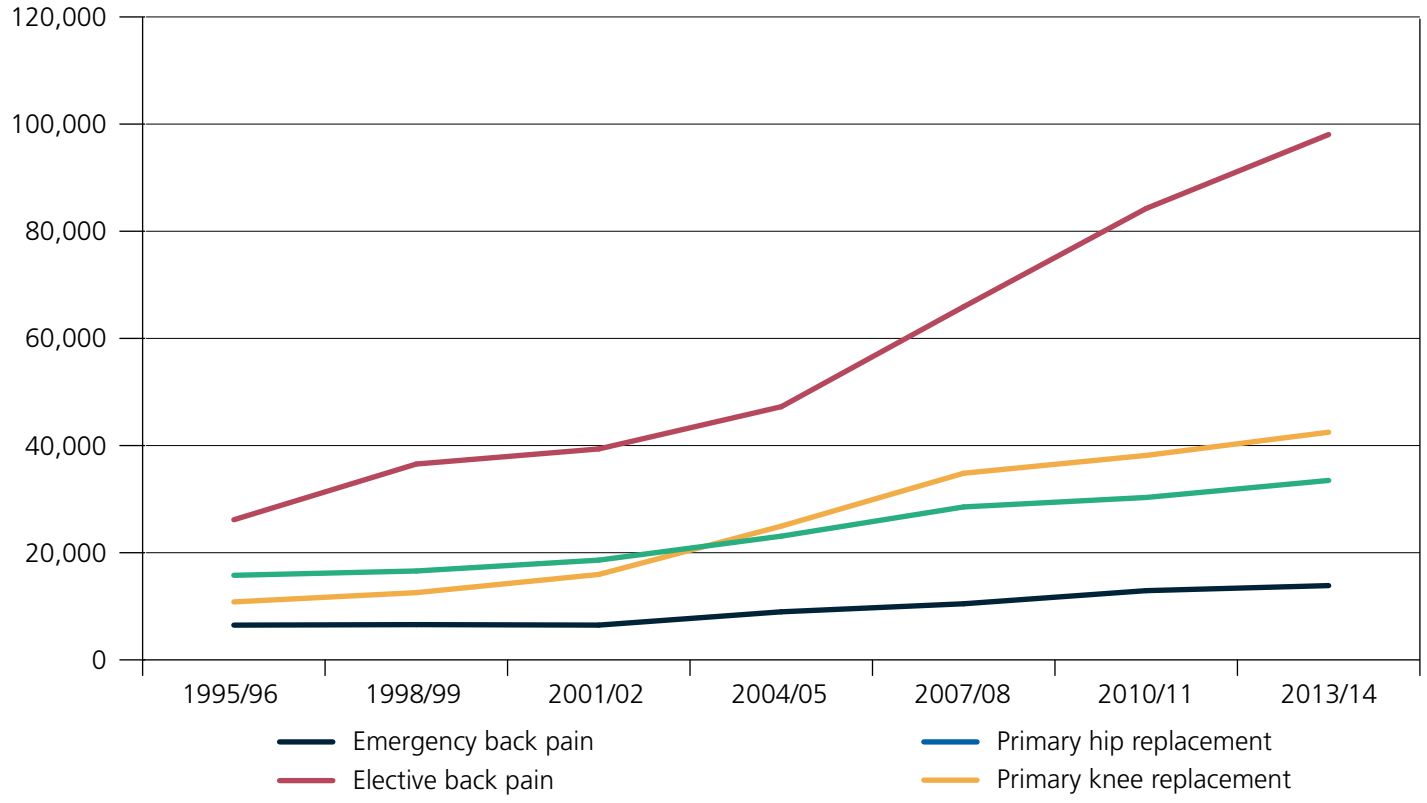
However, there is a lack of high-quality routine information at the national level about the prevalence, treatment and impact of these conditions.[44]

Musculoskeletal conditions are mainly treated in primary care. A 2013 analysis of primary care data estimated 29% (5.4 million) of people aged 45–74 in England have sought treatment for osteoarthritis from their GP.[36] One in nine adults aged 50–70 (580,000) are living with severe back pain.[45] There is a strong association between musculoskeletal pain and poor mental health,[46,47] and almost a quarter of adults aged 55 years and over with osteoarthritis have depressed mood.[48]

Hospital episode statistics show that among 50–70-year-old adults, the number receiving inpatient treatment for primary hip and primary knee replacements[i,49] and back pain rose from 59,233 to 187,893 between 1995/96 and 2013/14 (see Figure 4.9). Analysis is provided by the North East Quality Observatory Service (NEQOS), using Hospital Episode Statistics.[3] The leading musculoskeletal cause of elective admissions for this age group was back pain, with rates 2.9 times higher in 2013/14 (750 admissions for elective back pain per 100,000 people) than in 1995/96 (255 admissions per 100,000). The greatest rise in admission rates among musculoskeletal conditions analysed over the time period was for primary knee replacement, increasing by three times to 325 admissions per 100,000. Emergency admission rates for back pain and elective admission rates for primary hip replacement both rose by 70% (to 106 admissions per 100,000 and 256 admissions per 100,000 respectively). It is unknown to what extent these changes reflect a rise in condition prevalence or severity, a fall in successful primary- and self-care management of these conditions, or improved access to hospital-based interventions (though the latter would not explain the increase in emergency back pain admissions).

i Mainly used to treat osteoarthritis. Primary replacements are first-time joint replacements rather than revisions of previous replacements.

**Figure 4.9 Hospital admissions for selected musculoskeletal conditions for adults age 50-70 years, England, 1995/96–2013/14**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare – Public Health England. Seattle, WA: IHME, University of Washington, 2015.*

# 11. Other conditions

Musculoskeletal health has been called a public health priority.[50,51] Tackling readily modifiable risk factors, such as obesity and physical inactivity, would lead to major health benefits.[52] Furthermore, early intervention after onset of a musculoskeletal condition can prevent chronicity.[53] Systematic implementation of evidence-based, cost-effective care bundles would reduce the impact of these conditions: self-referral to physiotherapy;[54] triage tools such as STarT Back for back pain;[55] and standardised rehabilitation packages akin to pulmonary or cardiac rehabilitation.[56–58]

## Osteoporosis

The average age of the menopause is 51 years, and it is associated with both short-term symptoms and long-term health consequences, including osteoporosis.

Osteoporosis occurs when bone mineral density (BMD) falls 2.5 standard deviations or more below the mean BMD for a young female adult. It is associated with significant morbidity and mortality.[59] Population level data on the burden of osteoporosis in England are lacking although individual studies have estimated that in the UK in 2010, approximately 15% of women aged over 50 had osteoporosis, that there were 500,000 women aged 50–65 years living with osteoporosis, and of these women 46,000 would suffer an osteoporotic fracture in 2010 alone.[60,61] Furthermore, in GBD 2013 low BMD was the leading cause of falls-related morbidity for both men and women aged 50–69 years in England, being responsible for 35% of such morbidity among men, and 46% among women.[1]

There is evidence that many fractures could be prevented by systematic identification and treatment of osteoporosis, using a 'Fracture Liaison Service' to target appropriate interventions.[62,63]

## Road traffic accidents

There have been declines of 57% and 60% between 1990 and 2013 in the burden of disease attributable to road injuries among men and women aged 50–69 respectively. This is due to declines in both premature mortality and morbidity and is similar to falls seen in other age groups for this cause.

Department of Transport statistics show that, across all age groups, the number killed or seriously injured in Great Britain from road accidents fell from 65,658 in 1990 to 24,582 in 2014.[64] The number slightly injured also fell by 38% from 275,483 to 169,895. The rate of reported casualties in 2014 among adults aged 50–59 years was 2,734 per million (22,052 casualties), and 1,794 per million (12,363 casualties) among adults aged 60–69 years. Casualty rates in 2014 declined with age from 5,728 per million among 16–19 year-olds to 1,585 per million among 70–79 year-olds.

Improvements in road safety from regulations, enforcement, vehicle design, education and medical care are all thought to have contributed to the declines in casualties observed between 1990 and 2014.[65,66]

# 12. Access to and usage of healthcare

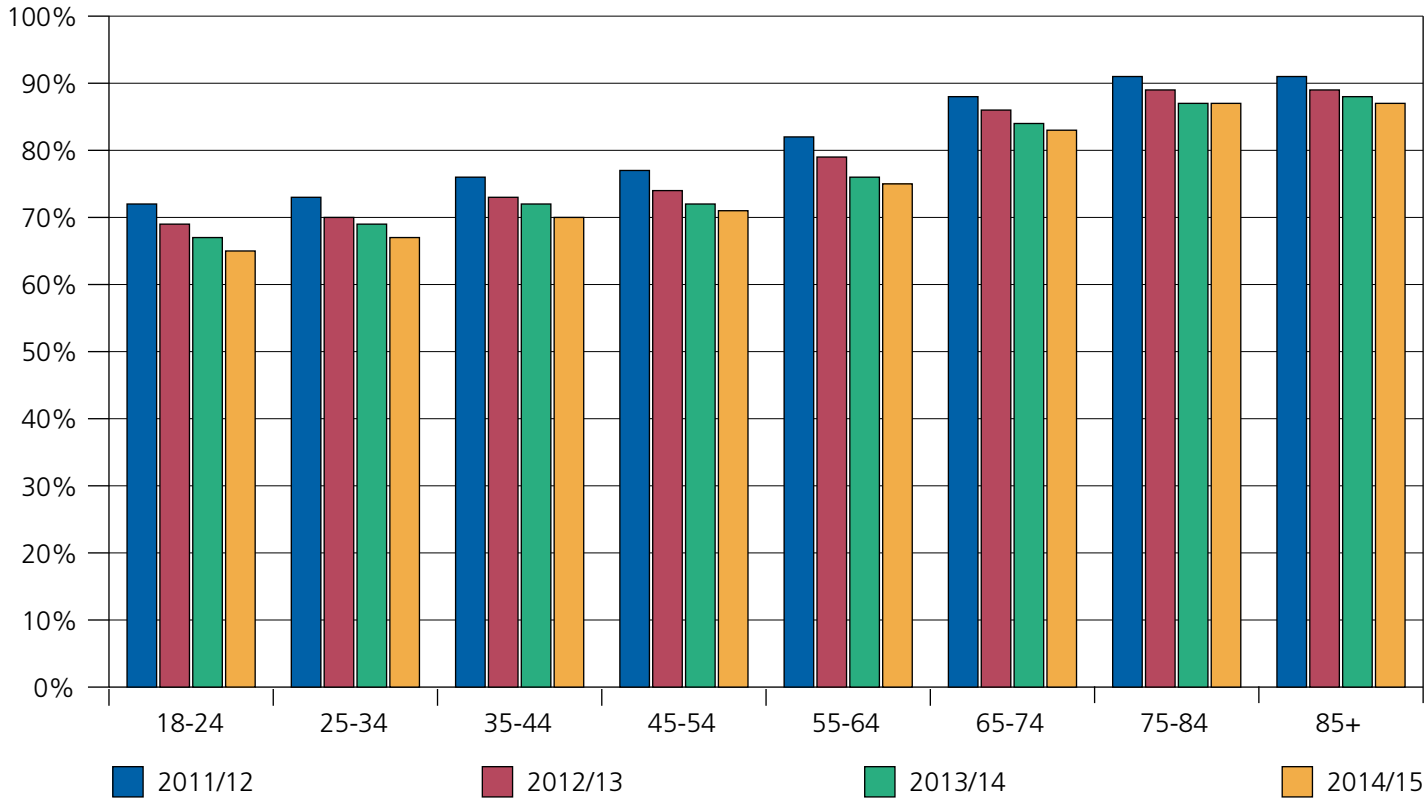
Access to healthcare in England varies by age and by socio-economic status as well as by need for care. A review of the literature on equity of access to healthcare for older people found that as people age access is impaired by a range of factors, including difficulty navigating healthcare systems and variable access for those living in institutions.[67] Research on the provision of hip and knee replacements in England found that among those aged 50 and over, the greatest provision was among those aged 60–84, with those aged 50–59 and >85 years receiving fewer joint replacements relative to their need.[68]

The GP Patient Survey reports two indicators that reflect access to primary and dental care services: indicators 4.4.i and 4.4.ii of the NHS Outcomes Framework.[69] Indicator 4.4.i shows that between July 2014 and March 2015, 73.3% of patients in England reported a 'very good' or 'fairly good' experience of making a GP appointment, down from 79.1% in 2011/12. This decline in quality of reported patient experience is repeated across all age groups, deprivation deciles and regions. Reported patient satisfaction with getting appointments is significantly better for those who are older and those in less deprived deciles (least deprived deciles 6–10 compared with most deprived deciles 1–4). Of those aged 75 years and over, 87% reported having a 'very good' or 'fairly good' experience with making a GP appointment compared with 83% in 65–74-year-olds, 75% in 55–64-year-olds, and just 71% of 45–54-year-olds (see Figure 4.10). The explanations for these differences are manifold, and include variation in expectation, health need and serviced provision.[70]

Indicator 4.4.ii reports that between July 2014 and March 2015, 95.0% of respondents successfully obtained an NHS dental appointment in the past two years, up slightly from 94.5% three years previously. Trends by age are less apparent than with indicator 4.4.i; those aged 65–84 years have the greatest success (97%), with 45–54-year-olds and 55–64-year-olds reporting success rates of 95% and 96% respectively. For both indicators 4.4.i and 4.4.ii there is significant population level regional variation in outcomes.

There is significant variation in access to healthcare by age group, as well by deprivation and region. The NHS Atlas of Variation in Healthcare is a useful tool that highlights geographical variation in service provision and access,[71] but work still needs to be done to understand age and geographic differences and to reduce unwarranted variation.[72] Furthermore, the generation and routine reporting of measures of hospital utilisation would be useful to monitor, among other things, shifts in healthcare usage between primary and secondary care.

**Figure 4.10 Percentage of GP patient survey respondents reporting a 'very good' or 'fairly good' experience of making an appointment by age, England, 2011/12 to 2014/15**




**Source** *HSCIC. NHS Outcomes Framework – Indicator 4.4.i*

# 13. Prevention

In 2013, modifiable behavioural, metabolic and environmental risk factors explained 40% of the total disease burden in England, and 45% of the disease burden in adults aged 50–69 years.

The leading three risks for both men and women aged 50–69 years were poor diet,[ii] tobacco consumption and high BMI (see Figure 4.11).

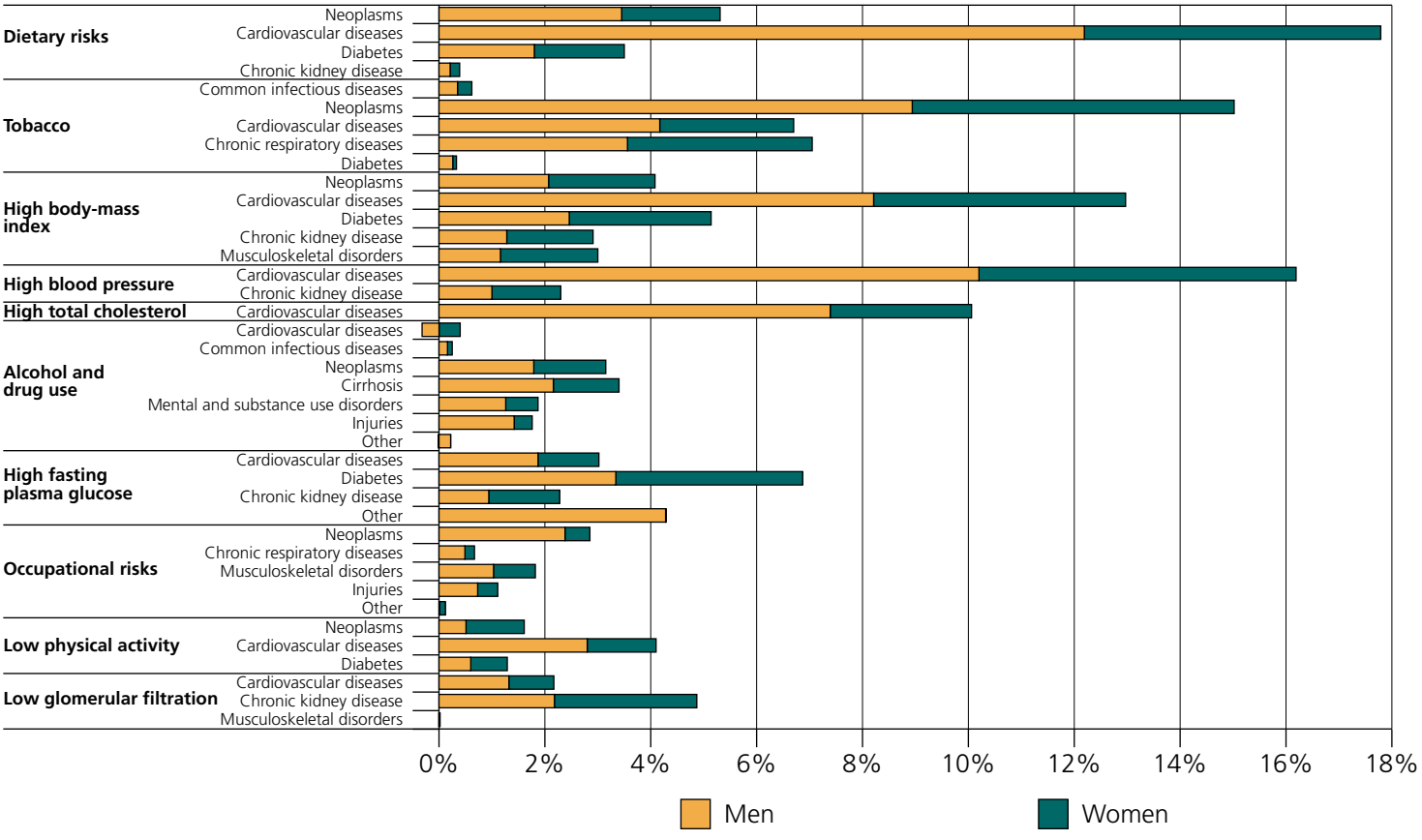
Diet, smoking and high BMI accounted for 18%, 17% and 15% of the total disease burden respectively among men aged 50–69 in 2013. For women aged 50–69 years, high BMI and tobacco use accounted for 13% and 12% of the total disease burden respectively in 2013 compared to poor diet accounting for 9%.

In 2013, risk factors varied markedly by deprivation quintile among 50–69 year-olds, both with respect to their relative importance and the size of their attributable burden. In the most deprived quintile, tobacco was the leading risk factor, accounting for 20% of total disease burden, followed by diet (16%) and high BMI (15%), with alcohol and drug use ranking fifth (7.1%). This is compared to the least deprived quintile where both the order and size of attributable burden of risk factors was different. High BMI was the leading risk factor, accounting for 13% of the total disease burden, followed by diet (12%) and tobacco (11%), with alcohol and drug use ranking sixth (4.6%).

Disability and death in 50–69-year-old adults are by no means inevitable, and even though health has improved markedly in this group, up to 45% of the remaining burden is potentially preventable through modifying known behavioural, metabolic and environmental risk factors. This figure rises to 52% in the most deprived quintile.

ii A combination of 14 dietary risk factors: low fruit, vegetables, whole grains, nuts and seeds, milk, fibre, seafood omega 3 fatty acids and polyunsaturated fatty acids consumption; high red meat, processed meat and sugar-sweetened beverages consumption; high trans fats and sodium intake; and suboptimal calcium intake.

**Figure 4.11 Percentage of total disease burden attributable to the leading 10 risk factors for adults aged 50-69 years by sex, England, 2013**




**Source** *Institute for Health Metrics and Evaluation. GBD Compare – Public Health England. Seattlke, WA: IHME, University of Washington, 2015. Available from http://vizhub.healthdata.org/gbd-compare/england*

# 14. References


1. Newton JN, Briggs ADM, Murray CJL, Dicker D, et al. Changes in health in England, with analysis by English regions and areas of deprivation, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet* 2015; 386:2257–74. doi:10.1016/S0140-6736(15)00195-6.
2. Office for National Statistics. Mortality in England and Wales. London: 2015.
3. Health and Social Care Information Centre. Hospital Episode Statistics. London: 2015.
4. Institute for Health Metrics and Evaluation (IHME). GBD Compare – Public Health England. Seattle, WA: 2015.
5. Office for National Statistics. England, National Life Tables, 1980–82 to 2012–14. 2015.
6. Office for National Statistics. Life Expectancy at Birth and at Age 65, by Local Areas in England and Wales, 1991–93 to 2012–14. 2015.
7. Office for National Statistics. Cancer Registration Statistics, England, 2012. London: 2014.
8. Health and Social Care Information Centre. Statistics on Smoking, England – 2015. London: 2015.
9. Peto R, Lopez AD, Hongchao P, Boreham J, et al. Mortality from smoking in developed countries 1950–2020. Oxford: 2015.
10. Coupland VH, Allum W, Blazeby JM, Mendall MA, et al. Incidence and survival of oesophageal and gastric cancer in England between 1998 and 2007, a population-based study. *BMC Cancer* 2012; 12:11. doi:10.1186/1471-2407-12-11.
11. Williams R, Aspinall R, Bellis M, Camps-Walsh G, et al. Addressing liver disease in the UK: a blueprint for attaining excellence in healthcare and reducing premature mortality from lifestyle issues of excess consumption of alcohol, obesity, and viral hepatitis. *The Lancet* (London, England) 2014; 384:1953–97. doi:10.1016/S0140-6736(14)61838-9.
12. Duncan ME, Seagroatt V, Goldacre MJ. Cancer of the body of the uterus: trends in mortality and incidence in England, 1985–2008. *BJOG* 2012; 119:333–9. doi:10.1111/j.1471-0528.2011.03201.x.
13. Evans T, Sany O, Pearmain P, Ganesan R, et al. Differential trends in the rising incidence of endometrial cancer by type: data from a UK population-based registry from 1994 to 2006. *Br J Cancer* 2011; 104:1505–10. doi:10.1038/bjc.2011.68.
14. Bray F, Lortet-Tieulent J, Ferlay J, Forman D, et al. Prostate cancer incidence and mortality trends in 37 European countries: an overview. *Eur J Cancer* 2010; 46:3040–52. doi:10.1016/j.ejca.2010.09.013.
15. Pashayan N, Powles J, Brown C, Duffy SW. Incidence trends of prostate cancer in East Anglia, before and during the era of PSA diagnostic testing. *Br J Cancer* 2006; 95:398–400. doi:10.1038/sj.bjc.6603247.
16. Walters S, Benitez-Majano S, Muller P, Coleman MP, et al. Is England closing the international gap in cancer survival? *Br J Cancer* 2015; 113:848–60. doi:10.1038/bjc.2015.265.
17. Health and Social Care Information Centre. Health Survey for England 2014 Trend Tables. 2015.
18. Mainous AG, Tanner RJ, Baker R, Zayas CE, et al. Prevalence of prediabetes in England from 2003 to 2011: population-based, cross-sectional study. *BMJ Open* 2014; 4:e005002. doi:10.1136/bmjopen-2014-005002.
19. Hex N, Bartlett C, Wright D, Taylor M, et al. Estimating the current and future costs of Type 1 and Type 2 diabetes in the UK, including direct health costs and indirect societal and productivity costs. *Diabet Med* 2012; 29:855–62. doi:10.1111/j.1464-5491.2012.03698.x.
20. Bajekal M, Scholes S, Love H, Hawkins N, et al. Analysing recent socioeconomic trends in coronary heart disease mortality in England, 2000–2007: a population modelling study. *PLoS Med* 2012; 9:e1001237. doi:10.1371/journal.pmed.1001237.
21. Public Health England. Inhale – INteractive Health Atlas of Lung conditions in England 2016. http://fingertips.phe.org.uk/profile/inhale.
22. Slade GD. Oral health-related quality of life is important for patients, but what about populations? *Community Dent Oral Epidemiol* 2012; 40 Suppl 2:39–43. doi:10.1111/j.1600-0528.2012.00718.x.
23. Sischo L, Broder HL. Oral Health-related Quality of Life: What, Why, How, and Future Implications. *J Dent Res* 2011; 90:1264–70. doi:10.1177/0022034511399918.
24. Pau A, Allen CD. Self-reported oral health status of adults resident in Medway, Kent in 2009. *Prim Dent Care* 2011; 18:173–9. doi:10.1308/135576111797512748.
25. Bratthall D, Hänsel-Petersson G, Sundberg H. Reasons for the caries decline: what do the experts believe? *Eur J Oral Sci* 1996; 104:416–22; discussion 423–5, 430–2.
26. Steele JG, Treasure ET, O'Sullivan I, Morris J, et al. Adult Dental Health Survey 2009: transformations in British oral health 1968–2009. *Br Dent J* 2012; 213:523–7. doi:10.1038/sj.bdj.2012.1067.
27. Health and Social Care Information Centre. Adult Dental Health Survey 2009 – Summary report and thematic series 2011. www.hscic.gov.uk/pubs/dentalsurveyfullreport09.
28. Tan H, Peres KG, Peres MA. Do people with shortened dental arches have worse oral health-related quality of life than those with more natural teeth? A population-based study. *Community Dent Oral Epidemiol* 2015; 43:33–46. doi:10.1111/cdoe.12124.
29. Public Health England. What is Known About the Oral Health of Older People in England and Wales. A review of oral health surveys of older people. London: 2015.

30. White DA, Tsakos G, Pitts NB, Fuller E, et al. Adult Dental Health Survey 2009: common oral health conditions and their impact on the population. *Br Dent J* 2012; 213:567–72. doi:10.1038/sj.bdj.2012.1088.
31. Joshipura K, Zevallos JC, Ritchie CS. Strength of evidence relating periodontal disease and atherosclerotic disease. *Compend Contin Educ Dent* 2009; 30:430–9.
32. Li C, Lv Z, Shi Z, Zhu Y, et al. Periodontal therapy for the management of cardiovascular disease in patients with chronic periodontitis. *Cochrane Database Syst Rev* 2014; 8:CD009197. doi:10.1002/14651858.CD009197.pub2.
33. Lakschevitz F, Aboodi G, Tenenbaum H, Glogauer M. Diabetes and periodontal diseases: interplay and links. *Curr Diabetes Rev* 2011; 7:433–9.
34. Watt R, Sheiham A. Health policy: Inequalities in oral health: a review of the evidence and recommendations for action. *Br Dent J* 1999; 187:6–12. doi:10.1038/sj.bdj.4800191.
35. Scholes S, Mindell J. Hearing. In: Health and Social Care Information Centre, editor. *Heal. Surv.* England, 2014, London: Health and Social Care Information Centre; 2015.
36. Arthritis Research UK. Osteoarthritis in General Practice. Chesterfield: 2013.
37. Thomas E, Peat G, Harris L, Wilkie R, et al. The prevalence of pain and pain interference in a general population of older adults: cross-sectional findings from the North Staffordshire Osteoarthritis Project (NorStOP). *Pain* 2004; 110:361–8. doi:10.1016/j.pain.2004.04.017.
38. NHS England. NHS England » Programme Budgeting 2015. www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting/ (accessed 11 August 2015).
39. Office for National Statistics. Sickness Absence in the Labour Market, February 2014, data release. London: 2014.
40. Department for Work and Pensions. Labour Force Survey analysis of disabled people by region and main health problem. London: 2015.
41. Dall TM, Gallo P, Koenig L, Gu Q, et al. Modeling the indirect economic implications of musculoskeletal disorders and treatment. *Cost Eff Resour Alloc* 2013; 11:5. doi:10.1186/1478-7547-11-5.
42. Schofield DJ, Shrestha RN, Percival R, Passey ME, et al. The personal and national costs of lost labour force participation due to arthritis: an economic study. *BMC Public Health* 2013; 13:188. doi:10.1186/1471-2458-13-188.
43. Department for Work and Pensions. Number of days lost through sickness absence by reason, 2009 to 2013, UK. 2014.
44. Davies SC, Fowler T, McKee M. On the state of public health in England. *The Lancet* (London, England) 2012; 380:1793–5. doi:10.1016/S0140-6736(12)61955-2.
45. Arthritis Research UK. Musculoskeletal Calculator (Back Pain); prevalence modelling based undertaken by Soljak M, Imperial College London, based on data from Health Survey for England, 2011 (unpublished). 2016.
46. Bridges S. Chronic pain. *Heal. Surv. Engl.* – 2011. Vol. 1., London: Health and Social Care Information Centre; 2012.
47. Arnow BA, Hunkeler EM, Blasey CM, Lee J, Constantino MJ, Fireman B, et al. Comorbid depression, chronic pain, and disability in primary care. *Psychosom Med* 2006; 68:262–8. doi:10.1097/01.psy.0000204851.15499.fc.
48. Hawker GA, Gignac MAM, Badley E, Davis AM, et al. A longitudinal study to explain the pain-depression link in older adults with osteoarthritis. *Arthritis Care Res* (Hoboken) 2011; 63:1382–90. doi:10.1002/acr.20298.
49. National Joint Registry. National Joint Registry for England and Wales 9th Annual report. Hemel Hempstead: 2012.
50. Fenton KA. Preventing musculoskeletal disorders has wider impacts for public health. Public Health Matters Blog, *Public Heal Engl* 2016. https://publichealthmatters.blog.gov.uk/2016/01/11/preventing-musculoskeletal-disorders-has-wider-impacts-for-public-health/.
51. Davies S. *Annual Report of the Chief Medical Officer, Surveillance Volume, 2012: On the State of the Public's Health*. London: 2014.
52. Arthritis Research UK. *Musculoskeletal Health – A public health approach*. Chesterfield: 2014.
53. Linton SJ. Early identification and intervention in the prevention of musculoskeletal pain. *Am J Ind Med* 2002; 41:433–42. doi:10.1002/ajim.10052.
54. Holdsworth LK, Webster VS, McFadyen AK. What are the costs to NHS Scotland of self-referral to physiotherapy? Results of a national trial. *Physiotherapy* 2007; 93:3–11. doi:10.1016/j.physio.2006.05.005.
55. Hill JC, Whitehurst DGT, Lewis M, Bryan S, et al. Comparison of stratified primary care management for low back pain with current best practice (STarT Back): a randomised controlled trial. *The Lancet* (London, England) 2011; 378:1560–71. doi:10.1016/S0140-6736(11)60937-9.
56. Hurley MV, Walsh NE, Mitchell H, Nicholas J, et al. Long-term outcomes and costs of an integrated rehabilitation program for chronic knee pain: a pragmatic, cluster randomized, controlled trial. *Arthritis Care Res* (Hoboken) 2012; 64:238–47. doi:10.1002/acr.20642.
57. Skou ST, Roos EM, Laursen MB, Rathleff MS, et al. A Randomized, Controlled Trial of Total Knee Replacement. *N Engl J Med* 2015; 373:1597–606. doi:10.1056/NEJMoa1505467.
58. Skou ST, Rasmussen S, Laursen MB, Rathleff MS, et al. The efficacy of 12 weeks non-surgical treatment for patients not eligible for total knee replacement: a randomized controlled trial with 1-year follow-up. *Osteoarthritis Cartilage* 2015; 23:1465–75. doi:10.1016/j.joca.2015.04.021.

59. Lane NE. Epidemiology, etiology, and diagnosis of osteoporosis. *Am J Obstet Gynecol* 2006; 194:S3–11. doi:10.1016/j.ajog.2005.08.047.
60. Gauthier A, Kanis JA, Jiang Y, Martin M, et al. Epidemiological burden of postmenopausal osteoporosis in the UK from 2010 to 2021: estimations from a disease model. *Arch Osteoporos* 2011; 6:179–88. doi:10.1007/s11657-011-0063-y.
61. Holt G, Khaw KT, Reid DM, Compston JE, et al. Prevalence of osteoporotic bone mineral density at the hip in Britain differs substantially from the US over 50 years of age: implications for clinical densitometry. *Br J Radiol* 2002; 75:736–42. doi:10.1259/bjr.75.897.750736.
62. Akesson K, Marsh D, Mitchell PJ, McLellan AR, et al. Capture the Fracture: a Best Practice Framework and global campaign to break the fragility fracture cycle. *Osteoporos Int* 2013; 24:2135–52. doi:10.1007/s00198-013-2348-z.
63. Eisman JA, Bogoch ER, Dell R, Harrington JT, et al. Making the first fracture the last fracture: ASBMR task force report on secondary fracture prevention. *J Bone Miner Res* 2012; 27:2039–46. doi:10.1002/jbmr.1698.
64. Department for Transport. Reported Road Casualties, Great Britain: 2014. *Annual Report. Moving Britain Ahead*. 2015.
65. Brüde U, Elvik R. The turning point in the number of traffic fatalities: two hypotheses about changes in underlying trends. *Accid Anal Prev* 2015; 74:60–8. doi:10.1016/j.aap.2014.10.004.
66. Lloyd L, Wallbank C, Broughton J. A collection of evidence for the impact of the economic recession on road fatalities in Great Britain. *Accid Anal Prev* 2015; 80:274–85. doi:10.1016/j.aap.2015.03.026.
67. Goddard M. *Quality in and Equality of Access to Healthcare Services in England.* CHE Research Paper 40. York: Centre for Health Economics, University of York; 2008.
68. Judge A, Welton NJ, Sandhu J, Ben-Shlomo Y. Equity in access to total joint replacement of the hip and knee in England: cross sectional study. *BMJ* 2010; 341:c4092. doi:10.1136/bmj.c4092.
69. Health and Social Care Information Centre. HSCIC Indicator Portal 2015. https//indicators.ic.nhs.uk/webview/.
70. Appleby J, Raleigh V, Frosini F, Bevan G, et al. *Variations in health care. The good, the bad and the inexplicable*. London: 2011.
71. NHS Right Care. *NHS Atlas of Variation in Healthcare 2015*. www.rightcare.nhs.uk/index.php/atlas/nhs-atlas-of-variation-in-healthcare-2015/.
72. Mulley AG. Improving productivity in the NHS. *BMJ* 2010; 341:c3965. doi:10.1136/bmj.c3965.

Chapter 5

# Lifestyle factors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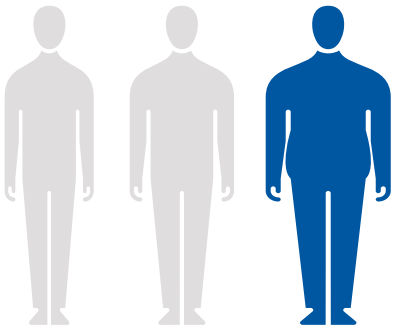
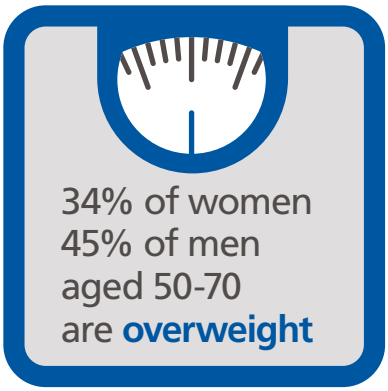
# Lifestyle of older adults in England

## Physical activity and weight



**1 in 3**

OF THOSE AGED 50-70 ARE OBESE



34% of women
45% of men
aged 50-70
are **overweight**



**65.6%**
of Baby Boomers have not engaged in any moderate physical activity lasting 30 minutes or longer in the past month

## Alcohol

Amongst 50-60 year olds:

Men are drinking approx. 4-5 units a week **less** than 20 years earlier

Women are drinking approx. 2 units a week **more** than 20 years earlier

## Smoking (by Baby Boomers)

**18%** women and **19%** of men smoke


who are smokers/ex smokers have never been asked to stop smoking by a doctor or nurse

# 1. Overview

A good understanding of the health-related lifestyles of Baby Boomers is important for a number of reasons. The generation born in the two decades after the Second World War are now aged 50–70 years. This is the period of life at which many chronic diseases emerge, including type 2 diabetes, arthritis, hypertension and cardiovascular disease, and in which impairments in cognitive function may begin to have an impact on subjective wellbeing and independence.[1] Lifestyle factors such as smoking, physical activity, alcohol consumption, dietary choices and body weight all contribute to chronic disease risk. These behaviours are not fixed in stone but can be moved in a healthier direction with appropriate support. The fifties and sixties are also years of transition in people's lives as they move out of employment towards retirement, and establish or maintain health habits that may carry through into older age.

This chapter describes how Baby Boomers are faring in terms of selected aspects of lifestyle relevant to chronic disease. We have used national figures from the most robust systematic studies to estimate the prevalence of these behaviours. In addition to the overall pattern, we have compared different age groups within Baby Boomers as well as socio-economic groups and people of different ethnic backgrounds. This information can help target prevention programmes more effectively.

An interesting question is whether Baby Boomers have a healthier or less healthy lifestyle than their predecessors in terms of smoking, physical activity, alcohol consumption, dietary choice and body weight. The men and women of this generation grew up in a period of increasing prosperity and welfare support. There has been a vast increase in the availability of fruit and vegetables throughout the year in many parts of England. Baby Boomers have also been exposed to more intensive health education and public health advice about smoking, physical activity, alcohol consumption and diet than previous generations. At the same time, Baby Boomers have lived through an era of rapid increase in the availability of palatable convenience and fast food, much of which is high in calories. In order to establish how Baby Boomers differ from earlier generations, we have, where possible, compared them with people who were in this same age category 20 years earlier.

In 2012/2013 the total number of hospital admissions attributable to the consumption of alcohol exceeded 400,000 among men and women aged 45-64.[4] Around one in four men and one in six women of the baby-boomer generation drink daily or almost daily. Interestingly, alcohol consumption is lower in men in their fifties than it was 20 years ago. This trend is reversed in women, with more drinking now than in the previous generation.

Smoking remains a common habit in Baby Boomers, with 27% of men and 25% of women aged 50–54 being current smokers. But rates of smoking by people in their sixties have decreased markedly over the past 20 years. Much of the difference is due to people stopping smoking, although survival effects may also operate, since non-smokers are more likely to survive into older age. The strong socio-economic gradients in smoking observed in younger sectors of the population persist among 50–69 year-olds. There are also large regional variations in smoking among Baby Boomers. This is not a North–South divide, since rates are higher, for example, in London than in the North West.

Physical activity levels are low on average in the baby-boomer generation, and fall far below the levels recommended in national guidelines as detailed below. Physical inactivity is higher in this generation than it was 10 years ago. Two-thirds of Baby Boomers had engaged in no physical activity lasting 30 minutes or longer at even moderate intensity in the previous month. As with smoking, there is a marked socio-economic gradient, with lower levels of moderate or vigorous activity in lower compared with higher socio-economic status groups. There are also ethnic differences, with men and women of South Asian origin being more sedentary than those of white European background, and also large variations across regions of the country. Baby Boomers living in the North of England are physically less active on average than those living in the South of England.

The dietary habits of the Baby Boomers also fall short of the advice in national guidelines.[5] Fewer than 50% of Baby Boomers eat even half the recommended amount of fish per week, while most eat more than the daily recommended intake of red meat. The average number of portions of fruit and vegetables eaten per day is also lower than recommended: our analyses of national surveys[6, 7] indicate that around two-thirds of Baby Boomers eat less than five portions on a daily basis. The proportion that eats the recommended five a day increases with age within the baby-boomer generation, and there are also marked differences related to socio-economic status and region of the country.

Obesity levels have been increasing throughout the population over recent decades, so it is no surprise that levels are higher in Baby Boomers than among men and women of previous generations. It is notable that, while the rates of obesity are lowest in managerial and professional households, they do not show a consistent gradient when comparing with other socio-economic groups in this generation. The limited data available on ethnic differences highlight a raised risk of obesity for people of African Caribbean origin in their fifties and sixties.

Taken together, the evidence about the lifestyles of Baby Boomers indicates improvements in some behaviours such as smoking and heavy drinking compared with people of the same age in the previous generation. But sedentary behaviour, poor food choice and obesity remain serious problems for the health of men and women aged 50–69 years-old.

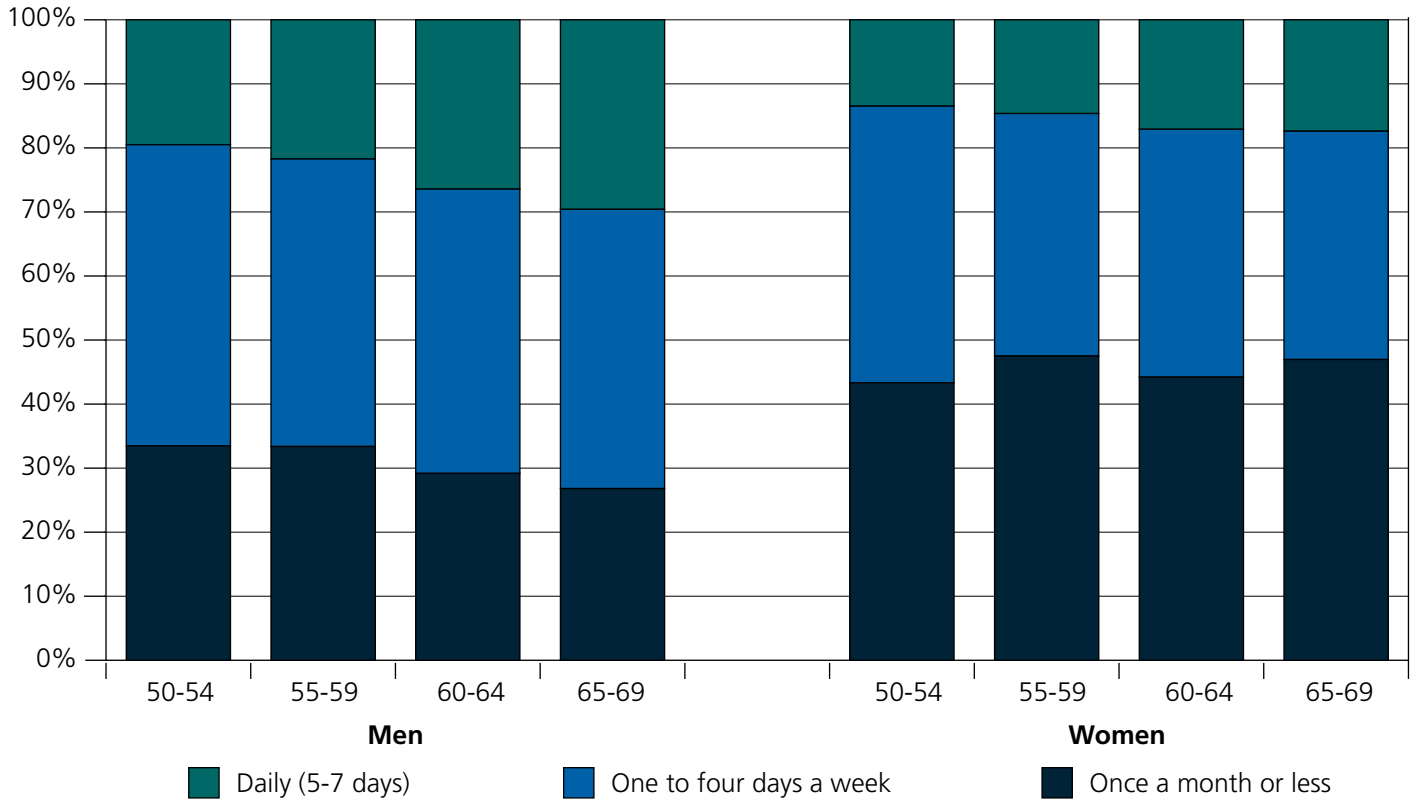
# 2. Alcohol

Unless indicated otherwise, all data for this chapter come from the Health Survey for England (HSE) 2013[6] and the English Longitudinal Study of Ageing (ELSA) 2012/13,[7] which respectively included 2,876 and 5,930 nationally representative men and women born between 1945 and 1964. Results were compared with people of the same age 20 years earlier (using the HSE 1993). When this was not possible due to lack of comparable measures, we used the HSE 2003 and restricted the comparisons to people aged 50–59 years of age 10 years earlier. Socio-economic patterns are presented using the five categories of the National Statistics Socio-economic Classification (NS-SEC): managerial and professional, intermediate (eg, clerical, administrative, sales), small employers and own account workers (self-employed positions in which people are engaged in any non-professional trade), lower supervisory and technical, and semi-routine and routine occupations. Unless otherwise indicated, we only report in the text statistically significant differences ($p<0.05$) ascertained using appropriate statistical tests (Chi-square and t-test). All the findings are for people currently aged 50–69 years.

## 2.1 Alcohol – overview

Regular or heavy use of alcohol contributes to a wide range of health problems. Long-term health risks of cancers, strokes, heart disease, liver disease, damage to the brain and to the nervous system arise from regularly drinking alcohol for 10 to 20 years or more.[8] The cost to the NHS in England of alcohol misuse has been estimated to be £3.5 billion a year.[9] Recent evidence suggests that the protective effect of moderate alcohol consumption only applies to a small group of the population, such as women over the age of 65, with little or no protection in other age-sex groups.[10] New guidelines on low-risk drinking levels were recently published by the UK Chief Medical Officers, which recommend that to keep health risks from alcohol to a low level it is safest not to drink regularly more than 14 units a week and that for those who drink as much as 14 units per week, it is best to spread this evenly over three days or more, and that several drink free days in the week aid cutting intake.[8]

**Figure 5.1 Frequency of alcohol consumption by age and gender, England, 2012-2013**




**Source** *Health Survey for England 2013, ELSA 2012/13.*

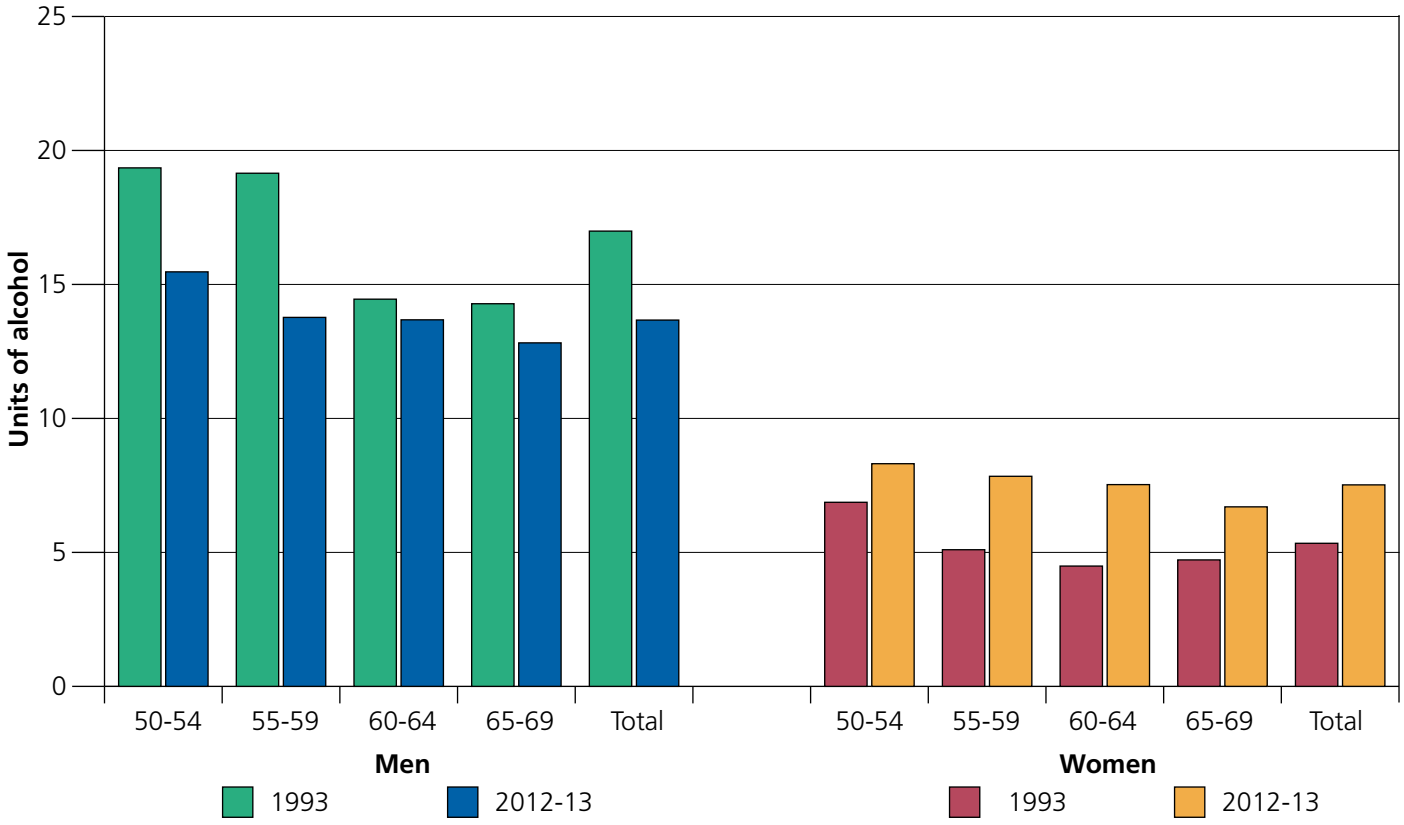
## 2.2 Alcohol consumption – age and gender patterns

Pooled data from HSE and ELSA provided information on alcohol consumption for 3,497 men and 4,393 women aged 50–69 years. Results in Figure 5.1 show that the prevalence of drinking on five or more days each week over the past year increased steadily with age and was highest in men aged 65–69 (30%) and women aged 60–69 (17%). However, men aged 65–69 on average reported drinking 13 units per week, while those aged 50–54 reported drinking an average of 15 units per week. On average, women reported drinking less than the recommended guidelines: eight units per week up to the age of 64 and seven units per week thereafter.

