

## **Chapter 5: Health related behaviours**

It is widely accepted that health beliefs and health behaviours will impact on health outcomes for individuals, and the population as a whole. However, the significant complexity involved in changing behaviours is often overlooked.

This chapter considers those behaviours most strongly associated with modifiable disease risk. Emerging behaviour patterns are identified and the implications for health improvement interventions discussed.

The broad patterns identified within the chapter are worthy of further exploration and local analysis drawing on wider contextual data.

### **5.1 Smoking**

Smoking remains the largest preventable cause of ill health in the UK (ASH 2014)<sup>1</sup>. Within Greater Glasgow and Clyde, smoking attributable rates of hospital admissions, deaths and diseases such as COPD and lung cancer are higher than the rest of Scotland (ScotPHO 2015)<sup>2</sup>.

It is encouraging that the continuing downwards trend in smoking prevalence continues to be observed within the 2015 [Health and Wellbeing Survey](#)<sup>3</sup> (HWB). However, persistently higher smoking prevalence rates and higher rates of exposure to second-hand smoke within NHS Greater Glasgow and Clyde (NHSGGC) than other areas of Scotland, will continue to have a significant impact on health outcomes within the NHSGGC population.

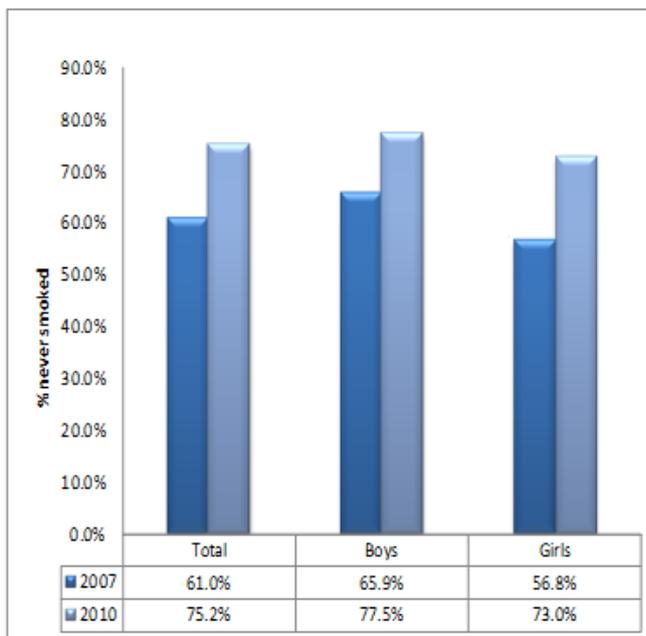
The drop in smoking prevalence of 4.2% from 2011 to 2014 is a combination of lower rates of uptake, particularly in young people and to a lesser extent, smoking cessation.

An increase in the number of young people who have never smoked is reported within SALSUS 2013<sup>4</sup> (National Services Scotland 2014) data and HWB survey 2010 data with approximately three quarters of young people reporting to be smoke free. Non smoking status appears to be sustained in older age groups with just over 73% of 16-24 year olds reporting to be smokefree. Less young girls in particular are smoking than previously in both age groups. The decline in smoking is most marked in young women where a smaller proportion of young women are smoking today compared to 2008.

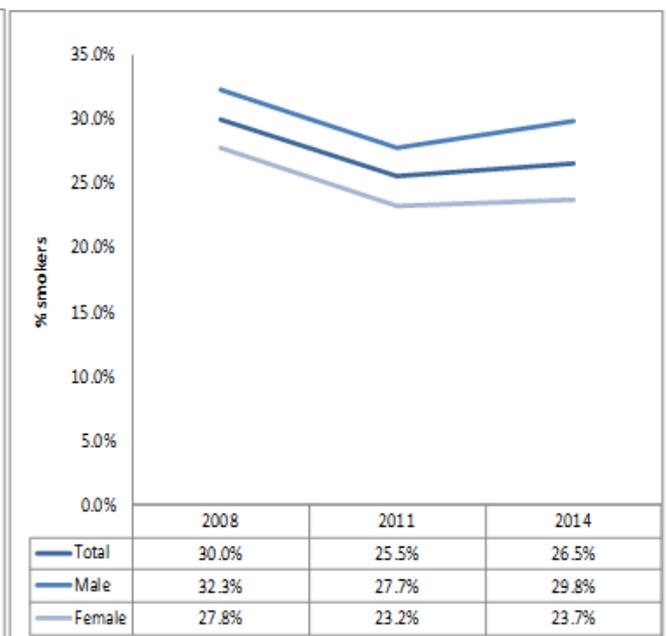
**Figure 5.1: Smoking Prevalence 16 to 24 age-group by Gender**  
 (Source: NHSGGC HWB Surveys (2008 to 2015))

**Figure 5.2: % S1 to S4 Who Have Never Smoked by Sex**  
 (Source: Glasgow City Schools HWB Surveys (2007 and 2010))

**Figure 5.1**



**Figure 5.2**

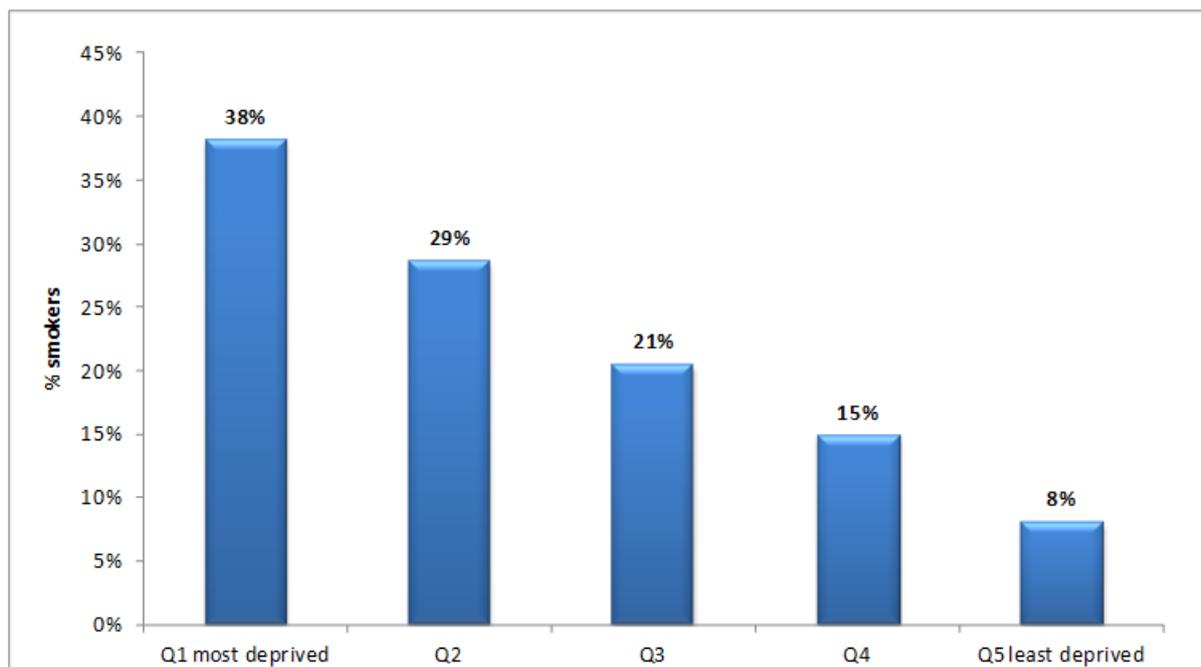


Nicotine is highly addictive which makes smoking cessation challenging to achieve. However, since 2010 over 150,000 smokers have made quit attempts with NHSGGC stop smoking services. An average quit rate of 34.5% at 4 weeks suggests that approximately 50,000 residents have stopped smoking even for a brief period (ScotPHO/ISD Scotland, 2015<sup>5</sup>).

### 5.1.1 Smoking Patterns

One quarter of the NHSGGC population currently smokes but as with other parts of Scotland, smoking rates differ according to deprivation (Figure 5.3).