Figure 5.2 shows the average units of alcohol consumed weekly by Baby Boomers compared with men and women in the same age range 20 years ago. Men aged 50–60 years 20 years ago were drinking on average four to five units of alcohol more per week than male Baby Boomers of the same age. Interestingly, women of the baby-boomer generation appear to drink more than women of the same age 20 years ago across the age range.

In 2012/13 there were a total of 405,890 alcohol-related hospital admissions among men and women aged 45–64 and 389,220 among people aged 65 and over. Some 60% of people aged 45–64 admitted to hospital for alcohol-related diseases or injuries were men. Among men of that age range, 37% (90,660) of alcohol-related hospital admissions were wholly attributable to alcohol consumption or alcohol specific (ie, had an attributable fraction of 1); the corresponding figure among women was 23% (38,120). Mental and behaviour disorders (ICD-10 code F10) due to the use of alcohol were the most common diagnoses, accounting for nearly two-thirds of admissions among those aged 45–64 (128,780). Around 29,490 admissions were for alcoholic disease and 9,540 admissions were for the toxic effects of alcohol in people aged 45–64.[4]

**Figure 5.2 Average weekly units of alcohol consumed, by age cohort and gender, England, 1993 to 2012-2013**



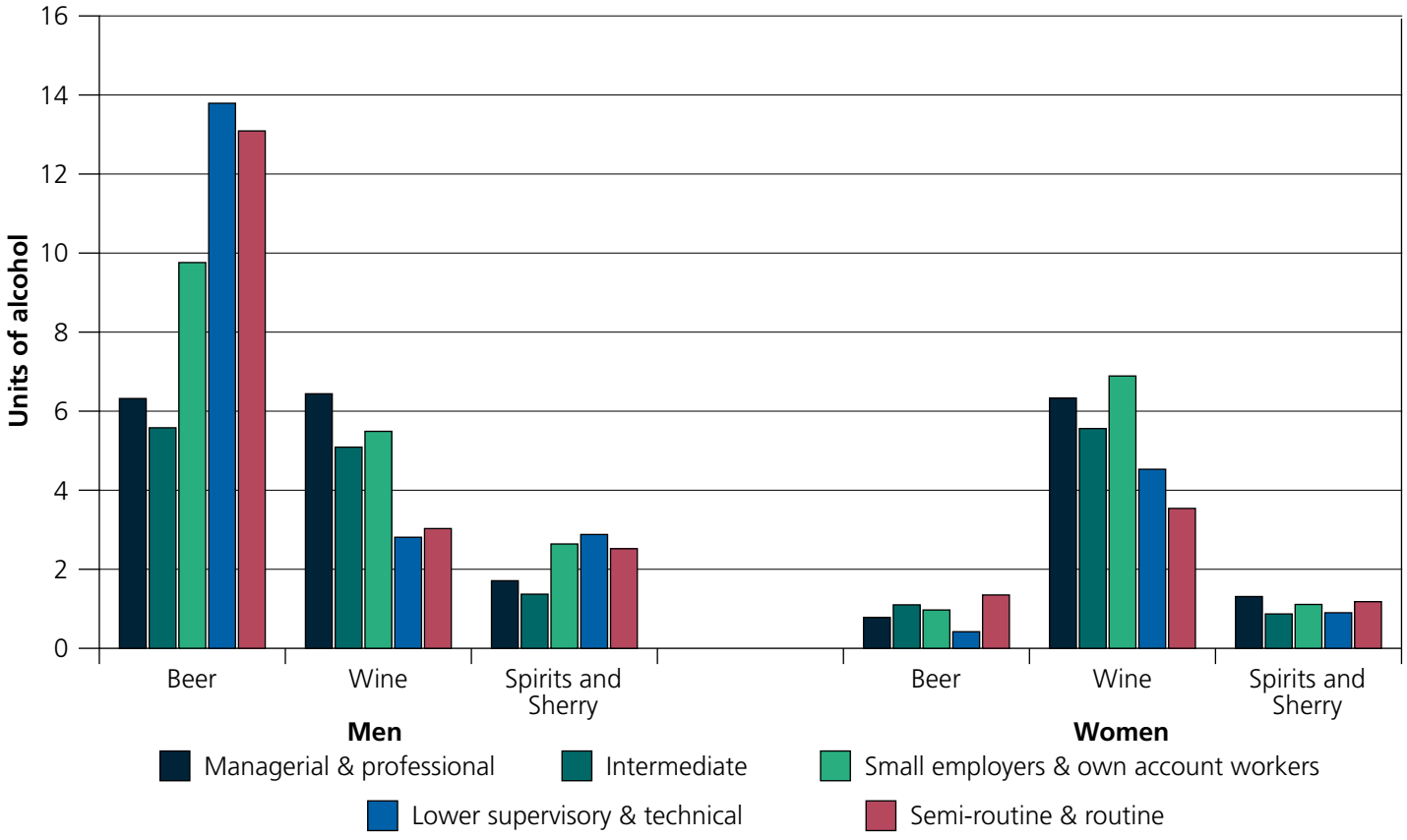

**Source** *Health Survey for England 2013, ELSA 2012/13*

## 2.3 Alcohol consumption – ethnic and socio-economic patterns

Differences in alcohol consumption are present among minority ethnic groups compared with the general population, mainly due to cultural differences and religious beliefs.[11] Pooled data from ELSA and HSE showed that among people aged 50–69, white European and black men on average were drinking substantially more than men of all Asian origins (13–14 units per week compared with five units per week). Among women, the ethnic differences in alcohol consumption were more marked, with women of black origin drinking on average two units per week and those of Asian origin drinking on average one unit per week compared with eight units per week consumed by women of white European origin.

Men aged 50–69 in managerial and professional and intermediate households consumed on average 13 and 11 units of alcohol per week compared with 15 units per week drunk by men in other categories. Women in semi-routine and routine households consumed on average six units of alcohol per week, three more than women in managerial and professional occupations. There were striking variations in preferences for different types of alcohol across socio-economic groups (see Figure 5.3). Wine drinking was more common among men and women in professional and intermediate occupations. By contrast, beer drinking was much more common in men in semi-routine and routine occupations.

**Figure 5.3 Average weekly units of alcohol consumed according to type, by gender and socio-economic classification, England, 2012-2013**




**Source** *Health Survey for England 2013, ELSA 2012/13*

# 3. Smoking

## 3.1 Smoking status

Smoking is the primary cause of preventable illness in the UK, and it is estimated to lead to the premature death of approximately 100,000 people each year.[12] It is an important risk factor for cardiovascular disease, some cancers, dementia, blindness, deafness, back pain, osteoporosis and peripheral vascular disease. In England, the cost to the NHS for treating diseases caused by smoking is approximately £2bn per year.[12]

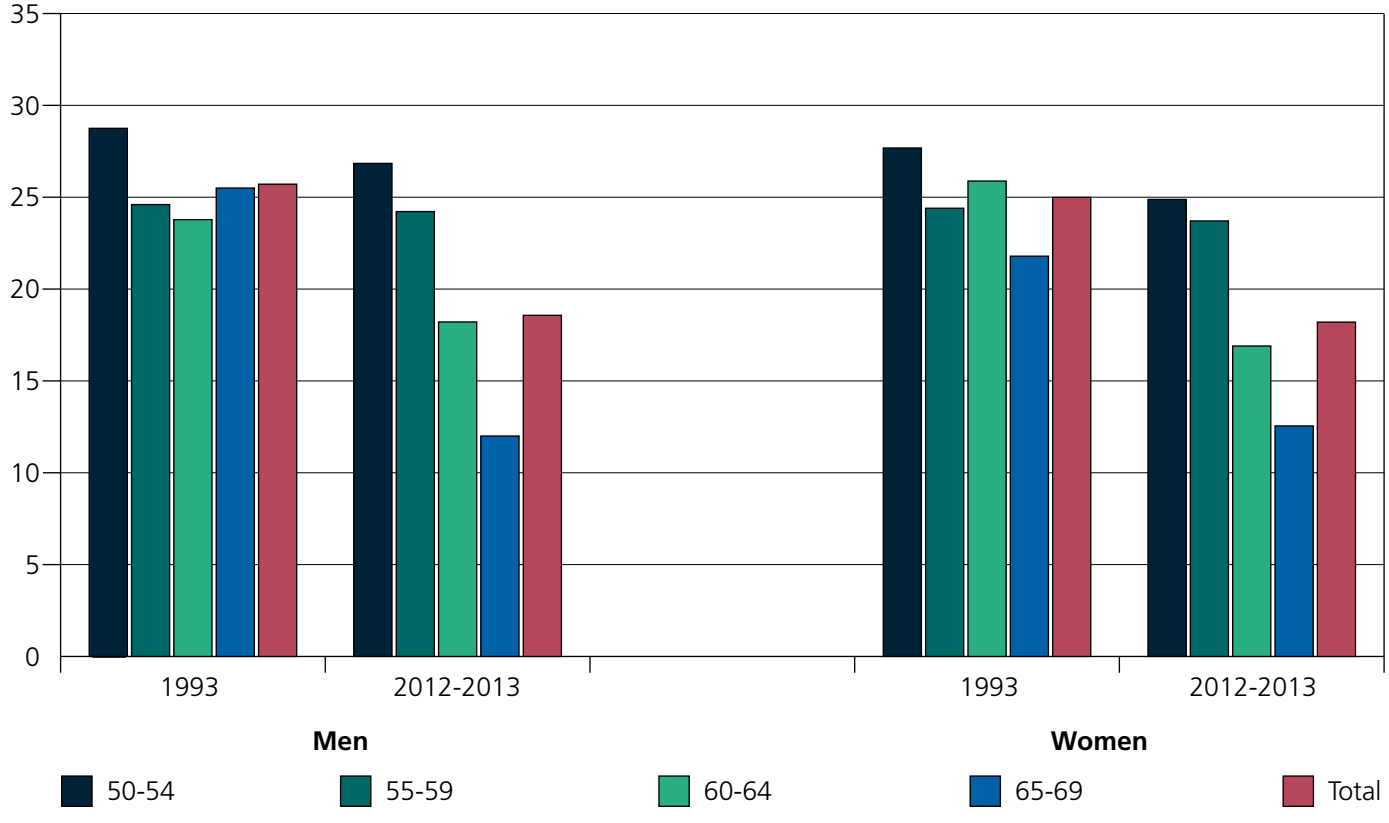
The prevalence of smoking in Baby Boomers is 19% in men and 18% in women, but rates vary considerably within this age group. Levels of current smoking fall with advancing age, from 27% and 25% in men and women aged 50–54 to 12% and 13% in men and women aged 65–69. Conversely, the proportion of men and women who are ex-smokers increases consistently with age within this age group, from 42% and 39% in men and women aged 50–54 to 59% and 47% in men and women aged 65–69. The proportion of men aged 50–69 who have never smoked is approximately 30% and does not vary significantly across the age group, whereas for women it is lowest in those aged 55–59 (32%) and highest in the oldest age group (65–69) (41%).

Levels of current smoking are lower in Baby Boomers compared with people of the same age 20 years ago. As can be seen in Figure 5.4, the largest differences in current smoking are observed at older ages (60–64 and 65–69), with the smallest differences among those aged 55–59.

Data from HSE 2013 provide information on advice received about smoking cessation in 1,571 ex-smokers and current smokers aged 50–69 years. A total of 34% of Baby Boomer men reported that they had been advised to stop smoking by a medical person[i]: of these 46% were ex-smokers and 54% were current smokers. 66% of Baby Boomer men had never been asked to stop. Among women, 29% had been advised to stop smoking by a medical person, of these, 40% were ex-smokers and 50% were current smokers. 71% of Baby Boomer women had never been asked to stop. Respondents were also asked whether they had ever been to a health professional for help to stop smoking: 9% of men and 12% of women had seen a doctor, 7% of men and 9% of women went to a local stop smoking centre and 4% of men and 5% of women had seen other health professionals.

i Where 'medical person' is described a 'doctor or nurse'.

**Figure 5.4 Prevalence of current smokers, by age cohort and gender, England, 1993 to 2012-2013**




**Source** *Health Survey for England 2013, ELSA 2012/13*

Electronic cigarettes deliver nicotine that is vaporised and inhaled from a liquid form via a battery-powered device that simulates cigarette smoking. Electronic cigarettes have been marketed as a tool to help stop smoking, but it is still not certain whether the nicotine and chemical uptake from electronic cigarettes are safe.[13]

For the first time in 2013, HSE collected information on the use of electronic cigarettes, resulting in a sample of 1,572 ex-smokers and current smokers aged 50–69. The overall proportion of people aged 50–69 reporting ever or currently using electronic cigarettes (exclusively) was 2.6%; just over 4% in men and 5% in women. Among men, 17% were using other nicotine replacement products, 7% were using both electronic cigarettes and other nicotine replacement products, whereas the majority (71%) were using none. Among women 22% were using other nicotine replacement products, 9% were using both electronic cigarettes and other replacement products and 64% were using none. Among those reporting ever using or currently using electronic cigarettes, 62% of men and 72% of women were current smokers, whereas 38% of men and 28% of women were ex-smokers (Table 5.1).

## 3.2 Socio-economic and regional variations in smoking

Data from HSE and ELSA show a clear socio-economic gradient in smoking among men and women aged 50–69 (see Figure 5.5). The prevalence of current smokers was lowest in men from managerial and professional households (11%) and highest in those from semi-routine and routine households (30%); among women from managerial professional households, 14% were current smokers, and the prevalence reached its peak in women from lower supervisory and technical households (28%).

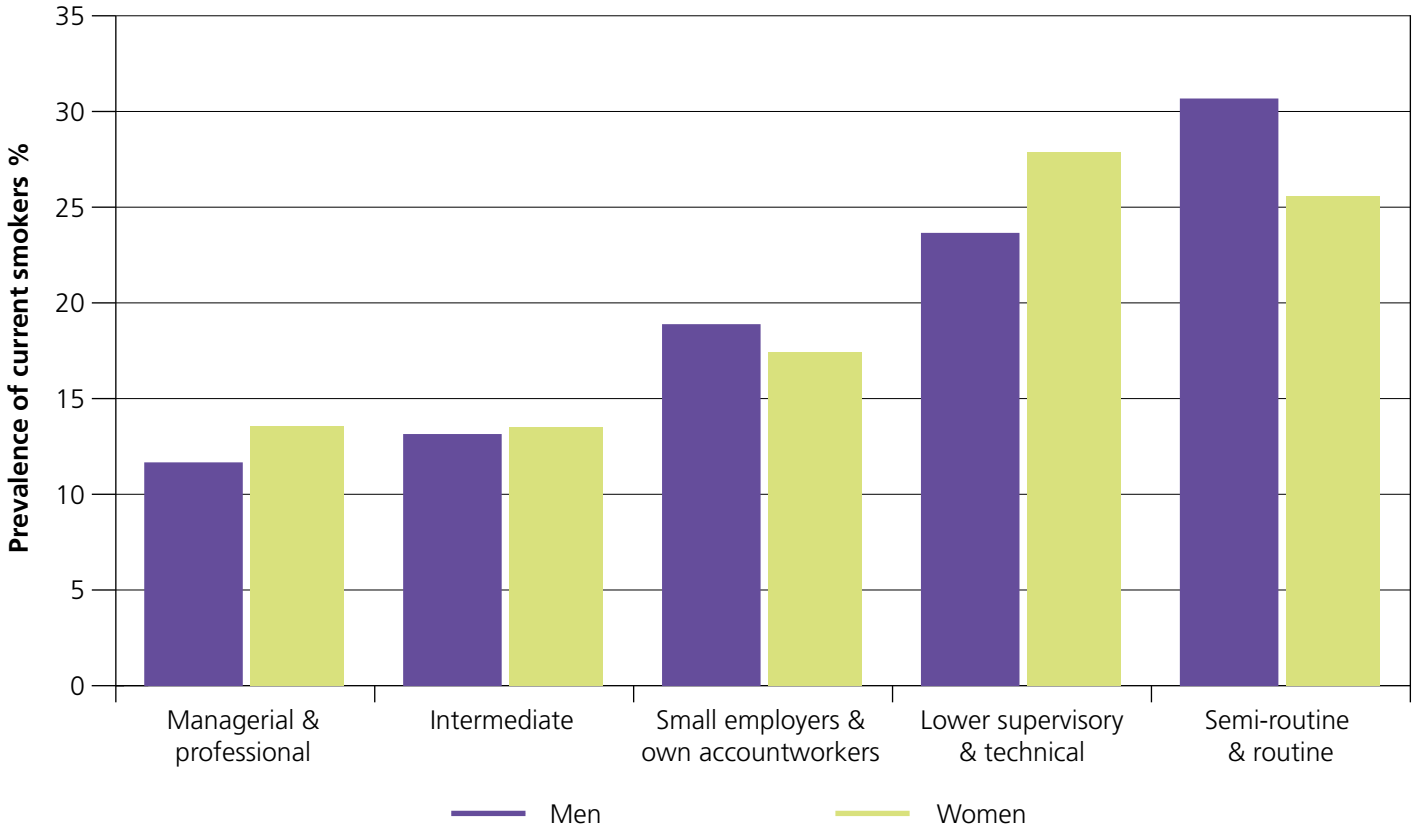
We observed large regional variations in the prevalence of current smokers. The pattern was different for men and women, as shown in Figure 5.6. Among men, the highest proportion of current smokers was found in the North East (26%) and the lowest proportion in the South West (14%). Among women, the highest proportions were found in Yorkshire and the Humber (24%) and London (22%) and the lowest proportions in the South East and South West (16%).

**Table 5.1: Use of e-cigarettes and other nicotine replacement products among ex-smokers and current smokers, aged 50 to 69, England, 2013**

| | Ex-smokers | Current smokers | Total |
|---|---|---|---|
| | % | % | % |
| E-cigarettes | 2.5 | 8.0 | 2.6 |
| Other nicotine replacement products | 13.7 | 26.5 | 10.7 |
| Both | 2.5 | 15.5 | 4.1 |
| None | 81.3 | 50.0 | 82.7 |
| Total | 100 | 100 | 100 |

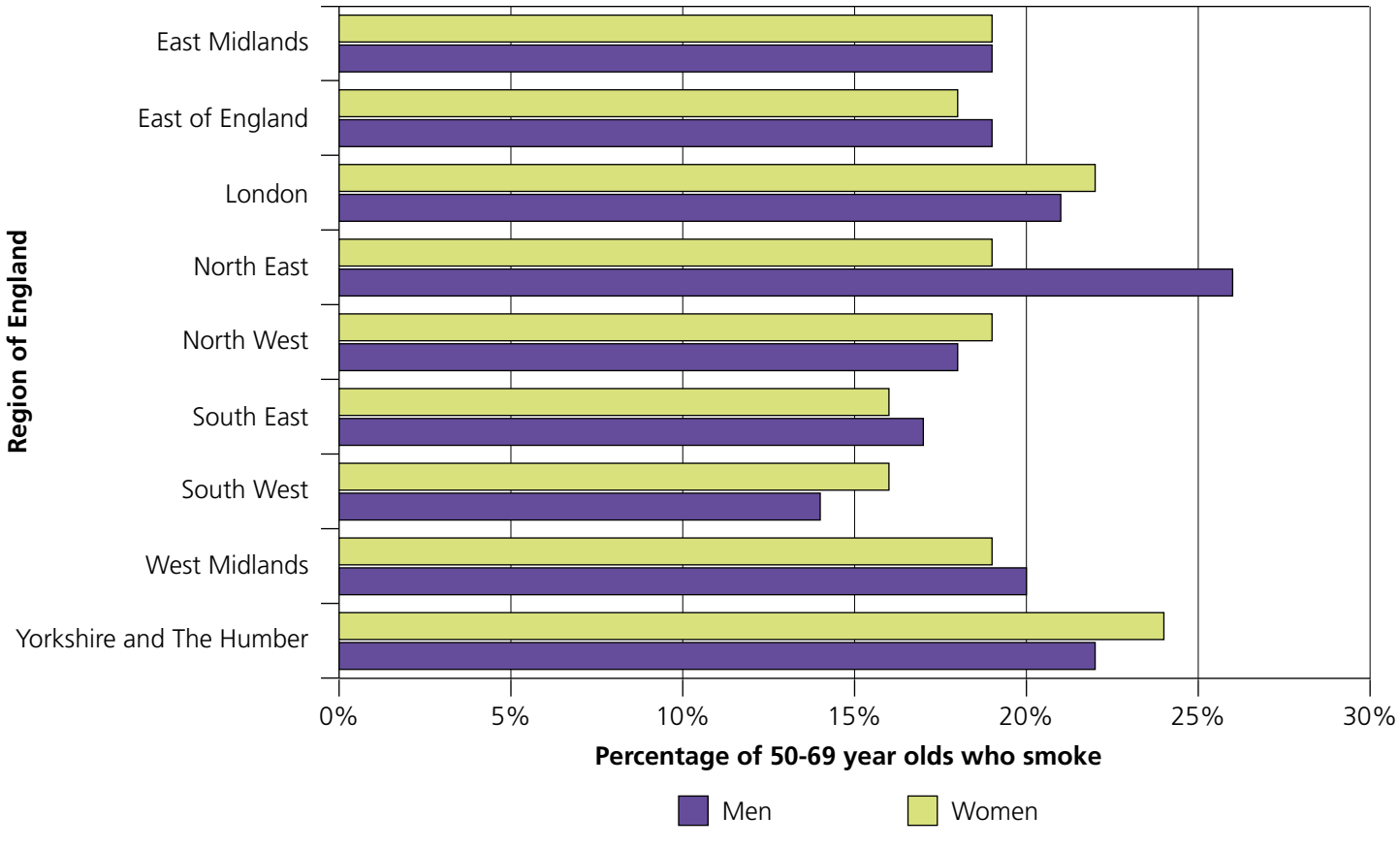
**Source** *Health Survey for England 2013, ELSA 2012/13*

**Figure 5.5 Prevalence of current smokers by gender and socio-economic classification, England, 2012-2013**




**Source** *Health Survey for England 2013, ELSA 2012/13*

**Figure 5.6 Prevalence of current smokers aged 50-69 years by Government Office Region, England, 2012-2013**




**Source** *Health Survey for England 2013, ELSA 2012/13*

# 4. Physical activity

## 4.1 Physical activity

Physical activity is recognised as an important determinant of ill-health,[14] including cognitive functioning.[15] Inactivity is a problem across all age groups.[16] National guidelines recommend adults participate in 150 minutes of moderate intensity, aerobic, physical activity per week. This could comprise five sessions of exercise lasting 30 minutes per week.[17]

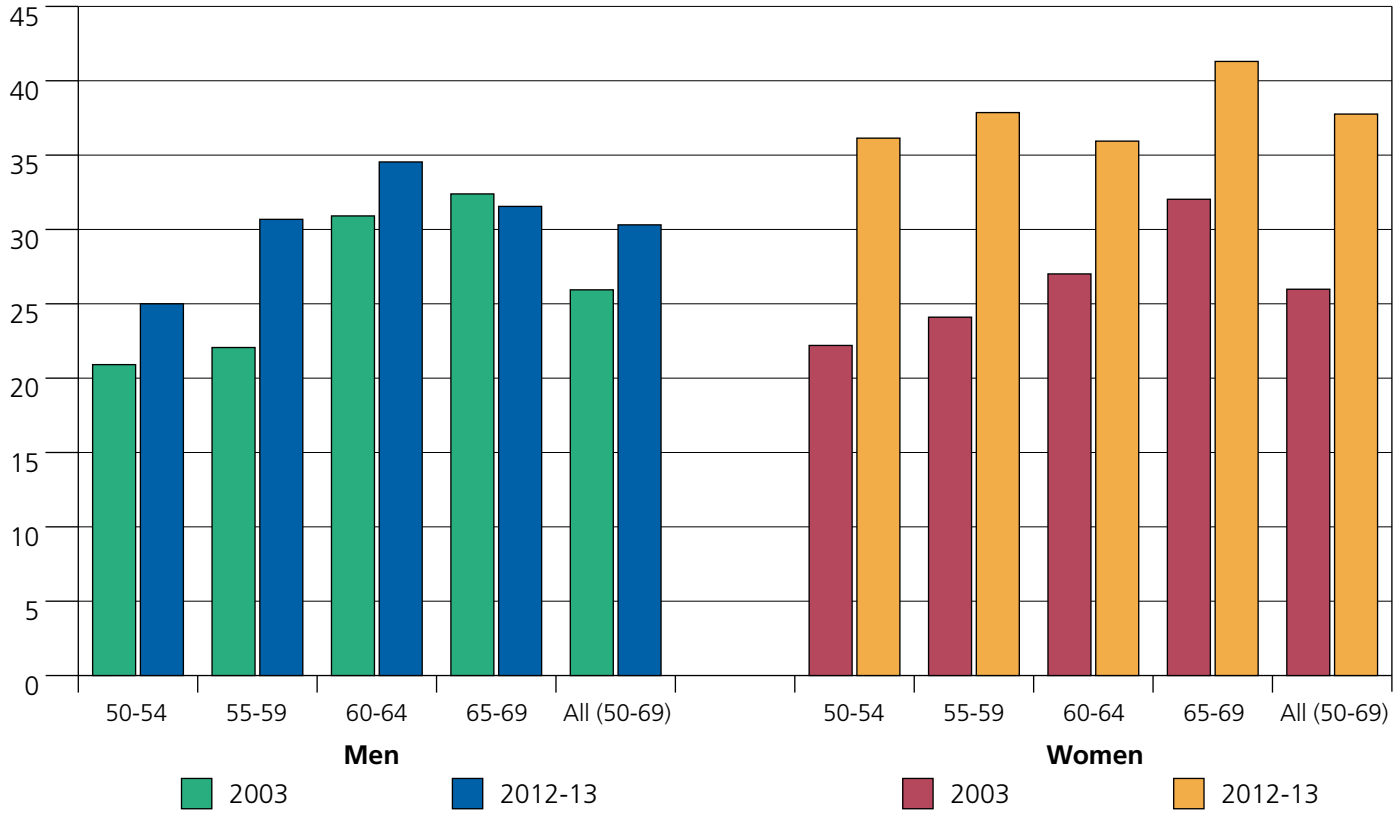
Analyses were performed on three key datasets: the HSE 2013, the Active People Survey (APS)[18] and the ELSA 2012/13. These datasets used different definitions of physical activity as summarised in Table 5.2.

HSE collected data on engagement in moderate/vigorous intensity physical activity for more than 30 minutes in the past week. Figure 5.7 shows the distribution of inactive Baby Boomers (those engaging for less than 30 minutes a week), by age and sex, compared with men and women aged 50–59 10 years previously (1,190 men and 1,355 women). Baby Boomers in 2013 were less active than people of the same age 10 years previously. Differences in levels of physical inactivity were larger for women (37% in those aged 50–59 now and 23% in women of the same age 10 years previously) than for men (28% in those aged 50–59 in 2013 and 22% in men of the same age 10 years previously).

**Table 5.2: Physical activity measures used**

| Data source | Physical activity measure |
|---|---|
| HSE | Number of moderate/vigorous intensity physical activity sessions lasting more than 30 minutes in the past week (<30 minutes/week, ≥30 minutes/week) |
| APS | Number of moderate/vigorous intensity physical activity sessions lasting more than 30 minutes in the past month (none, 1–3, 4+) |
| ELSA | Active (vigorous activity more than once a week), moderately active (moderate activity once a week or more or vigorous activity 1–3 times a month), inactive (no activity or moderate activity 1–3 times a month without vigorous activity) |

**Figure 5.7 Prevalence of those physically inactive (<30min per week), by age cohort and gender, England, 2003 and 2012-2013**




**Source** *ELSA 2012/13*

## 4.2 Moderate physical activity

The APS uses data collected from randomly sampled landline telephone interviews. Data from wave 8 (2013/14) were used here, with the sample restricted by year of birth to include only those born between 1945 and 1964, leaving a total sample size of 55,414 Baby Boomers.

The APS found that 65.6% of Baby Boomers had not engaged in any moderate physical activity lasting 30 minutes or longer in the preceding month. Only 28% performed at least four 30-minute moderate intensity sessions a month, equivalent to one a week. Men were slightly more active than women: 30% of men participated in four or more moderate physical activity sessions a month compared with 27% of women. There was also a clear age gradient within the Baby Boomers. For men, 36% of those aged 49–54 performed at least four 30- minute sessions a month compared with 27% of those aged 65–69 years old. A similar pattern was found for women, with 32% of those aged 49–54 performing at least four 30-minute sessions a month compared with 25% of those aged 65–69 years old.

We observed a clear gradient in participation in physical activity according to socio-economic classification. For men, 39% of those in managerial and professional occupations performed at least four 30-minute sessions a month compared with 17% of those in semi-routine and routine occupations. For women, a similar gradient was observed, with 35% of those in managerial and professional occupations performing at least four 30-minute sessions a month compared with 17% of those in semi-routine and routine occupations.

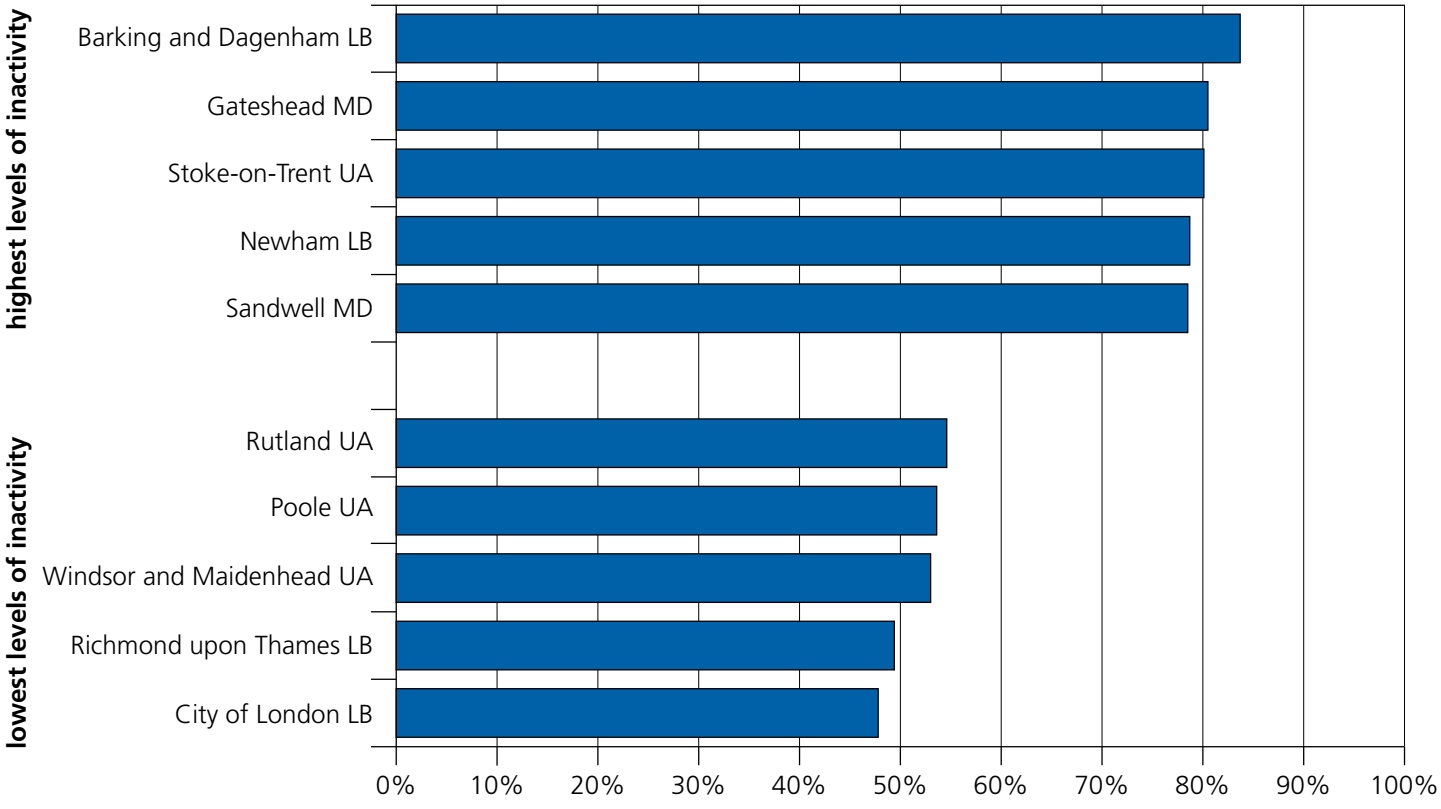
In summary, regular moderate physical activity was most likely to be performed by men who are younger in age within the baby-boomer generation and who are from higher status occupations.

## 4.3 Ethnic and regional differences

Differences in physical activity by ethnic origin and region were also explored in the APS. To look at differences by ethnicity and region, we compared rates of physical inactivity, defined as engaging in no moderate intensity physical activity lasting at least 30 minutes in the previous month. Ethnic group comparisons were restricted to white, black and Asian to ensure the sample sizes were large enough to detect reliable differences. As such, there may be more subtle differences between sub-groups than we have been able to report here. We found that 63% of white men were inactive compared with 67% of those from a black ethnic background and 71% of those from an Asian ethnic background. For women, 67% of those from a white ethnic background were inactive compared with 73% of black women and 74% of Asian women.

There are also clear regional differences. The regions containing the lowest rates of physical inactivity in people surveyed were found in the South. For example, 48% of those living in the City of London and 49% of those living in Richmond upon Thames were physically inactive compared with 81% of those living in Gateshead and 80% of those living in Stoke-on-Trent (see Figure 5.8).

**Figure 5.8 Proportion of Baby Boomers engaging in no moderate intensity physical activity sessions lasting at least 30 minutes in the previous month by local authority (5 highest, 5 lowest proportions), England, 2013-2014**




**Source** *Active People Survey*

## 4.4 Physical activity and health

ELSA has a sample size of 5,560 adults born between 1945 and 1964. ELSA has comprehensive data of health and cognitive function (measured using a memory test), so these factors were explored in relation to engagement in physical activity. Physical activity was rated as active, moderately active and inactive (Table 5.2).

### Physical activity and cognitive function

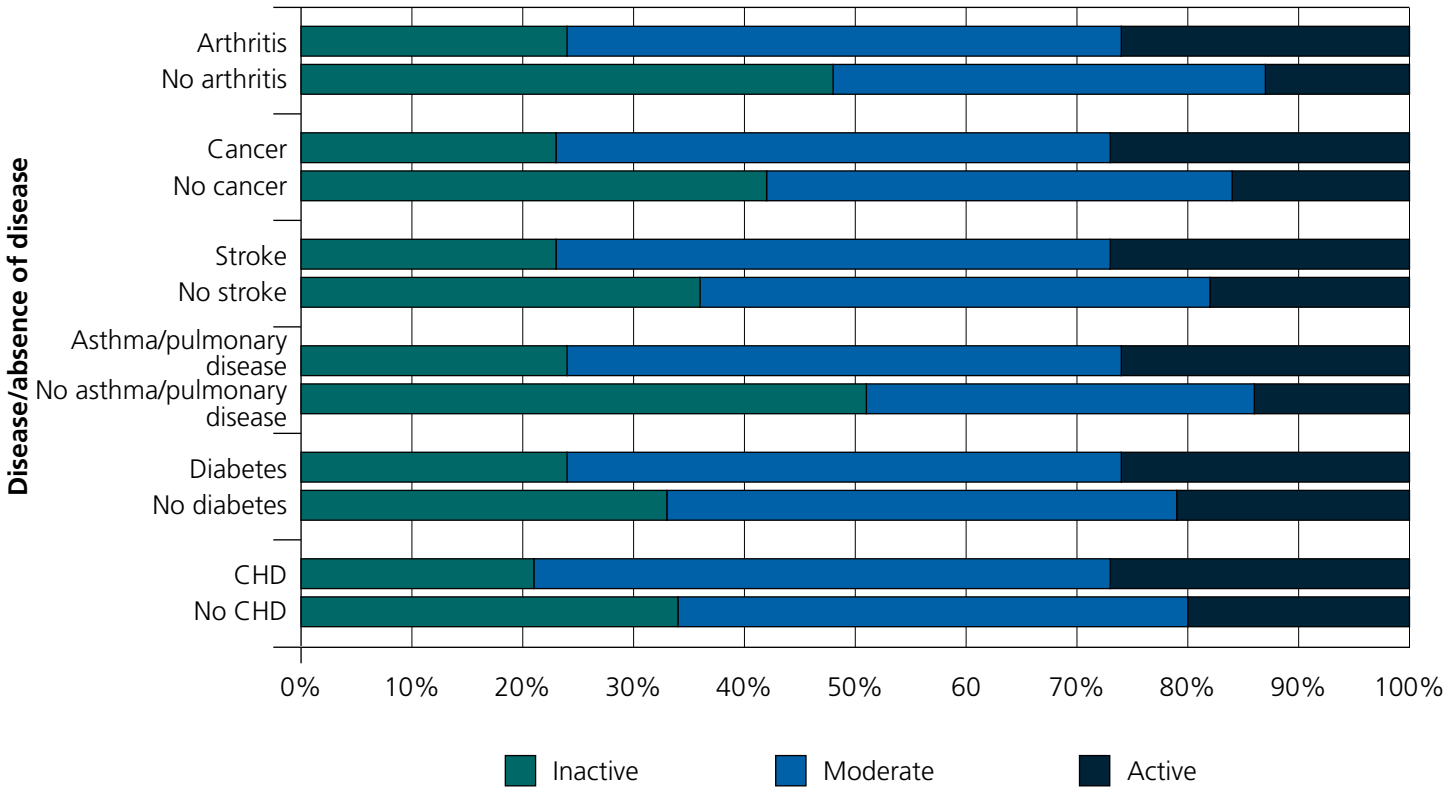
Memory was assessed by summing the number of words recalled immediately and after five minutes delay, with higher scores indicating better memory; the score was then recoded into tertiles. For men, findings showed that 26% of those with the poorest memory were active compared with 35% of those in the highest memory tertile. At the other end of the scale, 27% of those in the lowest memory tertile were inactive compared with 16.8% of those in the highest memory tertile. For women, findings showed that 17.3% of those with the poorest memory were active compared with 28% of those in the highest memory tertile. In terms of inactivity, 32% of those in the lowest memory tertile were inactive compared with 20% of those in the highest memory tertile. These differences in physical activity, in both men and women, were significant ($p<0.001$). In other words, associations between greater physical activity and better memory were identified in these analyses, although confounding factors were not taken into account.

### Physical activity and self-rated physical health

Physical activity was also examined in relation to both self-rated health and specific physical illnesses, using data from ELSA. To maximise the sample size, men and women were pooled for these analyses. Self-rated health has been reported to predict mortality[19] and was coded on a three-point Likert scale ranging from very good/excellent to fair/poor. Physical activity was significantly associated with self-rated health. In those Baby Boomers who were inactive, 50% rated their health as fair/poor, 23% as good and just 13% as very good/excellent. In comparison, those Baby Boomers who were considered active showed the reverse pattern, with 10% rating their health as fair/poor, 22% as good and 36% as very good/excellent.

Physical activity was also significantly associated with coronary heart disease (CHD), diabetes, asthma/pulmonary disease, stroke, cancer and arthritis. In each of these conditions, those with the illness were more inactive compared with those free of the disease. These differences are displayed in Figure 5.9.

**Figure 5.9 Prevalence of engagement in physical activity by Baby Boomers, underlying physical illness, England 2012-2013**




**Source** *ELSA 2012/13*

# 5. Diet and nutrition

## 5.1 Overview

Diet and nutrition are key lifestyle factors relating to ill-health, and in particular chronic disease such as diabetes and coronary heart disease.[20] Diet and nutrition are also closely linked to the succeeding section in this chapter on obesity. Analyses were performed on two key datasets: the National Diet and Nutrition Survey (NDNS)[21] and HSE 2013.

## 5.2 Fish and meat consumption

NDNS is a cohort study designed to assess the diet, nutrient intake and nutritional status of those aged 1.5 years and older living in private households in the UK. Participants were surveyed over four consecutive years, spanning 2008 to 2012. The sample was restricted by year of birth to include only those born between 1945 and 1964, leaving a total sample size of 748, of which 56.8% were female.

National guidelines for fish consumption recommend that we eat two portions of fish (280g) per week, including one portion (140g) of oily fish.[22] Overall, NDNS found low consumption of fish in the Baby Boomers, with an average consumption of 180g per week. In terms of oily fish, the average weekly consumption was 71g. We divided the sample using a median split into those eating more or less than 140g per week to analyse differences by age. Overall, the most fish was consumed by those aged 60–64 years old, with 54% of this age group eating an average of 140g or more per week. In comparison, only 39% of 50–54 year olds ate 140g of fish or more per week.

In analysing oily fish, we divided people according to whether or not they ate any oily fish over the week. 70% of the sample ate no oily fish over the week, while just 21% consumed the recommended 140g portion per week. Those aged 60–64 were the highest consumers of oily fish, with 35% of this age bracket consuming some oily fish per week. In comparison just 25% of those aged 50–54 ate any oily fish. Women were more likely to consume some oily fish per week compared with men (34% vs. 25% respectively).

In summary, fish consumption fell below the recommended weekly amount in this sample, with older Baby Boomers eating more fish than younger Baby Boomers and women eating more oily fish than men.

The Department of Health recommends we eat no more than 70g of red meat daily.[23] In NDNS the average red meat consumption of Baby Boomers was 72g per day. We divided daily red meat consumption using this 70g cut-off to analyse differences in the amounts of red meat eaten by age and sex.

There were small differences in red meat consumption by age bracket, with 50% of those aged 60–64 consuming more than 70g per day compared with 41% of those aged 55–59. There was, however, a significant difference in red meat consumption between men and women, with a higher proportion of men consuming more than 70g per day than women (57% of men compared to 36% of women).

In summary, on average red meat consumption was slightly above the national recommended limit of 70g per day in this sample, with older and male Baby Boomers consuming more red meat daily than their younger and female counterparts.

## 5.3 Fruit and vegetable consumption

We analysed data from HSE 2013, which provides detailed data on fruit and vegetable consumption. The sample consisted of 2,875 Baby Boomers aged 50–69 years old, of which 29.7% were female.

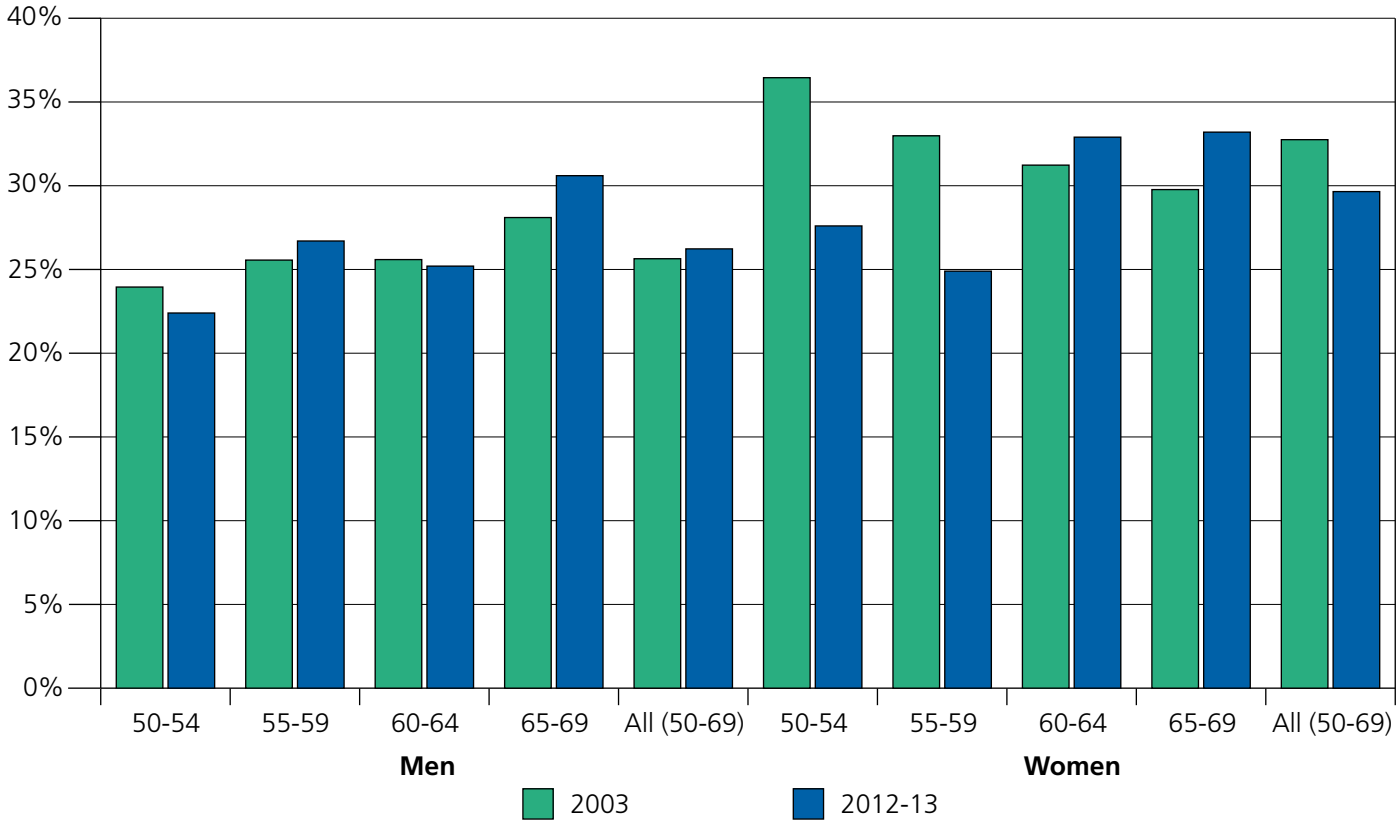
The national recommendation is that people eat five or more portions of fruit and vegetables per day.[24] On average Baby Boomers consumed 4 portions of fruit and vegetables per day. Although the difference was small, a significantly higher proportion of women (30%) than men (26%) ate the recommended five portions of fruit and vegetables per day. There was a clear age gradient within the baby-boomer generation. As can be seen in Figure 5.10, older men (aged 65–69 years) were more likely to eat five or more portions of fruit and vegetables per day (31%) compared with those aged 50–54 years, in whom only 22% met this recommendation. A similar pattern of results was observed for women, with 33% of those aged 65–69 years-old consuming five or more portions a day compared with 25% of those aged 55–59.

Proportions of women eating the recommended five portions of fruit and vegetables a day were in general lower in Baby Boomer women aged 50–59 compared with women aged 50–59 in 2003 (1,194 men and 1,358 women). To maximise the sample size, we pooled data for men and women to study differences by occupation and geographical location. We found there was a marked social gradient in fruit and vegetable consumption. A higher proportion of those working in managerial and professional occupations consumed their 'five a day' compared to those in semi-routine occupations (34.9% vs 21.5% respectively).

Geographical location was also related to fruit and vegetable consumption, with the highest proportion of those meeting the five or more fruit and vegetables per day guidelines living in London (34.7%) compared with just 21.8% of those living in the North West.

In summary, average fruit and vegetable consumption was below the recommended five portions per day. Baby Boomers who were female, older and in higher socio-economic status groups were more likely to meet this recommendation than Baby Boomers who were male, younger and in lower socio-economic status groups.

**Figure 5.10 Prevalance of those eating 5 or more portions a day of fruit and vegetables, age cohort and gender, England, 2003 and 2012-2013**




**Source** *Health Survey for England 2003 and 2012-2013*

# 6. Obesity

Among people aged 50 and over, obesity is an important public health burden due to its association with poor health[25] and quality of life and depressive symptoms.[26] Furthermore, excess body fat mass and high body mass index (BMI) are positively associated with poor physical functioning and disability,[27] and strongly predict future disability and decline in functional status in those aged 65 and over.[28] Fat distribution across the body changes with age, resulting in an increase in abdominal fat compared with subcutaneous or total body fat around 60–70 years of age.[29, 30] High levels of central abdominal fat are related to type 2 diabetes.[31] In this section using data from ELSA and HSE, we consider two measures of obesity: general obesity (measured by BMI) and central obesity (measured by waist circumference).

A greater proportion of men (45%) than women (34%) were overweight (defined as BMI ≥25 kg/m$^2$ and <30 kg/m$^2$). Figure 5.11 shows that nearly half of Baby Boomer men and more than one in three Baby Boomer women were overweight.