**Figure 5.3: Smoking Prevalence by SIMD Quintile**  
(Source: NHSGGC HWB Survey (2015))

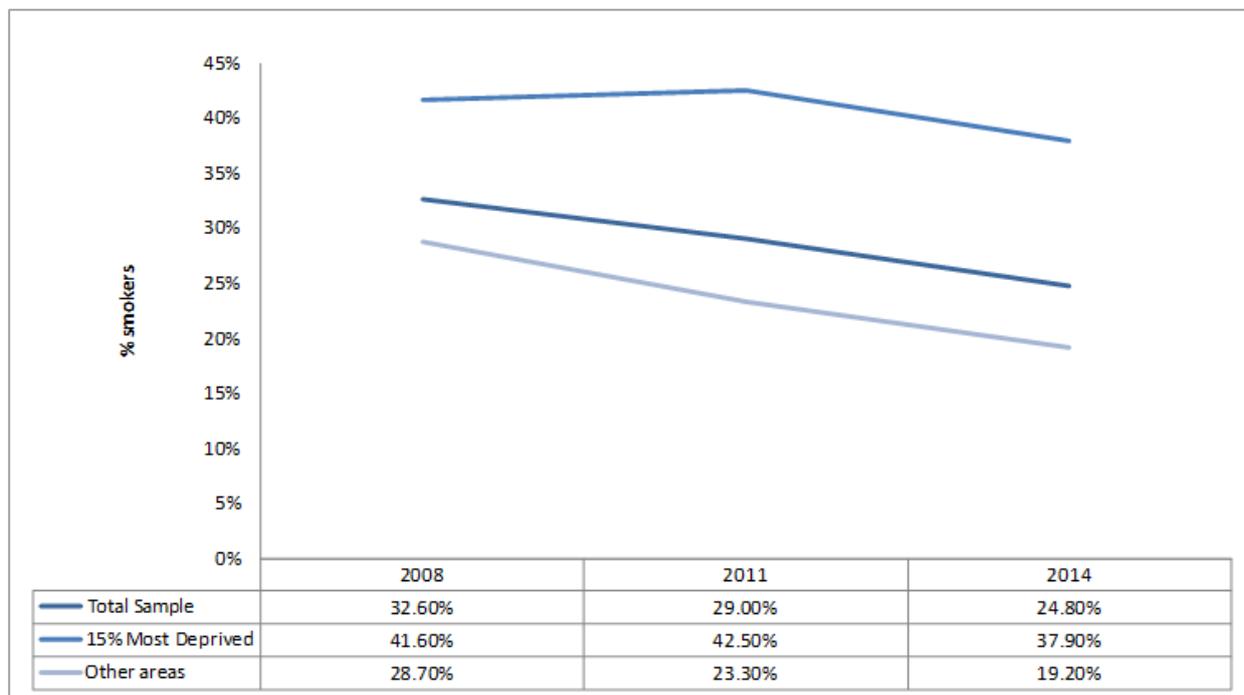


Areas of deprivation consistently have higher smoking prevalence and higher exposure to second-hand smoke (ASH Scotland 2014<sup>6</sup>; ScotPHO 2015<sup>7</sup> Scottish Government 2015a<sup>8</sup>). Indeed, the smoking rate in the 15% most deprived areas within GGC is almost twice as high as all other areas. Smokers within areas of deprivation

also smoke more cigarettes and are less likely to quit successfully than those from more affluent areas (ASH Scotland 2014<sup>9</sup>; ScotPHO<sup>10</sup>).

The decline within areas of deprivation has been slower than in the total sample and the gap between the most deprived areas and other areas is wider today than it was in 2008 (Figure 5.4). Indeed, there was no reduction in smoking within the 15% most deprived datazones between 2008 and 2011 but it is encouraging to observe the drop of 3.5% between 2011 and 2014.

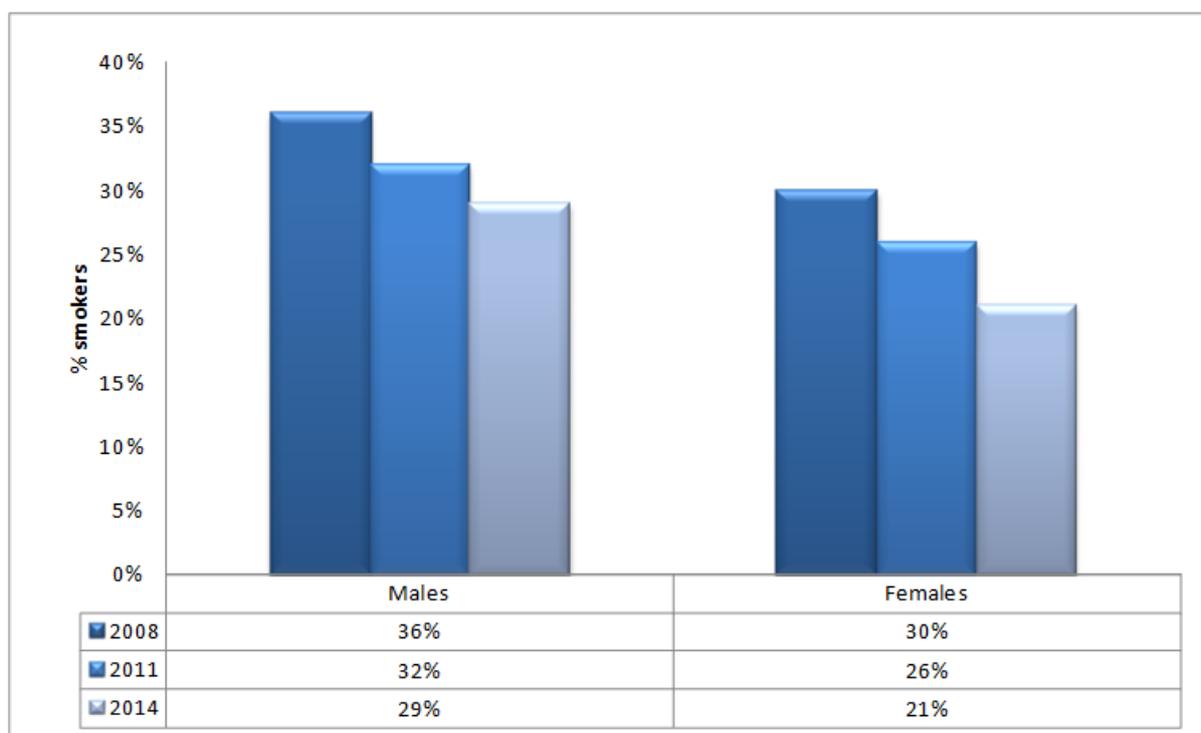
**Figure 5.4: Smoking Prevalence Trends**  
**(Source: NHSGGC HWB Surveys (2008 to 2015))**



The NHS HEAT target (Scottish Government 2014<sup>11</sup>) to deliver at least 12,000 successful quits nationally, at 12 weeks post quit, in the 40% most deprived SIMD areas was designed to re-focus smoking cessation work in the areas of highest deprivation and attempt to narrow this gap.

Men are also significantly more likely to be smokers than women (29% and 21% respectively), with the largest difference seen between the ages of 16-44 years (men 34%, women 22%). This difference in smoking rates between the sexes is wider in NHSGGC and has widened since 2008 - Figure 5.5. The gap between the sexes is also wider than the gap reported for Scotland which only shows a 2-3% difference between the sexes (Scottish Government, 2015a<sup>12</sup>; Scottish Government, 2015b<sup>13</sup>).

**Figure 5.5: Smoking Prevalence by Gender**  
**(Source: NHSGGC HWB Surveys (2008 and 2015))**

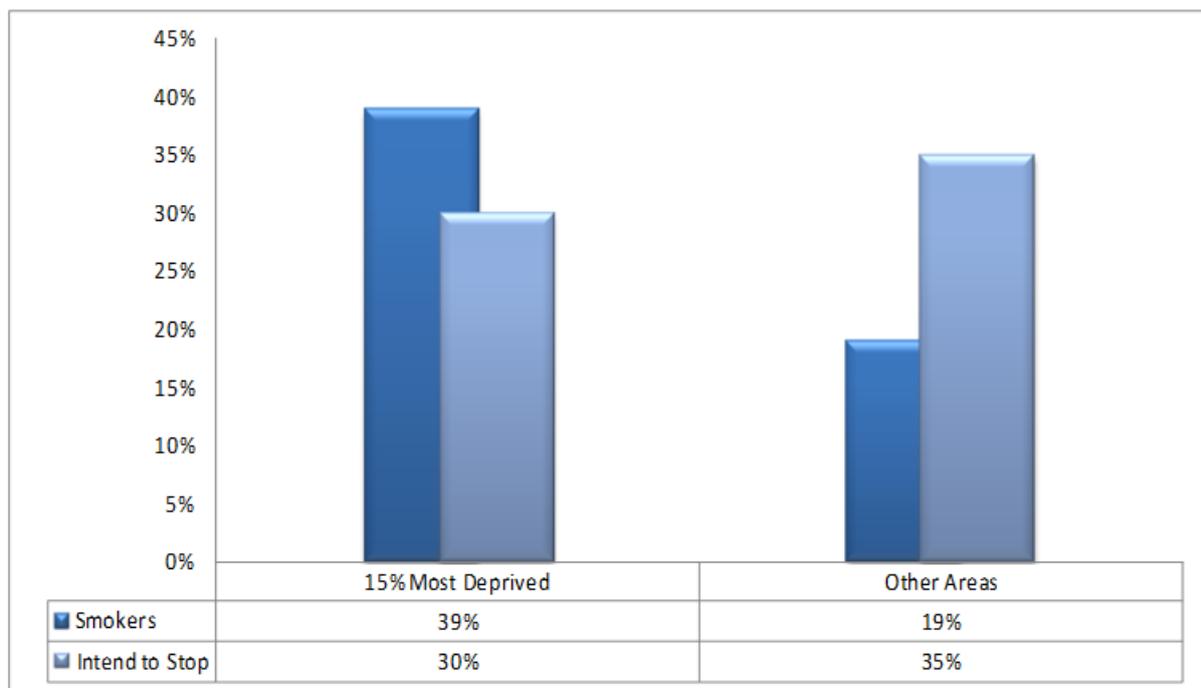


There are a number of possible explanations for this difference. Smoking may still be the social norm for some groups of men, thus potentially, men may be more resistant to stop smoking messages at individual level as data (Scottish Health Survey, 2014<sup>14</sup>), suggests they are less likely to have tried to stop smoking.

### 5.1.2 Intention to Stop Smoking

In general, the intention to stop smoking within NHSGGC appears to be lower than elsewhere in the UK. The Scottish Health Survey reported 67% smokers said they would like to stop smoking (Scottish Government 2015a<sup>15</sup>). Within the HWB Survey, a sizeable proportion of smokers (43% did not intend to stop, 24% unsure) indicated that they had no intention to stop smoking, suggesting there is a clear difference between desire and intention. The proportion of smokers intending to stop is higher in less deprived areas.

**Figure 5.6: Smoking Prevalence and % intending to stop by deprivation**  
 (Source: NHSGGC HWB Survey (2015))



This high number of smokers not interested in quitting is corroborated by local research, 'A survey of SIMD 1 and 2 smokers and recent ex-smokers in the Greater Glasgow and Clyde area' (NHSGGC 2015<sup>16</sup>) conducted within areas of deprivation, which indicated 51% of smokers approached said they would never stop smoking.

There are small differences in intention to stop smoking at different ages; 40% of young people intend to give up, whilst intention is highest among men aged 25-44 and women 45-64 years.

The local research (NHSGGC 2015<sup>17</sup>) showed that women are generally more interested in stopping. Data from ISD (2014)<sup>18</sup> shows that women are more likely to access support to stop through recognised NHS stop smoking services, which may also be having an impact on the prevalence figures between the sexes.

These findings suggest the promotion of services needs to be more sophisticated; being more age and gender sensitive and recognising the need to engage, particularly with older men who are not yet thinking about quitting smoking and who are less likely to seek services.

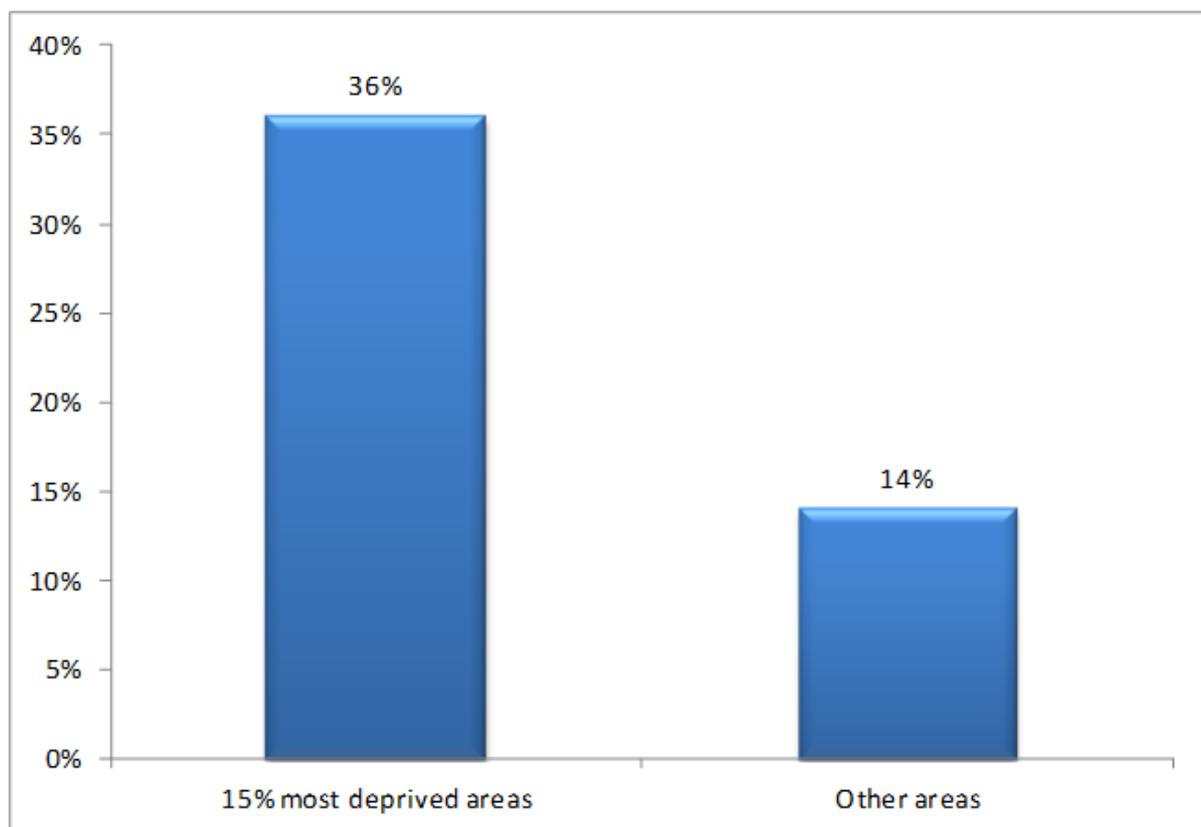
### **5.1.3 E-cigarettes**

E-cigarettes are devices which allow the user to inhale nicotine containing vapour without many of the chemicals which cause harm to the body. Such devices have experienced a rapid rise in popularity since 2010 with an estimated 2.6 million current users in the UK (approximately 2/5 ex-smokers, 3/5 current smokers, use in never smokers negligible) (ASH 2015<sup>19</sup>). A recent Cochrane Review (McRobbie et al 2014<sup>20</sup>) indicated that using a nicotine containing e-cigarette did increase the chances of stopping smoking long term when compared to a non-nicotine containing device

Attitudes towards e-cigarette use were, on the whole, positive with 49% of all respondents believing e-cigarettes encourage people to stop smoking, E-cigarette use within the last year was almost exclusively in smokers and ex-smokers but there is no additional data to confirm length or purpose of use (NHSGGC HWB Survey 2015<sup>21</sup>).

The NHSGGC HWB Survey identified nearly half of smokers or ex-smokers had used an e-cigarette in the past year and local research (NHSGGC 2015<sup>22</sup>) showed 18% of recent ex-smokers had used them to stop and 32% of current smokers were planning to use them in their next quit attempt. Interestingly, those more likely to use e-cigarettes were under the age of 55 and male. Also, the NHSGGC HWB survey reports that those from the most deprived areas were more likely to have used an e-cigarette in the last year compared to all other areas. E-cigarettes therefore feature strongly within the repertoire of what people are willing to use to quit smoking. This is in line with a recent evidence update commissioned by Public Health England (Public Health England 2015<sup>23</sup>) calling on stop smoking support services to actively encourage the use of e-cigarettes in combination with behavioural support.

**Figure 5.7: % used an E-cigarette in past year**  
(Source: NHSGGC HWB Survey (2015))

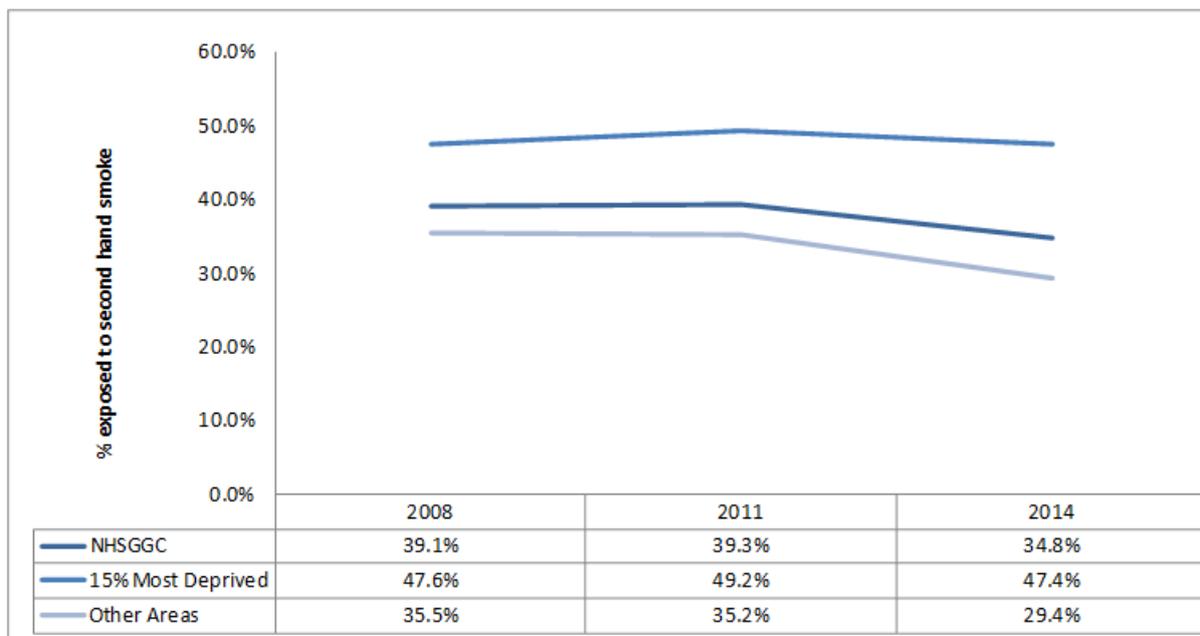


Men were more likely to use e-cigarettes than women, which may explain some of the differences between the sexes in accessing NHS stop smoking support – men may be ‘going it alone’ and using e-cigarettes to do it.