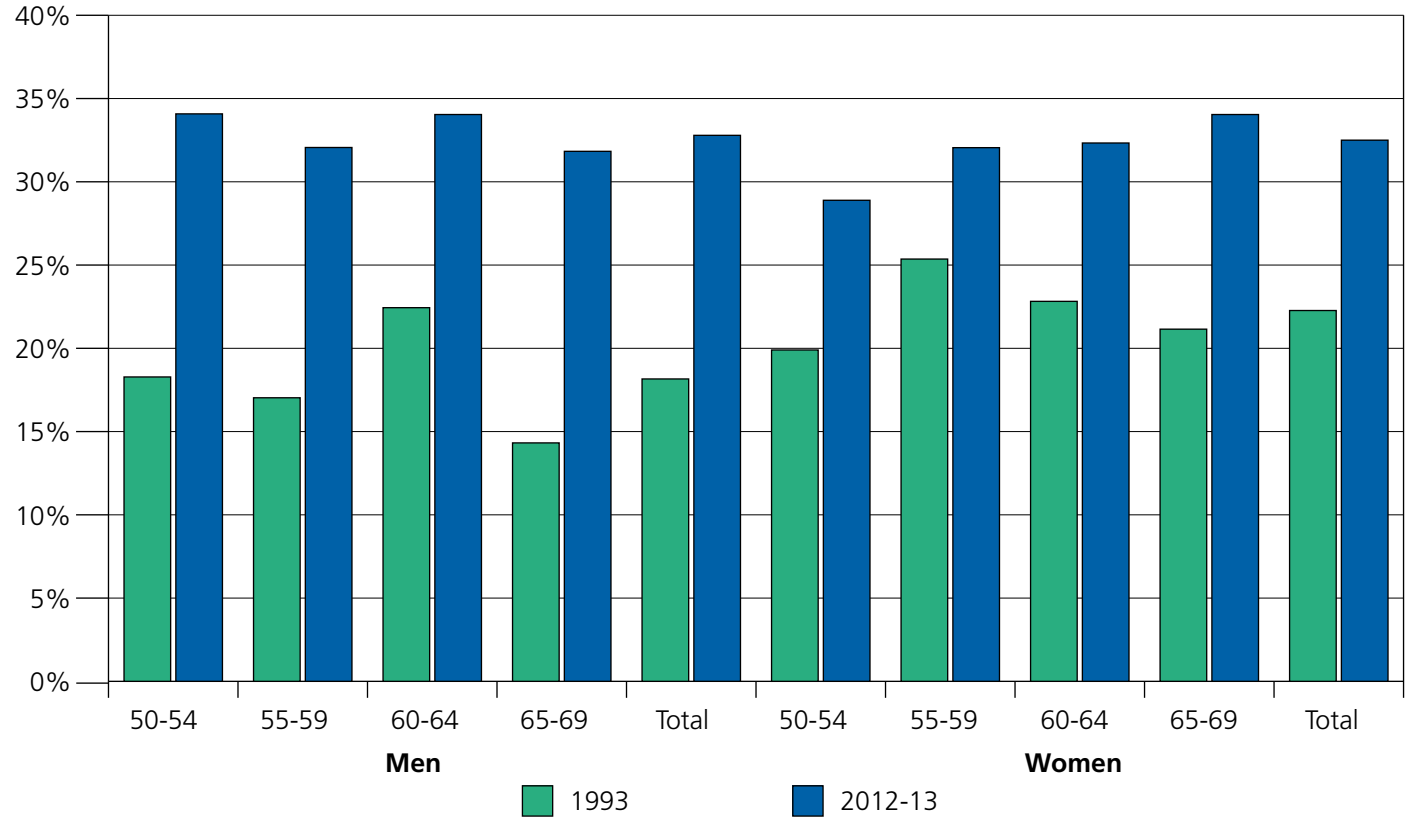
Figure 5.11 also shows the prevalence of obesity in Baby Boomer men and women compared with those of the same age 20 years ago. Among men, we can see that the prevalence of obesity has increased steadily over time in each age group. Overall, 33% of men are obese now compared with 18% of men in this age group 20 years ago. In Baby Boomer women, there was a clear age trend of obesity, from 29% in the youngest age group to 35% in the oldest. In women of the same age 20 years ago, there was no clear age trend in the prevalence of obesity. Overall, the prevalence of obesity has risen significantly from 22% to 33% in women aged 50–69 over the past 20 years ($p<0.001$). The mean waist circumference was 102 cm in men and 92 cm in women. Raised waist circumference, defined as 102 cm in men and 88 cm in women,[32] was more prevalent in women (78%) than in men (73%).

The prevalence of central obesity (raised waist circumference) increases steadily with age in both men and women, from 69% in men and 74% in women aged 50–55 to 77% in men and 83% in women aged 65–69 (Figure 5.12). A higher proportion of Baby Boomer men aged 50–69 were centrally obese compared with men of the same age 20 years. Among women, the prevalence of central obesity was higher in each age group compared with women of the same age 20 years ago.

Interestingly, about one in five Baby Boomer men and nearly half of Baby Boomer women who were classified as having normal BMI were centrally obese according to waist circumference. A total of 80% of overweight men and 92% of overweight women were also classified as having raised waist circumferences. This indicates that central obesity is present even among those with a healthy overall body weight.

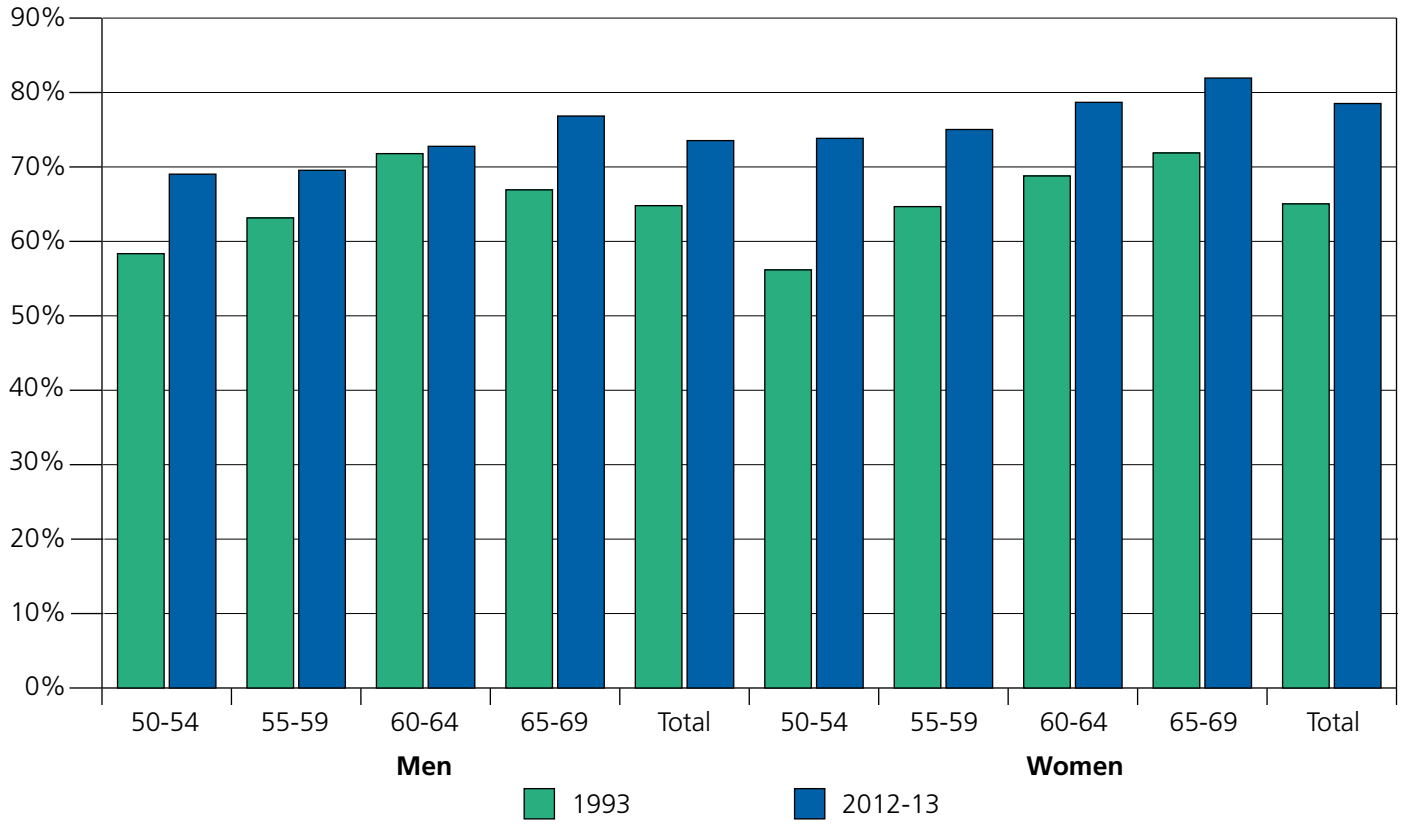
Men and women from managerial and professional households had the lowest prevalence of obesity (29% in men and 26% in women) and central obesity (70% in men and 73% in women) compared with men and women from lower supervisory or technical (men: 37% obese, 76% centrally obese; women: 46% obese, 84% centrally obese) and semi-routine occupations (men: 35% obese, 73% centrally obese; women: 39% obese, 82% centrally obese). The sample from ELSA and HSE was too small to ascertain whether there were any significant differences in obesity and central obesity according to ethnicity. To explore ethnic differences in obesity, we used data from 399 participants of the Southall And Brent REvisited (SABRE) Study[33] collected between 2008 and 2011. Results suggest that the prevalence of obesity was 33% among men and women of the baby-boomer generation of black African origin, whereas it was 20% and 26% in Baby Boomer men and women of South Asian and European origins respectively.

**Figure 5.11 Prevalence of obesity categories according to BMI, by age cohort and gender, England 1993 to 2012-2013**




**Source** *Health Survey for England, ELSA*

**Figure 5.12 Prevalence of central obesity, by age cohort and gender, England, 1993 to 2012-2013**




**Source** *Health Survey for England, ELSA*

# 7. References


1. Allerhand M, Gale CR, Deary IJ. The dynamic relationship between cognitive function and positive well-being in older people: a prospective study using the English Longitudinal Study of Aging. *Psychol Aging* 2014; 29, 306.
2. Loef M, Walach H. The combined effects of healthy lifestyle behaviors on all cause mortality: a systematic review and meta-analysis. *Prev Med* 2012; 55, 163–170.
3. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci* 2011; 6, 42.
4. Health and Social Care Information Centre 2014. Statistics on Alcohol – England. Available from: www.hscic.gov.uk/catalogue/PUB14184.
5. NHS Choices. The Eatwell Guide. Available from: www.nhs.uk/Livewell/Goodfood/Pages/eatwell-plate.aspx.
6. Mindell J et al. Cohort profile: the health survey for England. *Int J Epidemiol* 2012; 41, 1585–1593.
7. Steptoe A, Breeze E, Banks J, Nazroo J. Cohort profile: the English longitudinal study of ageing. *Int J Epidemiol* 2013; 42, 1640–1648.
8. UK Chief Medical Officers. *UK Chief Medical Officers Alcohol Guidelines Review* 2016. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/489797/CMO_Alcohol_Report.pdf.
9. House of Commons Health Committee. *Government's Alcohol Strategy 2012–13* 2012. Available from: www.publications.parliament.uk/pa/cm201213/cmselect/cmhealth/132/132vw.pdf.
10. Knott CS, Coombs N, Stamatakis E, Biddulph JP. All cause mortality and the case for age specific alcohol consumption guidelines: pooled analyses of up to 10 population based cohorts. *BMJ* 2015; 350, h384–h384.
11. Sproston K, Mindell J. Health Survey for England 2004: The Health of Minority Ethnic Groups. 2006. Available from: www.hscic.gov.uk/catalogue/PUB01170/hea-surv-ethn-min-eng-2004-rep-v1.pdf.
12. Action on Smoking and Health. Smoking Statistics: Illness and Death 2015. Available from: http://ash.org.uk/files/documents/ASH_107.pdf.
13. Britton J, Bogdanovica I. *Electronic cigarettes: A report comissioned by Public Health England* 2014. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/311887/Ecigarettes_report.pdf.
14. Lee I-M et al. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *The Lancet* 2012; 380, 219–229.
15. Norton S, Matthews FE, Barnes DE, Yaffe K et al. Potential for primary prevention of Alzheimer's disease: an analysis of population-based data. *Lancet Neurol* 2014. 13, 788–794.
16. Hallal PC et al. Global physical activity levels: surveillance progress, pitfalls, and prospects. *The Lancet* 2012; 380, 247–257.
17. UK physical activity guidelines – Publications – GOV.UK. Available from: www.gov.uk/government/publications/uk-physical-activity-guidelines.
18. Sport England. What is the Active People Survey? Available from: www.sportengland.org/research/about-our-research/what-is-the-active-people-survey/.
19. DeSalvo KB, Bloser N, Reynolds K, He J et al. Mortality prediction with a single general self-rated health question. *J Gen Intern Med* 2006; 21, 267–275.
20. Slawson DL, Fitzgerald N, Morgan KT. Position of the Academy of Nutrition and Dietetics: The Role of Nutrition in Health Promotion and Chronic Disease Prevention. *J Acad Nutr Diet* 2013; 113, 972–979.
21. MRC Human Nutrition Research. National Diet and Nutrition Survey. 2014. Available from: www.mrc-hnr.cam.ac.uk/research/nutrition-surveys-and-studies/national-diet-and-nutrition-survey.
22. Scientific Advisory Committee on Nutrition (sacn). *Advice on fish consumption: benefits and risks*. TSO, 2004.
23. SACN Iron and Health Report – Publications – GOV.UK. Available from: www.gov.uk/government/publications/sacn-iron-and-health-report.
24. Choices. 5 A DAY – Live Well – NHS Choices. (2015). Available from: www.nhs.uk/livewell/5aday/pages/5adayhome.aspx.
25. Zaninotto P, Jackson S, Jackowska M, Bridges S et al. *The Dynamics of Ageing: Evidence from the English Longitudinal Study of Ageing 2002–2012 (Wave 6).* The Institute of Fiscal Studies, 2014. Available from: www.elsa-project.ac.uk/uploads/elsa/docs_w6/ELSA%20Wave%206%20report.pdf.
26. Zaninotto P, Pierce M, Breeze E, de Oliveira C et al. BMI and waist circumference as predictors of well-being in older adults: findings from the English Longitudinal Study of Ageing. *Obes Silver Spring Md* 2010; 18, 1981–1987.
27. Davison KK, Ford ES, Cogswell ME, Dietz WH. Percentage of body fat and body mass index are associated with mobility limitations in people aged 70 and older. NHANES III. *J Am Geriatr Soc* 2002; 50, 1802–1809.
28. Jensen GL, Friedmann JM. Obesity Is Associated with Functional Decline in Community-Dwelling Rural Older Persons. *J Am Geriatr Soc* 2002; 50, 918–923.
29. Kuk JL, Saunders TJ, Davidson LE, Ross R. Age-related changes in total and regional fat distribution. *Ageing Res Rev* 2009; 8, 339–348.
30. Villareal DT et al. Obesity in older adults: technical review and position statement of the American Society for Nutrition and NAASO, The Obesity Society. *Am J Clin Nutr* 2005; 82, 923–934.
31. Després JP. Body fat distribution and risk of cardiovascular disease: an update. *Circulation* 2012; 126, 1301–1313.

32. NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Obesity in Adults (US). *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. National Heart, Lung, and Blood Institute, 1998.
33. SABRE: Southall and Brent REvisited. Available from: www.sabrestudy.org.

Chapter 6

# Screening and immunisation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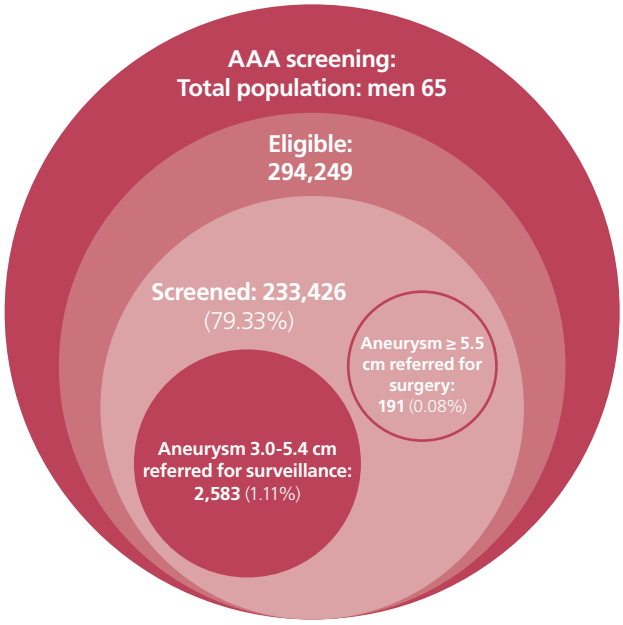
# Screening of older adults in England

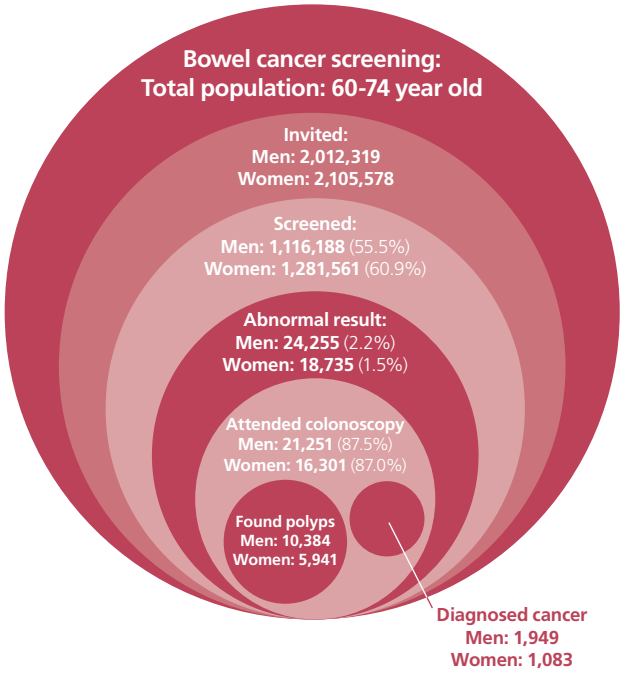
## ABDOMINAL AORTIC ANEURYSM SCREENING




*In addition to above there were over 8,000 men aged 66-70 who self-referred to be screened, 97 of those were screen positive and 6 were referred for surgery*

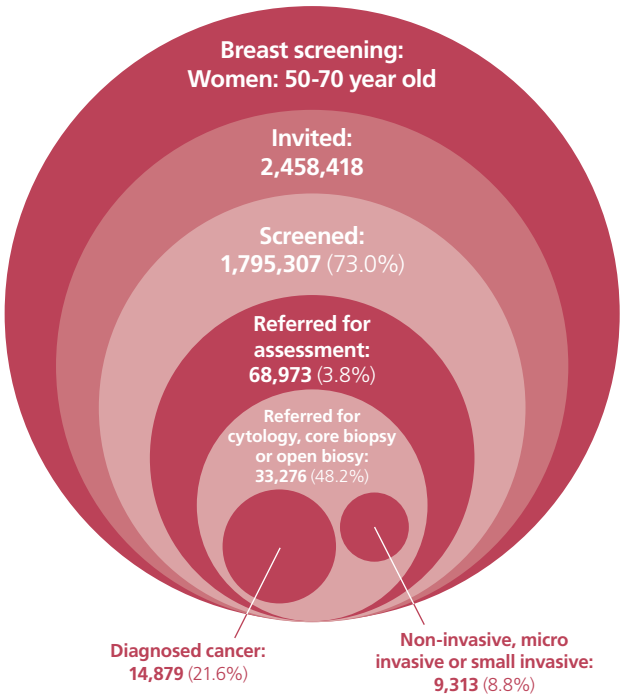
Data source: PHE Screening

## BOWEL CANCER SCREENING



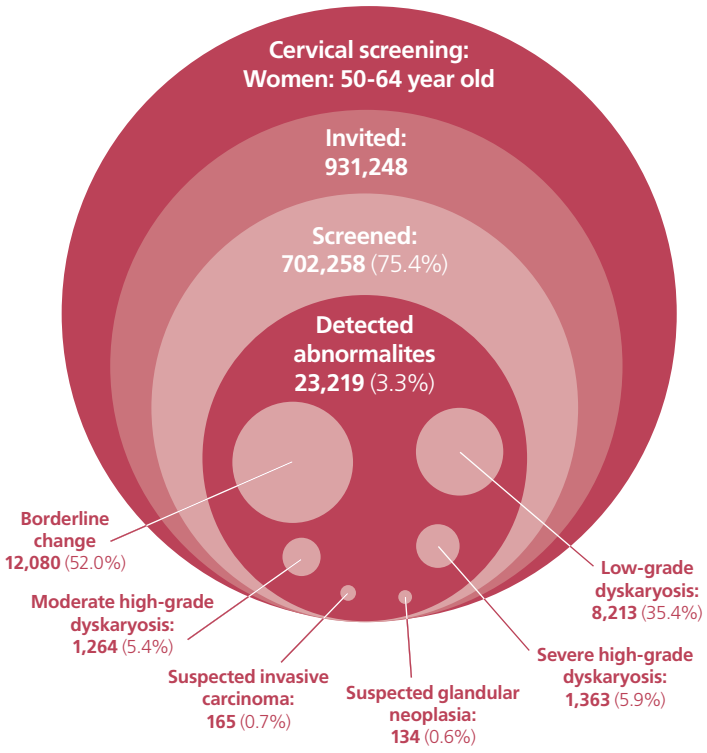

Data source: PHE Screening

## BREAST CANCER SCREENING




Data source: HSCIC

## CERVICAL CANCER SCREENING




Data source: HSCIC

# 1. Overview

There are five population screening programmes in England that cover Baby Boomers:

- NHS Abdominal aortic aneurysm (AAA) screening programme
- NHS Bowel cancer screening programme (BCSP)
- NHS Breast screening programme (BSP)
- NHS Cervical screening programme (CSP)
- NHS Diabetic eye screening programme (DESP)

The UK has a comprehensive routine immunisation programme that achieves high coverage, largely delivered through primary care services. There are three major programmes in adults that protect against influenza, pneumococcal disease and shingles. Influenza and pneumococcal vaccines are targeted at all over-65s plus those aged 64 and under with underlying co-morbidities. The shingles vaccine is targeted at those aged 70 years, with a phased catch-up programme for those aged between 71 and 79 years.

UK screening and immunisation policy is guided by expert scientific committees. For screening, this is the UK National Screening Committee (UK NSC) while immunisation policy is informed by the Joint Committee on Vaccination and Immunisation (JCVI). For national immunisation programmes, the NHS constitution *requires* the Secretary of State in England to accept the recommendations of the JCVI, provided the programmes are cost-effective. For screening, the NHS constitution *pledges* that the UK NSC advice will be followed. The UK NSC also advises Scotland, Northern Ireland and Wales, whose governments normally follow JCVI advice.

The UK NSC makes recommendations on all aspects of population screening. Recommendations on whether to screen for a condition are based on internationally recognised criteria[1] and a rigorous evidence review and consultation process.

Both committees maintain active horizon scanning functions, as well as encourage and support research and innovation. These are huge programmes that have a record of introducing change according to best evidence and cost-effectiveness.

Many countries run similar screening programmes to those in England. A 2016 publication *Focus on international comparisons of healthcare quality: what can the UK learn?*[2] used data from the Organisation for Economic Co-operation and Development (OECD) to compare breast and cervical screening uptakes in the UK with that of 14 other OECD countries.[i] It found that overall the UK performs very well in cancer screening. Between 2000 and 2012, the UK maintained stable and very high breast cancer screening rates, with an average of 76% of 50–69-year-old women being screened. In 2011, only the Netherlands (80.1%) and Finland (84.8%) had higher breast screening rates than the UK. And the UK has the highest rates of cervical cancer screening among all OECD countries.

There is continuing evidence that people in the most deprived areas are accessing screening the least and that bowel screening remains the least attractive screening programme. Uptake is rising but lags well behind cervix and breast screening. It is hoped that the adoption of a new easier, single sample test will increase the uptake further without adversely impacting the socio-economic gradient.

The knowledge that human papilloma virus (HPV) has a pivotal role in the development of cervical cancer has led to progress in cervical screening tests, using the presence of virus to determine management. A negative test for HPV can reassure women that their treatment has been effective (test of cure) and that they do not require frequent follow-up. HPV is also being proposed as a first-line screening test. The lower rate of HPV in older women means that fewer of them need further investigations.

The diabetic eye screening programme (DESP) aims to reduce the risk of sight loss in people with diabetes through early detection, appropriate monitoring and referral for treatment of diabetic retinopathy, which is one of the biggest causes of blindness among people of working age. The programme offers screening every 12 months to all people with diabetes aged 12 and over. Unfortunately, although it covers people aged 50–70 years, DESP data cannot report on them as data are not available to the national screening programme by age group. The Public Health England screening division is developing a single national IT system that should address this data issue.

i Australia, Belgium, Canada, France, Germany, Greece, Ireland, Italy, the Netherlands, New Zealand, Portugal, Spain, Sweden and the United States.

## Key definitions

| Glossary term | Definition |
|---|---|
| coverage | The proportion of those eligible for screening who are tested and receive a result. Coverage is a measure of timely screening to an eligible population. Low coverage might indicate that: i) not all eligible people have been offered screening, ii) those offered screening are not accepting the test, iii) those accepting the test are not being tested. |
| decline | A response to an offer which indicates that a screening subject does not wish to proceed with a screening test or pathway. |
| diagnosis | A diagnostic process following a screen positive result to determine whether the subject is an affected case. |
| eligible | The population that is entitled to an offer of screening. The criteria for eligibility may be administrative, demographic, clinical or any combination of these, and may take into account individual circumstances such as time of presentation to the screening service. |
| population | The overall population for which a screening service is responsible. |
| result | A formal and completed assessment of the risk of a condition being screened for in a subject. A result will be screen positive or screen negative. Insufficient or inconclusive tests indicate a failure to obtain a result, and are not counted within coverage. In these cases, the subject may be offered a repeat screening test. |
| screen negative | An indication following a test that the condition being screened for is low risk/not suspected in a subject. |
| screen positive | An indication following a test that the condition being screened for is high risk/suspected in a subject. |
| test | A screening encounter/event leading to the determination of an outcome. Test outcomes can be screen positive, screen negative, insufficient or inconclusive. |
| uptake | The proportion of those offered screening who are tested and receive a result. Uptake is a measure of the delivery of screening in the population to which it is offered. Low uptake might indicate that: i) those offered screening are not accepting the test, ii) those accepting the test are not being tested. |

# 2. Screening

## Abdominal aortic aneurysm (AAA) screening programme

The NHS AAA screening programme aims to reduce premature deaths from ruptured AAAs among men aged 65 and over by up to 50% through early detection, follow-on tests and referral for potential treatment. It offers all men an ultrasound scan of the abdomen during the year they turn 65. Men aged over 65 who have not previously been tested can self-refer for screening.

There was a phased roll-out of the programme from April 2009, with full implementation in 2013/14. National data are available for 2013/14 and 2014/15, covering men born in 1948/49 and 1949/50.

In 2014/15, 233,426 men were tested and given a result out of the 294,249 men eligible for screening (coverage of 79.3%). A total of 2,773 aneurysms were detected, a prevalence of 1.19%. A total of 2,582 small- or medium-sized aneurysms (defined as an aorta of 3.0 – 5.4 cm) were detected and referred for surveillance and 191 large aneurysms (defined as an aorta of 5.5 cm and larger) were referred for surgery. See Tables 6.1 and 6.2.

In 2013/14 and 2014/15, uptake was lower in men from deprived areas: 65.1% in the most deprived decile compared with 84.1% in the least deprived decile. (see Figures 6.1, 6.2, 6.3). However, aneurysms are more common in the most deprived areas (1.68% in the most deprived decile compared with 0.84% in the least deprived).

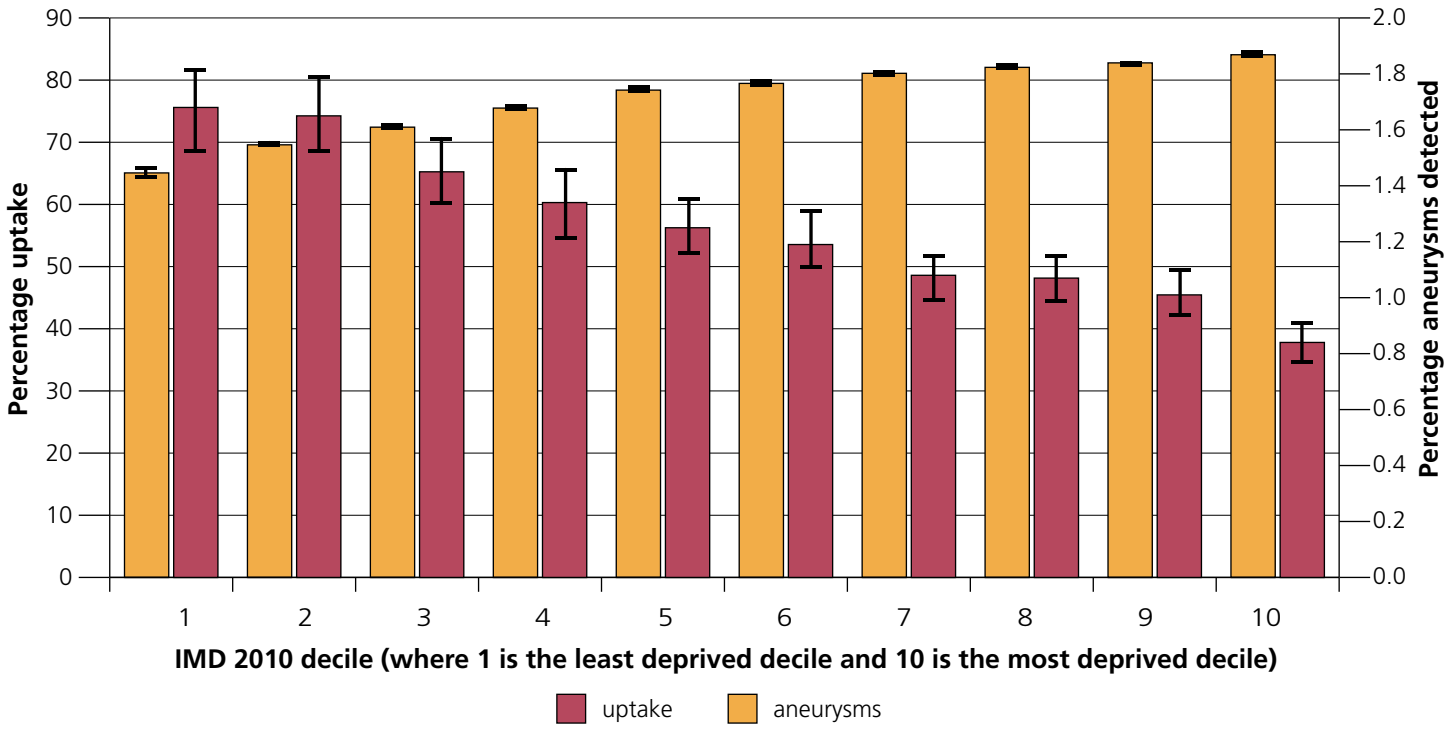
The proportion of people formally recording their desire not to be screened (declines) varied regionally, from 2.8% in London (uptake = 75%) to 6.1% in the North (uptake = 78%). Highest uptake and coverage are achieved in the South and Midlands and East, with a decline rate of 12.3% reported in Leicester. London reported the lowest decline rate, with, for example, a decline rate of 0.9% in Hackney. Above percentages are likely to be an underestimate of the number of men declining as they only report men actively declining their invite to screening by calling or writing to the screening programme. A further number will simply fail to turn up to the appointment. 6% of men in the most deprived decile of the country declined screening compared with 3.8% in the least deprived decile. Reasons for this are not clear but are likely to be related to mobile populations, a general lack of awareness and prioritisation of health issues among poorer and more ethnically diverse groups.

28,598 of men over 65 years of age self-referred to the screening programme in 2014/15. Of those, 8,144 (28%) were born between 1945 and 1949, and 7,183 (88%) were screened. Of these men, 91 had small- and medium-sized aneurysms and were referred into surveillance. A further six were referred for surgical treatment following detection of a large aneurysm.

The literature shows that there has been a reduction in the proportion of men with AAAs over the past six years, which has been attributed to a reduction in smoking.[3] Concerns that this means the programme is no longer cost-effective have been allayed by formal, published cost-effectiveness work.[4]

When the AAA screening programme was rolled out, one of the requirements was that the associated diagnostic and treatment (radiology and surgical) services met quality standards. Through work with the Vascular Society of Great Britain and Ireland, the 30-day elective mortality rate reported to the screening programmes for their referrals fell from 3.0% in 2011/12 to 1.2% in 2014/15.

**Figure 6.1 Abdominal Aortic Aneurysm Screening Uptake and Aneurysms Detected in cohort men age 65, by Deprivation Group, England, 2013/15**




**Source** *PHE Screening*

**Table 6.1 AAA screening offer, England, 2014/15**

| AAA offer 2014/15 | Eligible | Offered | Screened | | | Declined | |
|---|---|---|---|---|---|---|---|
| | | | Number | Coverage %* | Uptake %* | Number | % of offered |
| London | 34,633 | 34,588 | 25,863 | 74.7 | 74.8 | 971 | 2.8 |
| Midlands & East | 94,723 | 94,531 | 76,552 | 80.8 | 81.0 | 3,945 | 4.2 |
| North | 85,205 | 85,111 | 66,039 | 77.5 | 77.6 | 5,158 | 6.1 |
| South | 79,688 | 79,549 | 64,972 | 81.5 | 81.7 | 3,185 | 4.0 |
| England | 294,249 | 293,779 | 233,426 | 79.3 | 79.5 | 13,259 | 4.5 |

**Acceptable level for coverage and uptake is ≥ 75%.*

**Table 6.2 AAA screening outcomes, England, 2014/15**

| AAA outcomes 2014/15 | < 3.0 cm | Screen positive (aorta ≥3.0 cm) | | | | | Referred for treatment |
|---|---|---|---|---|---|---|---|
| | | 3.0 – 4.4 cm | 4.5 – 5.4 cm | 5.5 cm and over | > 3.0 cm | | |
| | | | | | Total | % of screened | |
| London | 25,563 | 252 | 32 | 16 | 300 | 1.16 | 16 |
| Midlands & East | 75,603 | 781 | 99 | 69 | 949 | 1.24 | 69 |
| North | 65,248 | 660 | 70 | 61 | 791 | 1.20 | 61 |
| South | 64,239 | 614 | 74 | 45 | 733 | 1.13 | 45 |
| England | 230,653 | 2,307 | 275 | 191 | 2,773 | 1.19 | 191 |

## Bowel cancer screening programme (BCSP)

Bowel cancer is the third most common cancer in the UK, accounting for 12%[5] of all diagnosed cancers. Bowel cancer is the second most common cause of cancer death in the whole population (10% of all cancer deaths),[6] with approximately 16,100 deaths per annum.[7] The average lifetime risk of bowel cancer in the UK is significantly higher in men (one in 14) than women (one in 19),[1] with 95% of cases diagnosed in the over-50s.

The NHS BCSP aims to detect bowel cancer at an early stage, when treatment is more likely to be effective. Bowel cancer screening also detects polyps; although not cancers, they may develop into cancers over time. Regular bowel cancer screening has been shown to reduce the risk of dying from bowel cancer by 16%.[8]

The NHS BCSP offers biennial screening to all men and women aged 60–74 who are registered with a GP in England by way of a faecal occult blood test (FOBt) kit. The kit is completed at home and posted to one of five laboratories for analysis. Those with an abnormal result are offered an appointment at a local screening centre and, where appropriate, booked for a colonoscopic investigation.

Roll-out of the FOBt programme began in 2006 and completed in 2010, offering screening to all men and women aged 60–69 every two years. The screening offer was then extended to people up to 74; age extension should be complete by January 2017. Over-74s can continue to have biennial FOBt screening by self-referring into the programme.

In 2014/15, the FOBt screening programme invited 4,117,899 men and women to participate in screening. Of these, 2,397,750 were screened (58.23% uptake). Of those screened, 42,990 were FOBt abnormal (1.79% positivity) and were offered an assessment appointment at a local screening centre. Of those offered an assessment appointment, 37,552 (87.35%) had a diagnostic test (such as colonoscopy or radiological tests), and of those, 3,032 were found to have cancer (8.07%). 16,325 (43.5%) were found to have one or more polyps. See Tables 6.3 and 6.4.

Men are less likely to take up screening (55% vs 60% women) but are more likely to be FOBt screen positive (2.2% vs 1.5%), and are more likely to be diagnosed with cancer (9.2% vs 6.6%) or have polyps found (49% vs 36%).

Coverage (57.1% as on 31 March 2015, England) and uptake (58.2%) are significantly lower in the bowel cancer screening programme than other programmes aimed at this group of people. Studies have found that men, those living in the most ethnically diverse areas, and those from the most deprived populations are least likely to participate in bowel cancer screening.[9] It is important to note, however, that bowel cancer screening is still in its relative infancy, and the programme has yet to be fully rolled out to those aged 70–74. It is encouraging to note that uptake and coverage have been rising steadily since the inception of the programme in 2006.

Uptake increases with age and is higher in women (see Figure 6.4). The proportion that are screen positive also rises with age due to the rising prevalence of disease with age (see Figure 6.5). Coverage varies by local authority area (see Figure 6.6).

In January 2016, the UK NSC recommended that the programme move from using FOBt to the faecal immunochemical test (FIT). FIT consistently shows better participation rates than those achieved by guaiac fecal occult blood test gFOBT.[10] Indeed, the increase in participation rate has been shown to be highest in the 'hard to reach' groups.[11,12] This increase is in the order of 10%. This is thought to be related to the fact that FIT requires one sample of faeces rather than three separate ones.

**Table 6.3 Bowel cancer screening offer and FOBt result, England, 2014/15**

| Offer 2014/15 | Invited | Screened | | Abnormal | | Diagnostic test | |
|---|---|---|---|---|---|---|---|
| | | Number | % | Number | % of screened | Number | % of abnormal |
| Female | 2,105,578 | 1,281,561 | 60.87 | 18,735 | 1.46 | 16,301 | 87.01 |
| Male | 2,012,319 | 1,116,188 | 55.47 | 24,255 | 2.17 | 21,251 | 87.61 |
| England | 4,117,899* | 2,397,750* | 58.23 | 42,990 | 1.79 | 37,552 | 87.35 |

** There were two people invited for screening whose gender was not recorded.*

**Table 6.4 Bowel cancer screening outcomes, England, 2014/15**

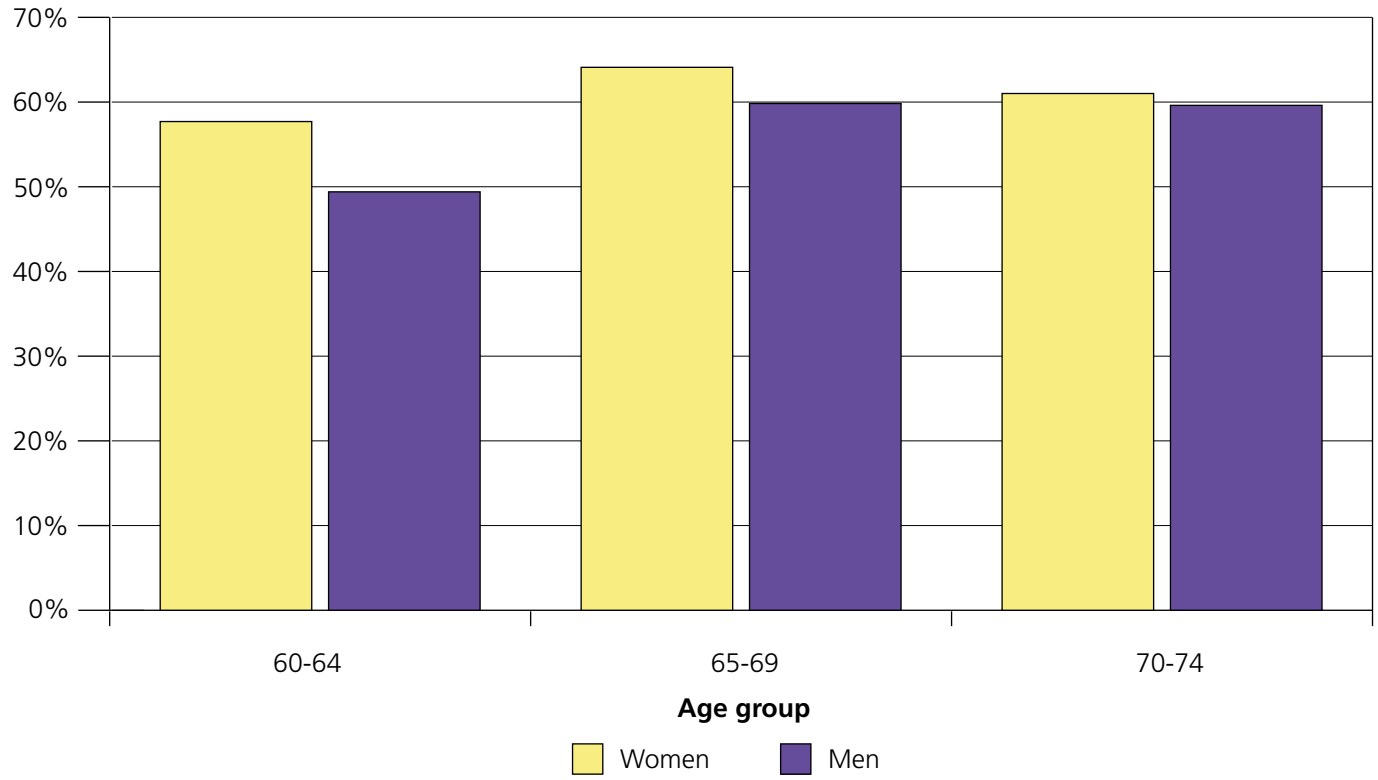
| Outcome 2014/15 | Cancer | | Polyps | | Other* | | Normal | |
|---|---|---|---|---|---|---|---|---|
| | Number | %** | Number | %** | Number | %** | Number | %** |
| Female | 1,083 | 6.64 | 5,941 | 36.45 | 5,500 | 33.74 | 3,445 | 21.13 |
| Male | 1,949 | 9.17 | 10,384 | 48.86 | 5,706 | 26.85 | 2,763 | 13.00 |
| England | 3,032 | 8.07 | 16,325 | 43.47 | 11,206 | 29.84 | 6,208 | 16.53 |

** The number found to have 'other' diagnosis, such as diverticular disease, haemorrhoids, IBD, or, if only radiological test/s had been performed, the result of 'abnormal no histology'.*

*** The percentage of those who had a diagnostic test.*

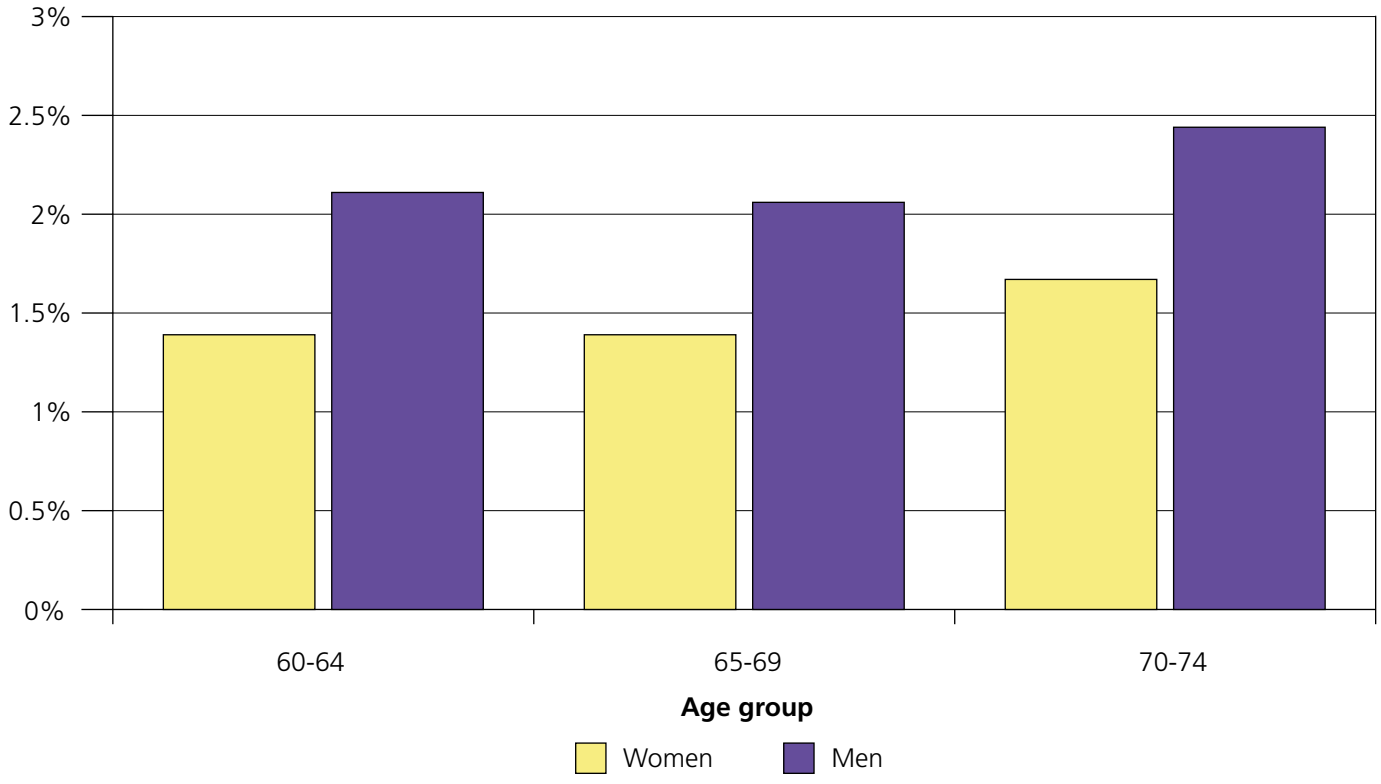
A one-off bowel scope screening test, using flexible sigmoidoscopy for those aged 55, is now also being implemented across England, with an aim to have all screening centres engaged in the programme by December 2016. Data for this arm of the screening programme is not yet available.

**Figure 6.2 Uptake of bowel cancer screening by age, England, 2014/15**




**Source** *PHE Screening*

**Figure 6.3 Bowel cancer screening test positivity, England, 2014/15**




**Source** *PHE Screening*

## Breast screening programme (BSP)

The NHS BSP aims to reduce the number of deaths from breast cancer by finding signs of the disease at an early stage. Breast screening uses mammography (X-rays) to look for abnormalities in breast tissue. Women in England aged 50–70 are routinely invited for breast screening every three years. Women over 70 can continue to have breast screening by making an appointment at their local screening unit every three years.

The BSP commenced in 1988, following the recommendations of the Forrest report in 1986.[13] During the first year of the programme, 110,000 women aged 50–64 accepted their invitation for screening. Screening policy changed in 2001 and the age range was extended to include women aged 65–70. The last screening unit began inviting these women in April 2006.

In 2014/15, 2.46 million women aged 50–70 were invited to participate, with uptake of 71.3%. As the screening programme invites women every three years, those aged 50 may be invited any time between their 50th and 53rd year, therefore uptake is reported from 50–70 years and coverage from 53–70. The age extension trial is examining whether extending the invitation to 47 years (in other words, making sure that everyone is invited by the time they are in their 50th year) is justified.[14]

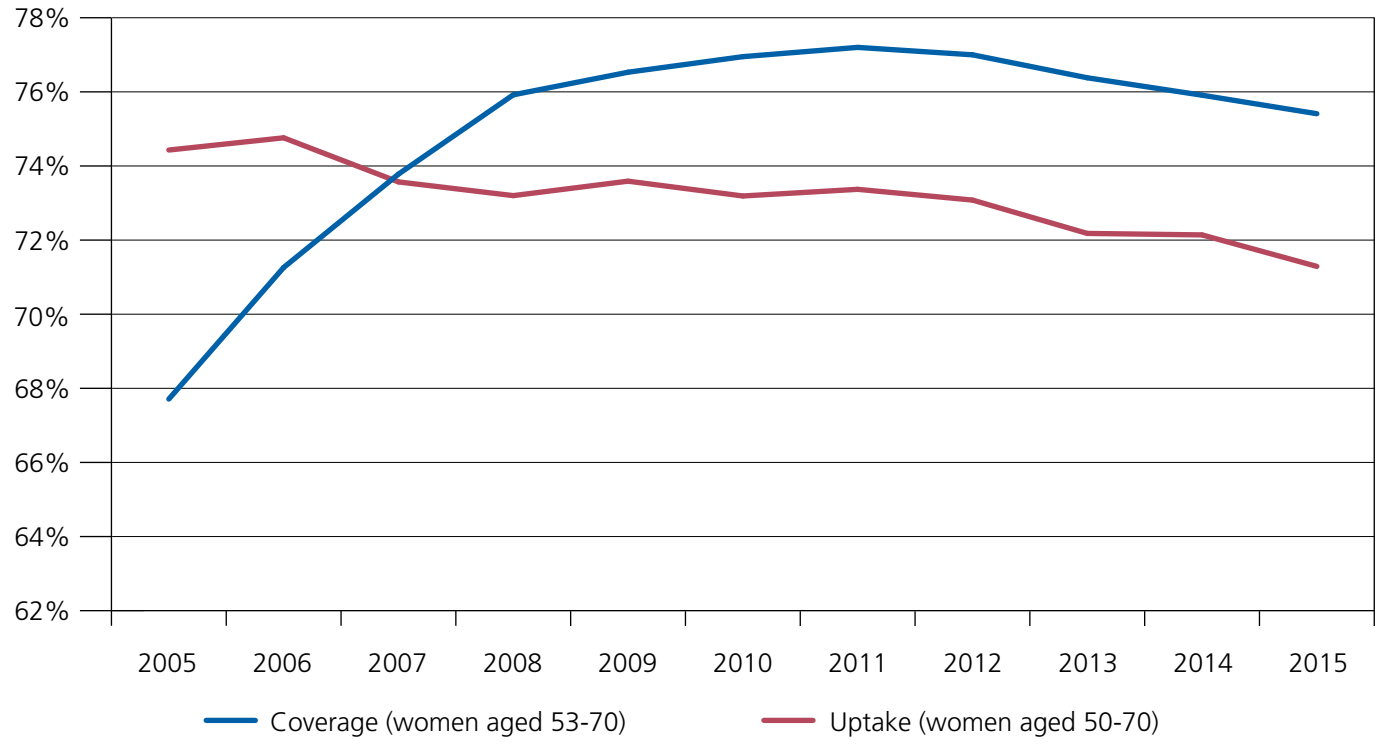
Coverage was 75.4% for 2014/15. This is above the target of 75% but there has been a decline since 2011. While some cause of the decline might be related to the acceptability and convenience of regular breast screening, it is also the case that the service is not being provided optimally. Between 20% and 25% of NHS breast screening units do not invite all women within three years, so their coverage is lower than is possible. The most notable decrease in uptake occurred for women aged 53–64 (see Figure 6.7). See Table 6.5 and Figures 6.5 and 6.6 for breast screening coverage and uptake from 2005 to 2015.