#### 5.1.4 Second-hand Smoke

Protection is another important strand of the work to reduce the impact of smoking on health in Scotland. Children and young people are more likely to be exposed to second-hand smoke (National Services Scotland 2014<sup>24</sup>) and the NHSGGC HWB Survey 2015<sup>25</sup> results demonstrate that in GGC exposure increases with decreasing age and increasing deprivation. Similarly to smoking status, exposure to second-hand smoke has reduced more rapidly across the total sample than in the bottom 15% datazones. In fact, there has been no reduction in exposure in these datazones from 2008 with a 5.8% reduction in all other areas.

**Figure 5.8: % Exposed to Second Hand Smoke (some of the time)**  
**(Source: NHSGGC HWB Surveys (2008 to 2015))**



Looking at trends over time, there was a large reduction in exposure to second-hand smoke in Greater Glasgow between the 2005 and 2008 surveys which corresponds with the introduction of smoke-free legislation in public places in 2006. Evidence suggests that most of the change in exposure was in public places and there was little evidence of change in school children's exposure in the home or car.<sup>26</sup> While it is encouraging that there was no sign of displacement of smoking into the home due to a ban on smoking in public places, there is little evidence of reduction within the home and car within areas of deprivation since 2008 (NHSGGC HWB 2015<sup>27</sup>)

### **5.1.5 Room for Improvement**

From the NHSGGC HWB survey, we can see that there have been significant reductions in smoking prevalence in NHSGGC. However, the reductions have not been equitable across deprivation indices or between the sexes.

Since the early 2000s, NHSGGC has been delivering high quality, evidence based stop smoking services in community pharmacies, stop smoking drop in clinics and groups in local areas; support in acute and psychiatric hospitals, prisons and maternity services. The data suggests we must do more to meet the different needs of smokers explicitly targeting our most deprived communities and in particular targeting groups of younger male smokers who are less ready to stop and who most require intensive support.

Stop smoking services need to evolve as smoking patterns and behaviours change. E-cigarettes as a tool to support smoking cessation should be acknowledged within current service models. Indeed, the suggestion from Public Health England (2015)<sup>28</sup> is that treating e-cigarettes in the same way as tobacco may undermine their potential for positive impact. They explicitly state that their inclusion within health trust and prison policies may disproportionately impact on more disadvantaged smokers.

Partnership work has already been undertaken with third sector organisations to raise the profile of the effects of second-hand smoke exposure in local areas. We need to work closely with local communities and partners to promote second-hand smoke messages that reflect realistic smoking behaviours and second-hand smoking exposure, encouraging partners to adopt evidence based initiatives. Legislative support for smoke free hospital grounds and smoke free parks / playgrounds are useful public realm measures and proposals for smoke free cars will help change the social norm at an individual level.

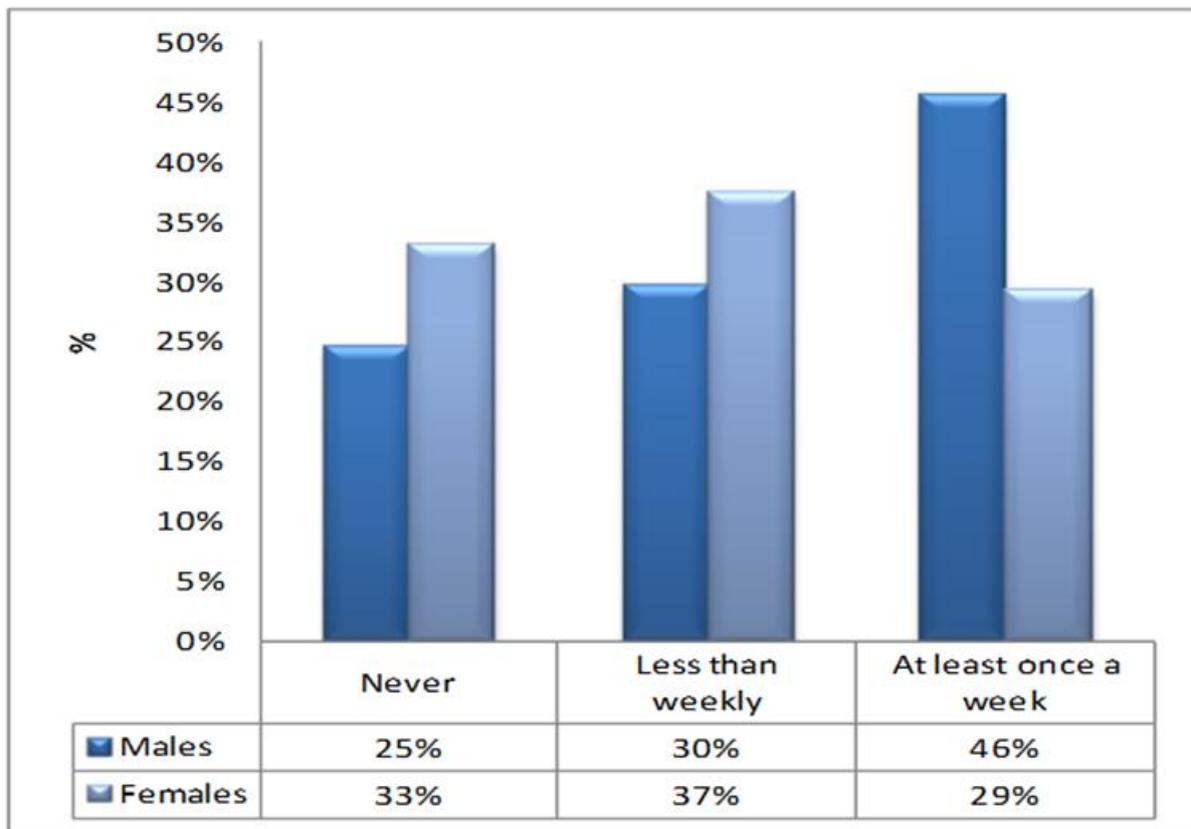
## **5.2 Alcohol**

### **5.2.1 Alcohol Consumption**

Approximately three in ten people within the NHSGGC HWB Survey 2015<sup>29</sup> (29%) report that they never drink alcohol. Scottish Health Survey<sup>30</sup> data report 21% of the GGC population being non drinkers; this is higher than the national average of 16%.

In line with national data, most non drinkers or infrequent drinkers (consuming alcohol less than once a week) are more likely to be women, and more likely to live in the 15% most deprived datazones (Figure 5.9).

**Figure 5.9: Alcohol Consumption by Gender**  
 (Source: NHSGGC HWB Survey (2015))



Those regularly drinking were more likely to be men, aged 65 and over (49% of men in this age group), and less likely to come from the most deprived areas (Figure 5.10).

**Figure 5.10: Alcohol Consumption by Deprivation**  
 (Source: NHSGGC HWB Survey (2015))

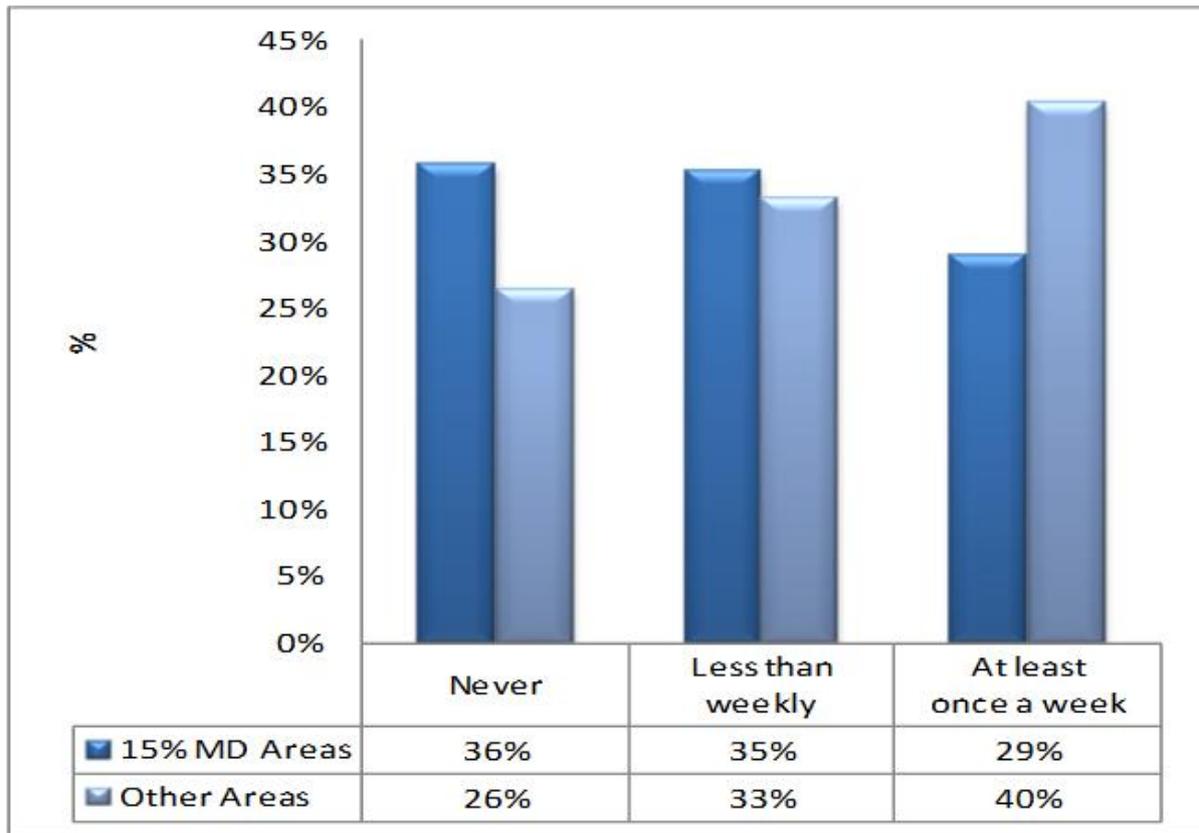
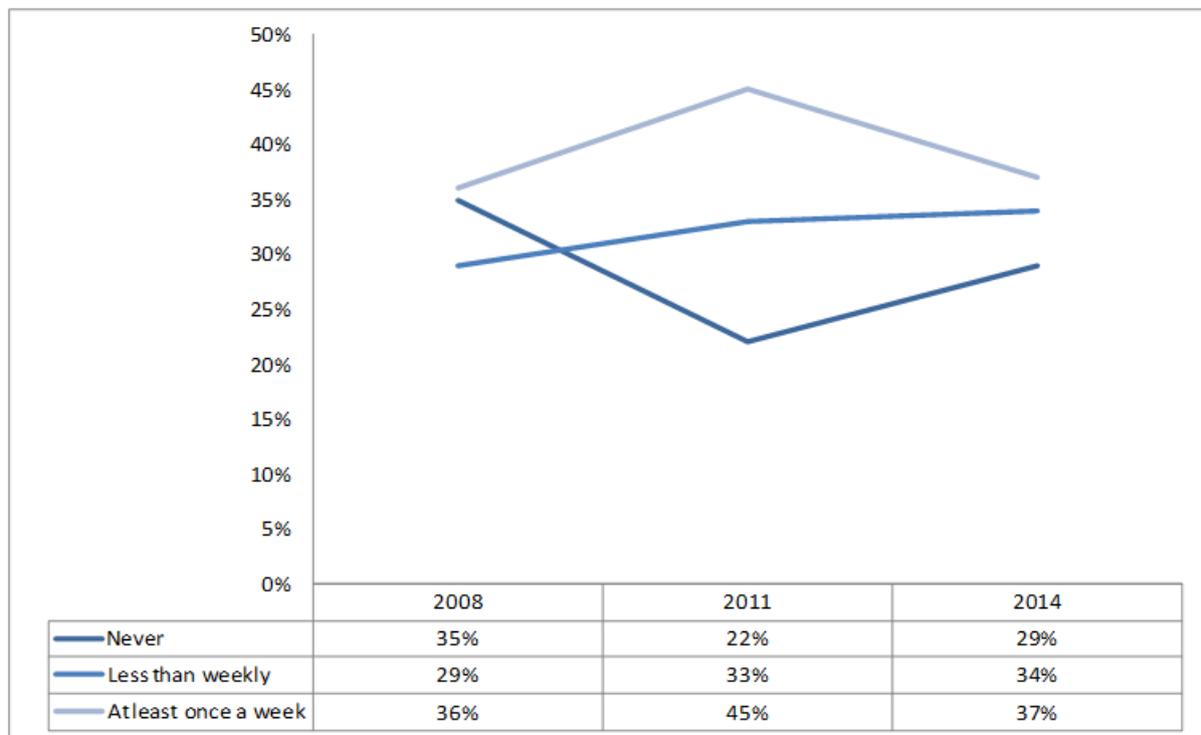


Figure 5.11 below indicates there are no clear trends regarding consumption patterns from 2008. A reduction in drinking more than once a week in the 2014 data is encouraging and whilst supported by reductions in self-reported alcohol consumption reported in other national surveys requires to be considered over the longer term (Scottish Health Survey 2013<sup>31</sup>; WHO 2011<sup>32</sup>; SALSUS 2013<sup>33</sup>).

**Figure 5.11: Alcohol Consumption Trends**  
**(Source: NHSGGC HWB Surveys (2008 to 2015))**

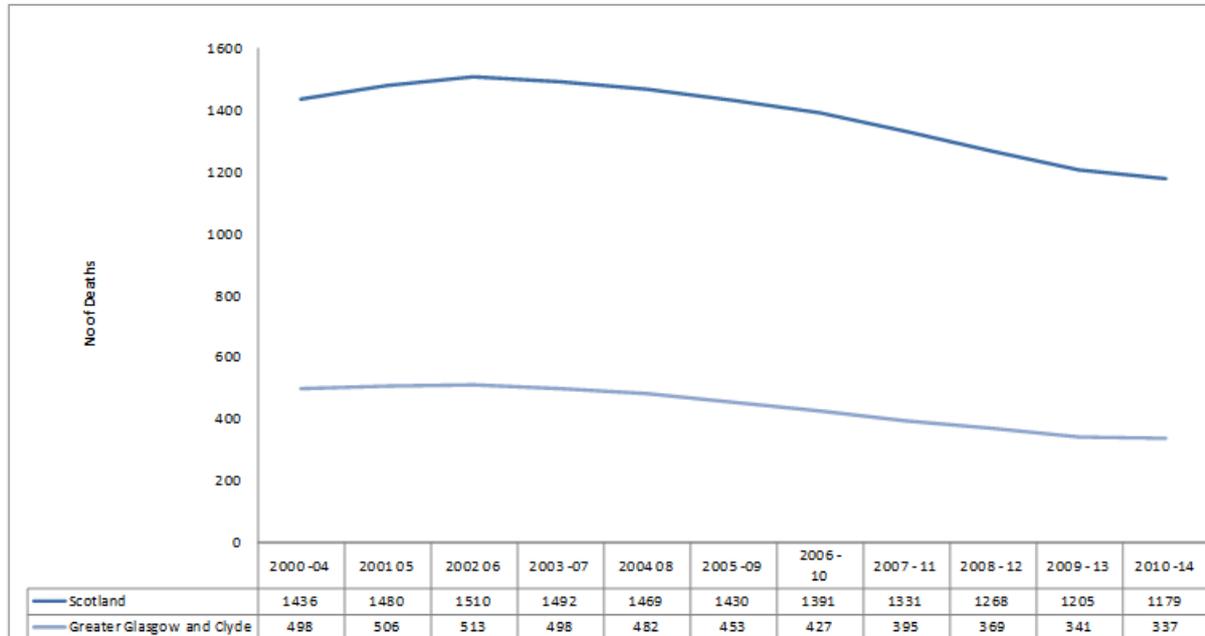


However, consumption should be viewed in the context of alcohol sales figures,<sup>34</sup> where the previous decrease in alcohol sales evident during 2010-2012 now appears to be flattening with increases evident in off-trade sales experienced during 2014 (MESAS Alcohol Sales and Price Update, 2015<sup>35</sup>). The most recent sales data are most likely to represent a change in trend for alcohol consumption, with more alcohol consumed in the home than in establishments such as pubs and bars.

National data suggests the impact of alcohol on population health has been moderately improving with a decline in alcohol related hospital admissions reported and a reduction in alcohol related deaths<sup>36</sup> evident from 2003. However more recent data indicates a 7% increase in the number of deaths across Scotland, with an increase in the number of alcohol-related deaths between 2013 and 2014 from 302 to 314 and an increase in European Age Standardised Rate (EASR) stay rate from 998 to 1018 per 100,000 within NHSGGC (National Records Scotland, 2015<sup>37</sup>).

**Figure 5.12: Alcohol Related Deaths Scotland and NHSGGC, 5 Year Moving Average**

(Source: National Records Scotland (2015))



Recent gains in population impact may in part be linked to a decrease in alcohol affordability (the recession for the poorest decile started in 2003, and alcohol duty has recently been frozen). Therefore it is surmised that economic recovery may result in increased alcohol affordability which may be associated with further increases in sales/consumption and therefore alcohol related harm – this latest data may be the first signs of this.

### 5.2.2 Exceeding Daily and Weekly Recommended Consumption Levels



Survey respondents<sup>39</sup> were asked whether they had a drink containing alcohol in the past seven days. Forty one percent of respondents said they had drunk alcohol in the past week.

The recommended daily limit for alcohol consumption is 3-4 units for men and 2-3 units for women. The recommended

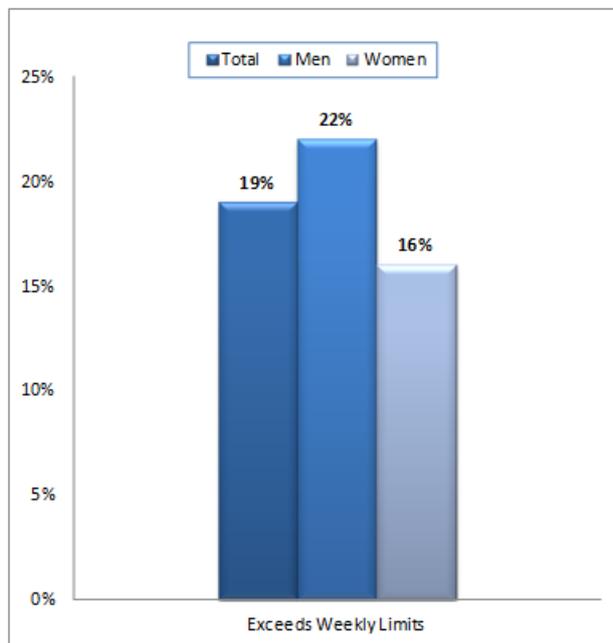
weekly limit for alcohol consumption is 21 units per week for men and 14 units per week for women (Scottish Government, 2009<sup>38</sup>).