**Table 6.5 Breast screening coverage, England, 2010–2015**

| Period | Tested | Eligible | Coverage (%) |
|---|---|---|---|
| 2010 | 4,053,867 | 5,270,969 | 76.9 |
| 2011 | 4,129,080 | 5,353,202 | 77.1 |
| 2012 | 4,201,239 | 5,461,740 | 76.9 |
| 2013 | 4,248,035 | 5,565,723 | 76.3 |
| 2014 | 4,282,034 | 5,641,615 | 75.9 |
| 2015 | 4,327,589 | 5,739,049 | 75.4 |

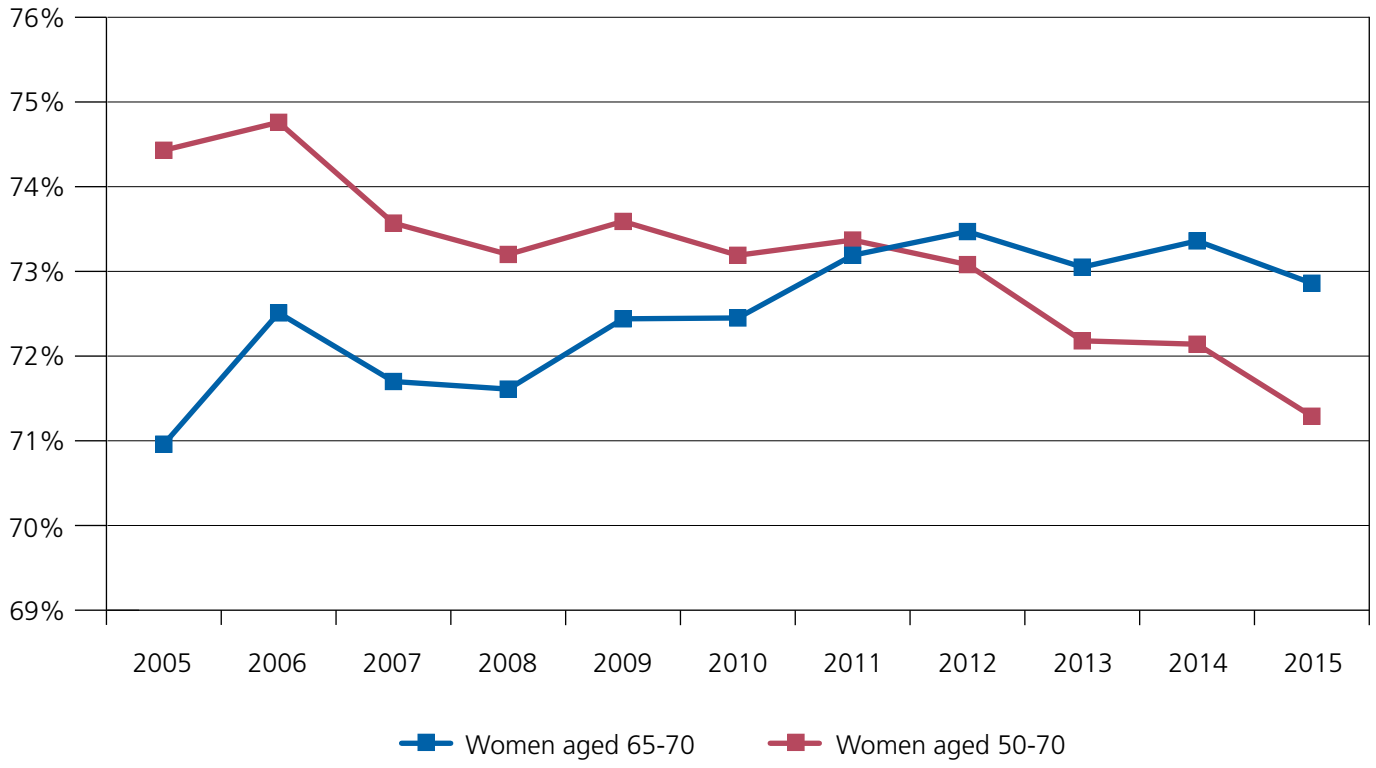
Figure 6.6 shows that there has been a decline in breast screening coverage in most deprivation groups, with local authorities in the most deprived decile reporting lowest coverage rates.

**Figure 6.4 Breast cancer screening coverage and uptake, England, 2005/15**



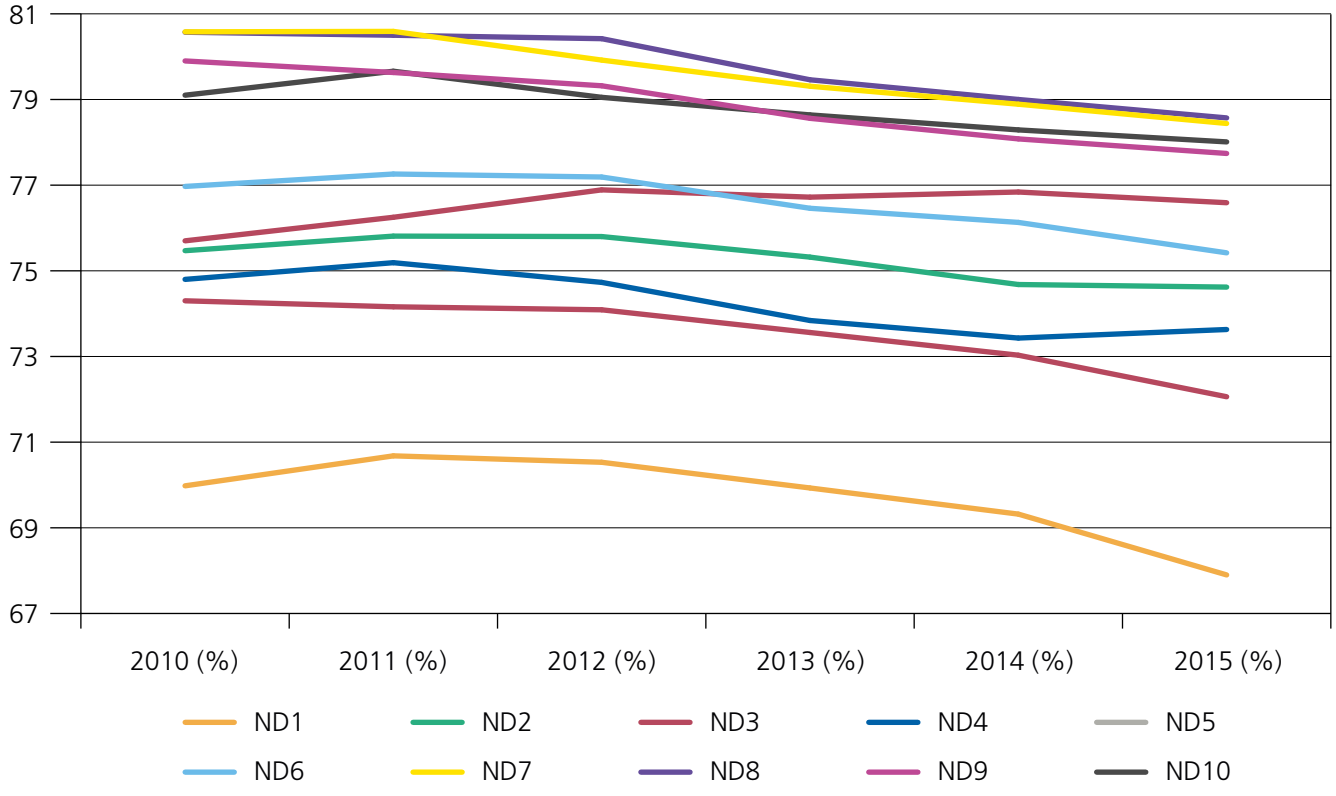

**Source** *HSCIC, KC 63*

**Figure 6.5 Breast cancer screening uptake by age group, England, 2005/15**




**Source** *HSCIC, KC 63*

**Figure 6.6 Breast cancer screening coverage by deprivation group, England, 2010/15**




*ND1 is most deprived*

## Cervical screening programme (CSP)

The aim of NHS CSP is to reduce the number of women who develop invasive cervical cancer and the number who die from it. Regular screening is offered so that conditions that might develop into cervical cancer can be identified and treated. Routine screening is offered three-yearly to women aged 25–49 and five-yearly to women aged 50–64.

The programme, with use of central standards, monitoring and quality assurance (QA), has been very successful at reducing the burden of cervical cancer. This reduction will become even more marked with the routine use of vaccination for HPV.

Screening currently uses liquid-based cytology to look for abnormal cell changes. However, the causative role of HPV in the development of cervical cancer has led to the inclusion of HPV testing in routine cervical screening. HPV triage of women with borderline/mild cytology is now policy throughout the CSP.

If no HPV is detected, no additional early recall tests are required. This triage allows approximately a third of all women with borderline cytology or mild dyskaryosis to be returned immediately to routine recall, thus reducing anxiety in women and the burden on cytology services. This was rolled out in England in 2012 and has reduced the percentage of women overall who require a recall due to a low-grade abnormality from 70.4% in 2011/12 to 4.1% in 2014/15. (see Figure 6.7).

A pilot of HPV testing as primary screening is now under way in the six sites in England that previously acted as pilot and sentinel sites for HPV triage.

In 2014/15 (measured as at 31 March 2015), cervical screening coverage in England for women aged 50–64 was 78.4% (varying from 77% in the North West and London to 80% in the East Midlands). This compares with 79.4% as at 31 March 2014 and 80.1% as at 31 March 2011, indicating a slight decline in coverage in this age group over the past five years.

There has been a particular decline in five-year coverage of women born from 1951 to 1955 (Figure 6.8).

Results within the 50–64 age range showed that the percentage of borderline change and low-grade dyskaryosis decreased with age. The percentage of high-grade abnormality also decreased, although to a lesser extent, and was 0.42% for the whole age group (Table 6.6 and Figure 6.9).

### HPV positivity and cytology abnormalities across age groups

Pilot sites were set up in England to assess the feasibility of using HPV as a primary screening test in England, because of the key role that HPV has in causing cervical cancer.

The results of the pilot to date are published on the UK NSC website, http://legacy.screening.nhs.uk/cervicalcancer. It is known that HPV is less common in older women. The pilot found that overall 8.6% of women tested were HPV positive/cytology negative and scheduled for recall at 12 months, falling from 17.3% at ages 25–29 to less than 4% at ages 60–64.

**Table 6.6 Cervical screening test results, England, 2014/15**

| Age group | Total | Negative | | Borderline change | | Low-grade dyskaryosis | | High-grade abnormality* | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | % | Number | % | Number | % | Number | % |
| 50-54 | 341,042 | 327,930 | 96.16 | 6,808 | 2.00 | 4,825 | 1.41 | 1,479 | 0.43 |
| 55-59 | 218,620 | 212,061 | 97.00 | 3,389 | 1.55 | 2,254 | 1.03 | 916 | 0.42 |
| 60-64 | 142,596 | 139,048 | 97.51 | 1,883 | 1.32 | 1,134 | 0.80 | 531 | 0.37 |
| 50-64 | 702,258 | 679,039 | 96.69 | 12,080 | 1.72 | 8,213 | 1.17 | 2,926 | 0.42 |

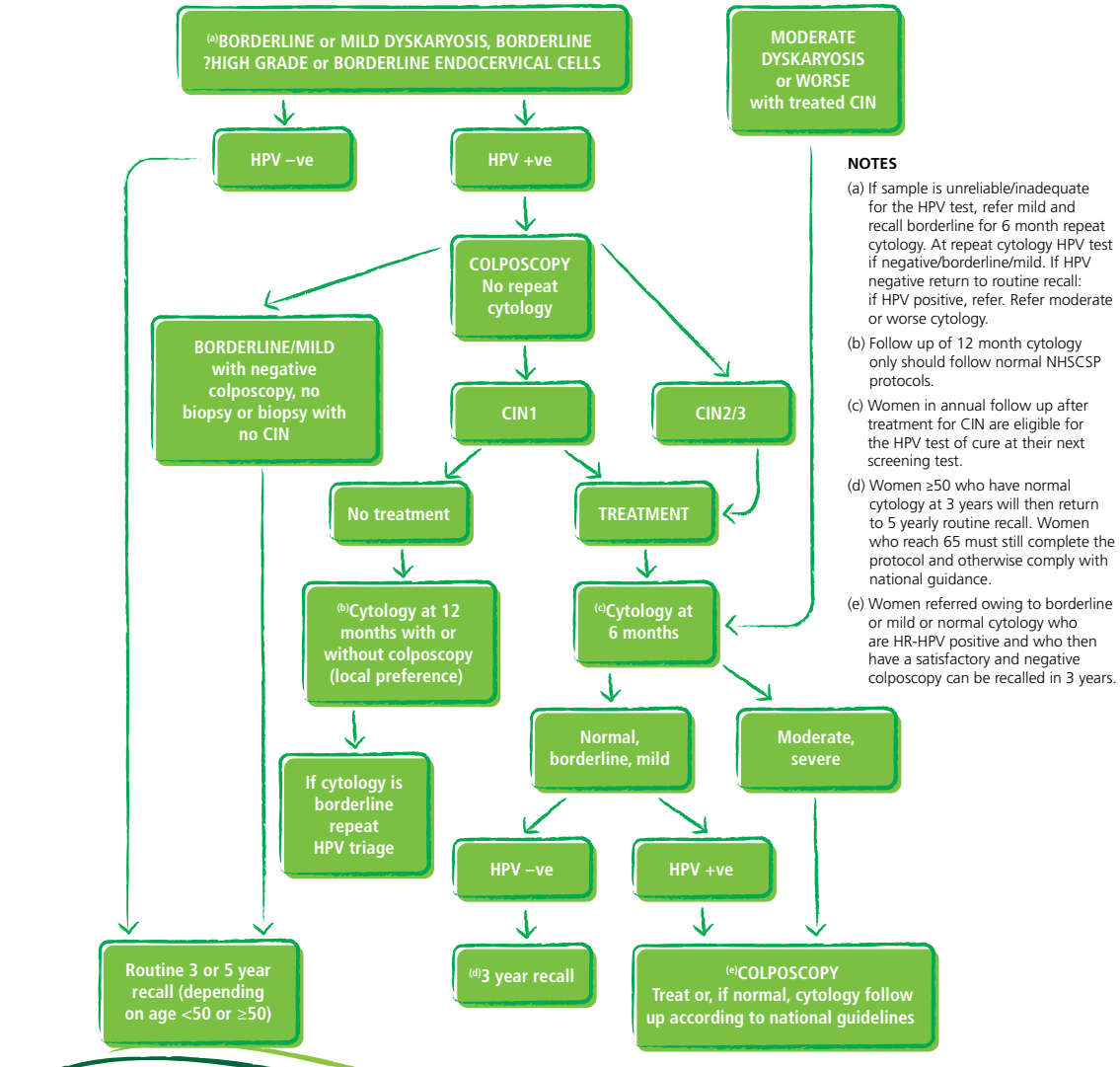
** High-grade abnormality are aggregates of four test result groups: high-grade dyskaryosis (moderate), high-grade dyskaryosis (severe), high-grade dyskaryosis/suspected invasive carcinoma and suspected glandular neoplasia of endocervical type.*

**Figure 6.7 NHS CSP programme flowchart (HPV Triage and Test of Cure Protocol)**

NHS
Cancer Screening Programmes

## NHS Cervical Screening Programme

# HPV Triage and Test of Cure Protocol




**NOTES**

(a) If sample is unreliable/inadequate for the HPV test, refer mild and recall borderline for 6 month repeat cytology. At repeat cytology HPV test if negative/borderline/mild. If HPV negative return to routine recall: if HPV positive, refer. Refer moderate or worse cytology.

(b) Follow up of 12 month cytology only should follow normal NHSCSP protocols.

(c) Women in annual follow up after treatment for CIN are eligible for the HPV test of cure at their next screening test.

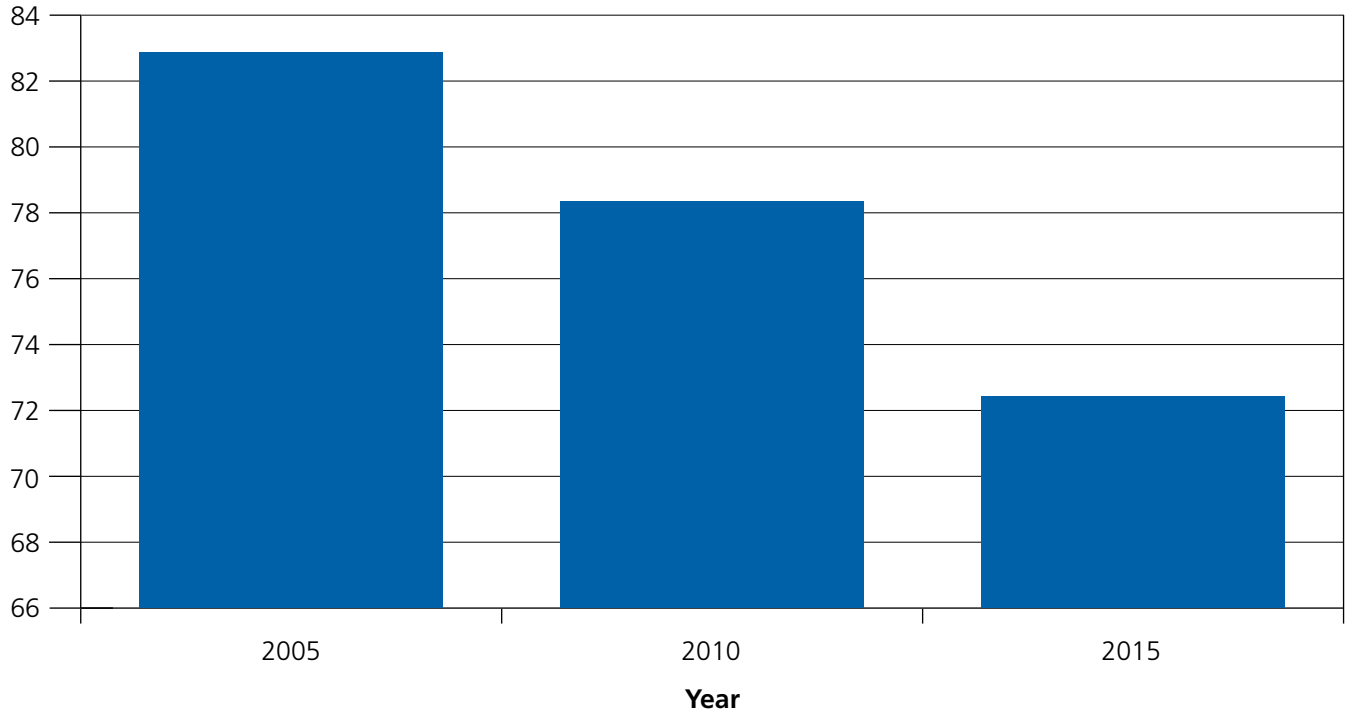
(d) Women ≥50 who have normal cytology at 3 years will then return to 5 yearly routine recall. Women who reach 65 must still complete the protocol and otherwise comply with national guidance.

(e) Women referred owing to borderline or mild or normal cytology who are HR-HPV positive and who then have a satisfactory and negative colposcopy can be recalled in 3 years.

See overleaf >>

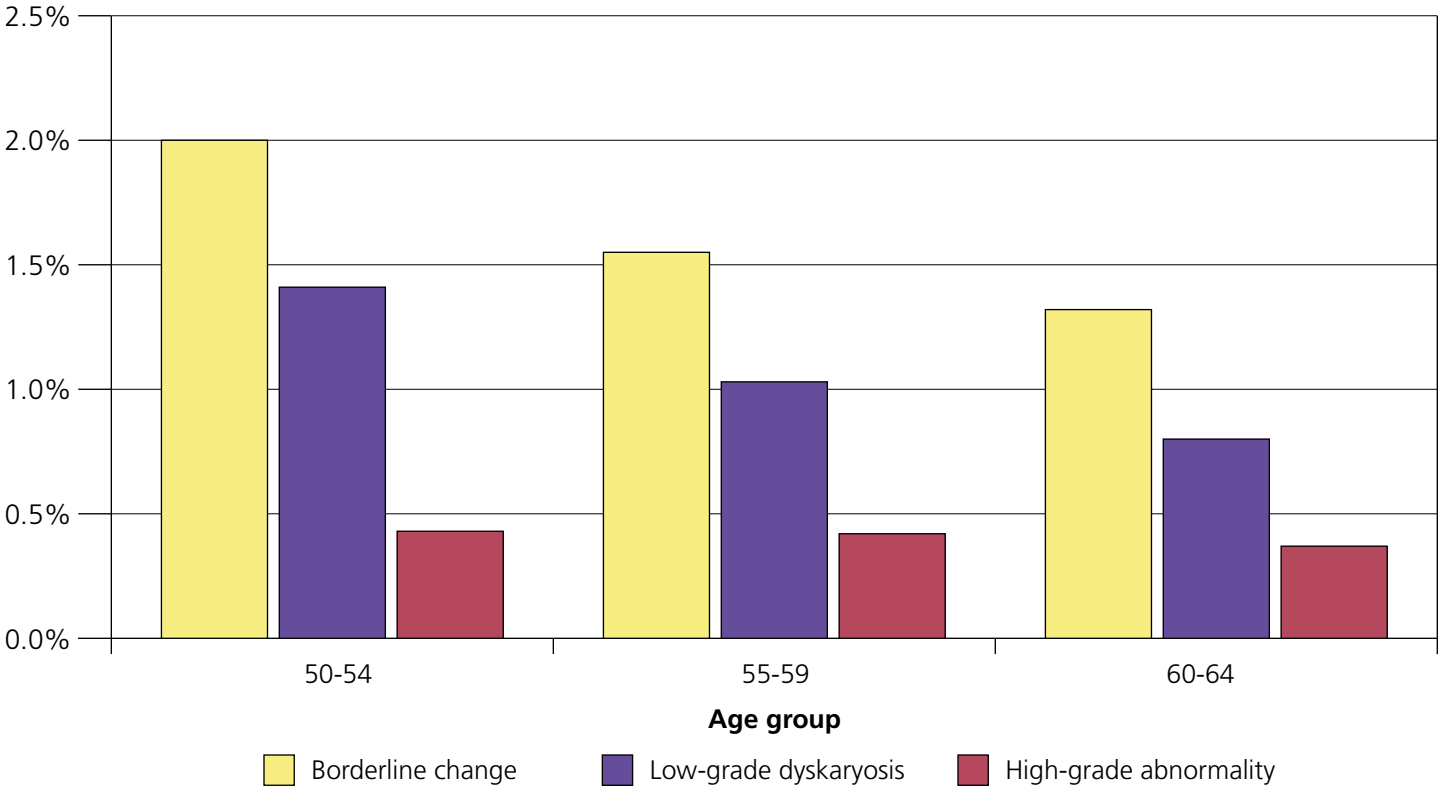
HPV Triage and Test of Cure Protocol
August 2011 [HPVTRIAGEFLOW]

**Figure 6.8 Cervical cancer screening five year coverage for women born 1951-55, England, 2010/15**




**Source** *HSCIC, KC 63*

**Figure 6.9 NHS Cervical Cancer Screening Programme – Percentage of high-grade abnormality, low-grade dyskaryosis and borderline change test results by age group, England, 2014/15**




**Source** *PHE Screening*

# 3. Immunisation

## Pneumococcal disease among 50–70-year-olds in England and Wales

Invasive pneumococcal disease (IPD) is caused by the bacterium *Streptococcus pneumoniae* (the pneumococcus). *S. pneumoniae* can be carried in the nasopharynx of healthy adults and children without causing any symptoms, with the highest carriage rates among children younger than five years old. There are more than 90 different pneumococcal serotypes, based on differences in their polysaccharide capsule (the sugar capsule that surrounds the bacteria). The potential of pneumococci to cause serious invasive disease depends on the serotype.

IPD may present as bacteraemic pneumonia, meningitis or septicaemia and is a major cause of morbidity and mortality worldwide. In England and Wales, before the introduction of conjugate vaccination in children, there were more than 5,000 confirmed cases of IPD reported annually. Young children, the elderly and people in clinical risk groups are most at risk of developing IPD and of having severe outcomes.

Since 1992, a 23-valent pneumococcal polysaccharide vaccine (PPV23), which provides protection against 23 pneumococcal serotypes,[ii] has been recommended for adults and children at increased risk of IPD because of underlying medical conditions.[15] In 2003, a programme to vaccinate healthy elderly people with a single dose of PPV23 commenced, starting with all individuals aged 80 and over and then extending to individuals aged 75 and over and 65 and over in 2004 and 2005 respectively.[16]

In England in 2014/15, 70% of individuals aged 65 and over received PPV23.[16] Vaccine coverage increased with age, from 35% among 65-year-olds to 82% among those aged 75 years and over. This increase in cumulative coverage is consistent with the vaccine being offered at multiple opportunities as the eligible population ages. Vaccine coverage in the over-65s has been stable over the past 10 years.

From September 2006, a seven-valent pneumococcal conjugate vaccine (PCV7) was added to the routine childhood immunisation programme.[16] The vaccine provided protection against seven of the most prevalent and virulent IPD serotypes,[iii] responsible for around 75% of childhood IPD cases in England and Wales.[17] The introduction of PCV7 resulted in a rapid and sustained decline in IPD caused by the PCV7 serotype across all age groups because of direct and indirect protection (herd immunity). In April 2010, PCV7 was replaced with a 13-valent vaccine (PCV13), which provided protection against an additional six serotypes.[iv] Since then, the incidence of IPD due to the serotypes in PCV13 (PCV13-7) has declined further.

Among those aged 50–70, the incidence of IPD (adjusted for reporting changes) was increasing before the introduction of paediatric vaccination (see Figure 6.10). Adjusted overall incidence then declined from 19.1/100,000 in the pre-PCV7 period (1 July 2005–30 June 2006) to 11.9/100,000 in the latest epidemiological year (2014/15). As seen in paediatric disease, the incidence attributable to serotypes in the paediatric vaccines has declined most dramatically following implementation of the programmes. Of the 1,681 cases in those aged 50–70 in 2014/15, pneumococcal serotype was known for 93% (1,567/1,681). Only 3% (41) belonged to serotypes in PCV7, 19% (292) to the additional six PCV13 serotypes, and 57% (901) to the additional PPV23 serotypes (901/1,681). The remaining 21% of cases (333) were not vaccine preventable.

At the same time as this decline in IPD due to PCV7 and PCV13 serotypes, a smaller increase in IPD cases due to non-PCV13 serotypes has been observed across all age groups. This is probably a result of serotype replacement disease.[18,19]

The same pattern is seen in 50–70-year-olds, where increases in non-vaccine types and serotypes only in PPV23 have been observed year on year. Although the increase in 2014/15 is of concern, it is thought to have been exacerbated by the bad influenza season.

In summary, the inclusion of PCV7 and PCV13 in the routine childhood immunisation programme has resulted in 38% decline in IPD among 50–70-year-olds. It has presumably been mediated by reduced carriage rates in children, providing indirect protection to the older population. Other serotypes are now responsible for the vast majority of disease in 50–70-year-olds, and a rise in IPD due to non-PCV13 serotypes has been observed. This warrants continued long-term surveillance. It seems probable that improved control may only result from either the development of higher valency conjugate vaccines or a serotype-independent vaccine developed to further reduce the burden of IPD in this age group.

ii 1, 2, 3, 4, 5, 6B, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19A, 19F, 20, 22F, 23F, 33F

iii 4, 6B, 9V, 14, 18C, 19F and 23F

iv 1, 3, 5, 6A, 7F and 19A

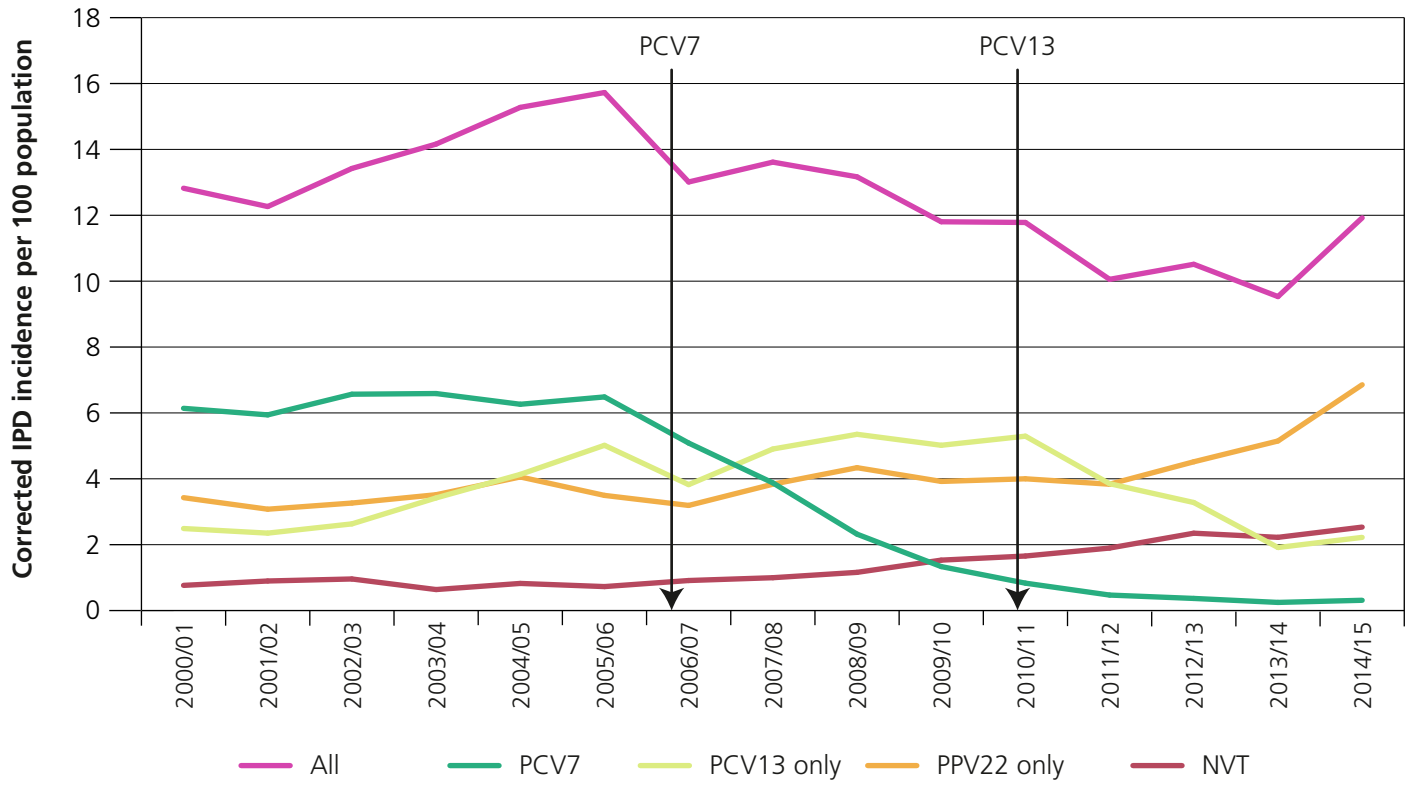
## Influenza and 50–70-year-olds

The UK has a longstanding annual selective influenza immunisation programme for groups at higher risk of severe disease. Each year, inactivated vaccine is offered to all over-65s and to those who are six months to 65 years of age with an underlying clinical risk factor. In recent years, coverage in the over-65s has approached 75% and has been approximately 50% for under-65s with a risk factor (in 2014/15, coverage was 73% and 50% respectively). Although the selective programme has been shown to be highly cost-effective, influenza continues to cause significant morbidity and mortality each season in the population, particularly in older adults.[20]

In recent years, the strategy of the annual influenza programme has changed with the aim of providing indirect protection (herd immunity) to the whole population, including the elderly and vulnerable populations, by vaccinating individuals who act as the main source of transmission. The phased introduction of a universal childhood flu vaccination programme started in 2013/14 using the newly licensed live attenuated influenza vaccine (LAIV). This followed a recommendation of the JCVI that all children aged two to less than 17 years of age should be offered annual vaccination.[21] The decision was informed by modelling that predicted that vaccination of healthy children would provide both direct protection to the vaccinated children themselves and, by reducing infection in this group, reduce transmission to groups at higher risk of severe disease such as the elderly and those with underlying clinical risk factors.[22] This strategy should therefore protect those aged 50–70 years, both with and without risk factors.

The 2014/15 influenza season was the second season of the phased introduction during which LAIV was offered to all two- to four-year-olds as well as to school children in a number of geographical pilot areas of primary (4–11 years) and secondary (11–13 years) age children. The 2014/15 influenza season was a moderately intense season dominated initially by the circulation of influenza. Influenza A (H3N2), which usually results in moderate to severe disease in older adults and the elderly, was followed by Influenza B. Virological surveillance found that, as seen elsewhere, the dominant circulating A (H3N2) and B strains were antigenically and genetically drifted against the relevant components of the 2014/15 seasonal influenza vaccine.

**Figure 6.10 Adjusted incidence of invasive pneumococcal disease in 50–70 year-olds, by serotype, per 100,000, England and Wales, 2000/01 to 2014/15**




**Source** *PHE Screening*

Cumulative GP influenza-like illness consultations and swab positivity in the Royal College of General Practitioners (RCGP) sentinel GP network in 50–70-year-olds were lower in pilot areas where primary school age children were vaccinated, compared with non-pilot areas where school children were not offered vaccination. In contrast, no differences in GP influenza-like illness consultation rates and sentinel positivity were observed in 50–70-year-olds in those areas where secondary school children were offered vaccines compared with the non-pilot areas (Tables 6.7 and 6.8).

In conclusion, vaccinating healthy primary school age children for influenza resulted in reductions in cumulative disease incidence in 50–70-year-olds. A reduction was also seen in the proportion of samples positive for influenza virus, although these differences did not reach statistical significance. The impact was greatest in primary care indicators of disease activity but was also seen in adults of all ages using a range of other indicators including influenza-related hospitalisations.[23] This evidence supports further phased introduction of the national LAIV programme in children, and confirms the models that suggest that this policy is likely to be more cost-effective than vaccinating healthy adults.[20]

**Table 6.7 Cumulative GP influenza-like illness (ILI) consultation rate in 50–70-year-olds per 100,000 in pilot and non–pilot areas through RCGP sentinel GP scheme, England, weeks 40 2014–20 2015**

| Childhood vaccination programme in the area | Number of ILI consultations | Average population in the area | ILI consultation rate per 100,000 (95% CI) |
|---|---|---|---|
| Primary schools only | 42 | 447,199 | 9.4 (6.8–12.7) |
| Primary and secondary schools | 11 | 326,772 | 3.4 (1.7–6.0) |
| Secondary schools only | 301 | 1,904,157 | 15.8 (14.1–17.7) |
| No school-based vaccination | 707 | 4,601,052 | 17.4 (16.1–18.7) |

**Table 6.8 Cumulative number of samples testing positive for influenza in 50–70-year-olds through the Royal College of General Practitioners and Regional Microbiological Network sentinel swabbing schemes in pilot and non–pilot areas, England, weeks 40 2014–20 2015.**

| Childhood vaccination programme in the area | Number of influenza positive samples | Total number of samples | % positive (95% CI) |
|---|---|---|---|
| Primary schools only | 11 | 52 | 21.2 (12.2–34.0) |
| Primary and secondary schools | 1 | 13 | 7.7 (1.4–33.3) |
| Secondary schools only | 40 | 161 | 24.8 (18-8–32.1) |
| No school-based vaccination | 117 | 396 | 29.5 (25.3–34.2) |

# 4. References


1. Public Health England (2013). *Criteria for appraising the viability, effectiveness and appropriateness of a screening programme*. London: Public Health England. Available from: www.gov.uk/government/publications/evidence-review-criteria-national-screening-programmes.
2. Kossarova L, Blunt I and Bardsley M (2015). *Focus on: International comparisons of healthcare quality: What can the UK learn?* London: The Health Foundation/ Nuffield Trust. Available from: www.qualitywatch.org.uk/sites/files/qualitywatch/field/field_document/QualityWatch_International_comparisons_full_report.pdf.
3. Choke E, Vijaynagar B, Thompson J, et al. Changing epidemiology of abdominal aortic aneurysms in England and Wales: older and more benign? *Circulation* 2012; 125(13): 1617–25.
4. Glover MJ, Kim LG, Sweeting MJ et al. Cost-effectiveness of the National Health Service Abdominal Aortic Aneurysm Screening Programme in England. *Br J Surg* 2014; 101(8): 976–82.
5. Available from: www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/bowel-cancer/incidence#heading-Four
6. Bowel Cancer Statistics. Cancer Research UK. Available from: www.cancerresearchuk.org/cancerinfo/cancerstats/types/bowel/ and www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/bowel-cancer/incidence#heading-Four
7. Cancer Research UK (2005). *Cancerstats.*
8. *Screening for colorectal cancer using the faecal occult blood test: an update.* Cochrane Database of Systematic Reviews, 2006.
9. von Wagner C, Baio G, Raine R et al. Inequalities in participation in an organized national colorectal cancer screening programme: results from the first 2.6 million invitations in England. *Int J Epidemiol* 2011; 40: 712–8.
10. Vart G, Banzi R, Minozzi S. Comparing participation rates between immunochemical and guaiac faecal occult blood tests: a systematic review and meta-analysis. *Prev Med* 2012; 55: 87–92.
11. Moss S, Mathews C (2015). *NHS Bowel Cancer Screening Programmes: Evaluation of a pilot of immunochemical FOBt. Interim report January 2015.*
12. Moss S, Mathews C, Day T, Smith S et al. (2015). *A faecal immunochemical test for haemoglobin (FIT) markedly increased participation in a colorectal cancer screening pilot in England.* Third NAEDI Research Conference, 2015. London: Cancer Research UK.
13. Forrest P (1986). *Breast cancer screening. Report to the Health Ministers of England Wales Scotland and N Ireland by a working group chaired by Professor Sir Patrick Forrest*. London: HMSO. Available from: www.cancerscreening.nhs.uk/breastscreen/publications/forrest-report.html.
14. Nationwide cluster-randomised trial of extending the NHS breast screening age range in England. ISRCTN33292440: DOI 10.1186/ISRCTN33292440.
15. Department of Health (2013). *Pneumococcal. Immunisation against infectious disease.* London: DH. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/263318/Green-Book-Chapter-25-v5_2.pdf.
16. Public Health England (2015). *Pneumococcal Polysaccharide Vaccine (PPV) coverage report, England, April 2014 to March 2015*. London: PHE. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/448406/hpr2615_ppv.pdf.
17. Andrews N, Waight PA, Borrow R et al. Using the indirect cohort design to estimate the effectiveness of the seven valent pneumococcal conjugate vaccine in England and Wales. *PLoS One* 2011; 6(12): e28435.
18. Waight PA, Andrews NJ, Ladhani SN et al. Effect of the 13-valent pneumococcal conjugate vaccine on invasive pneumococcal disease in England and Wales 4 years after its introduction: an observational cohort study. *Lancet Infect Dis* 2015; 15(5): 535–543.
19. Miller E, Andrews NJ, Waight PA et al. Herd immunity and serotype replacement 4 years after seven-valent pneumococcal conjugate vaccination in England and Wales: an observational cohort study. *The Lancet Infectious Diseases* 2011; 11(10): 760–768.
20. Baguelin M, Jit M, Miller E, Edmunds WJ. Health and economic impact of the seasonal influenza vaccination programme in England. *Vaccine* 2012; 30(23): 3459–62.
21. Joint Committee on Vaccination and Immunisation Meeting, September 2011. Available from: webarchive.nationalarchives.gov.uk/20120907090205/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@ab/documents/digitalasset/dh_133598.pdf.
22. Baguelin M, Flasche S, Camacho A et al. Assessing optimal target populations for influenza vaccination programmes: an evidence synthesis and modelling study. *PLoS Med* 2013; 10(10): e1001527
23. Public Health England (2015). *PHE Annual Influenza Report: Surveillance of influenza and other respiratory viruses in the United Kingdom: winter 2014/15*. London: PHE. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/429617/Annualreport_March2015_ver4.pdf.

Chapter 7

# Mental health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# Mental health of older adults in England

**18%**

OF BABY BOOMERS HAVE **DEPRESSION** OR AN **ANXIETY** DISORDER

**20%**

OF BABY BOOMERS WITH DEPRESSIVE SYMPTOMS **FEEL ISOLATED** COMPARED WITH **2%** WITHOUT SYMPTOMS

**41%**
**have symptoms of depression**

BABY BOOMERS LIVING IN THE 20% OF HOUSEHOLDS WITH THE **LOWEST INCOME** ARE **THREE TIMES** MORE LIKELY TO HAVE **SYMPTOMS OF DEPRESSION** THAN THOSE LIVING IN THE 20% OF HOUSEHOLDS WITH THE HIGHEST INCOME.

**13%**
**have symptoms of depression**

THE **SUICIDE RATE** IS HIGHEST AMONG MEN

**about fifty years of age**

*Update from the*

## Adult Psychiatric Morbidity Survey: Survey of Mental Health and Wellbeing, England, 2014

*Publication date: September 29, 2016*

**The Adult Psychiatric Morbidity Survey** (APMS) monitors rates of mental illness in England and is conducted only every seven years. The latest survey published in September 2016 [http://content.digital.nhs.uk/catalogue/PUB21748]. The report revealed that levels of mental disorder in those currently aged 55 to 64, were significantly higher than they were for 55 to 64 year olds in previous surveys in the series.

**Common mental disorders (CMD)**
While there has been an increase in severe symptoms of CMD since 2007 in the population as a whole, the only individual age-group for which this also reached statistical significance was those aged 55 to 64. This continues a long-term trend of increasing levels of severe CMD symptoms in both women (from 5.5% in 1993 to 9.3% in 2014) and men (from 5.7% to 9.1%) at this age.

**Suicide risk and self-harm**
Reporting of self-harm has increased in all age-groups. There will be many reasons for this. For example, the success of anti-stigma campaigns may mean people feel more able to disclose such behaviours now than they were before. Increases over time, however, are more pronounced for some age-groups than others. In 55 to 64 year olds rates of suicidal thoughts (2.1% in 2000; 4.9% in 2014) and suicide attempts (0.1% in 2000; 0.6% in 2014) in the past year have at least doubled since 2000. This was evident both in men and women. In those aged 55 to 74, reporting of lifetime self-harm doubled since 2007.

**Alcohol dependence**
Overall, levels of harmful and dependent drinking have remained stable.* Again, this masks divergent trends in different age groups. Harmful and dependent drinking has become less common in 16 to 24 year olds over time (6.2% in 2007, 4.2% in 2014), while there is no evidence of any decline in those aged 55 to 64 year olds (1.4% in 2007, 2.8% in 2014).

**Treatment**
Use of mental health treatment, such as psychotropic medication and psychological therapy, was highest in 55 to 64 year olds. The proportion of people using treatment ranged from 5.5% of 16 to 24 year olds, up to 16.0% of those aged 55 to 64. This was mainly explained by the higher rates of psychotropic medication use among 55 to 64 year olds.

* As measured by an Alcohol Use Disorders Identification Test (AUDIT) score of 16 or above.

*Source* McManus S, Bebbington P, Jenkins R, Brugha T. (eds.) (2016) Mental health and wellbeing in England: Adult Psychiatric Morbidity Survey 2014. Leeds: NHS Digital. http://content.digital.nhs.uk/catalogue/PUB21748/apms-2014-full-rpt.pdf

# 1. Overview

In this chapter, people born between 1945 and 1964 are profiled and compared with other birth cohorts in terms of:

- prevalence of mental disorders, substance dependence and suicidal behaviour
- risk factors for mental illness (social, economic and health related)
- attitudes and access to mental health treatment.

Alongside published sources, the chapter draws on analysis of three large national probability sample surveys, covering people with and without mental illness, and those in contact with health services as well as those who are not. These are the:

- Adult Psychiatric Morbidity Survey (APMS, 1993 to 2007, with updates from APMS 2014)[1]
- English Longitudinal Study of Ageing (ELSA, Wave 6, 2012)[2]
- British Social Attitudes Survey (25th BSA, 2009).[3]

When last evaluated in 2007 about 18% of Baby Boomers in England had depression or an anxiety disorder severe enough to warrant intervention.[i] This prevalence was about twice that of people born before 1945, and similar to that in younger adults (born since 1965) at that time. While mental illness has tended to peak in people in their 50s, there are indications that people born before the 1950s have had consistently lower rates of mental illness than more recent birth cohorts.[5]

In England, the suicide rate is currently highest among men born between 1957 and 1971 (ONS 2016, Suicide in the United Kingdom.). After more than a decade of overall stability in rates of suicide, and even decline in some groups (for example, men aged 15–29), there has been an upturn since 2008.[6] This increase was concentrated among those experiencing job loss, housing repossessions and debt and in men in their 50s, although the pattern has changed with recent increases observed in women.[7]

About three-quarters of lifetime mental disorders start by the mid-20s. This is clear in the higher prevalence of some disorders – such as eating disorders, post-traumatic stress disorder and pathological gambling – among younger age groups. Mental disorders that onset later in the life course, for example among Baby Boomers, are mostly secondary conditions.[8]

One in a hundred Baby Boomers show signs of dependence on illicit drugs, especially cannabis.[ii] This is far lower than the one in ten people aged 16–24 showing such signs.[9] However, Baby Boomers are aging with higher rates of drug use than that found in the cohorts who preceded them (those born before 1945).[10]

**APMS** is the best source of data on rates of treated and untreated mental illness in the general population in England, with a range of different mental disorders assessed to diagnostic criteria or screened for. This chapter draws on data collected in the 1993, 2000 and 2007 surveys, drawing on a combined sample of about 24,000 adults aged 16 and over and using comparable methods to enable the generation of trends. Data from the latest survey in the series will be available in late 2016.

**ELSA** is a longitudinal survey of adults aged 50 and over, approaching its 12th year of data collection.[iii] Data from Wave 6 of the series has been analysed for this chapter. Symptoms of depression were identified using a short version of the Centre for Epidemiological Studies Depression Scale (CES-D) screen.[4] The threshold applied is that which indicates symptoms that may warrant treatment.[iv]

**BSA** has tracked changes in the population's social and political attitudes since 1983. It runs annually with a repeated probability sample of about 3,000 adults in the British population.[v] The 25th in the series, published in 2009, included questions on perceptions of mental health treatment, particularly counselling.

Only statistically significant differences (at the 95% level) are highlighted in the text.

Autism and ADHD (attention-deficit/hyperactivity disorder) are longstanding neurodevelopmental conditions. APMS 2007 data suggest that autism is about as common among Baby Boomers as it is among children and young people. ADHD symptoms are also evident among Baby Boomers. However, support and service provision for people with autism and ADHD overwhelmingly focus on the young.[11]

i Analysis based on people born 1945 to 1964 in the Adult Psychiatric Morbidity Survey (APMS) 2007. Anxiety and depression were identified on APMS using the revised Clinical Interview Schedule (CIS-R).

ii Analysis of APMS 2007. The survey sample excludes people living in institutions or who are homeless, groups likely to have higher rates of mental illness and substance dependence.

iii www.elsa-project.ac.uk.

iv In APMS, common mental disorders (CMDs) were assessed using the revised Clinical Interview Schedule (CIS-R), which covers non-psychotic symptoms in the past week. Responses were used to generate an overall score and to diagnose six types of CMD. A shortened version of the Centre for Epidemiological Studies Depression Scale (CES-D) is used on ELSA to identify presence of an elevated level of depressive symptoms. This has been validated in previous analysis (Demakakos et al., 2013). Respondents are asked whether on a typical day they felt each of eight different symptoms of depression (depressed; happy (reversed); lonely; enjoyed life (reversed); sad; everything was an effort; had restless sleep; could not get going). The number of answers consistent with depressive symptoms is totalled, and categorised as follows: 0–3 (no or one or subthreshold depressive symptoms); and 4 or more (elevated depressive symptoms). Frequencies of these banded CES-D scores were examined among the ELSA baby boomer cohort (those born between 1945 and 1964, n = 5930).

v The survey series is run by NatCen Social Research: www.bsa.natcen.ac.uk.

Schizophrenia and bipolar disorder, two of the most common severe mental illnesses in those aged 50 to 70, usually occur for the first time between the ages of 15 and 30 but then follow a chronic or recurring course in many cases.[12] Mental health services have a particular focus on the early detection and treatment of serious mental illness. In the opinion of the authors, there is a risk that continuing care for chronic conditions is given less priority; this places patients aged 50–70 with pre-existing mental health conditions, most of whom will not be eligible to receive care from specialist older adults services, particularly at risk.

In Baby Boomers, needing assistance with daily activities, such as managing stairs and self-care, is associated with high levels of psychiatric co-morbidity. Half (50%) of Baby Boomers with depressive symptoms need help with at least one activity of daily living, compared with a fifth (19%) of those without depression.[vi]

ELSA data show that 16% of people in their 50s and 60s can be classified as 'socially detached' (disengaged from participation in civic, leisure, cultural and social activities). This rate increases with age.[vii] Social context is widely found to be associated with mental health.[13] Some 20% of Baby Boomers with symptoms of depression report feeling socially isolated, compared with 2% of those without depression.[viii,14,15]

APMS data show an association between many aspects of people's current and earlier lives and their mental health. For example, being a carer has been linked to mental illness, and the number of hours that people spend caring increases with age.[16] Childhood sexual abuse appears to have been just as prevalent among young people in the 1950s and 1960s as it is among young people now.[17] Baby Boomers who experienced abuse in childhood continue to have worse mental health than those who did not.[18]

Baby Boomers living in the fifth of households with the lowest income are three times more likely to have symptoms of depression than those in the highest income homes. Other indicators of poverty also have independent associations with mental illness, after controlling for income. For example, rates of mental illness are higher among people living in homes that are cold or mouldy.[19] As people enter retirement or reduce their hours of working, they spend an increasing amount of time at home, and so the importance of housing conditions to the mental health of Baby Boomers may increase.

### Prevalence and trends in mental illness

For the analyses presented in this chapter, survey respondents have generally been grouped according to the following years of birth:

- 1980–91
- 1965–79
- 1945–64 (Baby Boomers)
- 1925–44
- 1924 or earlier.

Some analysis further divide Baby Boomers into two groups: those born 1945–54 and those born 1955–64.

## 2. Common mental disorders

In APMS, common mental disorder (CMD) was assessed using the revised Clinical Interview Schedule (CIS-R), which covers non-psychotic symptoms in the past week.[20] Responses were used to generate an overall score and to diagnose six types of CMD. In 2007, the prevalence of CMD in the English population varied between generations and, at 18%, the highest prevalence observed was among Baby Boomers (see Figure 7.1).[ix]

The high rate of CMD in Baby Boomers is partly due to the age that the baby boomer cohort was when APMS 2007 was carried out. CMD has tended to remain high in prevalence in people through to their fifties, before tailing off.[x]

The pattern of high rates of overall CMD among Baby Boomers also holds true for specific types of CMD, such as generalised anxiety disorder and depression. As Figure 7.2 and Figure 7.3 show, this higher prevalence is more evident in the younger half of the baby boomer cohort (born between 1955 and 1964), rather than in Baby Boomers born earlier (1945 to 1954).

vi Analysis of ELSA Wave 6 carried out for this chapter.

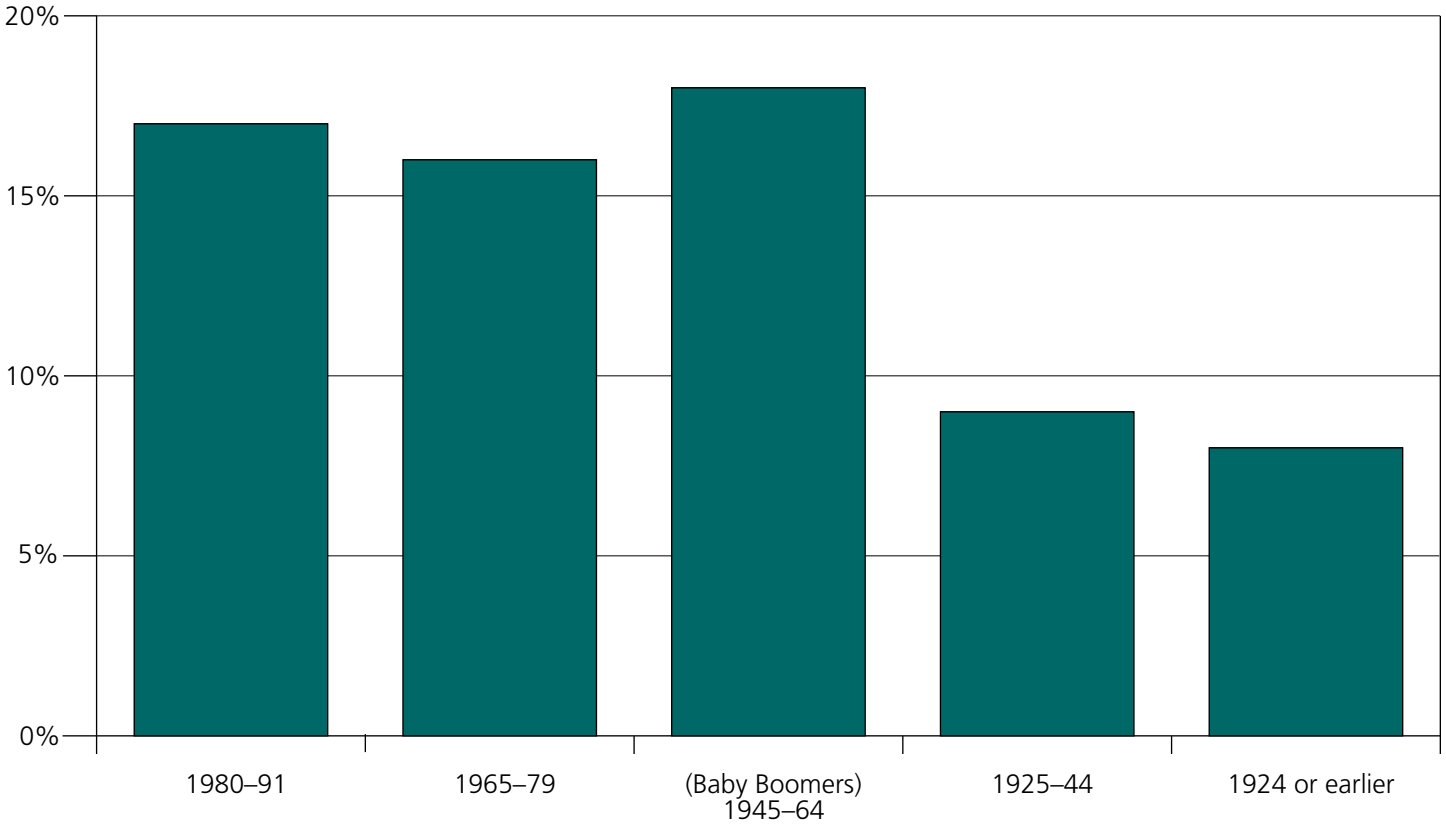
vii Social detachment was defined as disengagement from participation in a range of societal activities. These activities can involve formal participation in organised groups, visits to communal leisure facilities, and informal contact with family and friends. See: Jivraj S, Nazroo J, Barnes M. 'Change in social detachment among older adults in England' in The Dynamics of Aging: Evidence from the English Longitudinal Study of Ageing 2002-2010. (Wave 5) ELSA. www.elsa-project.ac.uk/reportWave5.

viii Analysis based on people born 1945 to 1964. ELSA Wave 6.

ix Birth cohort definitions applied to the data were: Generation Y – born 1980–91; Generation X – born 1965–79); Baby Boomer – born 1945–64); Pre-war born 1925–44; Pre-1925 – born 1924 or earlier).

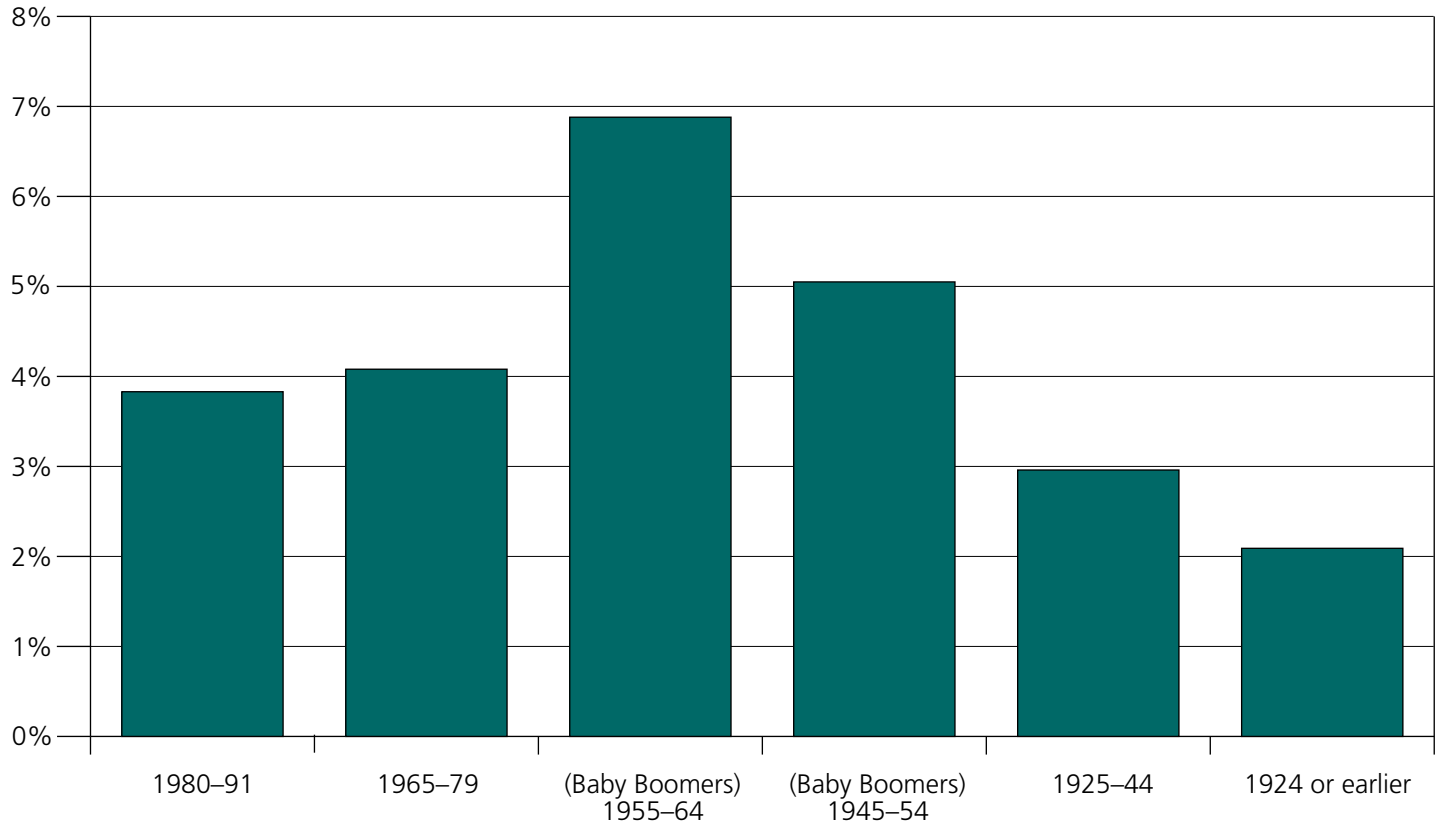
x Pattern likely to vary with measure of mental illness used. Some are designed to pick up specifically on how mental illness tends to manifest among older adults. There is evidence of an upturn in mental illness in more advanced old age (80 years and over), where increased risk of physical frailty, social isolation and institutional care underlie a later increase in prevalence of CMD.

**Figure 7.1 Prevalence of any common mental disorder by birth cohort, 2007**



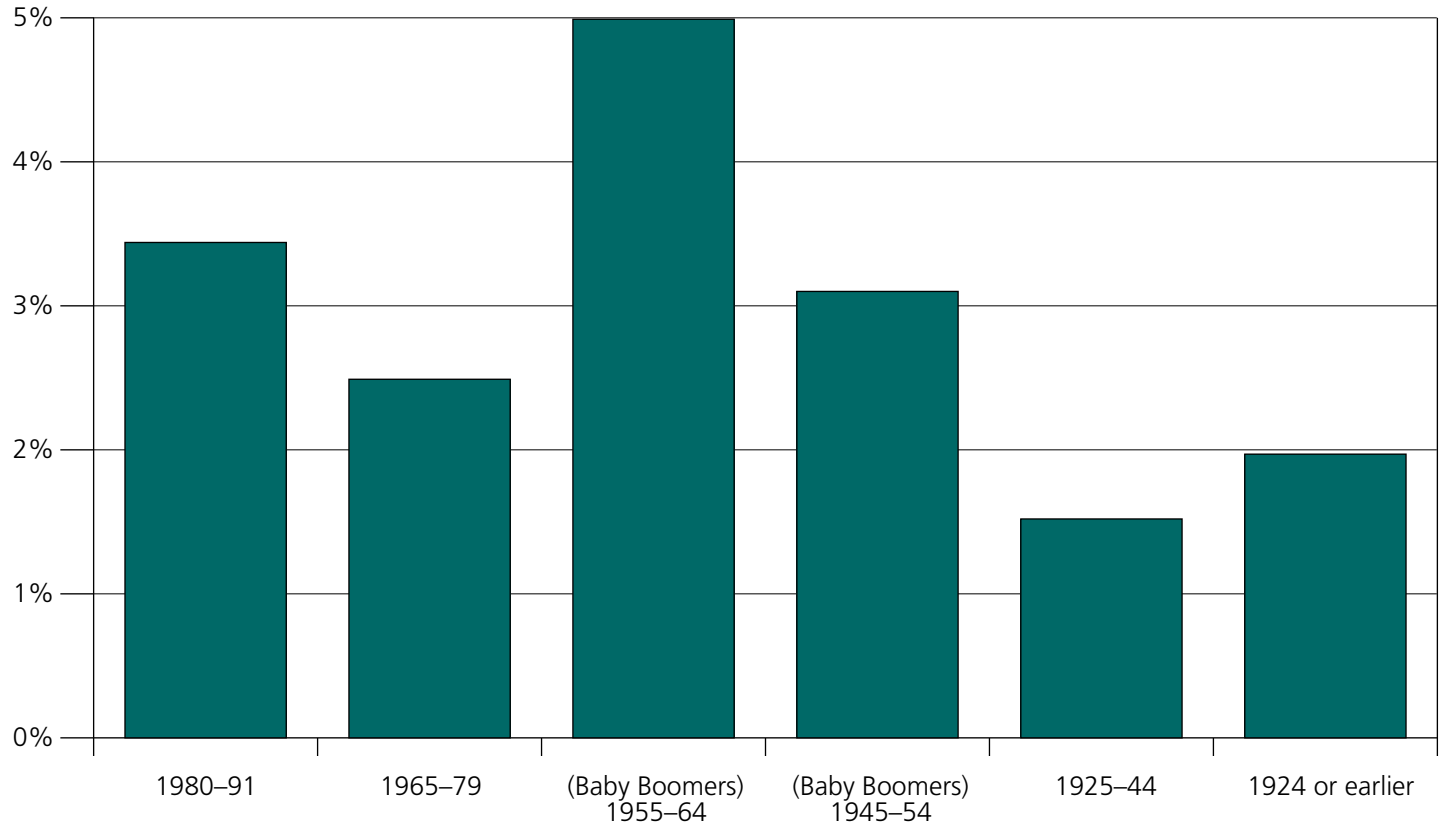

**Source** *APMS 2007*

**Figure 7.2 Prevalence of generalised anxiety disorder by birth cohort, 2007**




**Source** *APMS 2007*

**Figure 7.3 Prevalence of depression by birth cohort, 2007**




**Source** *APMS 2007*

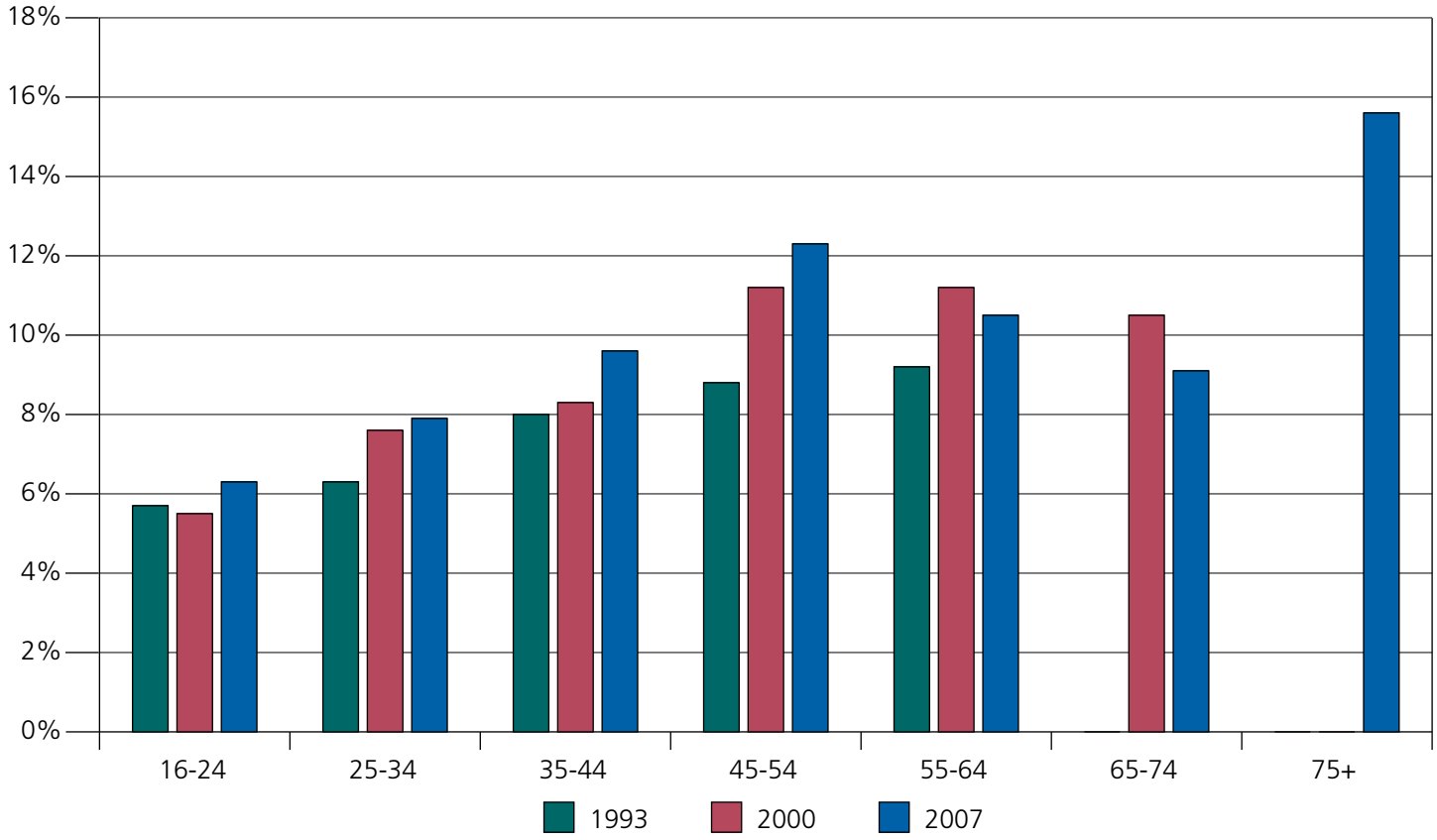
APMS used consistent methods to assess metal illness in 1993, 2000 and 2007. Pseudo-cohort trends in mental illness and suicidal ideation have been produced using these three cross-sectional datasets.[21,22] Over this period, the data show that older and younger baby boomer men have experienced different trajectories in mental illness. While the picture is less clear for women, a particularly high rate for women born between 1957 and 1963 is seen in the 2007 data. Men born between 1950 and 1956 have been consistently more likely to have CMD than men born between 1943 and 1949 (odds ratio 1.4, 95% CI 1.1–1.9), when at the same age. Trajectories in CMD prevalence among the cohorts of men born since 1956 have remained fairly stable at this higher level. More recent data collected in the Health Survey for England and using the General Health Questionnaire (GHQ) 12 indicate an upturn in psychological distress among men of working age (but not women) since the onset of the 2008 recession.[xi]

Analysis of particular symptoms of CMD across the three APMS samples suggests different patterns of prevalence, and change in prevalence, across generations. For example, insomnia and wider definitions of sleep disturbance did not consistently vary in prevalence across the 18–64 age range, but instead became more prevalent from 1993 to 2007 in all age groups.[23] On the other hand, another CMD symptom – complaint of poor memory or concentration – increased more markedly in prevalence across the three surveys within the baby boomer generation compared with other birth cohorts.[24]

In 2007, after controlling for other factors, Baby Boomers were more likely to report self-perceived cognitive problems than older cohorts.[25] Unadjusted analysis shows that the rate of CMD was particularly high in the younger half of the baby boomer cohort, born between 1955 and 1964 (Figures 7.4 and 7.5). An analysis of the 50–74 age group in APMS 2000 found that cognitive impairment was specifically associated with vascular disorders, whereas depression associations were not disorder-specific.[26]

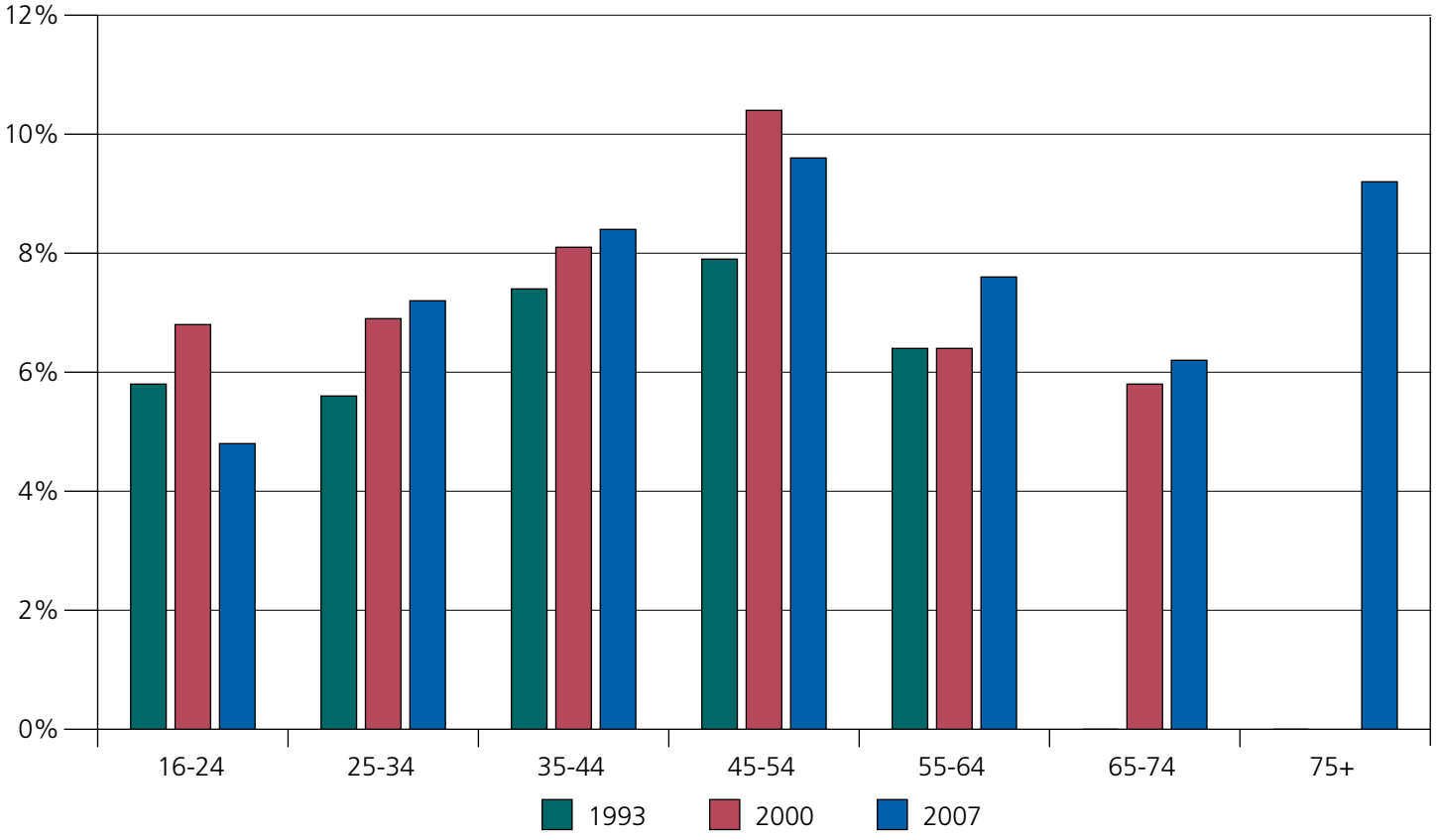
xi Psychological distress was measured using the General Health Questionnaire (GHQ) 12 on the Health Survey for England. See: Katikereddi S, Niedzwiedz CL, Popham F. Trends in population mental health before and after the 2008 recession: a repeat cross-sectional analysis of the 1991–2010 Health Surveys of England. BMJ Open 2012; 2: 5.

**Figure 7.4 Prevalence of memory complaints by birth cohort and survey year, England, 1993–2007**




**Source** *APMS 2007*

**Figure 7.5 Prevalence of concentration complaints by birth cohort and survey year, England, 1993–2007**




**Source** *APMS 2007*

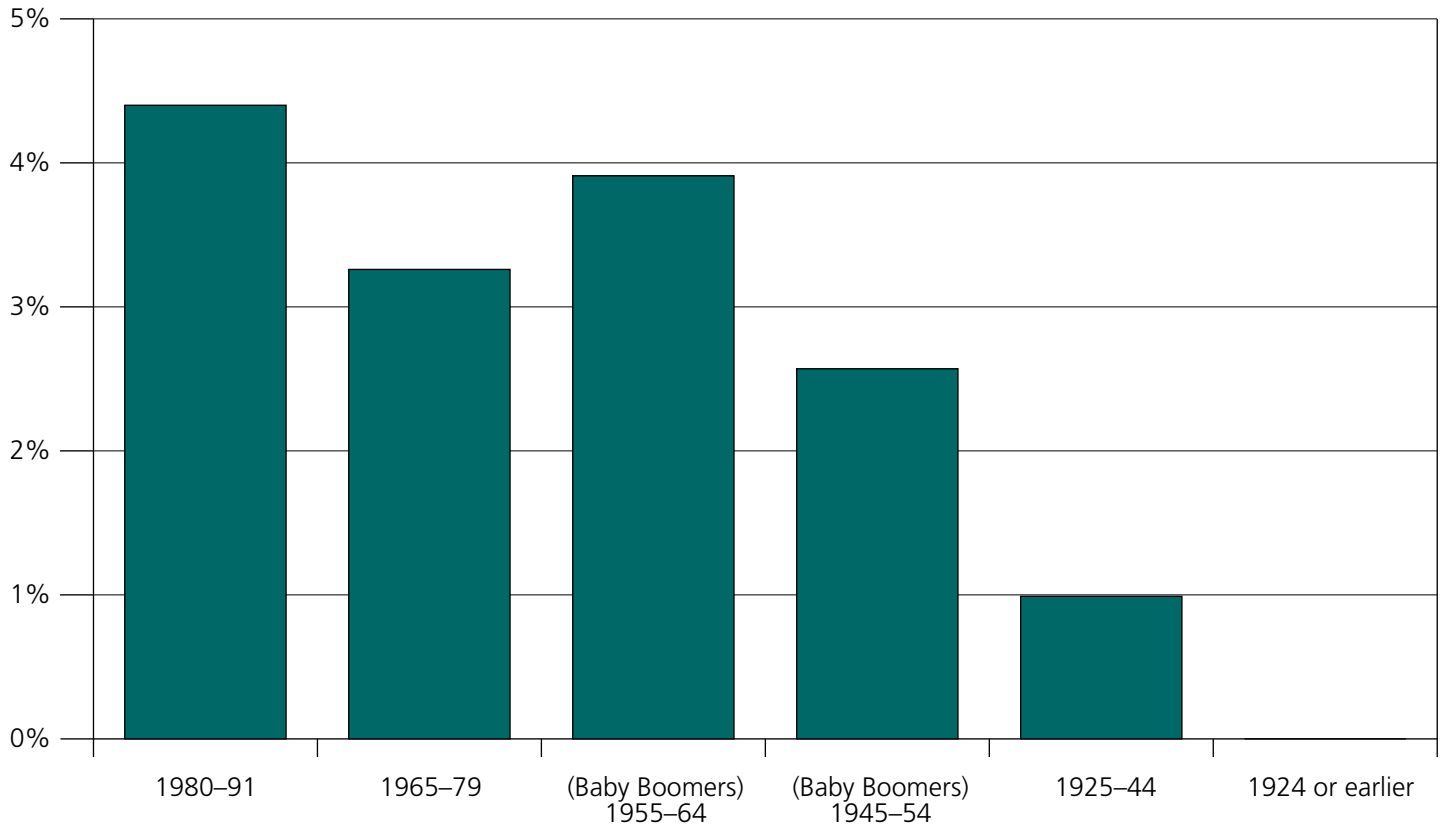
# 3. Other mental disorders

About three-quarters of lifetime mental disorders start by the mid-20s; mental disorders that onset later in the life course, for example among Baby Boomers, are mostly secondary conditions.[27] In the UK's 1946 birth cohort, for example, 71% of those with signs of psychological distress at age 53 had shown evidence of these problems in adolescence.[xii] And while the prevalence of CMD has tended to peak at around age 50, the prevalence of other disorders – such as post-traumatic stress disorder (PTSD), eating disorders, problem gambling and substance dependence – pattern differently across generations.

APMS 2007 produced the first prevalence estimates of screening positive for PTSD drawing on a large general population sample of adults in England.[xiii,28] Figure 7.6 shows that while the rate of positive screens for current PTSD declined with age, the prevalence among Baby Boomers was more akin to younger cohorts than older ones.

The onset of eating disorders is generally in childhood or adolescence and the illness ranges greatly in severity. People with eating disorders often experience acute psychological distress, as well as severe physical complications.[29] APMS 2007 included the first data based on a large general population sample able to describe the distribution of possible eating disorder in England across the adult age range.[30,xiv] As for PTSD, while symptoms associated with eating disorders are most common in the youngest age cohorts, eating disorders do remain evident in later birth cohorts (Figure 7.7).

**Figure 7.6 Prevalence of screen positive for possible PTSD by birth cohort, 2007**



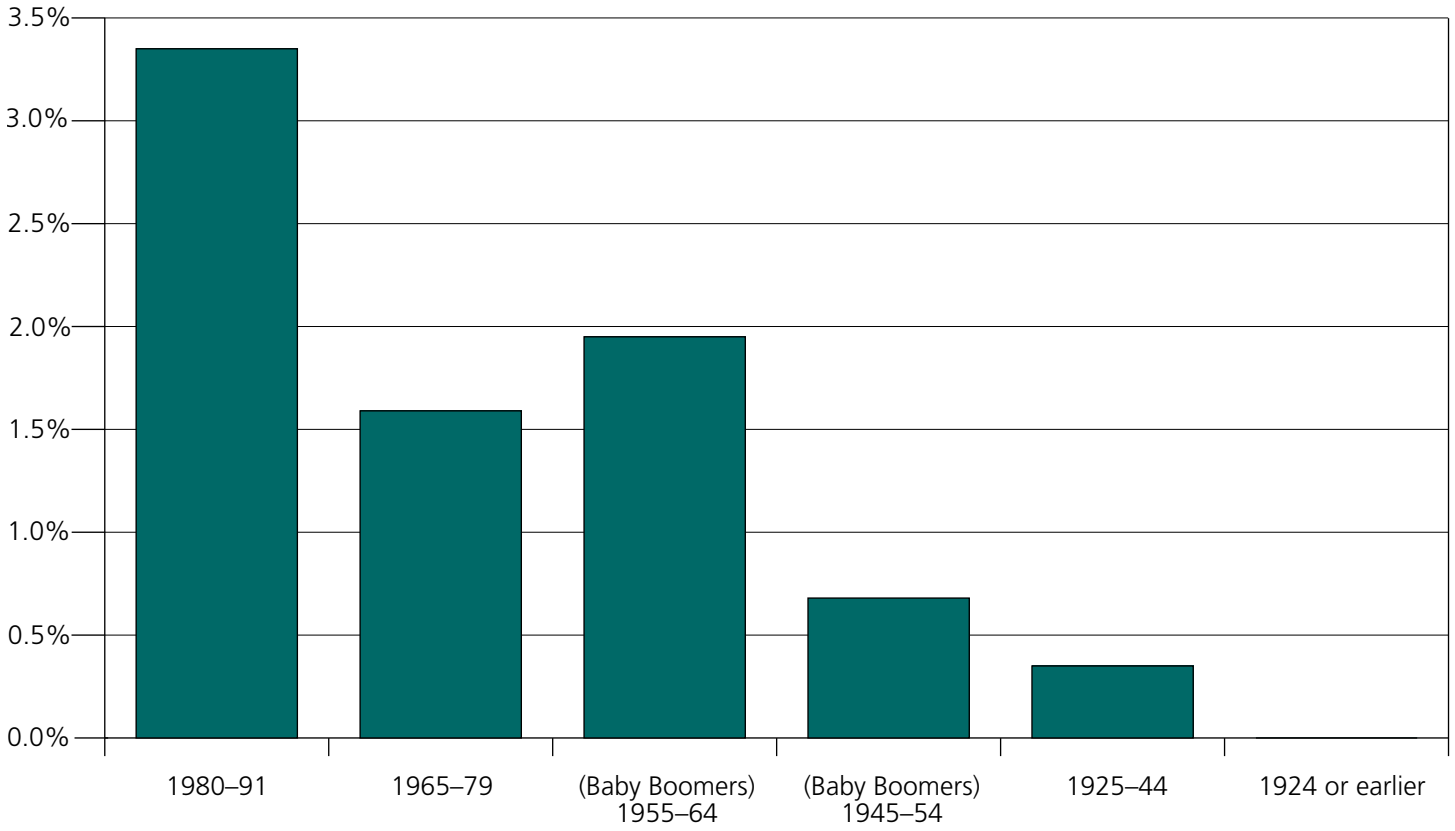

**Source** *APMS 2007*

xii While only 14% of those who showed these problems in adolescence reported no emotional problems in adulthood. See: Colman I, Ploubidis G, Wadsworth M et al. A longitudinal typology of symptoms of depression and anxiety over the life course. Biological Psychiatry 2007; 62: 1265–1271.

xiii Screening was based on the Trauma Screening Questionnaire, a short tool designed to identify likely cases of current PTSD (those exhibiting symptoms in the past week at or above the threshold for PTSD). This was administered by self-completion to respondents reporting a major trauma in adulthood. APMS sample consisted 7,400 participants.

xiv The SCOFF screening tool for eating disorders was administered by self-completion. Endorsement of two or more items, plus reports of significant impact on life, represented a positive screen for eating disorder indicating that further assessment for eating disorder was warranted (not that the disorder was necessarily present).

**Figure 7.7 Prevalence of screen positive for possible eating disorder by birth cohort, 2007**




**Source** *APMS 2007*

# 4. Severe mental illness

Schizophrenia and bipolar disorder, the two most common diagnoses within this category, usually occur for the first time between the ages of 15 and 30 years but then follow a chronic or recurring course in many cases.[31] Therefore, although some new cases do occur within the 50–70 age group, most people with severe mental illness (SMI) at this point will have experienced their disorder either continually or intermittently for several decades.

It has been estimated that there are more than 250,000 cases of schizophrenia in Britain,[xv] although we are not aware of any national breakdown of numbers by age group. In a cohort of 7,678 cases of schizophrenia aged 16 years and over who had received mental health care at some point within a one-year period, drawn from the South London and Maudsley NHS Foundation Trust's CRIS database, 1,791 (23.3%) were aged 50–69 years.[32]

In another published cohort of 1,364 patients aged 16–65 with new presentations of bipolar disorder from the same data source, 158 (11.6%) were aged 46–55 and 96 (7.0%) were aged 56–65 years. In people discharged from hospital care with schizophrenia in England from 1999 to 2006 (272,248 discharges), median ages were 35 in men and 44 in women, and those for discharges with bipolar disorder over the same period (100,851 discharges) were 43 and 48 respectively.[33]

Thus, it is reasonable to assume that sizeable case numbers are aged 50–70 years. Many of these patients will not be receiving secondary mental healthcare and may therefore be under-represented in cohorts drawn from these sources. In a British primary care cohort of 46,136 people with SMI, the median age was 46.4 years (interquartile range 32.2–63.7) and the most common diagnoses were schizophrenia (40.2%), bipolar disorder (23.3%) and delusional disorder (19.2%).[34]

Mental health services have a particular focus on the early detection and treatment of SMI. In the opinion of the authors, there is a risk that continuing care for chronic conditions is given less priority; this places patients aged 50–70 years with pre-existing mental health conditions, most of whom will not be eligible to receive care from specialist older adults services, particularly at risk.

As well as the need for mental healthcare, there are important physical health needs in this group. Premature mortality in people with SMI is widely recognised. Most of this loss of life is accounted for by natural causes of death occurring at younger ages than in the general population, particularly cardiovascular disease and cancer. Although risk profiles have determinants throughout adult life, the 50–70 age group is one where interventions on risk states such as hypertension, dysglycaemia and dyslipidaemia should have a high potential for improving survival. Despite this, people with SMI, particularly those more severely affected, are less likely to receive such interventions,[35] and mortality occurring after myocardial infarction or a new cancer diagnosis has also been found to be raised in people with SMI.[36,37]

xv www.schizophrenia.com/szfacts.htm

# 5. Neurodevelopmental disorders

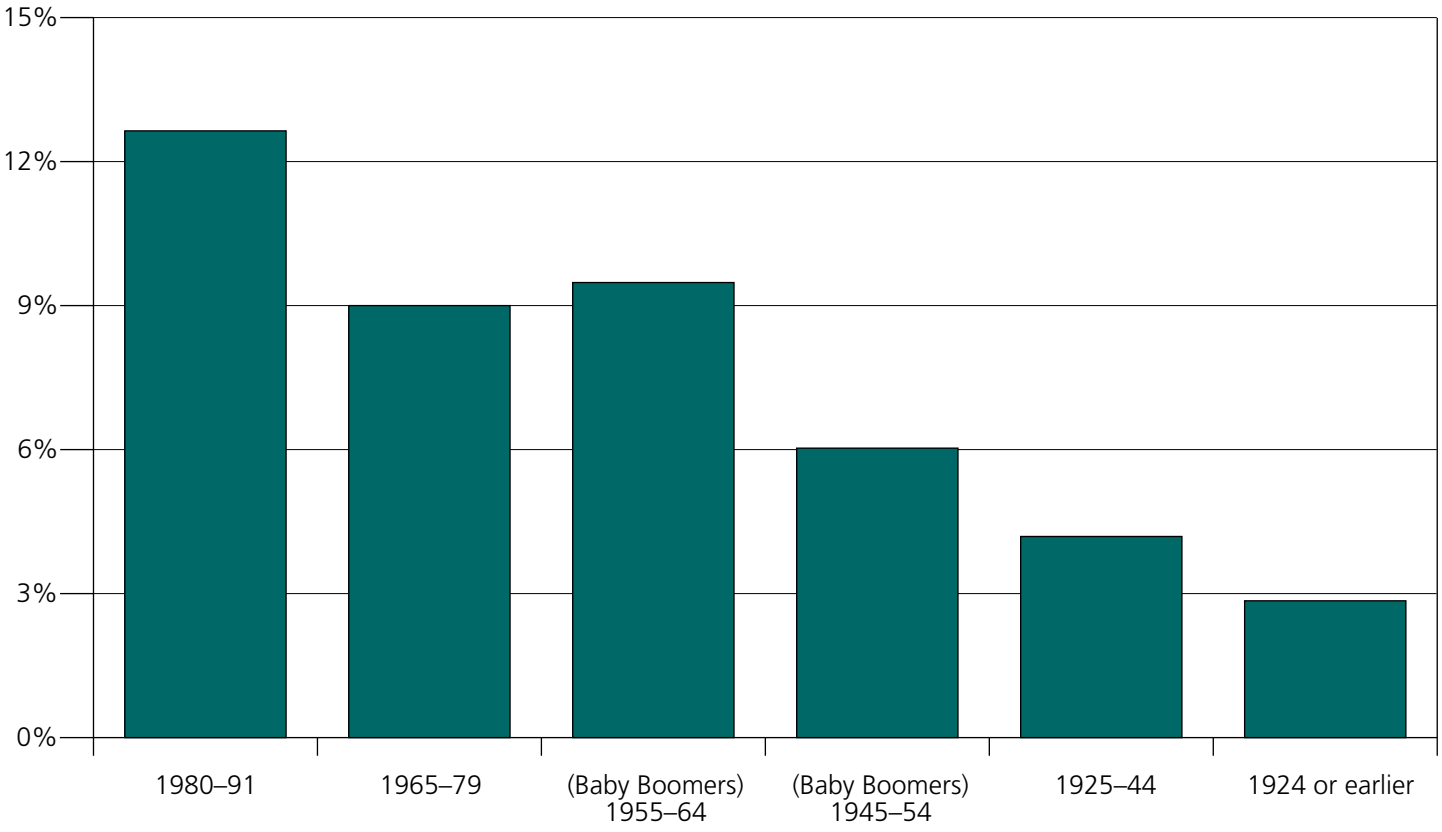
Neurodevelopmental disorders sometimes show a tailing off with increasing age in cross-sectional surveys of the population. There are several reasons for this, including that people learn to adapt to and better mask their condition with time, because the condition may have a higher prevalence in later cohorts, and because of healthy survivor effects.[38]

Autism spectrum disorder (ASD) was first assessed in a sample of the English adult population in the 2007 APMS. A two-phase assessment process was used.[39,40,41,xvi] No significant association was found between the presence of autism and age (although the sample was underpowered to examine such associations in detail).[42] The available data suggest that baby boomers have rates of autism similar to those of younger adults and even children. And yet, service provision available for autistic people is primarily aimed at children and young people.[43]

ADHD is another neurodevelopmental disorder commonly associated with childhood. Characteristic symptoms and behaviours include excessive problems with organisation, difficulties with activities requiring cognitive involvement, and restlessness and impulsiveness to an extent that causes significant distress or interferes with everyday functioning. While traits of inattention, hyperactivity and impulsivity tail off with increasing age, as indicated by APMS data on screening positive for ADHD,[xvii] the data also show that for some these traits are present into late adulthood (see Figure 7.8). ADHD in adults, including Baby Boomers, may go unrecognised or be misdiagnosed by mental health professionals.[44] Mental health services for adult ADHD are relatively uncommon or greatly under-resourced in England, resulting in high levels of the disorder remaining untreated in adulthood even where identified.[45]

If left untreated, the presence of ADHD can result in significant disadvantage and social impairment. ADHD has been identified in 12% of treatment-seeking adult patients with substance abuse disorders,[46] 26% of prisoners,[47] and is linked to increased rates of unemployment,[48] road accidents[49] and mortality.[50]

**Figure 7.8 Prevalence of screen positive for possible ADHD by birth cohort, 2007**




**Source** *APMS 2007*

xvi In the phase one interview ASD was screened for with the validated Autism Quotient (AQ-20). In the phase two interview, assessments were carried out by clinically trained interviewers using the Autism Diagnostic Observation Schedule (ADOS) with a subset of respondents with medium to high AQ-20 scores. The results were weighted to generate a prevalence rate for the population as a whole.

xvii A score of four or more on the Adult Self-Report Scale-v1.1 (ASRS) was considered to be a positive screen indicating that a clinical assessment for ADHD may be warranted.

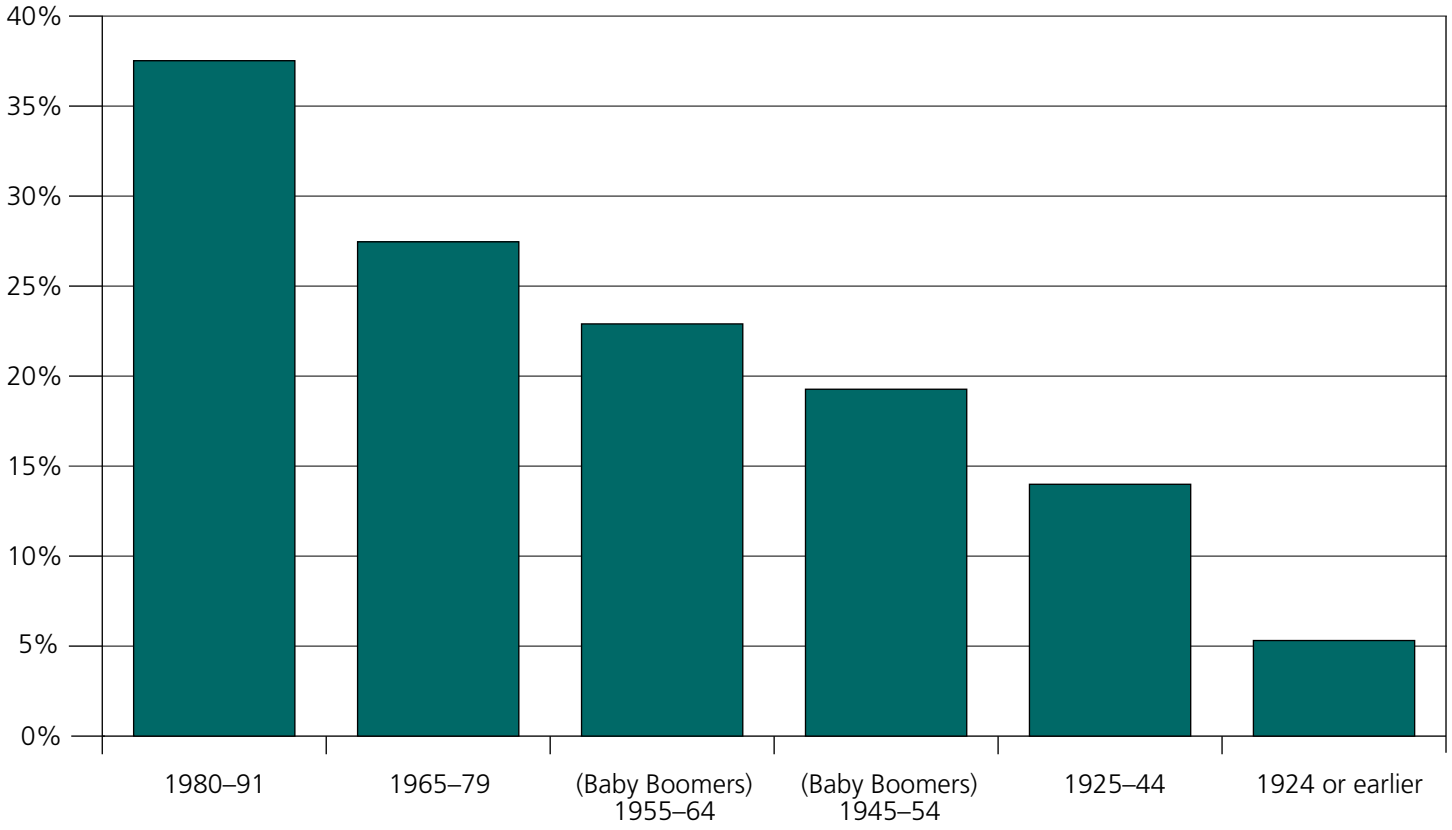
# 6. Substance dependence

Monitoring of illicit substance use and dependence also tends to focus on the young.[51] On many levels this makes sense, as rates of harmful use and dependence are higher among younger people (see Figure 7.9).

For example, in 2007 more than a third of people born between 1980 and 1991 had a problematic pattern of drinking (as indicated by an AUDIT score of 8 or more[52]) compared with about a fifth of Baby Boomers (see Figure 7.9). A similar pattern is evident for signs of illicit drug dependence. For example, 10% of 'Generation X' showed signs of illicit drug dependence, compared with 1% of Baby Boomers (see Figure 7.10). Changing trajectories in dependence, however, suggest that an increasingly complex picture is emerging.