Approximately 7 in 10 of those who had drunk alcohol in the past week exceeded the daily recommended limit on at least one day and 19% exceeded the weekly recommended limit. Men were more likely to exceed their weekly limits than women as shown in Figure 5.13. However, there was no significant difference between genders for those exceeding their daily limits.<sup>39</sup>

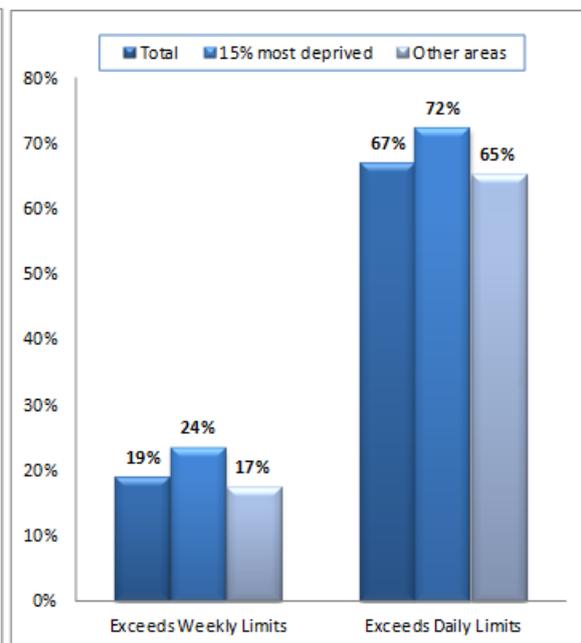
**Figure 5.13: % exceeding weekly recommended alcohol units by gender**  
(Source: NHSGGC HWB Survey (2015))

**Figure 5.14: % exceeding daily and weekly recommended alcohol units by deprivation**  
(Source: NHSGGC HWB Survey (2015))

**Figure 5.13**



**Figure 5.14**



Respondents from the most deprived areas were more likely to exceed both their daily and weekly recommended limits than those in other areas (Figure 5.14).

Those under 65 years were more likely than those aged 65 and over to exceed the weekly limits (20% v 11%), with men aged 16 to 24 the group most likely to do so (31%).

Similarly, 71% of those aged less than 65 years compared with 47% over 65 years exceeded their daily limits. However, the highest rates of excessive daily consumption were reported by women aged 45 to 54 years (79%).

### **5.2.3 Binge Drinking**

Binge drinking is said to occur when the alcohol consumed in one day is double the daily recommended guidance i.e., if men consume eight or more units a day and women consume six or more units a day they are defined as binge drinking.

Thirty eight percent of survey respondents<sup>40</sup> who had consumed alcohol in the preceding seven days had done so as part of a binge.

Almost half (47%) of those from the most deprived areas binge drank in the previous week with 36% doing so in other areas.

Men were more likely than women to binge drink in the previous week (45% v 29%); particularly those men aged 16 to 24 years (54%). Overall, 42% of those aged under 65 years binge drank compared to 20% of those over 65 years.

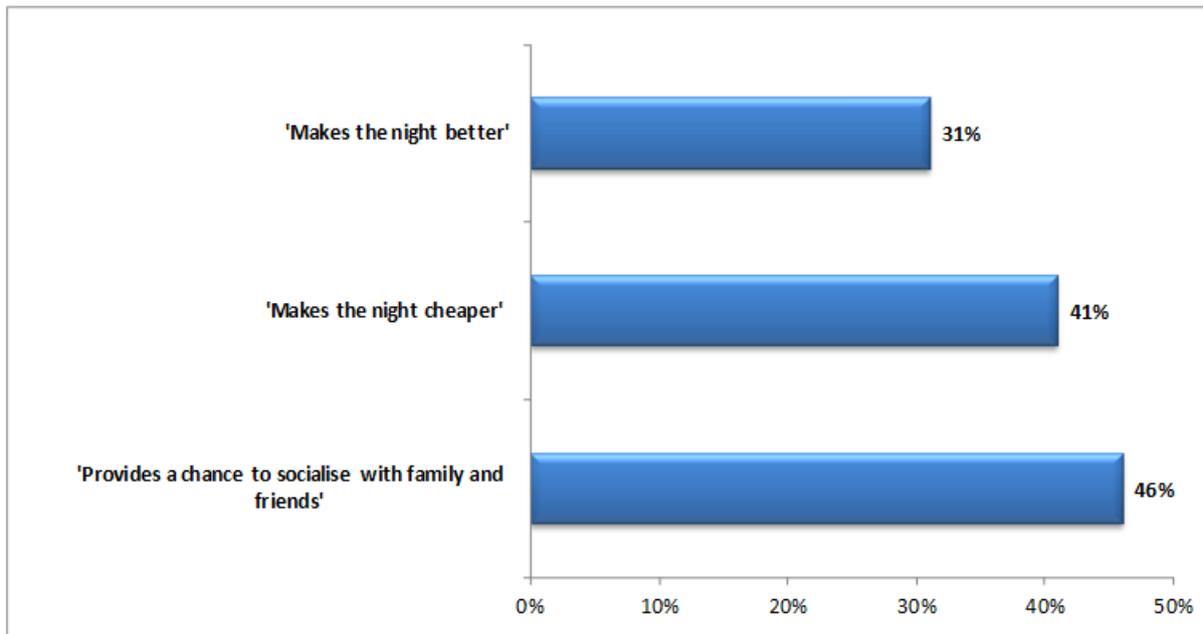
### **5.2.4 Preloading**

Among those who reported drinking, 31% said they drank alcohol before going on a night out.

Those living in the most deprived areas were more likely than those from other areas to do so (35% v 30%) as were younger men and women particularly those aged 16 to 24 years (74% men and 67% women) compared with those over 65 (8%).

Figure 5.15 shows the most common reasons for drinking before a night out.

**Figure 5.15: Reasons for drinking before a night out**  
(Source: NHSGGC HWB Survey (2015))



### 5.2.5 Consumption Patterns within Groups

A closer examination of the relationship between the above groups reveals some interesting patterns.

There was no significant difference in the proportions of those who exceeded their daily limits or binge drank whether or not they had at least two alcohol free days or not.

However, those who had less than two alcohol free days were much more likely to exceed their weekly alcohol limits (65%). Twenty eight percent of those who exceeded their daily limits also exceeded their weekly alcohol limits and 57% were binge drinkers. Overall, 43% of binge drinkers also exceeded their weekly limits.

### **5.2.6 Alcohol Free Days**

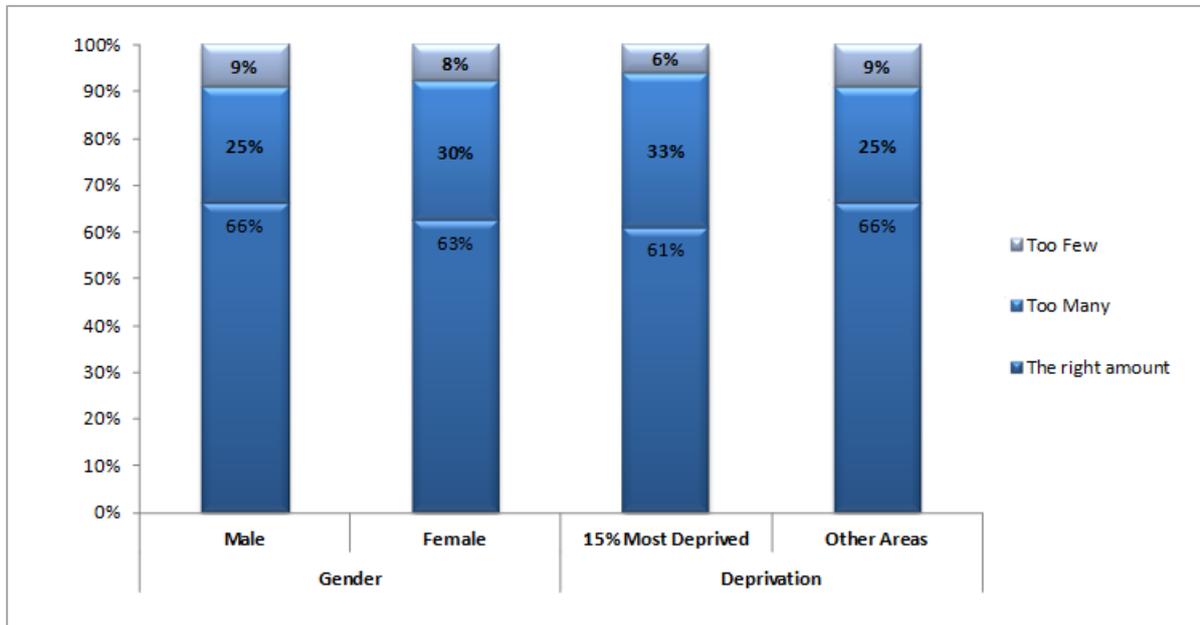
While guidance on alcohol consumption is provided on weekly and daily safe limits, consuming alcohol at the maximum safe daily limit 7 days a week is likely to be damaging for health. For this reason, at least two alcohol free days a week are also recommended to allow the liver to rest.