Analysis of APMS data from 1993, 2000 and 2007[xviii] found that prevalence of certain illicit drug use – particularly cannabis – has been higher in the baby boomer generation than in preceding generations when at the same age.[53] For example, lifetime cannabis, amphetamine, cocaine and LSD use in 50–64-year-olds increased approximately 10-fold in England from 1993 (prevalences 1%, 0.2%, 0.1% and 0.1% respectively) to 2007 (11%, 2%, 1% and 2%), when the Baby Boomers would have started to enter this age range. These patterns were similar, although at a lower level, for current illicit drug use (see Figure 7.11). For example, prevalence of cannabis use in this age group was 0.2% in 1993 compared with 2% in 2007.

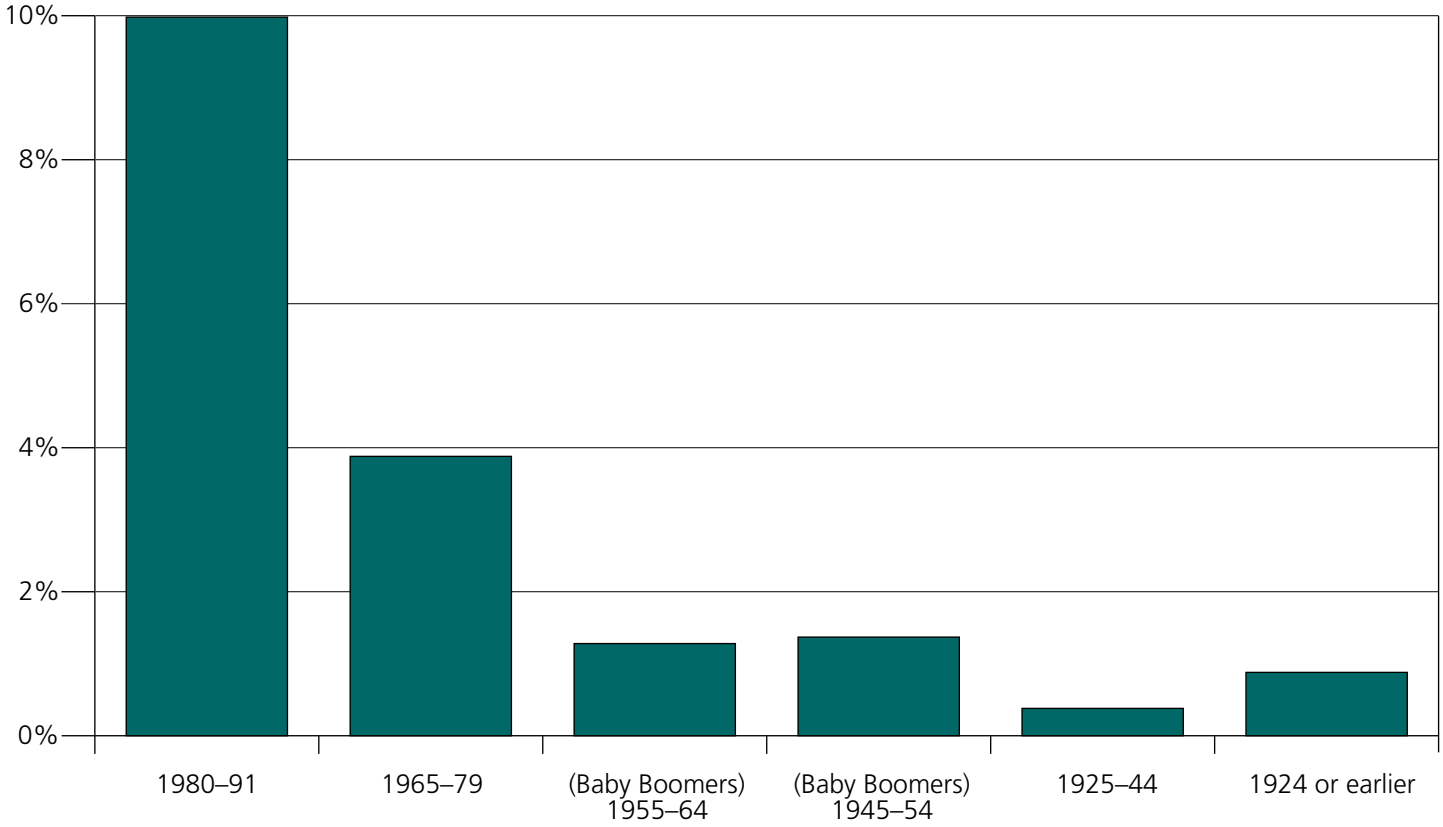
**Figure 7.9 Prevalence of problem drinking (AUDIT 8+) by age cohort, 2007**




**Source** *APMS 2007*

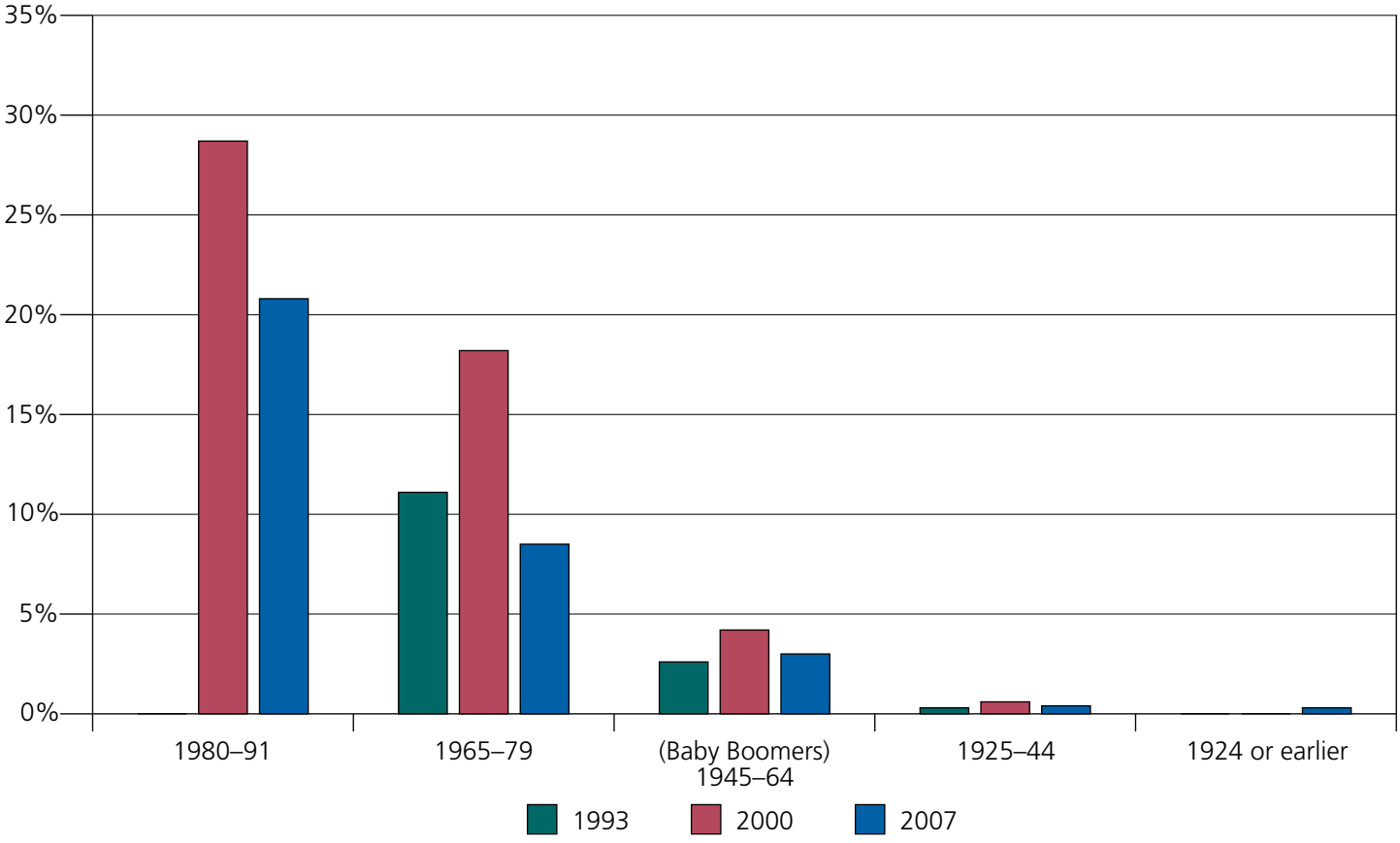
xviii Dependence on specified drugs was measured on APMS using questions based on the Diagnostic Interview Schedule. Use of a drug and the presence of at least one of five symptoms of dependence in the past year were used to indicate likely drug dependence, a lower threshold than that used elsewhere.

**Figure 7.10 Prevalence of current drug dependence by age cohort, 2007**




**Source** *APMS 2007*

**Figure 7.11 Prevalence of cannabis use in the last year by year of birth and survey year, England, 1993-2007**




**Source** *APMS 2007*

# 7. Suicide and suicidal thoughts and attempts

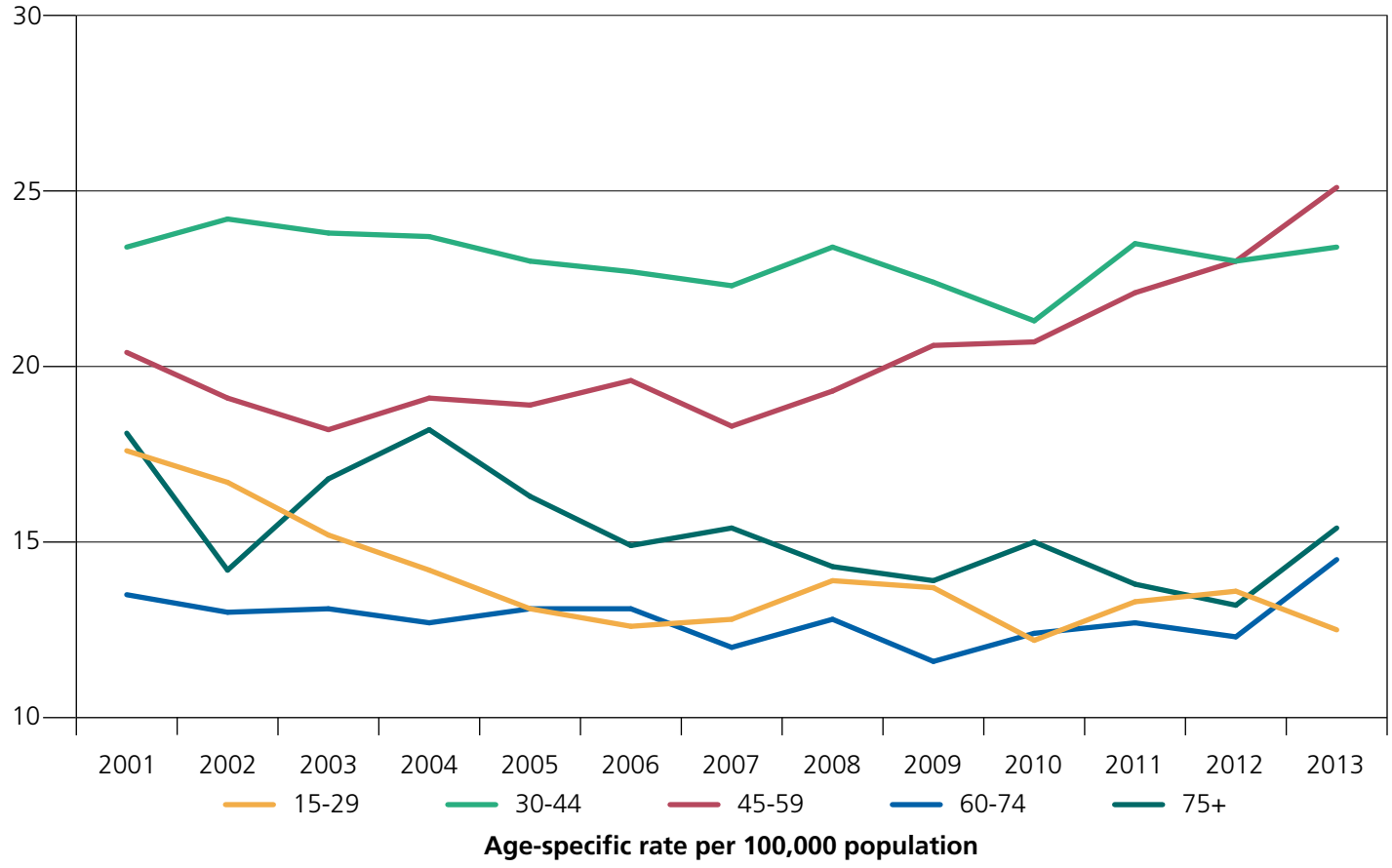
Suicidal thoughts, non-fatal suicide attempts and self-harm (without suicidal intent) are associated with high levels of mental distress, both for the people engaging in them and for those around them. APMS participants were asked about these in the self-completion section of the interview, and suicide registration data are also published annually by the Office for National Statistics. Suicide is widely understood in the context of mental illness. While not everyone who experiences mental illness considers suicide, nearly everyone who takes their own life is experiencing mental illness.[54]

In England, the suicide rate currently peaks among men born between 1957 and 1971 and this group, which overlaps with the baby boomer cohort, in recent years have been identified as a priority group for the National Suicide Prevention Strategy.[55]

From 1995 to 2012, it was men in the 30–44 age group who had the highest rate of suicide (see Figure 7.12). By 2013, the highest suicide rate had shifted to those men aged 45 to 59, having increased since 2007 from 18.3 to 25.1 deaths per 100,000 population, the highest rate since 1981. The 2013 registrations also saw the rate for 60–74-year-old men rise significantly, from 12.0 per 100,000 in 2007 to 14.5 per 100,000 in 2013.[56]

The suicide rate among women has remained lower, without significant variation with age or over time (although with recent signs of an upturn). However, while suicide is more common in men than women, suicidal thoughts and self-harming are more common in women. In 2007, women born between 1957 and 1963 reported the highest rates of suicidal ideation, had the highest age-adjusted prevalence of common mental disorders, and the highest female suicide rate.[57,58]

**Figure 7.12 Age-specific suicide rate, males, deaths registered in each year from 2002 to 2013 in the UK**




**Source** *APMS 2007*

# 8. Health inequalities and premature mortality

A recent meta-analysis found a 10-year median reduction in life expectancy among people with mental disorder, compared with people without mental disorder.[59,60,61] Some 17.5% of this early mortality was attributed to suicide and unintentional injuries. However, most of these deaths were related to chronic health conditions such as cardiovascular and pulmonary diseases. It has been argued,[62] therefore, that tackling premature mortality among people with mental illness should include tackling risky health behaviours such as substance misuse, and that equal treatment for mental and physical disorders also requires equal treatment of medical disorders in people with mental disorders.

Baby Boomers in their 50s and 60s who need assistance with daily activities such as managing stairs and self-care also experience high levels of psychiatric co-morbidity. ELSA data show that half (50%) of Baby Boomers with depression symptoms need help with at least one activity of daily living, compared with a fifth (19%) of those without depression (see Figure 7.13).

The association between worse physical health and worse mental health is widely recognised, and involves influences in both directions. The strength of association between physical ill-health and mental disorders such as depression does not vary substantially across adult age groups. However, as physical disorders become more common with age, they account for a steadily increasing proportion of depression prevalence, with a sharp rise in population attributable fractions.[63] (See Figure 7.14, Figure 7.15 and Figure 7.16.)

Longitudinal analysis of ELSA data shows how even 'feeling low' in your early 50s is associated longitudinally with subsequent cardiovascular disease, slower walking speed and even death 10 years later.[64] In this respect, depression has been found to be a risk factor for most causes of death individually, with an association with all-cause mortality equivalent to that of smoking.[65,66,67]

Although dementia remains very rare below age 70 (for example, there is a 1% prevalence at age 65), it is increasingly recognised that many of the key environmental risk factors for dementia begin exerting their effects in the preceding two decades, that is when people are 50–70 years old. These include vascular risk factors such as hypertension,[68,69] diabetes,[70] obesity[71] and hypercholesterolaemia,[72,73] all of which have been found to occur more frequently in people with mental disorders. There is also evidence that worse mental health, particularly symptoms of stress or depression reported 10–20 years before the onset of dementia (that is, predominantly in 50–70-year-olds), are potentially direct risk factors not accounted for by vascular factors.[74,75]

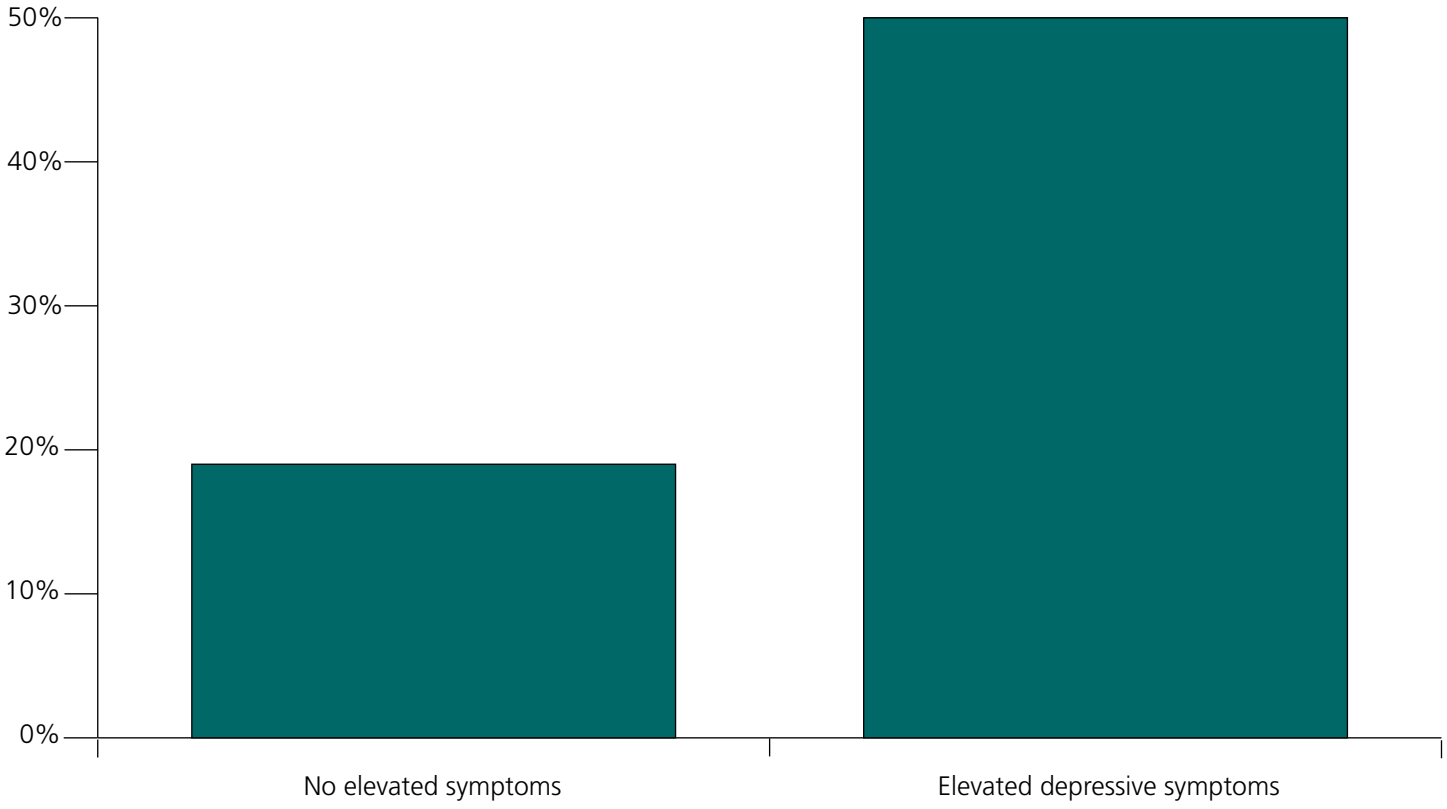
**Table 7.1: Estimated excess deaths per year below age 70 in England for people with diagnosed mental**

| Diagnosis | Number of excess annual deaths | | |
|---|---|---|---|
| | Deaths aged below 70* | | |
| | Total | Natural | Unnatural |
| Schizophrenia | 1,995 | 1,432 | 564 |
| Bipolar disorder | 788 | 522 | 266 |
| Schizoaffective disorder | 391 | 216 | 174 |
| Depressive disorder | 1,317 | 695 | 622 |
| Substance use disorder | 4,578 | 3,325 | 1,252 |
| Alcohol use disorder | 3,514 | 2,919 | 595 |
| Opioid use disorder | 1,295 | 682 | 614 |
| Anxiety disorder | 130 | 26 | 105 |
| Stress-related disorders | 104 | 46 | 58 |
| Personality disorder | 498 | 310 | 188 |

**Unnatural cause of death was defined if diagnoses with ICD-10 codes V01-Y98 (intentional or unintentional external causes of morbidity and mortality) were recorded on the death certificate; all other deaths were defined as natural.*

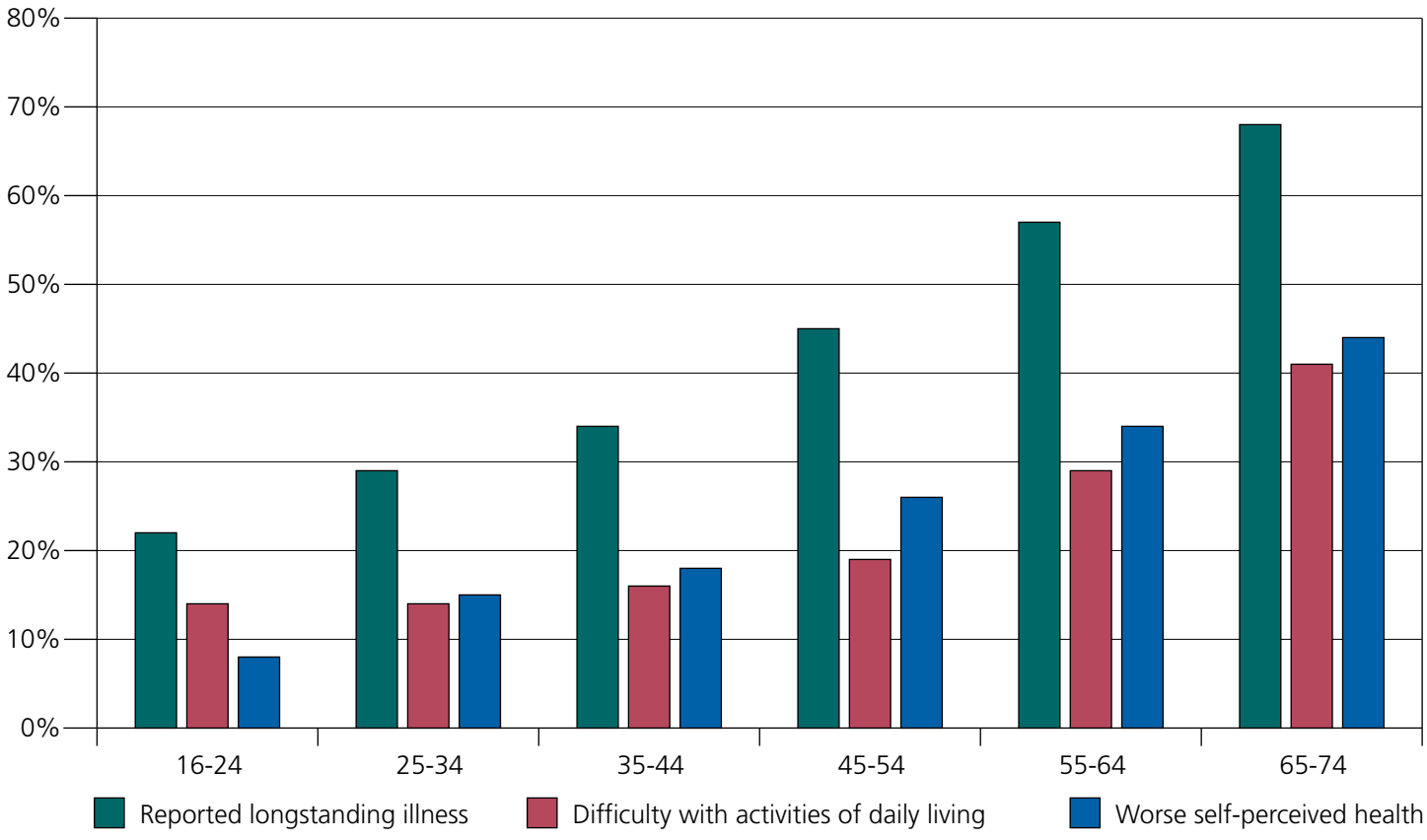
**Source** *Chang and Stewart (2013) Estimated excess numbers of premature deaths per year in people with mental disorders. Internal report to DH.*

**Figure 7.13 Prevalence of needing help with at least one activity of daily living among Baby Boomers with and without elevated depressive symptoms, England, 2012/13**



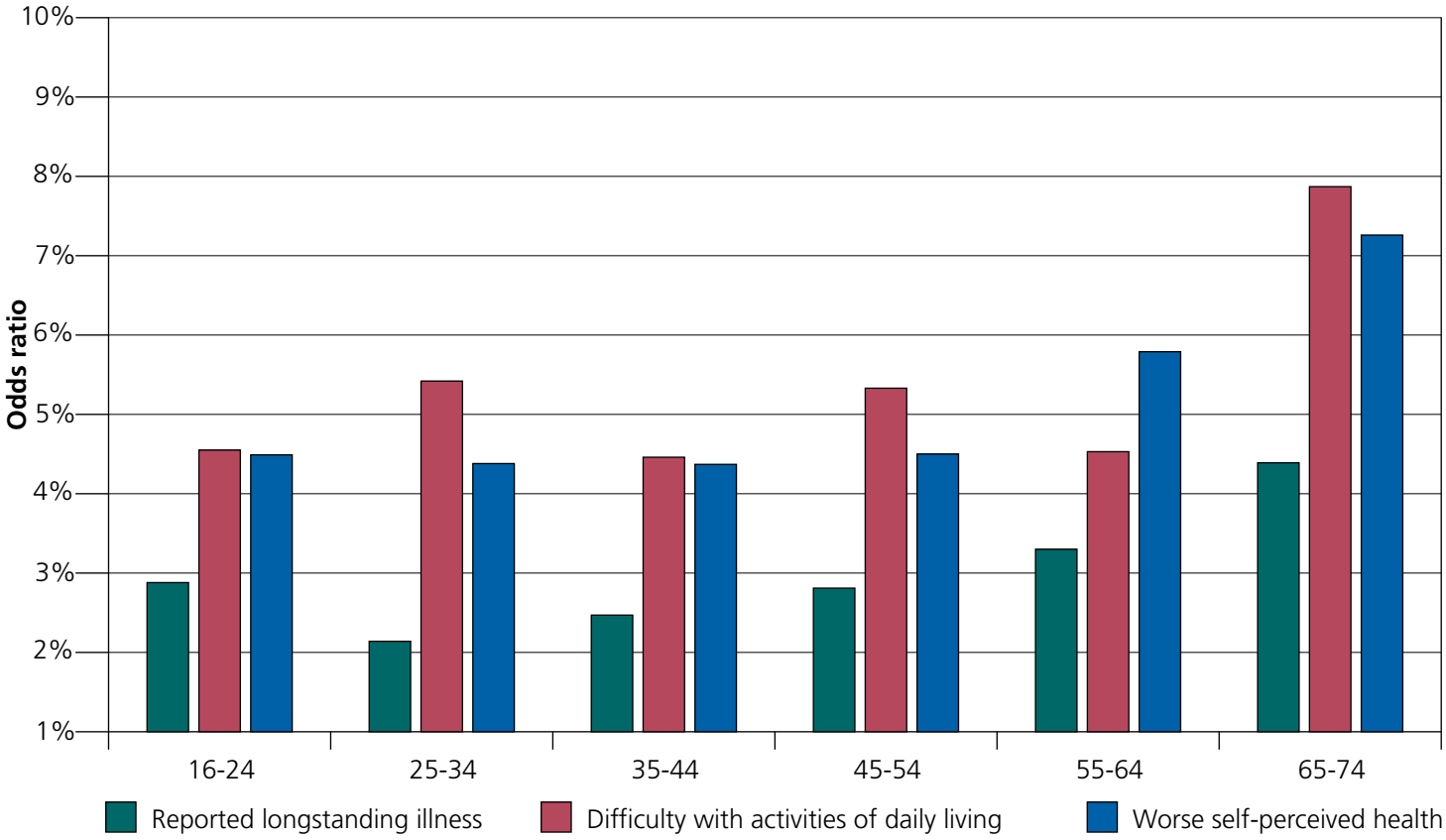

**Source** *ELSA Wave 6*

**Figure 7.14 Prevalence of health deficits by age group, England, 2000**



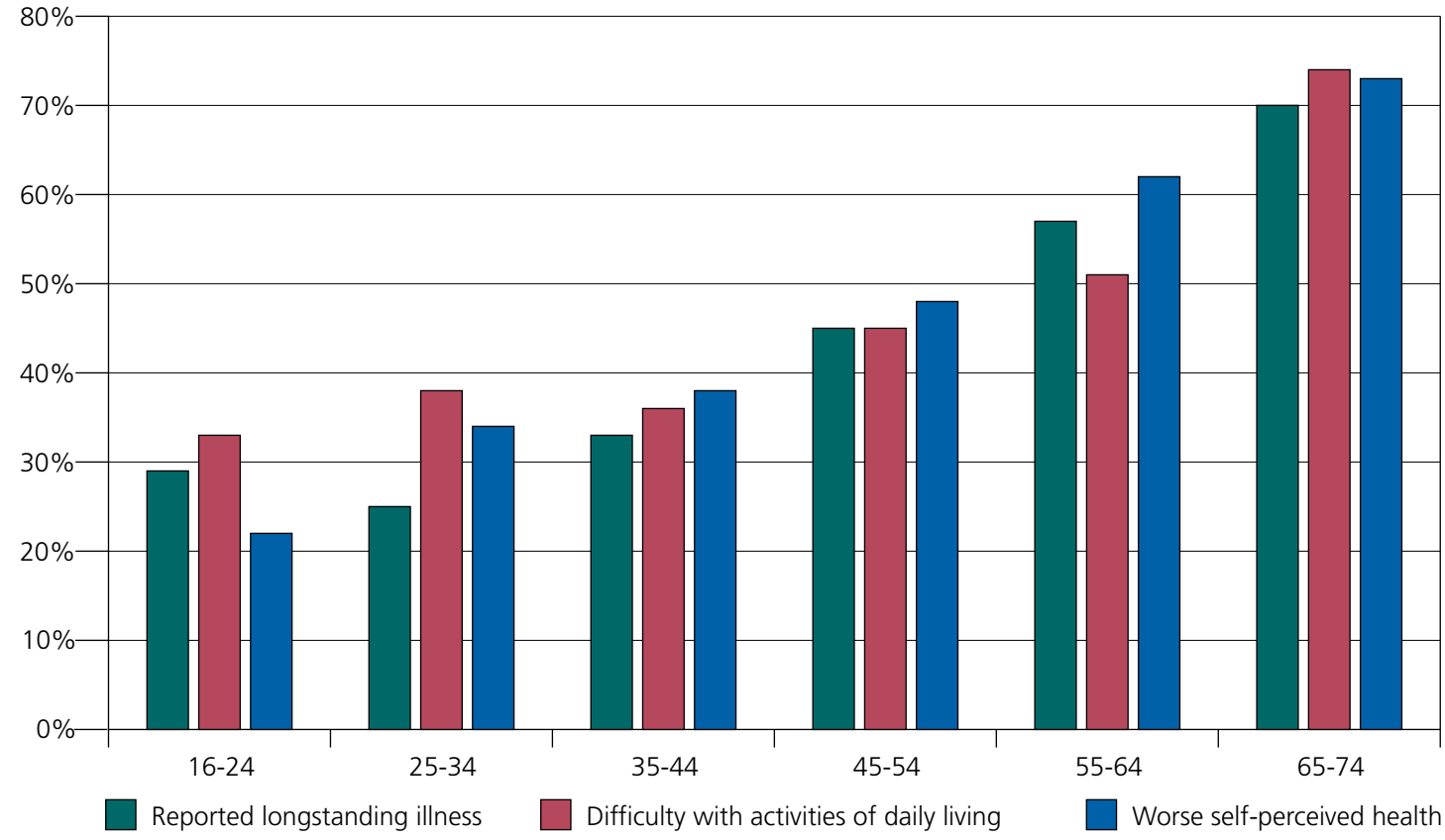

**Source** *APMS 2000*

**Figure 7.15 Strength of association between health deficits and CMD by age group, England, 2000**




**Source** *APMS 2000*

**Figure 7.16 Population attributable fractions for health deficits and CMD by age group, England, 2000**




**Source** *APMS 2000*

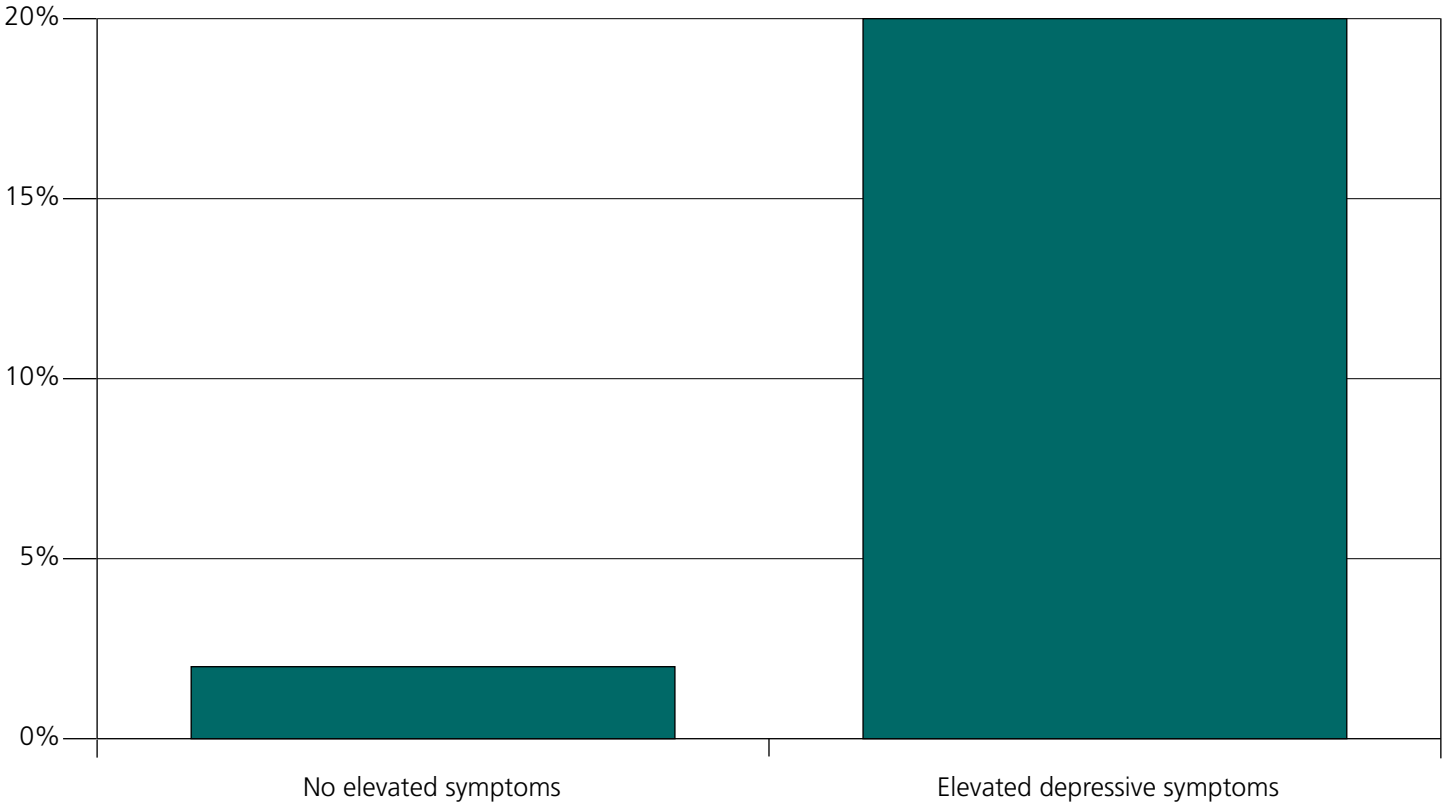
# 9. Social context

Reducing social isolation has been recognised as a public health priority,[76,77] and is included as an indicator in the Public Health Outcomes Framework[78] and the Adult Social Care Outcomes Framework.[79] Relationships with family and friends, and work, religious and neighbourhood communities all have independent associations with mental health.[80] Even changes at the wider societal level can have a bearing on individual mental health.[81] These may be a cause or consequence of mental illness, or both.

APMS data show that Baby Boomers with anxiety and depression are twice as likely to describe themselves as 'close' to fewer than five friends and family (17.7%, compared with 7.7% in the rest of the sample). And that 20% of those born between 1945 and 1964 and reporting depressive symptoms described themselves as socially isolated, compared with 2% of the cohort without symptoms (see Figure 7.17).[82]

Being a carer has been linked to mental illness, and the number of hours that people spend caring increases with age.[83] Early experiences can also continue to exert an impact on the mental health of baby boomers. Childhood sexual abuse appears to have been just as prevalent among young people in the 1950s and 1960s as it is among young people now,[84] and Baby Boomers who experienced sexual abuse in childhood continue to have worse mental health than those who did not. For example, non-consensual sexual intercourse before the age of 16 was associated with a 10-fold increase in the odds of psychosis later in life (odds ratio (OR) = 10.14, 95% CI 4.8–21.3, population attributable risk fraction 14%).[85,86] The impact of childhood sexual abuse on adult mental health is similar for both men and women.[87]

**Figure 7.17 Proportion of people who report often 'feeling socially isolated', by age (born 1945-64), with and without depressive symptoms, England**



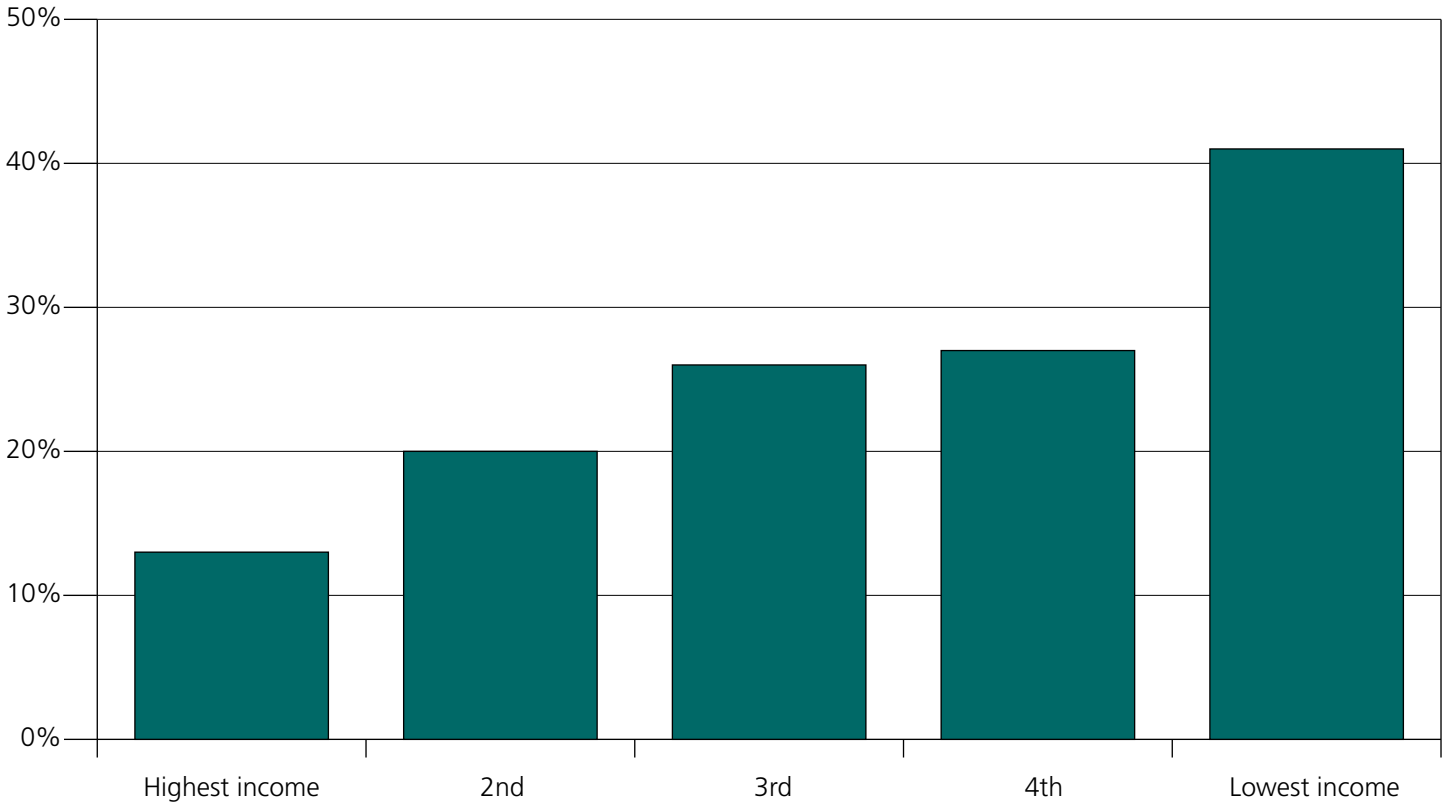

**Source** *ELSA Wave 6 (2014)*

# 10. Economic context

Baby Boomers living in the fifth of households with the lowest income were three times more likely than those living in the highest income households to have depressive symptoms (see Figure 7.18).[xix] Even after controlling for income, indicators of poverty such as housing conditions are also linked with mental illness. For example, while 13% of baby boomers as a whole live in properties with mould on the walls, among those Baby Boomers with anxiety and depression a fifth (21%) live in a mouldy home.[xx]

As people enter retirement or reduce their hours of working, they often spend increasing amounts of time at home. Living in a cold home predicts anxiety and depression, even after controlling for level of income.[88] Fuel poverty has long been recognised as a public health concern, but increasingly its relevance for mental health has been highlighted too.

**Figure 7.18 Prevalence of elevated depressive symptoms, by age (born 1945-64), by equivalised household income, England, 2012/13**




**Source** *ELSA Wave 6 (2014)*

xix Based on analysis of ELSA 2012 sample born 1945–1964. Depressive episodes measured using the CES-D.

xx Based on analysis of APMS 2007 sample born 1945–1964. Anxiety and disorder measured using the CIS-R.

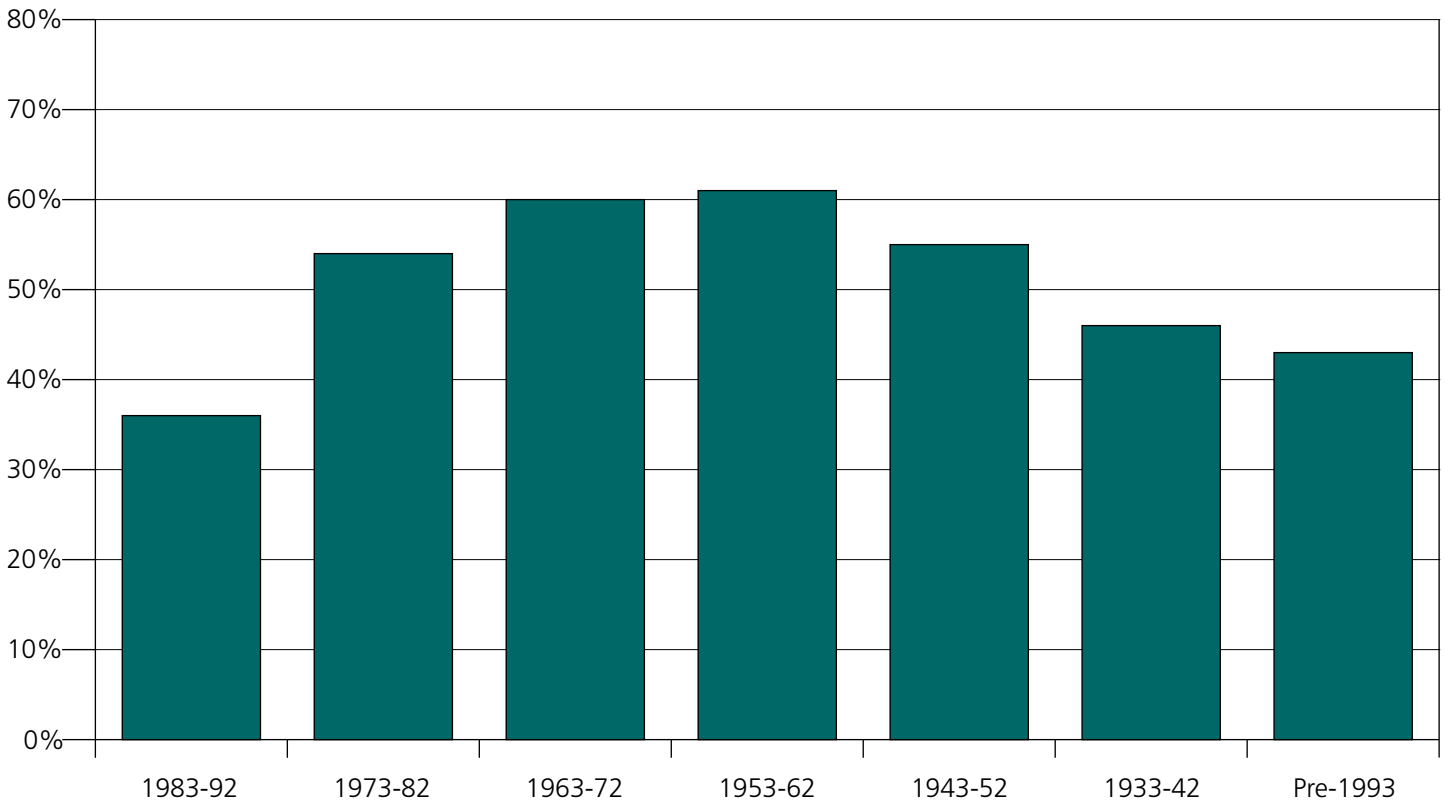
# 11. Attitudes and access to mental health treatment

Even after controlling for mental health symptoms, Baby Boomers are more likely to be using mental health treatments than other age cohorts.[89] Specifically, they are more likely to use counselling than people born before 1945, and more likely to be prescribed medication than those born after 1964.

In 2009, BSA included questions on attitudes to mental health treatment, which were asked of a probability sample of 3,000 adults in Britain.[90] Baby Boomers, and those born in two decades to follow (1963 to 1982), were the most likely to agree that they would know how to find a counsellor or therapist if they needed to (see Figure 7.19).

A high level of use of counsellors among baby boomers partly reflects their high rate of CMD. However, even after controlling for severity of mental illness, APMS data show that Baby Boomers are more likely than older generations to have had counselling or to have discussed their mental health with a GP in the last year. They are also more likely than the pre-war or younger generations to have taken antidepressants.[91]

**Figure 7.19 Proportion agreeing 'I would know how to find a counsellor or therapist if I need to', by year of birth**




**Source** *NatCen Social Research (British Social Attitudes: the 25th Report)*

# 12. References


1. McManus S, Meltzer H, Brugha T, Bebbington P, Jenkins R (eds) (2009). *Adult Psychiatric Morbidity in England 2007: results of a household survey*. NHS Information Centre.
2. Banks J, Nazroo J, Steptoe A (2014). *The dynamics of ageing: Evidence from the English Longitudinal Study of Ageing 2002–12 (Wave 6)*.
3. Park A, Curtice J, Thomson K, Phillips M, Clery E. (2009). *British Social Attitudes: the 25th Report*. London: Sage.
4. Demakakos P, Cooper R, Hamer M et al. The bidirectional association between depressive symptoms and gait speed: evidence from the English Longitudinal Study of Ageing (ELSA). *PLoS ONE* 2013; 8(7): e68632.
5. Spiers N, Bebbington P, McManus S et al. Age and birth cohort differences in the prevalence of common mental disorder in England: National Psychiatric Morbidity Surveys 1993-2007. *Br J Psychiatry* 2011; 198(6): 479–484.
6. Gunnell D, Dovovan J, Barnes M, Davies R, Hawton K, Kapur N, Hollingworth W, Metcalfe C (2015). *The 2008 Global Financial crisis: effects on mental health and suicide*. Policy Report 3. Bristol. www.bris.ac.uk/media-library/sites/policybristol/documents/PolicyReport-3-Suicide-recession.pdf.
7. Haw C, Hawton K, Gunnell D, Platt. Economic recession and suicidal behaviour: possible mechanisms and ameliorating factors. *International Journal of Social Psychiatry* 2015; 61: 73–81.
8. Kessler RC, Amminger GP, Aguilar-Gaxiola S et al. Age of onset of mental disorders: a review of recent literature. *Curr Opin Psychiatry* 2007; 20(4): 359–64.
9. McManus S et al (2009). *Adult Psychiatric Morbidity in England: a household survey*. Leeds: HSCIC.
10. Fahmy V, Hatch S, Hotopf M, Stewart R. Prevalences of illicit drug use in people aged 50 years and over from two surveys. *Age and Ageing* 2012; 4: 414.
11. Brugha T, McManus S, Bankart J et al. The epidemiology of autism spectrum disorders in adults in the community in England. *Archives of General Psychiatry* 2011; 68(5): 459–465.
12. Sham PC, MacLean CJ, Kendler KS. A typological model of schizophrenia based on age at onset, sex and familial morbidity. *Acta Psychiatr Scand* 1994; 89(2): 135–41.
13. PHE and UCL (2015). *Reducing social isolation across the life course* www.gov.uk/government/uploads/system/uploads/attachment_data/file/461120/3a_Social_isolation-Full-revised.pdf.
14. Meltzer H, Bebbington P, Dennis MS et al. Feelings of loneliness among adults with a mental disorder. *Soc Psychiatry Psychiatr Epidemiol* 2013; 48(1): 5–13.
15. Prince MJ, Harwood RH, Blizard RA et al. Social support deficits, loneliness and life events as risk factors for depression in old age. The Gospel Oak Project VI. *Psychological Medicine* 1997; 27: 323–332.
16. Smith L, Onwumere J, Craig T et al. Mental and physical illness in caregivers: results from an English national survey sample. *BJP* 2014; 205(3): 197–203.
17. Bebbington PE, Jonas S, Brugha T et al. Child sexual abuse reported by an English national sample: characteristics and demography. *Social Psychiatry and Psychiatric Epidemiology* 2011; 46: 255–262.
18. Jonas S, Bebbington PE, McManus S et al. Sexual abuse and psychiatric disorder in England: Results from the 2007 Adult Psychiatric Morbidity Survey. *Psychological Medicine* 2010; 10: 1–11.
19. Harris J et al. (2010). *Health, mental health and housing conditions in England*. London: Eaga and NatCen. www.natcen.ac.uk/media/23582/health-mental-health-housing.pdf.
20. Lewis G, Pelosi AJ, Araya R, Dunn G. Measuring psychiatric disorder in the community; a standardised assessment for use by lay interviewers. *Psychological Medicine* 1992; 22: 465–486.
21. Spiers N, Brugha TS, Bebbington P et al. Age and birth cohort differences in depression in repeated cross-sectional surveys in England: the National Psychiatric Morbidity Surveys, 1993 to 2007. *Psychol Med* 2012; 42(10): 2047–2055.
22. Spiers N, Bebbington P, McManus S et al. Age and birth cohort differences in the prevalence of common mental disorder in England: National Psychiatric Morbidity Surveys 1993-2007. *Br J Psychiatry* 2011; 198(6): 479–484.
23. Calem M, Bisla J, Begum A et al. Increased prevalence of insomnia and changes in hypnotics use in England over 15 years: analysis of the 1993, 2000 and 2007 National Psychiatric Morbidity Surveys. *Sleep* 2012; 35: 377–384.
24. Begum A, Dewey M, Hassiotis A et al. Subjective cognitive complaints across the adult life span: a 14-year analysis of trends and associations using the 1993, 2000 and 2007 English Psychiatric Morbidity Surveys. *Psychological Medicine* 2014; 44: 1977–1987.
25. Cooper C, Bebbington P, Lindesay J et al. The meaning of reporting forgetfulness – a cross-sectional study of adults in the English 2007 Adult Psychiatric Morbidity Survey. *Age and Ageing* 2011; 9.
26. Begum A, Tsopelas C, Lindesay J, Stewart R. Cognitive function and common mental disorders in older people with vascular and non-vascular disorders. A national survey. *International Journal of Geriatric Psychiatry* 2009; 7: 701–708.

27. Kessler RC, Amminger GP, Aguilar-Gaxiola S et al. Age of onset of mental disorders: a review of recent literature. *Curr Opin Psychiatry* 2007; 20(4): 359–364.
28. Brewin CR, Rose S, Andrews B et al. Brief screening instrument for post-traumatic stress disorder. *British Journal of Psychiatry* 2002; 181: 158–162.
29. McBride O, McManus S, Palmer B, Brugha T. Profiling disordered eating patterns and body mass index (BMI) in the English general population. *Social Psychiatry and Psychiatric Epidemiology* 2013; 48(5).
30. Morgan J, Reid F and Lacey JH. The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ* 1999; 319(7223): 1467–1468.
31. Sham PC, MacLean CJ, Kendler KS. A typological model of schizophrenia based on age at onset, sex and familial morbidity. *Acta Psychiatr Scand* 1994; 89(2): 135–41.
32. Patel R, Jayatilleke N, Broadbent M et al. Negative symptoms in schizophrenia: a study in a large clinical sample of patients using a novel automated method. *BMJ Open* 2015; 5: e007619.
33. Hoang U, Stewart R, Goldacre MJ. Mortality after hospital discharge for people with schizophrenia or bipolar disorder: retrospective study of linked English hospital episode statistics, 1999–2006. *BMJ* 2011; 343.
34. Osborn DPJ, Levy G, Nazareth I et al. Relative risk of cardiovascular and cancer mortality in people with severe mental illness from the United Kingdom's General Practice Research Database. *Arch Gen Psychiatry* 2007; 64: 242–249.
35. Woodhead C, Ashworth M, Broadbent M et al. Cardiovascular disease treatment among severe mental illness patients: a data linkage study. / Hotopf, Matthew Hugo; Woodhead, Charlotte; Ashworth, Mark; Broadbent, Matthew; Callard, Felicity Jane; Schofield, Peter; Soncul, Murat; Stewart, Robert James; Henderson, Max. *British Journal of General Practice*, 26.01.2016, p. 1-16.
36. Chang C-K, Hayes RD, Broadbent MTM et al. A cohort study on mental disorders, stage of cancer at diagnosis and subsequent survival. *BMJ Open* 2014; 4: e004295.
37. Wu S-I, Chen S-C, Juang JJM et al. Association between schizophrenia and bipolar disorder with diagnostic procedures, revascularization, and inpatient mortality following acute myocardial infarction. *Psychosomatic Medicine* 2013; 75: 52–59.
38. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA Psychiatry* 2015; 72(4): 334–341.
39. Baron-Cohen S, Wheelwright S, Skinner R et al. The autism-spectrum quotient (AQ): evidence from Asperger syndrome/high-functioning autism, males and females, scientists and mathematicians. *J Autism Dev Disord* 2001; 31(1): 5–17.
40. Lord C, Risi S, Lambrecht L et al. The autism diagnostic observation schedule-generic: a standard measure of social and communication deficits associated with the spectrum of autism. *Journal of Autism and Developmental Disorders* 2002; 30: 205–223.
41. Brugha TS, McManus S, Smith J et al. Validating two survey methods for identifying cases of autism spectrum disorder among adults in the community. *Psychological Medicine* 2011; 29: 1–10.
42. Brugha T, McManus S, Bankart J et al. The epidemiology of autism spectrum disorders in adults in the community in England. *Archives of General Psychiatry* 2011; 68(5): 459–465.
43. National Audit Office (2009). *Supporting People with Autism through Adulthood*. London: NAO.
44. Asherson P. Clinical assessment and treatment of attention deficit hyperactivity disorder in adults. *Expert Review Neurotherapeutics* 2005; 5: 4.
45. Fayyad J, de Graaf R, Kessler R et al. Cross-national prevalence and correlates of adult attention-deficit hyperactivity disorder. *British Journal of Psychiatry* 2007; 190: 402–409.
46. van de Glind G, Konstenius M, Koeter MW et al. Variability in the prevalence of adult ADHD in treatment seeking substance use disorder patients: results from an international multi-center study exploring DSM-IV and DSM-5 criteria. *Drug and Alcohol Dependence* 2014; 134: 158–66.
47. Young S, Moss D, Sedgwick O et al. A meta-analysis of the prevalence of attention deficit hyperactivity disorder in incarcerated populations. *Psychological Medicine* 2015; 45(2): 247–258.
48. McManus et al, 2009
49. Chang Z, Lichtenstein P, D'Onofrio BM et al. Serious transport accidents in adults with attention-deficit/hyperactivity disorder and the effect of medication: a population-based study. *JAMA Psychiatry* 2014; 71(3): 319–25.
50. Dalsgaard S, Ostergaard SD, Leckman JF et al. Mortality in children, adolescents, and adults with attention deficit hyperactivity disorder: a nationwide cohort study. *Lancet* 2015; 385(9983): 2190–2196.
51. Royal College of Psychiatrists (2015). *Substance misuse in older people: an information guide*. www.rcpsych.ac.uk/pdf/Substance%20misuse%20in%20Older%20People_an%20information%20guide.pdf.
52. Saunders JB, Aasland OG, Babor TF et al. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption, part II. *Addiction* 1993; 88: 791–804.
53. Fahmy V, Hatch S, Hotopf M, Stewart R. Prevalences of illicit drug use in people aged 50 years and over from two surveys. *Age and Ageing* 2012; 4: 414.

54. Haw C and Hawton K. Suicide is a complex behaviour in which mental disorder usually plays a central role. *Australian & New Zealand Journal of Psychiatry* 2014; 49(1): 13–15.
55. ONS (2015). Suicides in the United Kingdom, 2013 Registrations. http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/dcp171778_395145.pdf.
56. ONS (2015). Suicides in the United Kingdom, 2013 Registrations. http://www.ons.gov.uk/ons/dcp171778_395145.pdf.
57. Spiers N, Bebbington PE, Dennis MS et al. Trends in suicidal ideation in England: the National Psychiatric Morbidity Surveys of 2000 and 2007. *Psychol Med* 2014; 44(1): 175–183.
58. Cooper C, Rentall K, Blanchard M et al. Why are suicidal thoughts less prevalent in older age groups? Age differences in the correlates of suicidal thoughts in the English Adult Psychiatric Morbidity Survey 2007. *Journal of Affective Disorders* 2015; 177: 42–48.
59. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA Psychiatry* 2015; 72(4): 334–341.
60. Chang C-K, Hayes R, Broadbent M et al. All-cause mortality among people with serious mental illness (SMI), substance use disorders and depressive disorders in southeast London: a cohort study. *BMC Psychiatry* 2010; 10: 77.
61. Chang C-K, Hayes RD, Perera G et al. Life expectancy at birth for people with serious mental illness, substance use disorders, and depressive disorders from a secondary mental health care case register in London, UK. *PLOS One* 2011; 6(5): e19590.
62. Insel T (2014) *Director's Blog: Mortality and Mental Disorders*. The National Institute of Mental Health. http://www.nimh.nih.gov/about/director/2015/mortality-and-mental-disorders.shtml#2.
63. Sousa R. *Disablement and Common Mental Disorders among Adults in Great Britain – a secondary analysis of the 2000 ONS Survey in Great Britain*. MSc dissertation (2005).
64. Steptoe A, Demakakos P, Oliveira C. *The Psychological Well-Being, Health and Functioning of Older People in England in The Dynamics of Ageing: Evidence from the English Longitudinal Study of Ageing 2002-10 (Wave 5).* http://www.elsa-project.ac.uk/reportWave5.
65. Mykletun A, Bjerkesset O, Dewey M et al. Anxiety, depression and cause-specific mortality. *Psychosomatic Medicine* 2007; 69: 323–331.
66. Mykletun A, Bjerkesset O, Overland S et al. Levels of anxiety and depression as predictors of mortality: The HUNT study. *British Journal of Psychiatry* 2009; 195: 118–25.
67. Mykletun A, Overland S, Aarø LE et al. Smoking in relation to anxiety and depression. Evidence from a large population survey: the HUNT-Study. *European Psychiatry* 2008; 23: 77–84.
68. Launer LJ, Ross GW, Petrovitch H et al. Midlife blood pressure and dementia: the Honolulu-Asia aging study. *Neurobiol Aging* 2000; 21: 49–55.
69. Skoog I, Lernfelt B, Landahl S et al. 15-year longitudinal study of blood pressure and dementia. *Lancet* 1996; 347: 1141–1145.
70. Biessels GJ, Staekenborg S, Brunner E et al. Risk of dementia in diabetes mellitus: a systematic review. *Lancet Neurology* 2006; 5: 64–74.
71. Whitmer RA, Gustafson DR, Barrett-Connor E et al. Central obesity and increased risk of dementia more than three decades later. *Neurology* 2008; 71: 1057–1064.
72. Notkola I-L, Sulkava R, Pekkanen J et al. Serum total cholesterol, apolipoprotein E 4 allele, and Alzheimer's disease. *Neuroepidemiol* 1998; 17: 14–20.
73. Rönnemaa E, Zethelius B, Lannfelt L, Kilander L. Vascular risk factors and dementia: 40-year follow-up of a population-based cohort. *Dementia Geriatr Cog Dis* 2011; 31: 460–466.
74. Johansson L, Guo X, Hällström T et al. Common psychosocial stressors in middle-aged women related to longstanding distress and increased risk of Alzheimer's disease: a 38-year longitudinal population study. *BMJ Open* 2013; 3: e003142.
75. Johansson L, Guo X, Waern M et al. Midlife psychological stress and risk of dementia: a 35-year longitudinal population study. *Brain* 2010; 133: 2217–2224.
76. PHE and UCL (2015) *Reducing social isolation across the life course.* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/461120/3a_Social_isolation-Full-revised.pdf.
77. Cooper C, Bebbington P, King M et al. Happiness across age groups: results from the 2007 National Psychiatric Morbidity Survey. *International Journal of Geriatric Psychiatry* 2010; 6: 608–614.
78. Public Health England (2014). *Public Health Outcomes Framework. Secondary Public Health Outcomes Framework 2014*. London: Public Health England. http://www.phoutcomes.info/.
79. Public Health England (2014). *Adult and Social Care Outcomes Framework*. London:Public Health England.
80. Chanfreau J, Lloyd C, Byron C et al. (2010) *Predicting wellbeing*. London: NatCen. http://www.natcen.ac.uk/media/205352/predictors-of-wellbeing.pdf.
81. PHE and UCL (2015) *Reducing social isolation across the life course.* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/461120/3a_Social_isolation-Full-revised.pdf.

82. Meltzer H, Bebbington P, Dennis MS et al. Feelings of loneliness among adults with a mental disorder. *Soc Psychiatry Psychiatr Epidemiol* 2013; 48(1): 5–13.
83. Smith L, Onwumere J, Craig T et al. Mental and physical illness in caregivers: results from an English national survey sample. *BJP* 2014; 205(3): 197–203.
84. Bebbington PE, Jonas S, Brugha T et al. Child sexual abuse reported by an English national sample: characteristics and demography. *Social Psychiatry and Psychiatric Epidemiology* 2011; 46: 255–262.
85. Jonas S, Bebbington PE, McManus S et al. Sexual abuse and psychiatric disorder in England: results from the 2007 Adult Psychiatric Morbidity Survey. *Psychological Medicine* 2010; 10: 1–11.
86. Bebbington P, Jonas S, Kuipers E et al. Child sexual abuse and psychosis: data from an English National Psychiatric Survey. *British Journal of Psychiatry* 2011; 199: 29–37.
87. Jonas S, Khalifeh H, Bebbington PE et al. Gender differences in intimate partner violence and psychiatric disorders in England: results from the 2007 adult psychiatric morbidity survey. *Epidemiology and Psychiatric Sciences* 2014; 23(2): 189–199.
88. Harris J, Hall J, Meltzer H, Jenkins R, Oreszczyn T and McManus S (2010) *Health, mental health and housing conditions in England*. London: NatCen. http://www.natcen.ac.uk/media/23582/health-mental-health-housing.pdf.
89. Cooper C, Bebbington P, McManus S et al. The treatment of common mental disorders across age groups: results from the 2007 Adult Psychiatric Morbidity Survey. *J Affect Disord* 2010; 127(1–3): 96–101.
90. Anderson S, Brownlie J, Given L. 'Therapy culture? Attitudes towards emotional support in Britain' in Park A, Curtice J, Thomson K, Phillips M, Clery E (2009). *British Social Attitudes: the 25th Report*. London: Sage.
91. Cooper C, Bebbington P, McManus S et al. The treatment of common mental disorders across age groups: results from the 2007 Adult Psychiatric Morbidity Survey. *J Affect Disord* 2010; 127(1–3): 96–101.

Chapter 8

# Sexual health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# Sexual health of older adults in England

## SEXUAL ATTITUDES AND ACTIVITIES IN ENGLAND, MEN AND WOMEN AGED 50-70 YEARS (2012)

## Attitudes

**Self-report as thinking about sex (twice a month or more)**

| MEN | WOMEN |
|---|---|
| 91% | 61% |

**Agree that satisfactory sexual relations are important**

| MEN | WOMEN |
|---|---|
| 71% | 62% |

**Agree that sexual activity is physically/mentally beneficial**

| MEN | WOMEN |
|---|---|
| 72% | 59% |

**Agree that sexual changes that occur with age are not important**

| MEN | WOMEN |
|---|---|
| 27% | 26% |

## Activities*

**Intercourse (twice a month or more)**

| MEN | WOMEN |
|---|---|
| 54% | 54% |

**Kissing/Petting (twice a month or more)**

| MEN | WOMEN |
|---|---|
| 66% | 70% |

**Masturbation (twice a month or more)**

| MEN | WOMEN |
|---|---|
| 48% | 17% |

*Reported by those who said they engaged in any sexual activity in the past 12 months. Source: English Longitudinal Study of Ageing (ELSA) 2012

# 1. Overview

An increasing amount of academic research over the last two decades has focused on later-life sexual health and lifestyles. Among those aged 50–70 years, over two-thirds report at least one sexual partner in the past year.[1] However, society's prevailing view still considers that older people are not particularly sexually active or interested in intimate sexual relationships.[2, 3] The need for sexual health messages aimed specifically at older men and women was exemplified in the Department of Health Framework for Sexual Health Improvement in England (2013). The Framework notes that there is a small, but increasing, incidence of sexually transmitted infections (STIs) in people over 50, suggesting that better communication is needed to inform older people of the sexual health risks that they face.

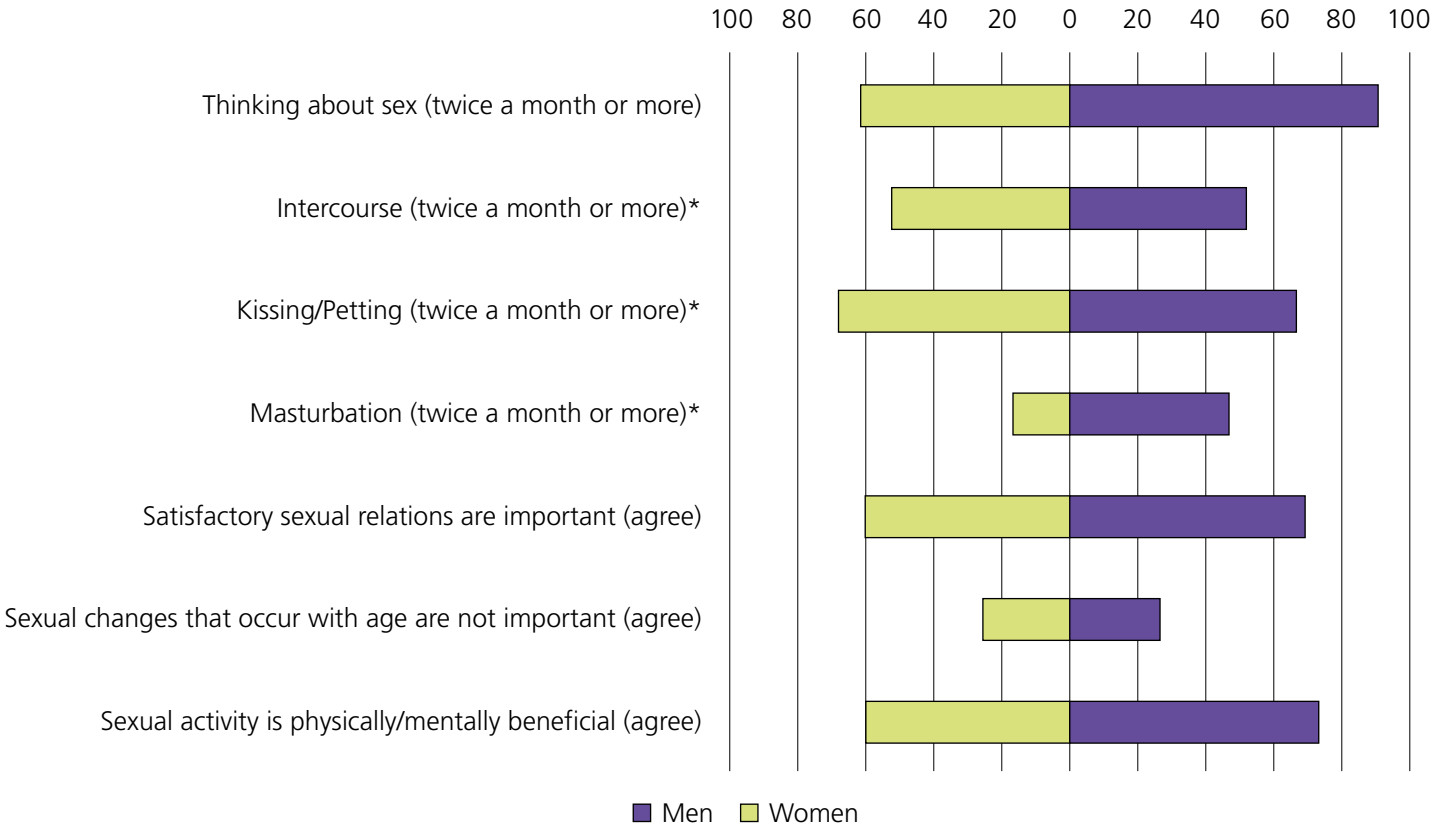
This chapter presents data from Public Health England utilising the Chlamydia Testing Activity Dataset (CTAD) and Genitourinary Medicine Clinic Activity Dataset v2 (GUMCADv2)[4] to provide an indication of STI diagnosis rates between 2010 and 2014 for adults aged 50–70 years in England. Data are also presented from the third British National Survey of Sexual Attitudes and Lifestyles 2010–12 (Natsal-3)[5] detailing number of recent sexual partnerships, condom use with recent partners and condom use at first sex with a new partner; and from wave 6 (2012) of the English Longitudinal Study of Ageing (ELSA)[6] summarising sexual activities and sexual problems in the 50–70 age group.

Population rates for new STI diagnoses and prevalence data for HIV diagnoses published by Public Health England are typically presented for men and women aged 15–59 years because the data show that people aged 16–24 experience by far the highest rates of STIs. However, diagnoses have risen by more than a third in the 50–70 age group over the last decade, although the absolute number of infections is small and STIs in the over-50s accounted for less than 5% of all STIs diagnosed in genitourinary medicine (GUM) clinics in 2014. These data may underestimate the true extent of the problem, as older people may either be unwilling to seek treatment or seek treatment options elsewhere to avoid the stigma of attending GUM clinics.

Changing social and behavioural patterns may have contributed to the relative increase in STIs seen among people over 50. Rising divorce rates among the over-40s[7] mean that more older people may find themselves re-partnering and potentially having sex with new partners.

It is possible that women, particularly post-menopause, do not use condoms because they equate condom use with preventing unwanted pregnancy rather than prevention of STIs.[8] Similarly, men over 50 who may have had a vasectomy in their 30s or 40s may not consider using condoms with a new sexual partner. This is an area identified as problematic and requiring further research.[9]

**Figure 8.1 Sexual activities and attitudes in England, men and women aged 50–70 years**




* among those who reported any sexual activity in the past 12 months

**Source** *ELSA 2012*

Previous studies have shown that many people over the age of 50 are sexually active,[10-12] but until recently there have been few population-based surveys in the UK that have comprehensively covered this age range.[6, 13] Data from ELSA have shown that both the frequency of sexual activity and the prevalence of sexual problems exhibit a clear inverse association with increasing age in both men and women. The presence of common chronic conditions, such as hypertension and diabetes, are particularly associated with sexual problems among men, with twice as many men with erectile dysfunction having two or more long-term conditions (41%) compared with men without erectile dysfunction (20%).

Subjective wellbeing has increasingly become a focus of debate, with questions on happiness and life satisfaction having been included in routine population surveys[14] and evidence suggesting that positive wellbeing is relevant to health as people age.[15] The impact of good sexual health on quality of life and subjective wellbeing is an emerging area of research. Of ELSA respondents aged 50–70, concerns about sexual desire and function, and a reduced ability to achieve orgasm, were associated with lower quality of life and subjective wellbeing scores in men but not women. That functional sexual problems are more strongly associated with subjective wellbeing among men may have implications for the management of individual sexual healthcare within the context of an intimate partnership. Continued improvement in the quantity, regularity and quality of data describing the variety of sexual activities, problems and concerns among men and women aged 50 and over in England would help to inform future sexual health service provision and aid further research in this area.

# 2. Sexually transmitted infections in context

In England, recent trends in and the epidemiology of STIs are described using data from GUM clinics, including integrated GUM and sexual and reproductive health (SRH) services; and for chlamydia, data from other primary care and community services.[4]

The epidemiology of STIs is complex and is driven by a variety of factors, including behaviour, service delivery, and clinical and public health interventions. The prevalence of STIs is greatest in young adults aged between 15 and 24 years old, after which point STI rates tend to decline with increasing age such that STIs in older people represent a small fraction of the overall population burden (Figure 8.2). Generally, the age distribution of STIs is attributed to lower levels of sexual activity and fewer numbers of partners, including lower rates of partner change, in older adults compared with young adults, and is perpetuated by low prevalence of STIs in partners even where condomless sex occurs.[16]

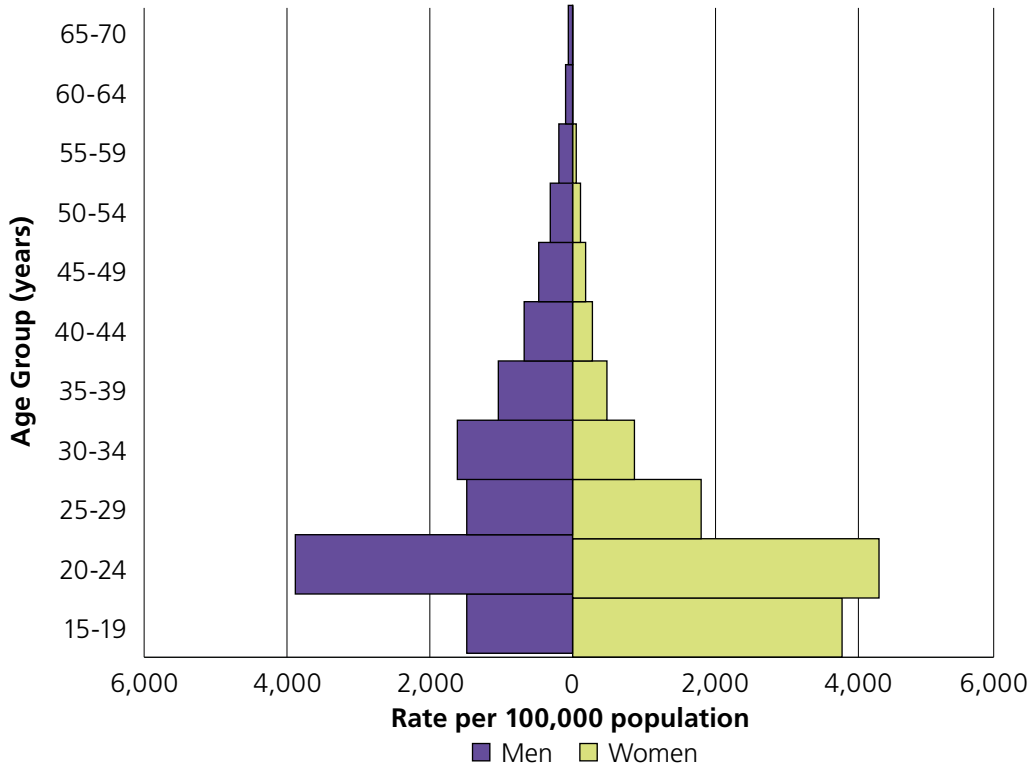
During 2010–14, sexual health service use has increased across all age groups. As a result, the number of STI screens undertaken in GUM services has also increased. In 2014, 7% of all attendances at GUM services were among 50–70-year-olds. This proportion has not changed since 2010. In 2014, 5% of all sexual health screens undertaken were in 50–70-year-olds, compared with 4% in 2010. 34% of attendances and 36% of screens undertaken at GUM services are among those aged 25–34 years.

Of the 79,428 50–70-year-olds attending a GUM service in 2014 who were eligible to be tested for HIV,[i] 68% were tested, which was similar to the equivalent figure of 69% for all age groups across England. In 50–70-year-olds, a higher proportion of men-who-have-sex-with-men (MSM) (83%) were tested compared with heterosexual men (72%) and women (59%), again similar to the overall pattern observed across all age groups. HIV test coverage in 50–70-year-olds increased from 63% in 2010 to 68% in 2014. The increase was particularly marked in MSM (74% in 2010 to 83% in 2014). This was consistent with increased testing in MSM of all ages in England.

Messages around 'safer sex' and avoiding transmission of STIs have focused on younger people, and while this remains the highest-risk group, it is the opinion of the author of this chapter that a perhaps unintended consequence of this is to perpetuate the impression that these messages are of little relevance to older people. Ultimately, promotion of 'safer sex' and sexual health more broadly should target all sexually active people.

i Eligibility for HIV testing is determined by reviewing previous HIV diagnosis and testing history for each patient. Those who are known to be HIV positive, based on their GUMCADv2 history, or for whom an HIV test was not appropriate, are not considered eligible for testing. Those who have been tested already are not considered eligible to be tested again until six weeks have passed (ie eligibility for testing occurs only once every six weeks).

**Figure 8.2 Rates of new STI diagnoses in England by gender and age group, 2014**




**Source** *Genitourinary Medicine Clinic Activity Dataset (GUMCADv2) and Chlamydia Testing Activity Dataset (CTAD), Public Health England*

# 3. Trends in STI diagnoses

In 2014, the total number of new STI diagnoses made in England was 439,243, of which 15,726 (4%) were diagnosed in 50–70-year-olds. The most commonly diagnosed STIs among 50–70-year-olds were anogenital warts (2,901; 19%), chlamydia (2,869; 18%), anogenital herpes (2,284; 15%) and gonorrhoea (1,591; 10%). Diagnoses of non-specific genital infection[ii] were also an important cause of new STI diagnoses among this age group (2,882; 18%).

From 2010 to 2014, there was an overall increase of 38% in new STI diagnoses among 50–70-year-olds (from 11,366 in 2010 to 15,726 in 2014) and a 7% increase from 2013 to 2014 (14,715 in 2013 to 15,726 in 2014). In GUM settings, the greatest increase in new STI diagnoses in 50–70-year-olds occurred in MSM (112%; from 1,868 in 2010 to 3,962 in 2014). STI diagnosis rates for each of the five main STIs (anogenital herpes (first episode), anogenital warts (first episode), chlamydia, gonorrhoea and syphilis) have increased over time (Figure 8.3), with diagnosis rates higher among men than women for all STIs except for anogenital herpes. More STI testing, including the routine use of more sensitive tests and testing at extra-genital sites in MSM, as well as ongoing unsafe sexual behaviour have probably contributed to the rise seen.

The epidemiology of chlamydia in 50–70-year-olds differs to that seen overall for all age groups in England, where chlamydia diagnoses account for approximately half of all new STI diagnoses made. This is due to targeted testing of 15–24-year-olds through the National Chlamydia Screening Programme (NCSP), which leads to higher numbers of diagnoses, and because underlying prevalence is much higher in young adults.[16, 17] In 2014, chlamydia diagnosis rates in 50–70-year-olds were approximately three times higher among men than women because 45% of all chlamydia diagnoses made in GUM services were among MSM. By comparison, in 15–24-year-olds, rates[iii] were higher for women compared with men, and heterosexual men and women accounted for over 90% of chlamydia diagnoses in GUM services. Overall, we observe that the proportion of diagnoses attributable to MSM increases with age, explaining the higher diagnosis rates observed in men compared with women in 50–70-year-olds compared with 15–24-year-olds.

During 2010–2014, England observed a steep increase in gonorrhoea and syphilis diagnostic rates in men. The rise was primarily driven by the rapid increase in diagnoses among MSM, which was observed across all age groups. Increased STI testing, including routine use of sensitive molecular techniques to test MSM at extra-genital sites, may partly explain these increases. However, more condomless sex and the use of social apps to meet partners may have played a role by facilitating transmission of STIs among concentrated sexual networks with high partner numbers.[18, 19] 65% (1,027/1,591) of all gonorrhoea diagnoses and 80% (416/519) of all syphilis diagnoses reported in 2014 among 50–70-year-olds were in MSM. By comparison, the proportions of all gonorrhoea and syphilis diagnoses that were in MSM among people of all ages were 52% and 81% respectively. The rise in gonorrhoea diagnoses is of particular concern due to the emergence of infections that are resistant to antimicrobial treatment.[20] Untreated infection increases the risk of complications as well as the potential for onward transmission.

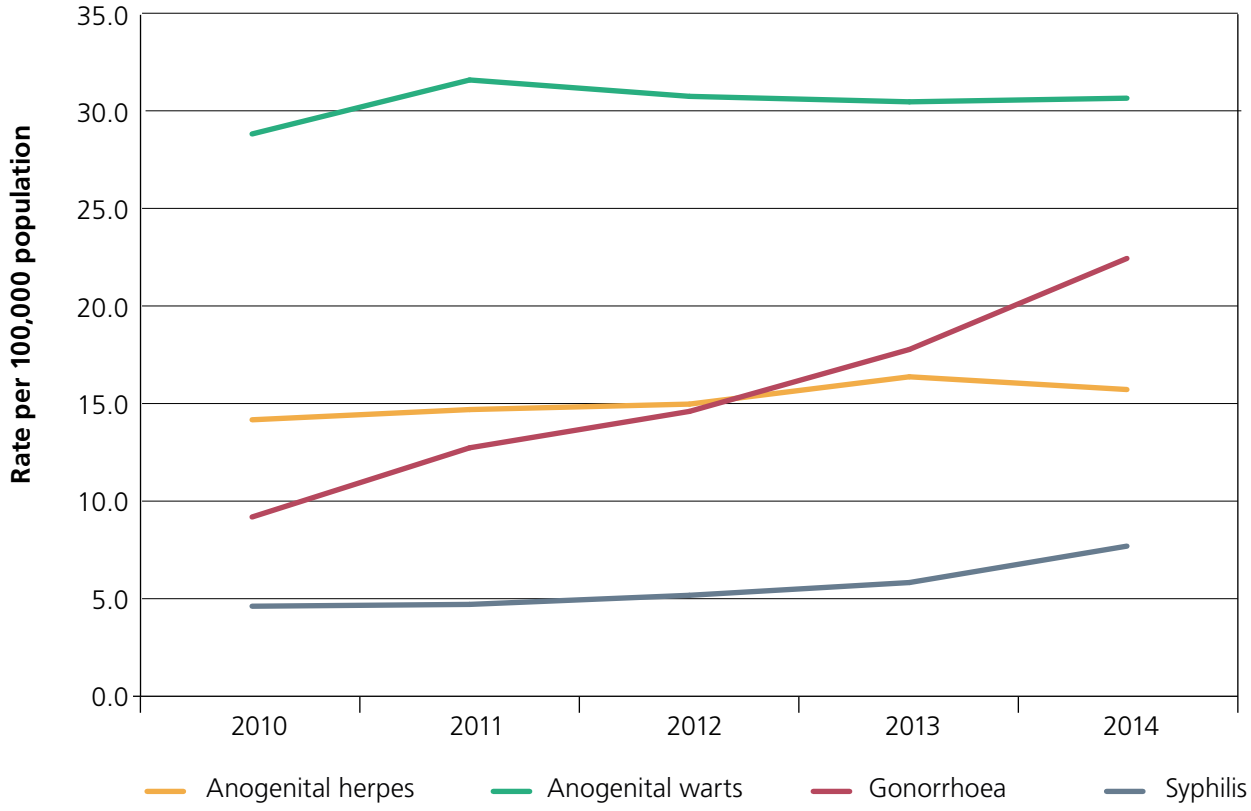
In 50–70-year-olds, anogenital herpes (first episode) diagnosis rates were higher among women than men. This gender distribution was observed across all age groups in England. However, the proportion of diagnoses in women is lower at older age such that in 2014 women accounted for 56% of anogenital herpes diagnoses in 50–70-year-olds compared with 72% in 15–24-year-olds. Although diagnostic rates were highest in those aged 15–24 years, the duration of anogenital herpes infection can be lifelong and so the prevalence of infection tends to increase with age, resulting in recurrent episodes and the risk of onward transmission.[21] In 2014, recurrent episodes of anogenital herpes accounted for 59% of all diagnoses of anogenital herpes (first and recurrent) in 50–70-year-olds. By comparison, 32% of all diagnoses of anogenital herpes in 15–24-year-olds were recurrent, in keeping with the observation that the initial infection tends to occur at an earlier stage in life but recurrences may persist into later life.

In 50–70-year-olds, diagnostic rates for anogenital warts were higher in men than women, and there has been little change over time. In 2014, 68% of diagnoses in 50–70-year-olds were in men compared with 48% in 15–24-year-olds. Heterosexual men and women accounted for 57% and 31% of diagnoses respectively. The proportion of infections attributed to heterosexual men increased with age while the proportion attributed to heterosexual women decreased with age. Recurrent episodes of anogenital warts accounted for 57% of all anogenital wart diagnoses (first and recurrent episodes), slightly higher than the proportion observed overall for England (47%).

ii Includes all cases of non-specific (ie non-gonococcal/non-chlamydial) urethritis in men or mucopurulent cervicitis in women.

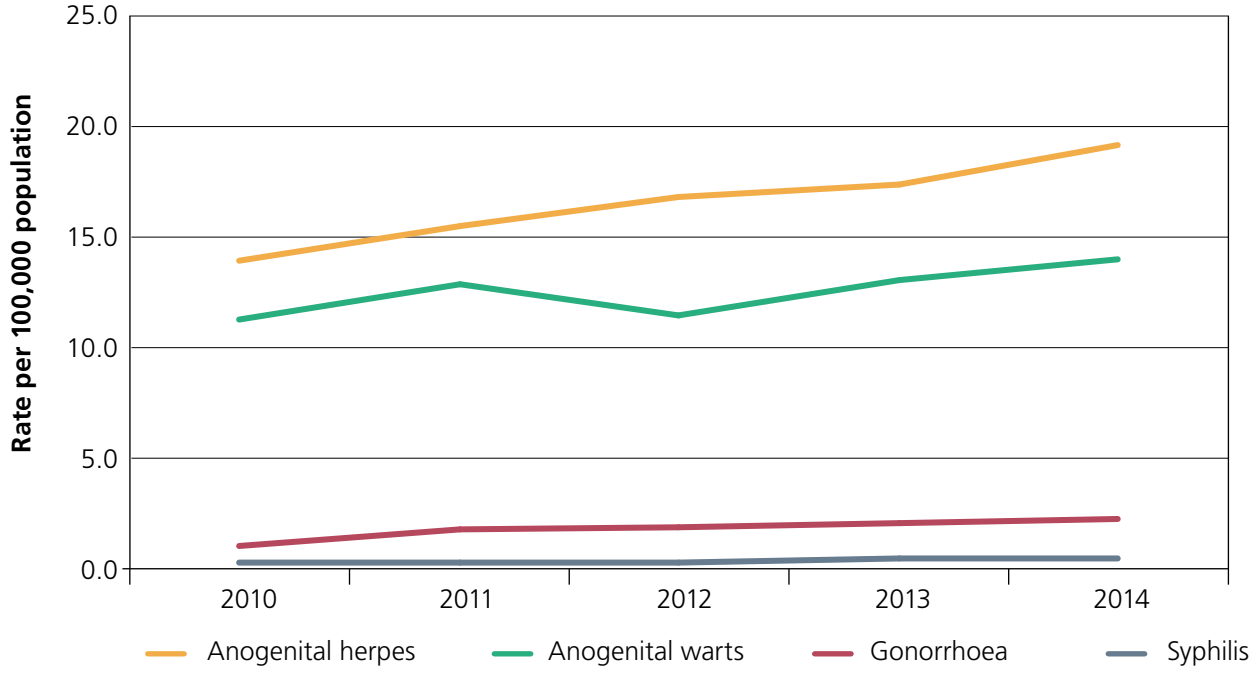
iii In the Public Health Outcomes Framework, the chlamydia diagnosis rate for 15–24-year-olds is referred to as the detection rate. Diagnostic rate is used here for consistency.

**Figure 8.3a Rates of selected sexually transmitted infection (STI) diagnoses among men aged 50–70 years, England, 2010–14**



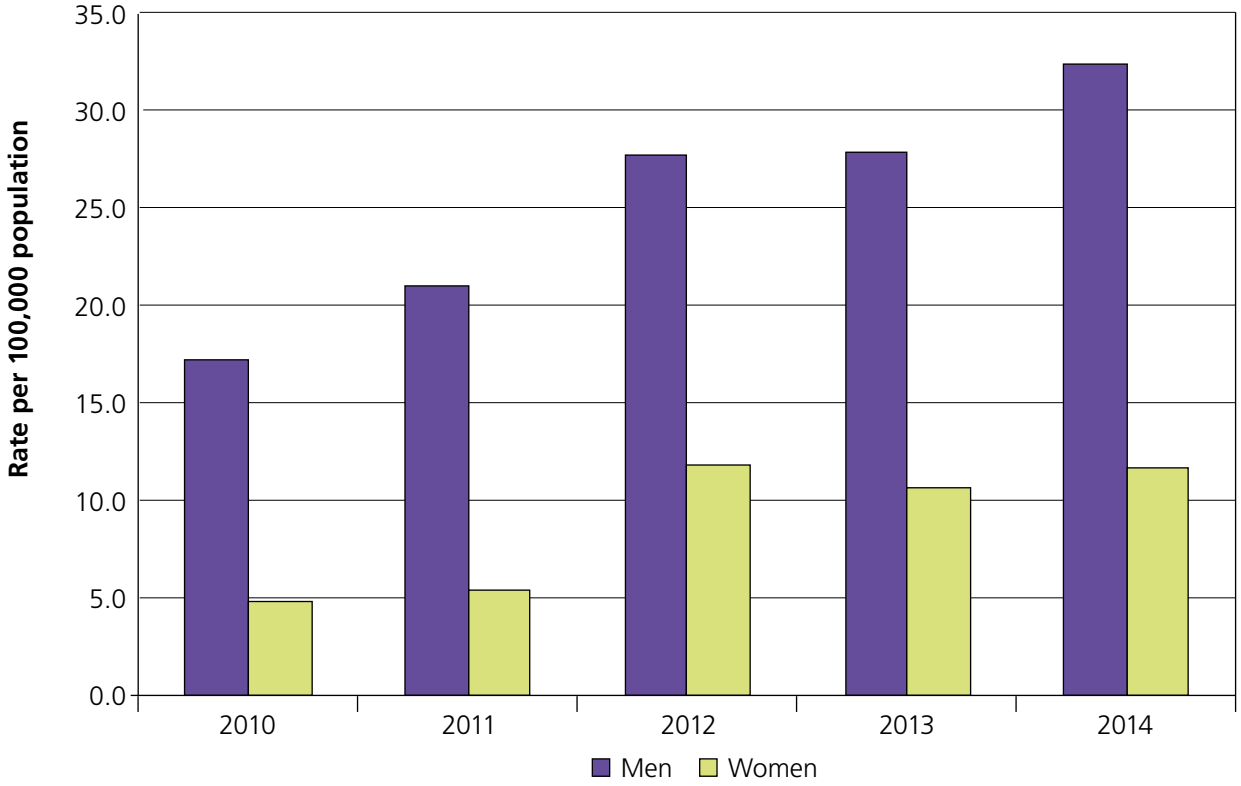

**Source** *Genitourinary Medicine Clinic Activity Dataset (GUMCADv2), Public Health England*

**Figure 8.3b Rates of selected sexually transmitted infection (STI) diagnoses among women aged 50–70 years, England, 2010–14**




**Source** *Genitourinary Medicine Clinic Activity Dataset (GUMCADv2), Public Health England*

**Figure 8.3c Rates of chlamydia diagnoses among 50–70-year-olds by gender, England, 2010–14**



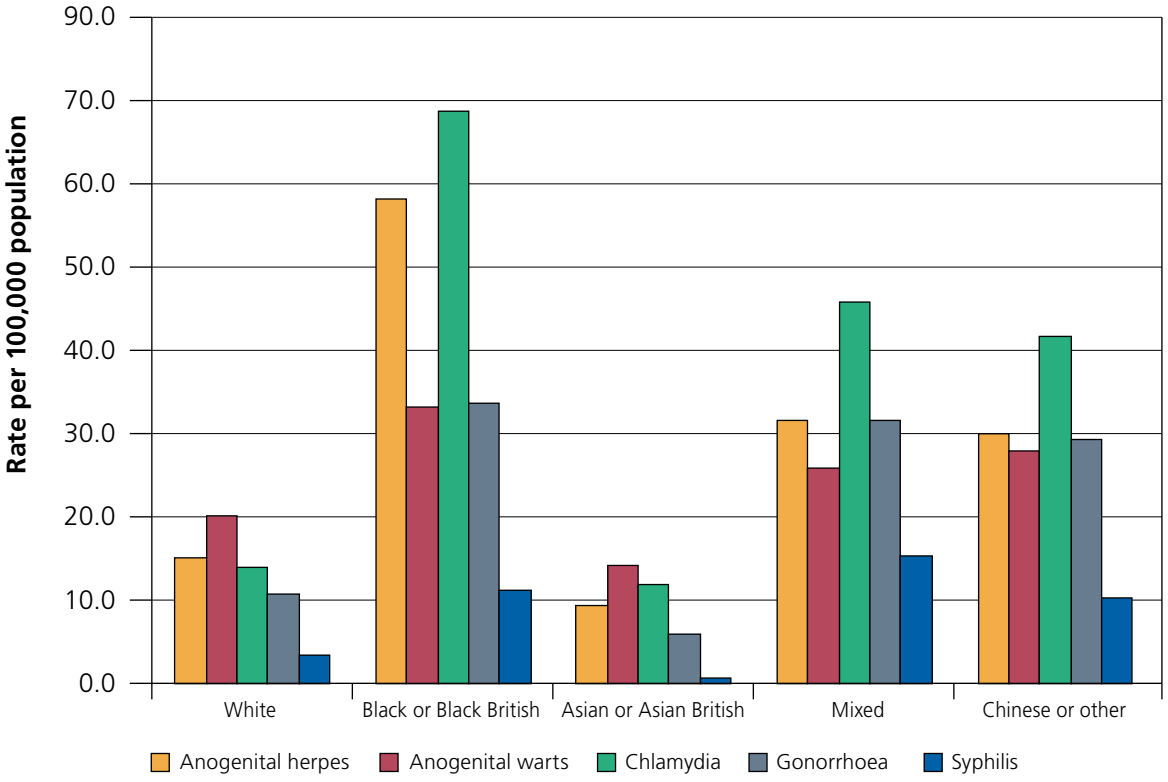

**Source** *Genitourinary Medicine Clinic Activity Dataset (GUMCADv2) and Chlamydia Testing Activity Dataset (CTAD), Public Health England*

# 4. STI diagnoses by ethnicity and deprivation

For each of the five main STIs, while the absolute number of diagnoses among 50–70-year-olds was highest among those of white ethnicity, rates of STIs were highest among those of black or black British ethnicity, except for syphilis. Those of Asian or Asian British ethnicity had the lowest rates of STI diagnoses in 2014 (Figure 8.4). This is in keeping with the trends in distribution of STIs across all age groups in England. This is likely to be due to a combination of factors, including individual behaviour and patterns of assortative and disassortive sexual mixing (when sexual partnerships occur between people with the same or different risk for STIs). Partner numbers and reporting of concurrent sexual partners vary by ethnic group. Other factors such as socio-economic deprivation, health-seeking behaviour and the cultural environment will also play a role in influencing STI rates by ethnicity.[22]

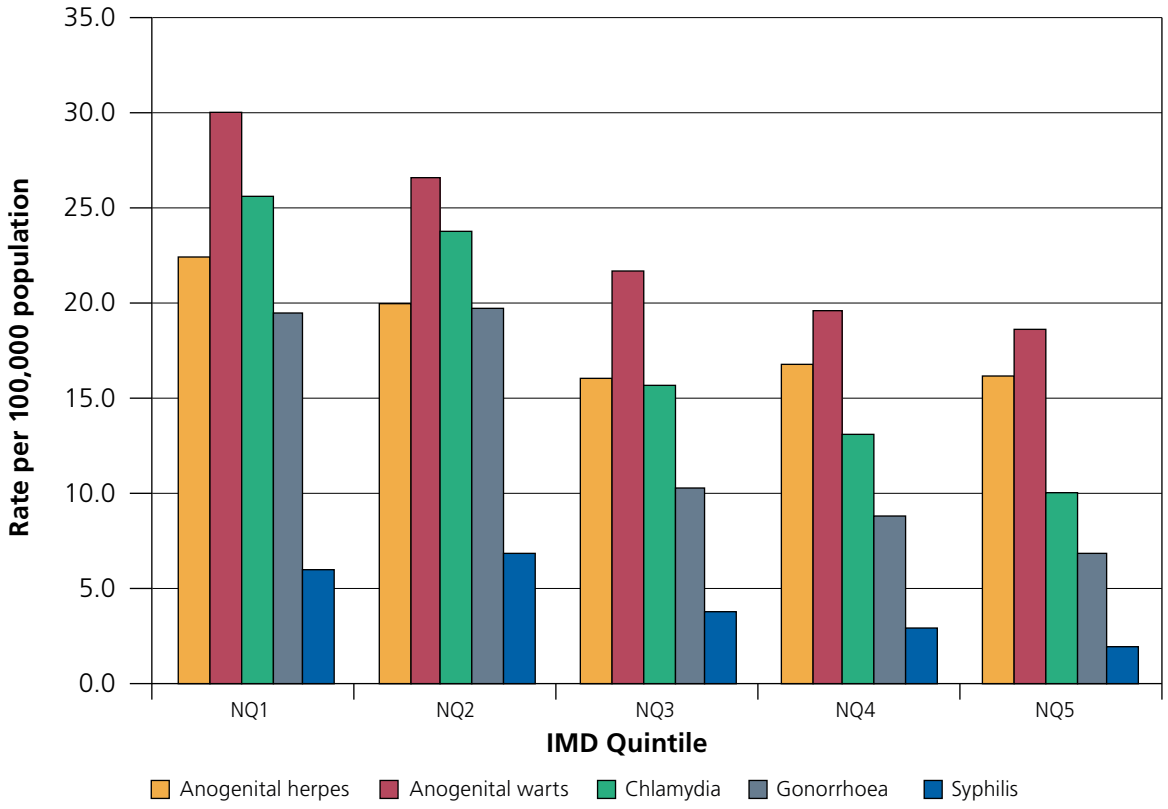
In 50–70-year-olds, individuals living in the most deprived areas of England experience the highest rates of STIs (Figure 8.5). This relationship between STI rates and deprivation is also observed across all age groups in England. Inner-city urban areas including London, Brighton, Birmingham and Manchester experience the highest rates of STIs and this pattern is similar to the pattern of area-level deprivation in England.[23]

**Figure 8.4 STI diagnosis rates by ethnicity among 50–70 year-olds, England, 2014**




**Source** *Genitourinary Medicine Clinic Activity Dataset (GUMCADv2)*

**Figure 8.5 STI diagnosis rates by deprivation among 50–70 year-olds, England, 2014**




**Source** *Genitourinary Medicine Clinic Activity Dataset (GUMCADv2), Public Health England*

# 5. New HIV diagnoses

HIV data are compiled from laboratory and clinician reports of patients with newly diagnosed HIV infection.[24] In 2014, there were 901 new diagnoses of HIV in 50–70-year-olds, accounting for 16% (901/5,559) of all new HIV diagnoses in England. This proportion has generally increased on a yearly basis since 2005 when 9% (626/7,366) of new HIV diagnoses were in 50–70-year-olds. Therefore, diagnoses among older age-groups are increasing in both number and proportion. However, the majority of new HIV diagnoses (59%) overall in England were among people aged 25–44 years.[25] In 2014, nearly half (46%) of new HIV diagnoses among 50–70-year-olds were made in those aged 50–54 years, and a similar proportion (43%) were made in London. Approximately 70% of new HIV diagnoses among 50–70-year-olds were in men, and this has remained constant over time.