Ninety six percent of men who had drunk alcohol in the previous week had two alcohol free days compared to 98% of women. This is a slight improvement from 2011 and the promotion of alcohol free days may offer the opportunity to reduce further the frequency of alcohol consumption.

### **5.2.7 Availability of Alcohol**

Respondents were asked for their views on the number of places they could buy alcohol in their locality. Overall 64% said there were about the right number of licensed premises, 27% said there were too many, and 8% said there were too few. Women in all age groups were more likely to believe that there were too many licensed premises in their area and the proportion who believed that there were too many licensed premises steadily increased with age in both sexes.

**Figure 5.16: Perception of number of places to buy alcohol in local area  
(Source: NHSGGC HWB Survey (2015))**



Home deliveries of alcohol remain uncommon with only 6% of local residents reporting that they had ever had alcohol delivered to their home most of which were from a supermarket (4%).

### 5.2.8 Room for Improvement

The association of binge drinking and /or excessive daily alcohol consumption with excessive weekly alcohol consumption levels that are deemed harmful and hazardous requires a specific and renewed public health focus.

The importance of two alcohol free days to decrease the weekly alcohol intake remains a key public health message.

In order to reach a larger proportion of the population who are at increased risk due to excess alcohol consumption through binge drinking, frequent daily drinking, drinking in excess of daily or weekly guidelines and/or a combination of the above, the ABI programme should extend beyond primary care and Accident and Emergency settings into mental health, pharmacy, custodial and wider community settings in order to target vulnerable groups and increase screening within a wider cross section of the “well” population.

Minimising the impact of alcohol related harm requires a greater focus on restricting the availability of alcohol, and ensuring that the relationship between outlet density of licensed premises and alcohol related harm (public health, public nuisance, harm to children and young people, public safety and crime and disorder) is appropriately considered by Licensing Boards. Routine production of health information along with the engagement of local residents in the licensing process is central to reducing the availability of alcohol within communities where overprovision is a concern.

A number of alcohol and drug partnerships are reviewing alcohol related deaths in their area to identify the contact that individuals have had with the services (health, social work, police, fire service and prison) prior to their death to identify whether there were any missed opportunities for intervention that could have curbed the person’s alcohol intake and prevented further deterioration in their condition.

Waiting times for patients who request help with their alcohol consumption are tightly monitored to ensure that the majority of persons seeking care are reviewed within three weeks. A clinical services review group has met to look at pathways and provision of care for patients with alcohol related disorders to ensure that good health care is equitably accessible across Greater Glasgow and Clyde. Closer work between mental health service and addiction services for people who have co-morbid alcohol and mental health illnesses could improve the management of the mental health condition and the alcohol misuse.

## 5.3 Physical Activity

Regular physical activity can help prevent and treat more than 20 chronic conditions yet in the UK, physical inactivity directly contributes to one in six deaths. In light of these health statistics, low levels of physical activity have recently been described as '*a pandemic*' and as '*risky as smoking*' (Lee et al, 2012<sup>41</sup>).

New evidence also suggests that sedentary behaviour is independently bad for health (independent of any overall volume of aerobic physical activity undertaken by an individual) (Biswas et al, 2015<sup>42</sup>; Department of Health, 2011<sup>43</sup>). Population based measurement of sedentary behaviour is in its infancy and as such NHSGGC's HWB survey<sup>44</sup> focuses solely on the aerobic component of physical activity.

### 5.3.1 Physically Active

Despite an increased focus on physical activity and sport following the London Olympics and Commonwealth Games in Glasgow, trends in the proportion of adults achieving the minimum recommended amount of physical activity have shown no improvement.

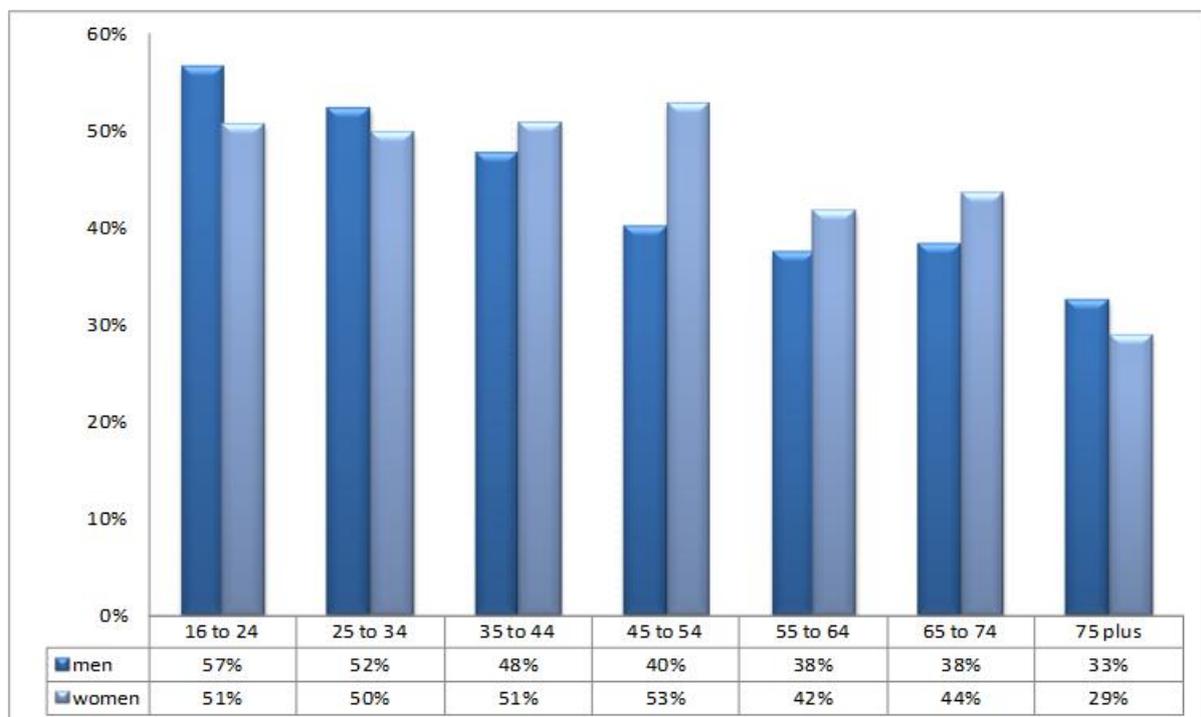
New guidelines endorsed in 2011 recommend that adults achieve 150 minutes of moderate intensity physical activity, e.g., walking or easy cycling or 75 minutes of vigorous intensity physical activity weekly, e.g., aerobics or sports (Department of Health, 2011<sup>45</sup>).

These new guidelines removed the frequency stipulation of the previous recommendation which advocated 30 minutes of moderate to vigorous physical activity should take place on at least five days of the week (Department of Health, 2004<sup>46</sup>).

For comparative purposes, the HWB survey 2015 collected data for adults who met the guideline of 30 minutes of physical activity on at least five days of the week. At this time, it is not possible to fully explore those who meet the guidelines published in 2011.

Just under half (46%) of adults in NHSGGC achieved the targets set by the 2004 guidelines. The proportion of those meeting the target decreased with age (48% under 65 years, 36% aged 65 plus). Contrary to national data in the Scottish Health Survey, 2013 (Leadbetter et al, 2014<sup>47</sup>) there was no significant difference overall between men and women. However, there were gender differences within age-group as shown in Figure 5.17 with the usual gender inequality reversed with more women of working age reporting being active than men.