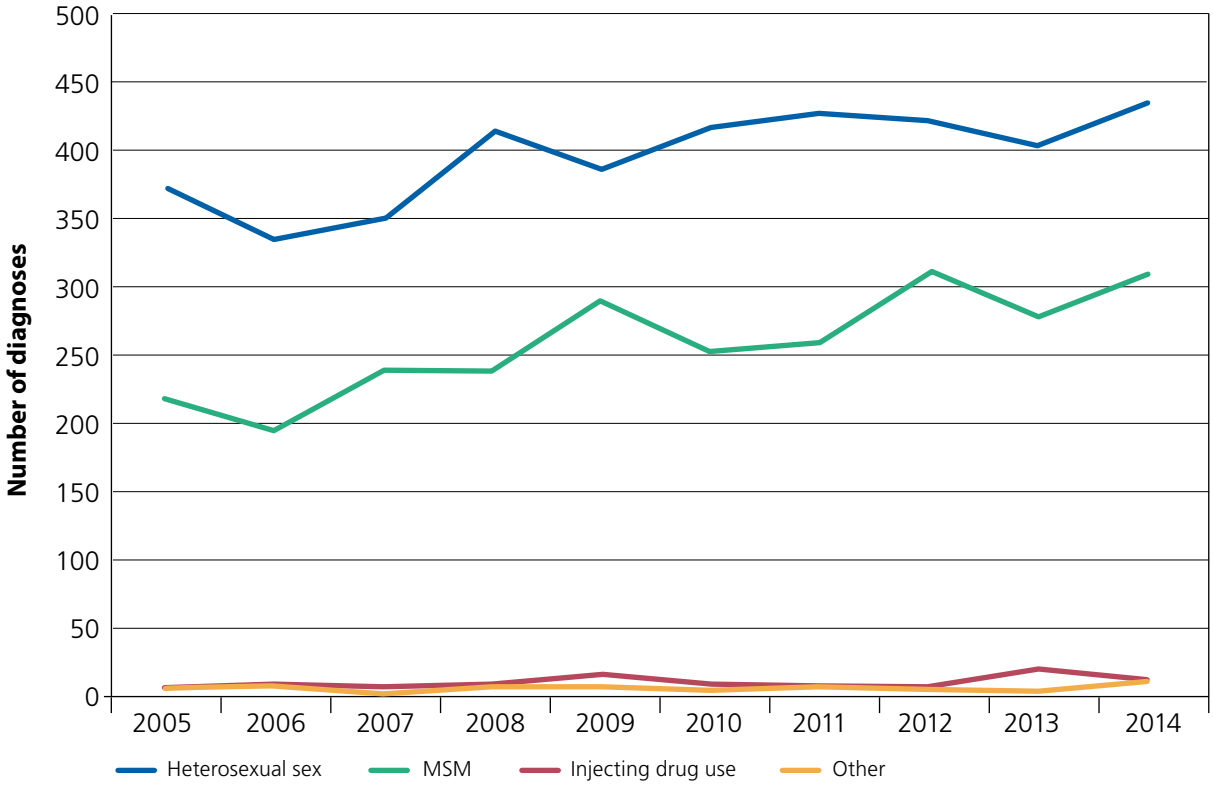
During 2005–14, new HIV diagnoses in 50–70-year-olds were highest among those of white ethnicity and have increased over time (340 in 2005 to 497 in 2014). There has also been an increase in diagnoses in 50–70-year-olds among those born in the UK (278 to 470 in 2014). During the same time period, there has been little change in diagnosis numbers in 50–70-year-olds among those of black African ethnicity and among those born in sub-Saharan Africa, but there has been a steep decline in new HIV diagnoses among people of all ages overall in these sub-populations since 2005.

During 2005–14, heterosexual sex accounted for the largest number of new HIV diagnoses among 50–70-year-olds, followed by sex between men (Figure 8.6). In 2014, in 50–70-year-olds, 48% (434) of new HIV diagnoses were acquired through heterosexual sex and 34% (309) were acquired through sex between men. A smaller proportion of people acquired their infection through injecting drug use or blood products (3%). In 50–70-year-olds, new HIV diagnoses acquired through heterosexual sex and through sex between men have increased by 17% (372 in 2005 to 434 in 2014) and 42% (217 in 2005 to 309 in 2014), respectively. In contrast, England has seen a decline in the number of diagnoses acquired through heterosexual contact across all ages by just over half (4,516 in 2005 to 1,982 in 2014), while diagnoses among MSM have increased by 17% (2,411 in 2005 to 2,829 in 2014); from 2012 onwards, the largest numbers of new HIV diagnoses were attributed to sex between men. In 2014, for all age groups, heterosexual sex accounted for 36% of new HIV diagnoses and sex between men accounted for 51% of new HIV diagnoses.

In England in 2014, age at diagnosis was lower among MSM (median age at diagnosis 33 years) compared with heterosexuals (median age at diagnosis 40 years), most likely due to a higher uptake of HIV testing as well as a higher incidence of HIV in MSM at younger ages.[25, 26] In 2013, one in ten MSM newly diagnosed with HIV were age 50 years or above compared with one in five heterosexuals.[27] This may reflect why a higher percentage of diagnoses in 50–70-year-olds were acquired through heterosexual sex compared with England overall for all ages.

Estimating the rate of new infections (ie those recently acquired) is important to describe the current epidemic and rates of transmission. The proportion of individuals with recent infection (within the previous six months) at HIV diagnosis is higher in those of younger age (15–34 years) compared with those aged 50 years or above.[27] Across all age groups, the proportion with recent infection is higher among MSM compared with heterosexuals.[28] This needs to be interpreted in the context of HIV testing patterns; MSM and younger adults have higher rates of testing. Those with a recent infection diagnosis are also more likely to have a high CD4 count.[28] In 2013, people diagnosed aged 50 years or above were also more likely to be diagnosed late (CD4 count <350 cells/mm$^3$) compared with those diagnosed aged less than 50 years; thus clinicians should consider and test for HIV infection in older adults presenting with AIDS-defining illnesses including pneumocystis pneumonia and tuberculosis.[27]

**Figure 8.6 Number of new HIV diagnoses among 50–70 year-olds in England by exposure group, England, 2005–14**




**Source** *HIV and AIDS New Diagnoses and Deaths (HANDD) Database, Public Health England*

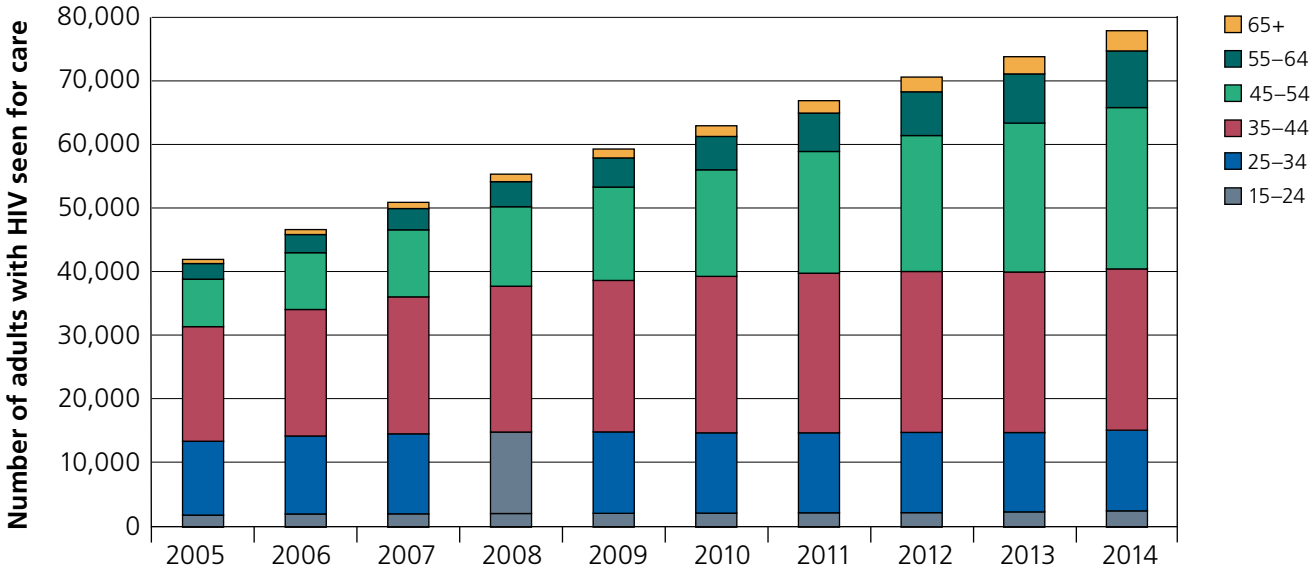
# 6. People living with HIV and accessing care

England has an ageing population of people living with HIV infection, which has important implications for clinicians and public health. In 2014, 21,770 people (16,464 men and 5,306 women) aged 50–70 years living with HIV had accessed care, representing almost 30% (21,770/78,317) of all people accessing HIV care in England. The proportion of people living with HIV aged 50–70 years has more than doubled over the past decade (from 13% in 2005), as those living with HIV and maintaining an undetectable viral load on treatment have aged (Figure 8.7). Of the 21,770 people accessing HIV care and aged 50–70 years, half were aged 50–54 years.

The overall HIV prevalence in 2014 among 50–70-year-olds was estimated to be 1.59 per 1,000 population, compared with 0.4 per 1,000 population in 2005. Population projections based on the national cohort of people accessing HIV care in the UK suggest that by 2028, over half (54%) of all people accessing HIV care will be aged 50 years or above compared with 25% in 2013.[29] Integrated pathways of care, which ensure holistic management of co-morbidities and other complications including co-infection, drug side-effects, mental health conditions and cardiovascular disease, are therefore increasingly important.[26]

During 2005–14, there was an increase in the number of 50–70-year-olds with HIV infection who were reported to have died. People aged 50–70 years accounted for 25% of all deaths in 2005 compared with 51% in 2014. Individuals living with HIV who are diagnosed promptly can expect a near-normal life span resulting in a non-AIDS-related death,[26] and this is likely to reflect longer life expectancy with HIV infection due to effective antiretroviral treatment in people who would have otherwise died before the age of 50 years old. However, people diagnosed with HIV infection at a late stage have an increased risk of death in the year following diagnosis compared with those diagnosed promptly. The death rate within one year of diagnosis is particularly marked in those aged 50 years and above compared with other age groups.[27]

**Figure 8.7 Age distribution of those living with HIV and accessing care, England, 2005–14**




**Source** *The Survey of Prevalent HIV Infections Diagnosed (SOPHID) and HIV and AIDS Reporting System (HARS), Public Health England*

# 7. New sexual relationships and unsafe sex

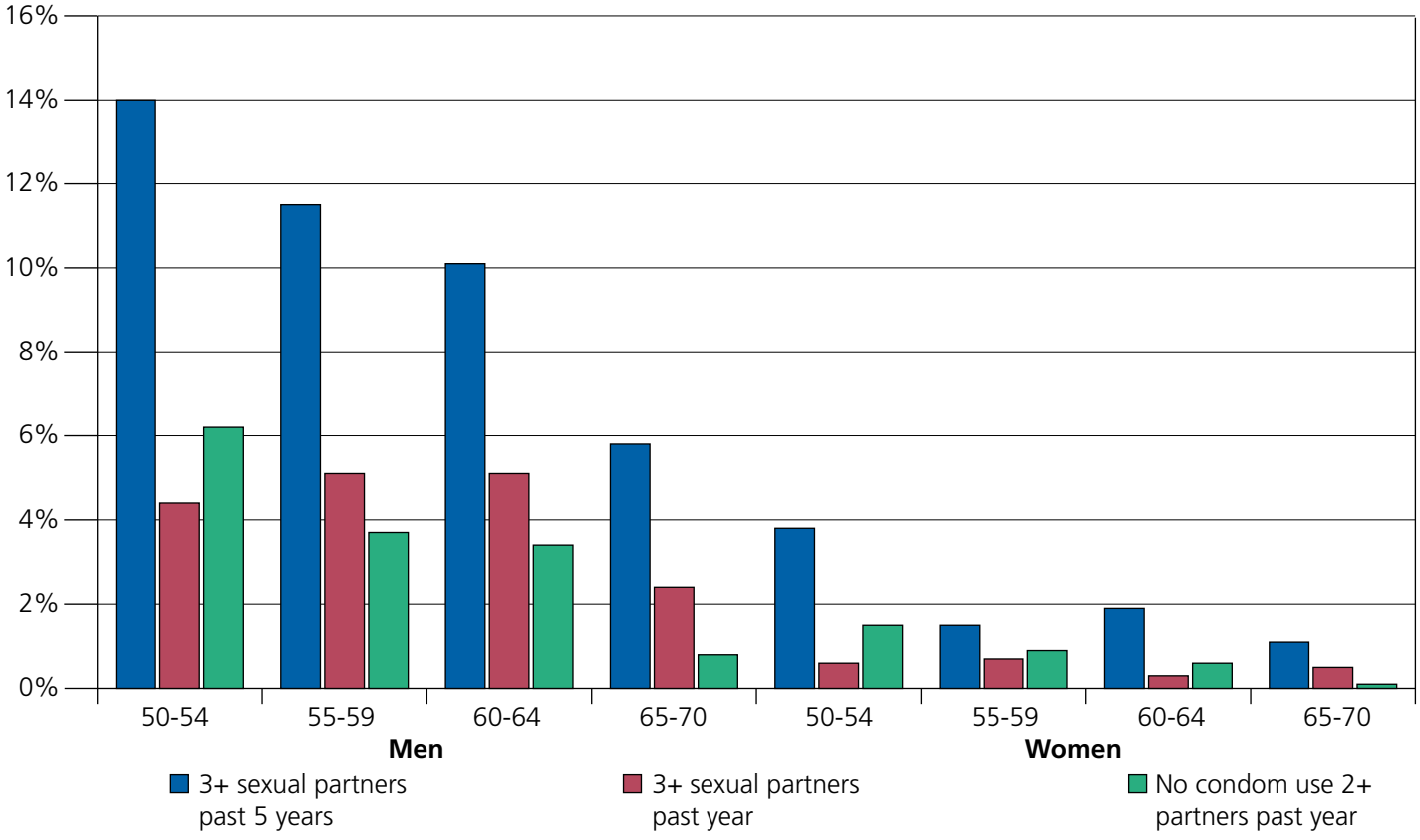
The reasons why the number of STI diagnoses among 50–70-year-olds has risen over the last decade remain largely speculative owing to a lack of longitudinal research in the area. It is the opinion of the author of this chapter that possible explanations include that older adults may have missed out on sex education; older adults perceive condoms are not required if there are no pregnancy risks (eg post-menopause); and health promotion messages give the impression that condoms and concerns about STIs are applicable to young people only.

The third British National Survey of Sexual Attitudes and Lifestyles 2010–12 (Natsal-3) included questions asking about the number of sexual partners in the past five years (opposite sex and same sex), number of partners in the past year, and number of sexual partners not using a condom in the past year. Although these data are only available for the 50–70 age group at a single time point, they provide a valuable snapshot of current patterns of sexual risk behaviours in this age group. Respondents' data were weighted to reflect the overall British population.[iv]

In the 50–70 age group, 10.5% of men and 14% of women reported three or more sexual partners over the last five years; 4% of men and 0.5% of women reported three or more sexual partners over the past year; and 3.6% of men and 1% of women reported two or more sexual partners without using a condom over the past year. Younger age groups report a higher prevalence of these risk behaviours: for example, 16.4% of men and 14.3% of women aged 16–24 years old reported two or more partners without using a condom over the past year. Figure 8.8 shows these data by five-year age categories and by gender.

iv Survey weights were applied to adjust for unequal probability of selection and non-response to ensure the sample data were broadly representative of the British general population, according to the 2011 Census, in terms of gender, age group and Government Office Region.

**Figure 8.8 Percentage of Natsal-3 respondents reporting multiple recent sexual partnerships and sexual partners without a condom by age and gender, England, 2010–12**




**Source** *Natsal-3 (2010-2012)*

# 8. Sexual difficulties

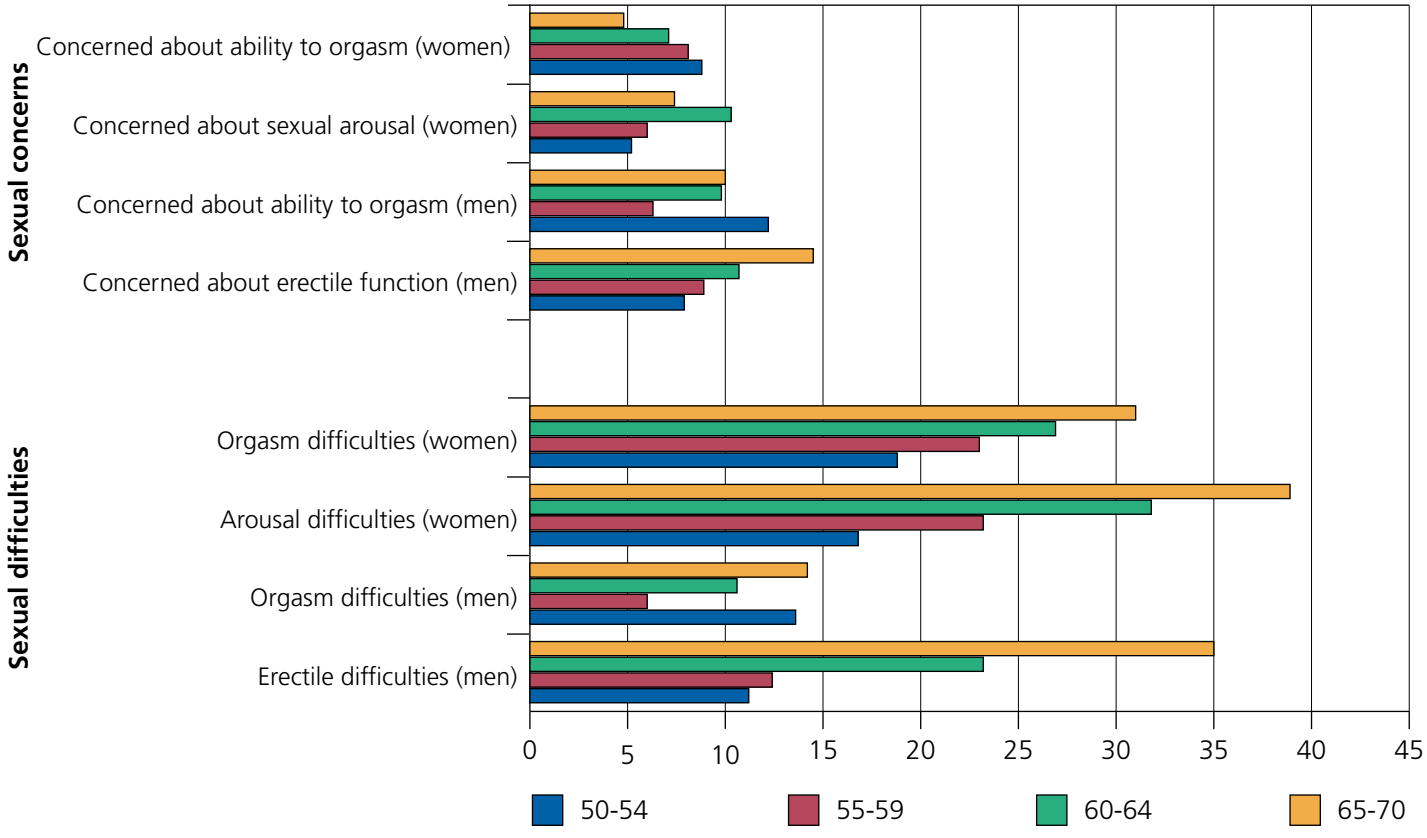
Wave 6 (2012/13) of ELSA, a nationally representative panel survey of community-dwelling men and women aged 50 years and older in England, included a comprehensive Sexual Relationships and Activities questionnaire (with versions specific for men and women) capturing information on sexual behaviours and activities, sexual attitudes, sexual function, sexual health concerns, and partnership satisfaction. Respondents' data were weighted to reflect the overall England population.[v] In the 50–70 age group overall, problems most frequently reported by sexually active men were difficulties maintaining an erection good enough for sexual intercourse (25%), while for women it was difficulty becoming sexually aroused (31%) and achieving orgasm (26%).

Figure 8.9 shows the prevalence of the most common sexual problems and concerns about these problems by gender and five-year age group. The prevalence of erectile difficulties was strongly associated with increasing age in men, and there were clear age-related increases in difficulties relating to becoming sexually aroused and achieving orgasm in women. When asked whether their sexual activities had changed over the preceding year, 27% of men and 31% of women across all age groups reported declines in their sexual desire, while 36% of men and 38% of women reported declines in the frequency of sexual activities. When asked about sexual function, 21% of men reported their ability to have an erection had decreased over the last year and 27% of women reported declines in their ability to become sexually aroused.

Overall, the percentage of men who were concerned about their ability to have an erection or their orgasmic experience increased in each successive five-year age group, with over 10% of men aged 65–70 reporting concern about either of these sexual outcomes. Concerns about difficulties with sexual arousal and orgasm did not show an obvious relationship with increasing age among sexually active women, although the proportion expressing concerns with these sexual difficulties was lowest in the oldest group.

v Survey weights were applied to adjust for unequal probability of selection and non-response to ensure the sample data were broadly representative of the English general population, according to the 2011 Census, in terms of age, sex and Government Office Region.

**Figure 8.9 Percentage of sexually active ELSA respondents aged 50–70 reporting sexual problems and concerns about their sexual function by age and gender, 2012**



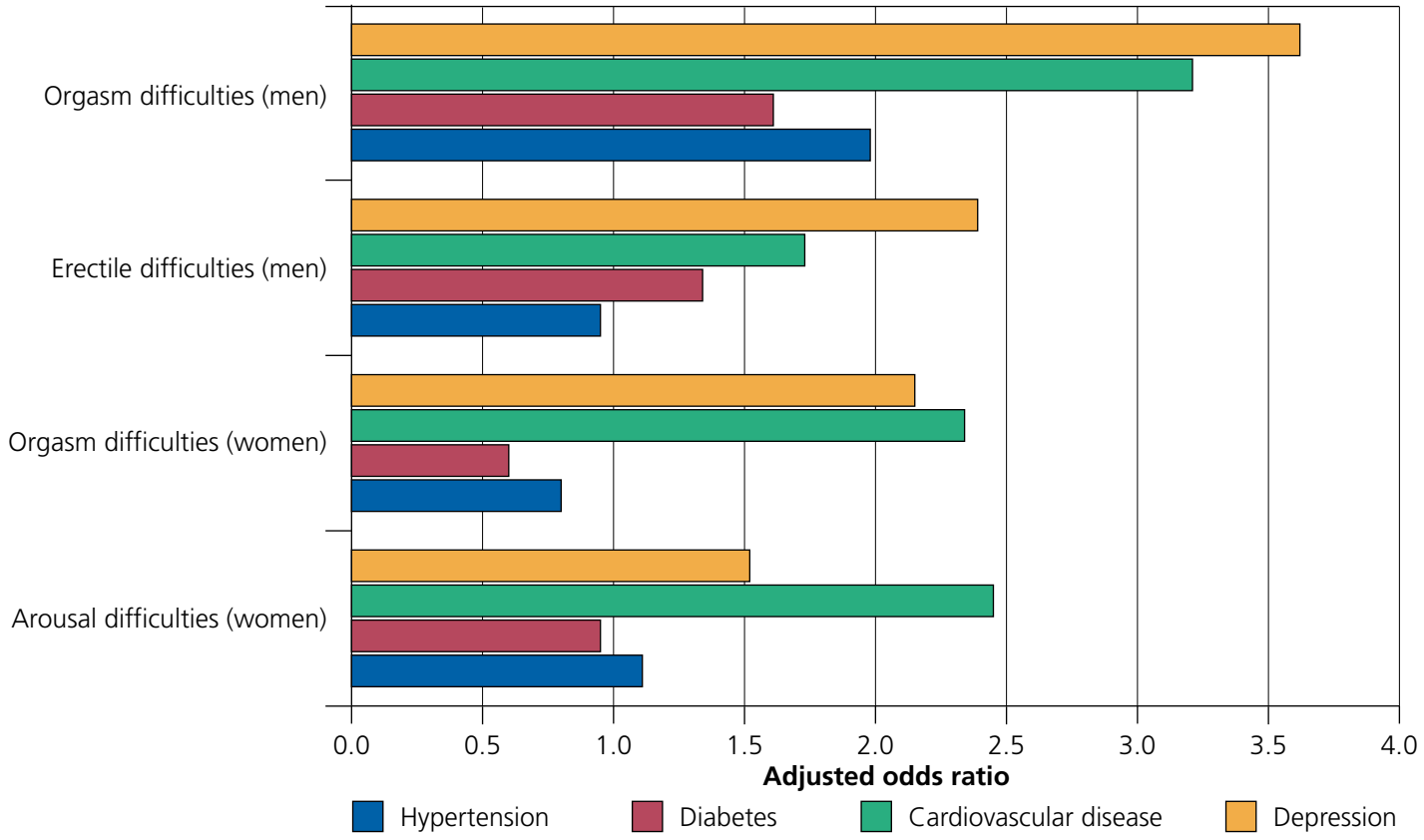

**Source** *English Longitudinal Study of Ageing (ELSA) 2012*

# 9. Sexual function and health

With respect to sexuality and health, gender-specific patterns of association have been seen in a number of population-based studies,[6, 12, 13] generally finding that age-related worsening health among women was not as strongly associated with declines in the frequency of sexual activities and function as compared with men.[30]

Figure 8.10 shows the likelihood of experiencing sexual difficulties among ELSA participants aged 50–70 in relation to the presence of a number of common long-term conditions. These data are presented as odds ratios and 95% confidence intervals after adjustment for age, marital/cohabiting status, smoking status and alcohol consumption. The horizontal line signifies the reference category, ie absence of that specific long-term condition. In men, both erectile difficulties and difficulties achieving orgasm were significantly more likely among those reporting hypertension, cardiovascular disease, diabetes and depression. Although these data are unable to distinguish whether these associations are due to psycho-social and co-morbid factors commonly found with chronic illnesses and their treatments that may also contribute to sexual problems, it supports observational evidence that erectile problems share common disease processes with an underlying neuro-vascular pathology.[31] In women, only depression was significantly associated with greater difficulties with arousal (odds ratio 1.98; 95% confidence interval 1.22–3.22). This gender difference may, in large part, be due to the impacts of common chronic illnesses and their treatments on erectile function; which in turn is strongly associated with decreasing levels of sexual activity and sexual satisfaction.[6, 12, 13, 32] In contrast, the effects of chronic illnesses and treatment regimens on sexual function in women remain less well understood.[32, 33]

**Figure 8.10 Likelihood of ELSA respondents aged 50–70 reporting sexual problems by gender and long-term condition, 2012**




**Source** *English Longitudinal Study of Ageing (ELSA) 2012*

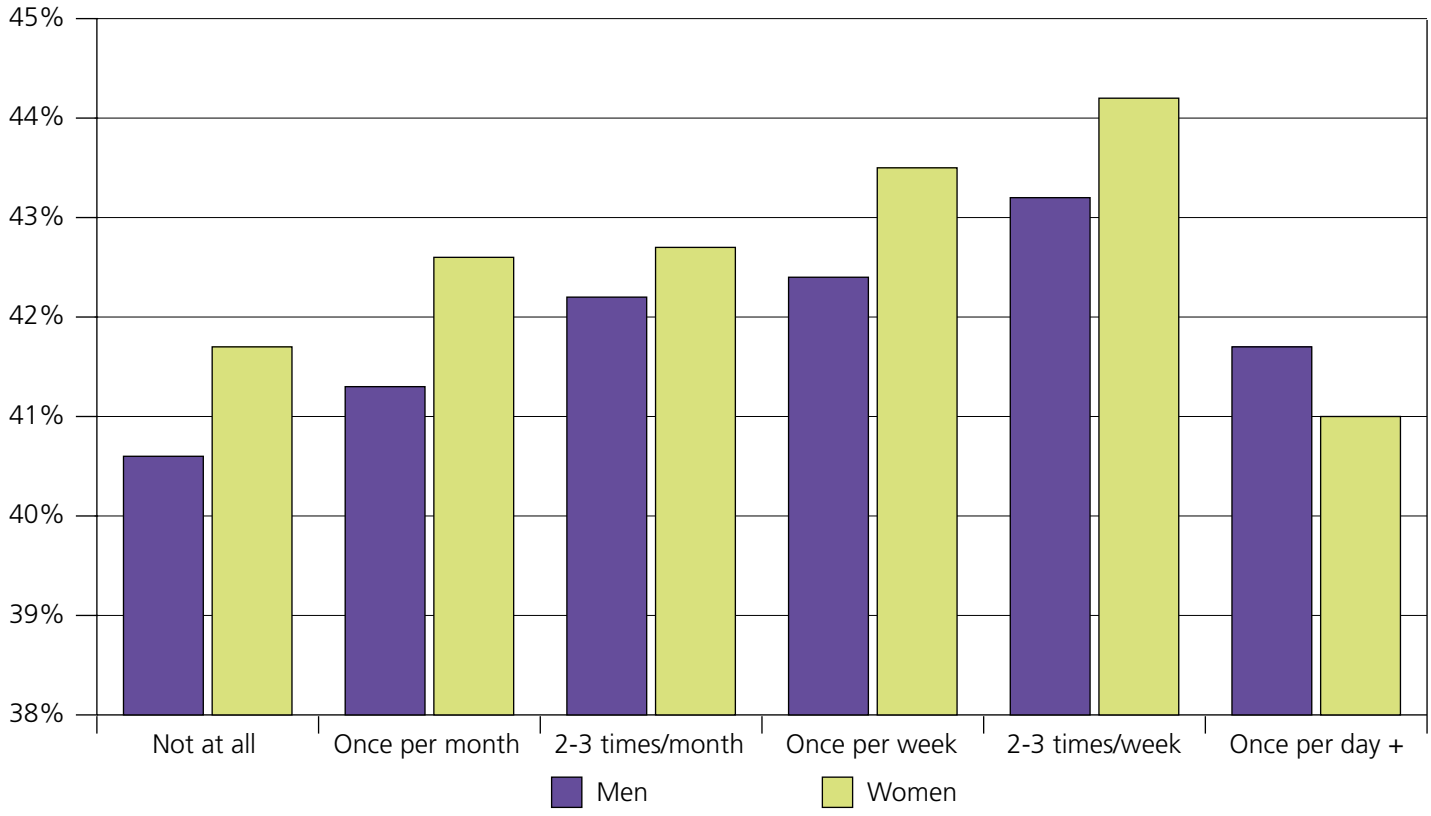
# 10. Quality of life and subjective wellbeing

From the perspective of a positive health paradigm,[34] little is known about how sexual activities, functioning and problems affect multi-component measures of subjective wellbeing, and whether there are different patterns of association between genders.

ELSA used the Control, Autonomy, Self-realization and Pleasure (CASP-19) instrument to measure eudemonic wellbeing and quality of life,[35] and the Satisfaction With Life Scale (SWLS) to assess evaluative wellbeing.[36] Higher scores using these instruments indicate higher subjective wellbeing.

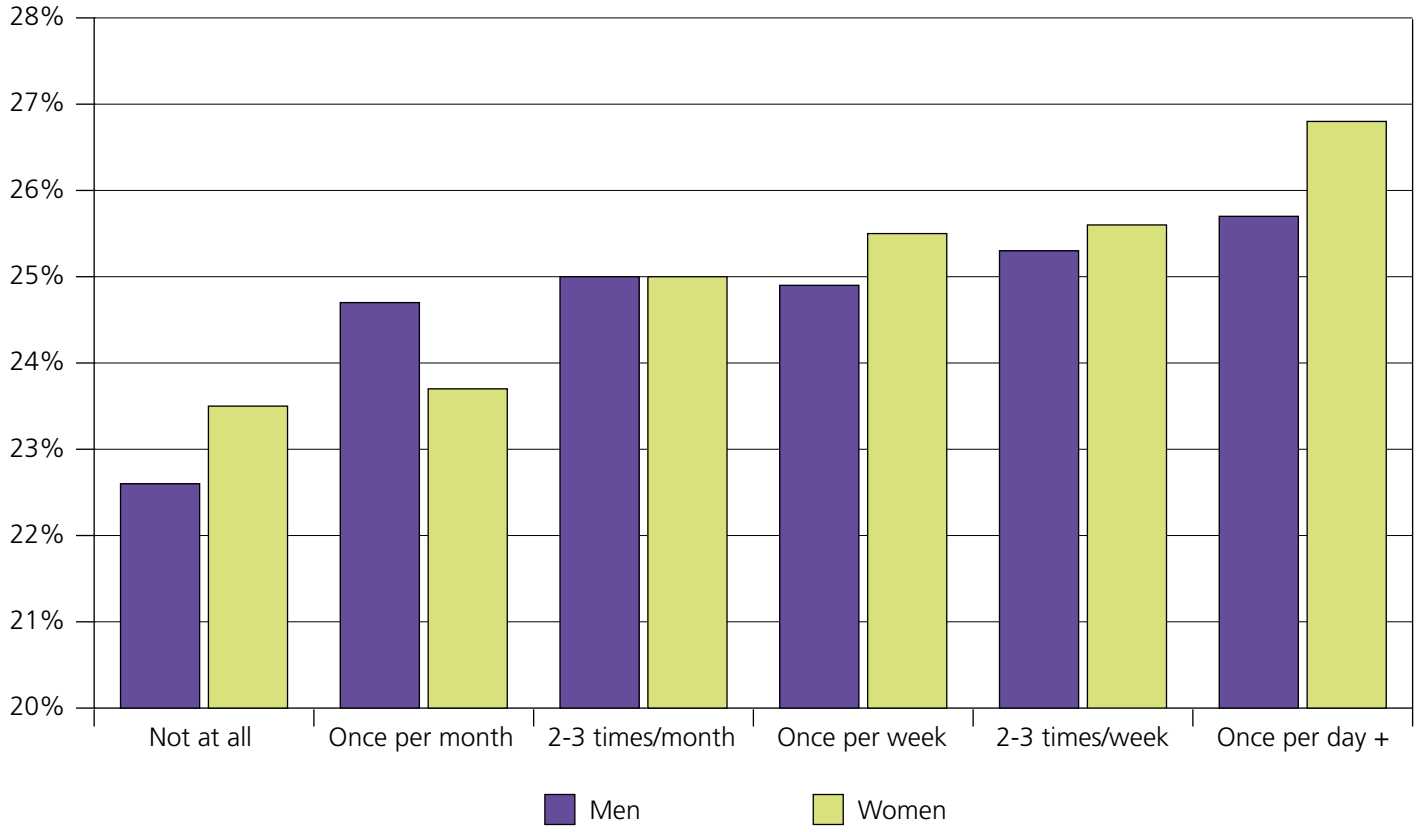
Figure 8.11 shows mean CASP-19 and SWLS score (after adjustment for age, marital/cohabiting status, depression and self-rated health) for men and women aged 50–70 reporting varying frequencies of sexual activities and sexual function problems. For both genders, an increasing frequency of sexual activity was associated with higher CASP-19 and SWLS scores, although those reporting the highest frequency of sexual intercourse (once per day or more) showed a marked decrease in the CASP-19 score. Both men and women reporting higher levels of sexual difficulties scored significantly lower on the SWLS score.

**Figure 8.11a Mean CASP-19 and SWLS scores for ELSA respondents aged 50–70 reporting different frequencies of sexual activities and sexual function problems by gender, 2012** *(Frequency of intercourse)*



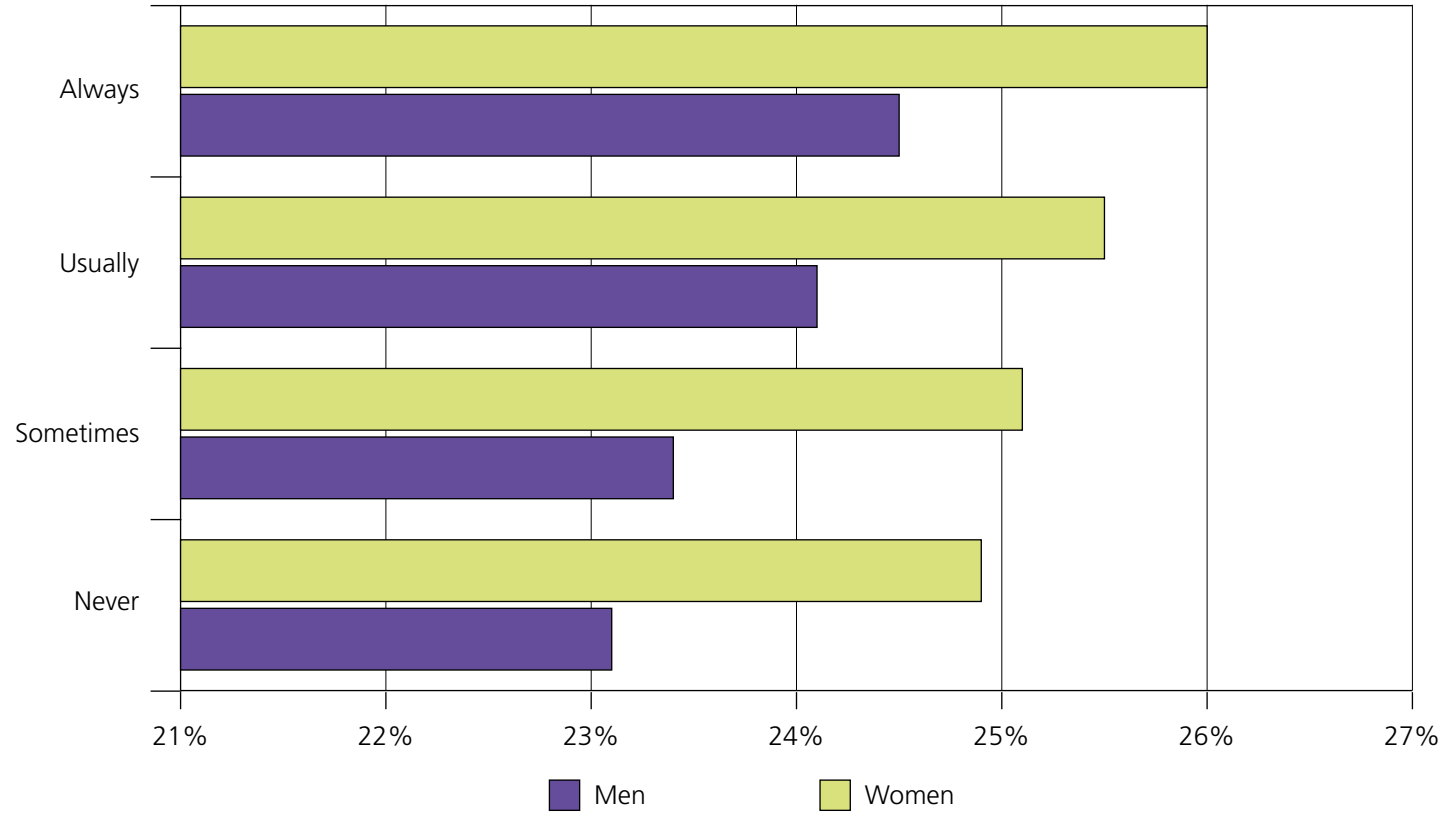

**Source** *ELSA, 2012*

**Figure 8.11b Mean CASP-19 and SWLS scores for ELSA respondents aged 50–70 reporting different frequencies of sexual activities and sexual function problems by gender, 2012** *(Frequency of kissing and petting)*




**Source** *ELSA, 2012*

**Figure 8.11c Mean CASP-19 and SWLS scores for ELSA respondents aged 50–70 reporting different frequencies of sexual activities and sexual function problems by gender, 2012** *(Ability to attain an erection (men), ability to become sexually aroused (women))*




**Source** *ELSA, 2012*

# 11. References


1. Mercer CH, et al. Changes in sexual attitudes and lifestyles in Britain through the life course and over time: Findings from the National Surveys of Sexual Attitudes and Lifestyles (Natsal). *Lancet* 2013; 382(9907): 1781–1794.
2. Carpenter LM, Nathanson CA, Kim YJ. Sex after 40?: Gender, ageism, and sexual partnering in midlife. *Journal of Aging Studies* 2006; 20: 93–106.
3. Karraker A, Delamater J. Past-year sexual inactivity among older married persons and their partners. *Journal of Marriage and Family* 2013; 75: 142–163.
4. Public Health England. Sexually transmitted infections and chlamydia screening in England, 2014 (2015). Available from: https://www.gov.uk/government/statistics/sexually-transmitted-infections-stis-annual-data-tables.
5. Erens B, et al. Methodology of the third British National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *Sex Transm Infect* 2014; 90(2): 84–89.
6. Lee DM, et al. Sexual health and well-being among older men and women in England: Findings from the English Longitudinal Study of Ageing. *Arch Sex Behav* 2016; 45(1): 133–144.
7. Divorces in England and Wales, 2012. Office for National Statistics: Statistical Bulletin 2014. Available from: http://www.ons.gov.uk/ons/dcp171778_351693.pdf.
8. Minkin MJ. Sexually transmitted infections and the aging female: Placing risks in perspective. *Maturitas* 2010; 67(2): 114–116.
9. MacDonald J, et al. Interventions to increase condom use among middle-aged and older adults: A systematic review of theoretical bases, behaviour change techniques, modes of delivery and treatment fidelity. *J Health Psychol* 2015.
10. Corona G, et al. Age-related changes in general and sexual health in middle-aged and older men: Results from the European Male Ageing Study (EMAS). *J Sex Med* 2010; 7(4 Pt 1): 1362–1380.
11. Laumann EO, et al. Sexual problems among women and men aged 40-80 y: Prevalence and correlates identified in the Global Study of Sexual Attitudes and Behaviors. *Int J Impot* Res 2005; 17(1): 39–57.
12. Lindau ST, et al. A study of sexuality and health among older adults in the United States. *N Engl J Med* 2007; 357(8): 762–774.
13. Field N, et al. Associations between health and sexual lifestyles in Britain: Findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *Lancet* 2013; 382(9907): 1830–1844.
14. Layard R. Economics. Measuring subjective well-being. *Science* 2010; 327(5965): 534–535.
15. Steptoe A, Deaton A, Stone AA. Subjective wellbeing, health, and ageing. *Lancet* 2015; 385(9968): 640–648.
16. Hughes G, Field N. The epidemiology of sexually transmitted infections in the UK: Impact of behavior, services and interventions. *Future Microbiol* 2015; 10(1): 35–51.
17. Adams EJ, et al. Chlamydia trachomatis in the United Kingdom: A systematic review and analysis of prevalence studies. *Sex Transm Infect* 2004; 80(5): 354–362.
18. Aghaizu A, et al. Understanding continuing high HIV incidence: Sexual behavioural trends among MSM in London, 2000–2013. *Sex Transm Infect* 2015; 91: A2–A2.
19. Gilbart VL, et al. Sex, drugs and smart phone applications: Findings from semistructured interviews with men who have sex with men diagnosed with Shigella flexneri 3a in England and Wales. *Sex Transm Infect* 2015; 91(8): 598–602.
20. Public Health England. Surveillance of antimicrobial resistance in Neisseria gonorrhoeae: Key findings from the 'Gonococcal resistance to antimicrobials surveillance programme' (GRASP) and related surveillance data, 2014 (2015). Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/476582/GRASP_2014_report_final_111115.pdf.
21. Hughes G, Lowndes C. Epidemiology of sexually transmitted infections: UK. *Medicine* 2014; 42(6): 281–286.
22. Fenton KA, et al. Ethnic variations in sexual behaviour in Great Britain and risk of sexually transmitted infections: A probability survey. *Lancet* 2005; 365(9466): 1246–1255.
23. English indices of deprivation 2010. Department for Communities and Local Government 2011. Available from: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2010.
24. Public Health England. Country and PHE region HIV data tables to end December 2014. Tables No. 1: 2015 (2015). Available from: https://www.gov.uk/government/statistics/hiv-data-tables.
25. Skingsley A, et al. (2015). Data to end 2014, in *HIV in the UK – Situation Report 2015*. London: Public Health England.
26. Skingsley A, et al. (2015). Data to end 2014, in *HIV New Diagnoses, Treatment and Care in the UK: 2015 report*. London: Public Health England.
27. Yin Z, Brown A, Hughes G, Nardone A, Gill ON, Delpech VC, et al. (2014). Data to end 2013, in *HIV in the United Kingdom: 2014 report*. London: Public Health England.
28. Aghaizu A., et al. Recent infection testing algorithm (RITA) applied to new HIV diagnoses in England, Wales and Northern Ireland, 2009 to 2011. *Euro Surveill* 2014; 19(2).

29. Yin Z, et al. Over half of people in HIV care in the United Kingdom by 2028 will be aged 50 years or above. *European AIDS Clinical Society* 2015. Barcelona, Spain.
30. Karraker A, Delamater J, Schwartz CR. Sexual frequency decline from midlife to later life. *J Gerontol B Psychol Sci Soc Sci* 2011; 66(4): 502–512.
31. Thompson IM, et al. Erectile dysfunction and subsequent cardiovascular disease. *JAMA* 2005; 294(23): 2996–3002.
32. Lewis RW, et al. Definitions/epidemiology/risk factors for sexual dysfunction. *J Sex Med* 2010; 7(4 Pt 2): 1598–1607.
33. Field N, et al. Are depression and poor sexual health neglected comorbidities? Evidence from a population sample. *BMJ Open* 2016; 6(3): e010521.
34. Rosen RC, Bachmann GA. Sexual well-being, happiness, and satisfaction, in women: The case for a new conceptual paradigm. *J Sex Marital Ther* 2008; 34(4): 291–297, discussion 298–307.
35. Hyde M, et al. A measure of quality of life in early old age: The theory, development and properties of a needs satisfaction model (CASP-19). *Aging Ment Health* 2003; 7(3): 186–194.
36. Diener E, et al. The Satisfaction With Life Scale. *J Pers Assess* 1985; 49(1): 71–75.

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