**Figure 5.17: % meeting physical activity targets of 30 minutes on 5 or more days per week by age and gender**  
**(Source: NHSGGC HWB Survey (2015))**

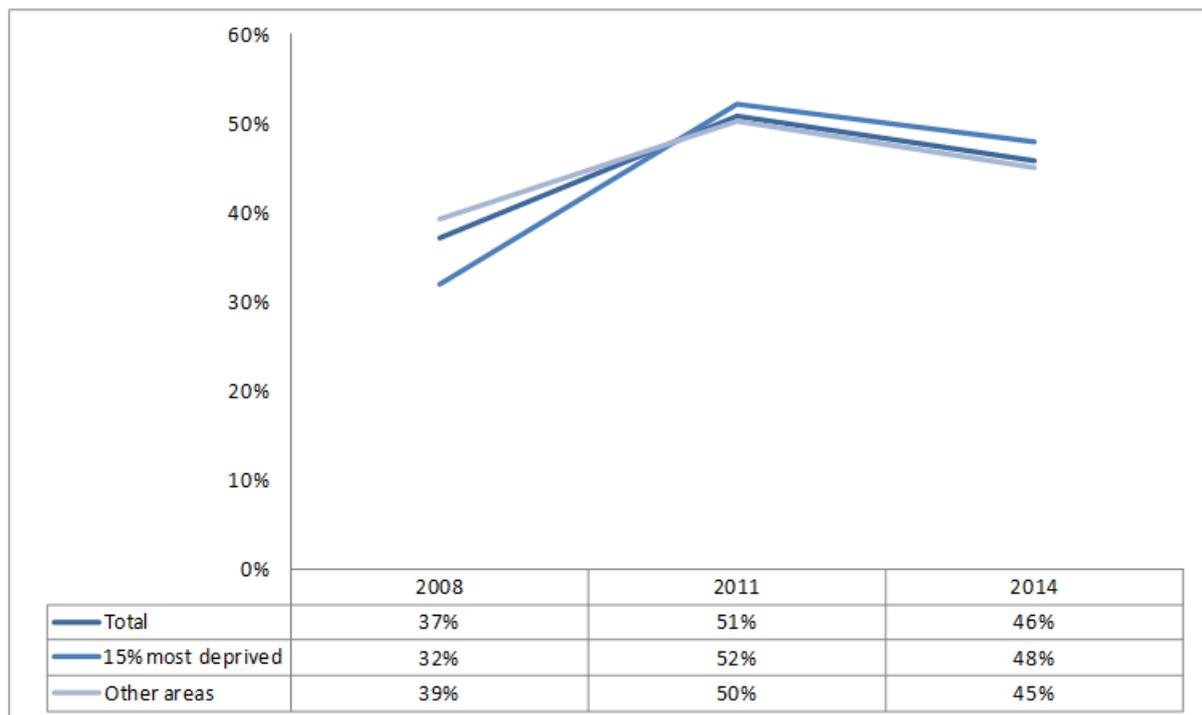


This age-related decline in the proportion of respondents meeting the recommended levels of physical activity is similar to other countries globally (World Health Organization, 2010<sup>48</sup>) and older adults are highlighted as a key target group by the Scottish Government (Bromley & Mindell, 2011<sup>49</sup>).

Comparisons with previous surveys show an overall drop of 5% in the proportion of those physically active for 30 minutes on five days a week between 2011 and 2014, although when compared to 2008 data there was still an overall increase of 9% and a 16% increase in the most deprived areas (Figure 5.18).

**Figure 5.18: % meeting physical activity targets of 30 minutes on 5 or more days per week by deprivation**

**(Source: NHSGGC HWB Surveys (2008 to 2015))**

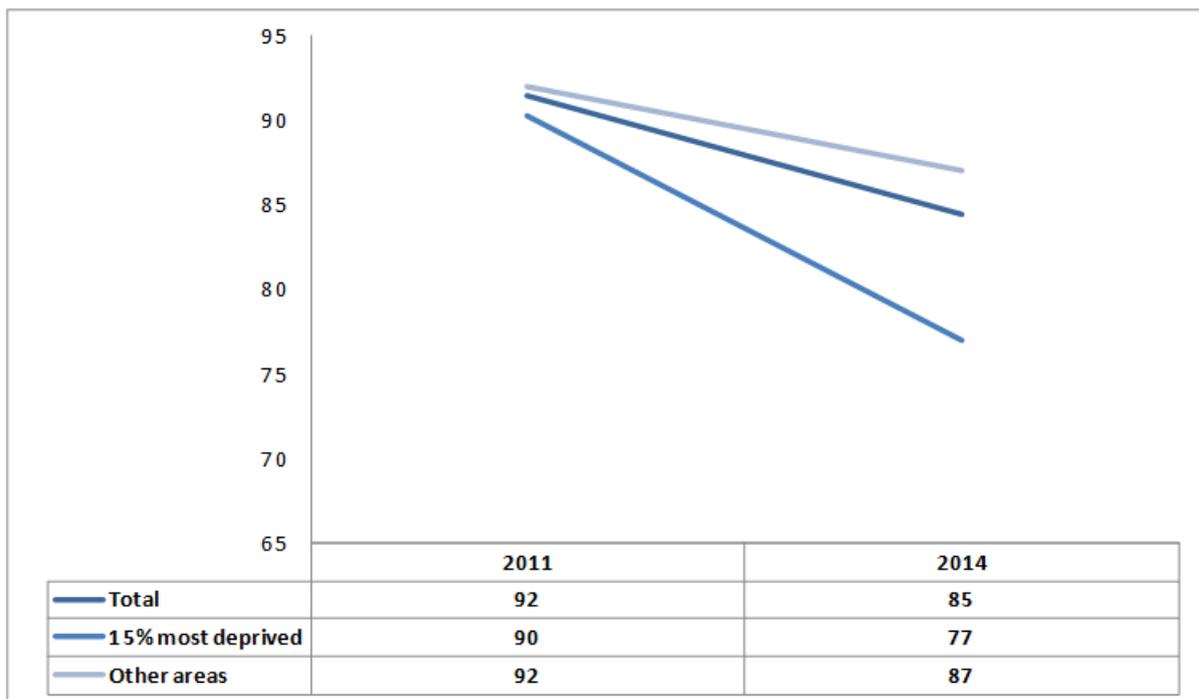


### 5.3.2 Types of Physical Activities

Encouragingly, 85% of respondents participated in at least one type of physical activity in the last week (including domestic activity, walking, and various forms of sport or structured exercise). However, overall rates of participation have decreased by 7% since 2011. Previously there was no significant difference in participation rates between the least and most deprived areas, however data from 2014 suggests a significant widening of the gap between the most deprived neighbourhoods and other areas (Figure 5.19).

**Figure 5.19: % who participated in at least one type of physical activity in the past week**

**(Source: NHSGGC HWB Surveys (2011 and 2015))**



This overall decrease is strongly influenced by daily living activities.

### **5.3.3 Active Living**

The contribution of physical activity undertaken as part of daily living may offer further insight into the accumulation of physical activity. More women report participating in domestic physical activity, e.g., housework, gardening or DIY, than men (61% vs. 38%) and national data suggests that housework is a bigger contributor to overall physical activity levels for women than for men (Leadbetter et al, 2014<sup>50</sup>). The contribution of housework to physical activity was more heavily emphasised in the HWB questionnaire than in the Scottish Health Survey <sup>51</sup>, which may partly explain the lack of gender difference shown.

Domestic activity and walking for commuting were the most frequently stated types of physical activities in 2014 (50% and 45% respectively). Taken together almost two thirds (65%) of all respondents participated in at least one of these two active living activities in the past week, with women more likely to have done so than men (77% vs. 58%).

### **5.3.4 Sport and Exercise**

Fewer people reported participating in any sport or structured exercise in the past week than for either of the daily living activities. In general, men were more likely to participate in sport and exercise, e.g., team and racket sports, athletics, cycling and martial arts, than women with the exception of dancing and walking for leisure. There were no significant differences in leisure centre or water based sports by gender. Respondents from the most deprived areas were less likely to participate in sport and exercise than those from other areas, with the notable exception of team sports.

These reported preferences for types of physical activity are considered in the design of programmes offered by NHSGGC which include walking and exercise classes which support patients to improve and/or maintain functional capacity for everyday tasks such as Vitality programme.

### **5.3.5 Physical Activity by Deprivation**

Whilst low levels of physical activity have previously been linked to deprivation; the NHSGGC HWB survey<sup>51</sup> showed no statistically significant variation in the overall proportion of respondents achieving the old physical activity guidelines of 30 minutes 5 times per week by deprivation. There may be a number of explanations for this which cannot be explored in the HWB Survey<sup>52</sup>: those living in large urban areas and in the most deprived areas of Scotland tend to have the highest levels of public and/or active transport use (Scottish Government, 2014<sup>53</sup>); a greater contribution of occupational work to physical activity levels in deprived areas (Leadbetter et al, 2014<sup>54</sup>); or it may be reflective of the historical investment in areas of high social and economic deprivation across Greater Glasgow. For instance, swimming pools, public sports centres and outdoor play areas have a higher density and/or are closer to more deprived areas of Glasgow city compared to areas of low deprivation (Macintyre et al, 2008<sup>55</sup>) suggesting that geographical access may not be a barrier for many people. This research does not explore the quality, safety or cost of facilities which are widely reported barriers and may be more pertinent in deprived communities.

### **5.3.6 Room for Improvement**

The majority of Greater Glasgow and Clyde residents remain inactive. Interventions that challenge the social norm of inactivity are required at a population level.

Complacency in relation to inequalities in physical activity cannot be afforded. A continued focus on programmes which promote physical activity as part of active living is essential to deliver accumulated minutes of activity. Variations in participation in sport and structured exercise suggest the need for continued promotion and targeting in deprived communities specifically.

The attention on the least active groups requires to be sustained through local programmes such as GP exercise referral scheme, with 8,000 referrals annually, and 70 weekly exercise classes tailored for individuals with Long Term Conditions which may be offsetting, in part, the reported drop off in activity levels associated with age (World Health Organization, 2010<sup>56</sup>). The routine identification of and intervention with adults at risk from inactivity within settings such as primary and secondary care, should be considered a public health priority, in line with recommendations from the Global Advocacy for Physical Activity group (2011)<sup>57</sup> and the Scottish Government's Physical Activity Implementation Plan (2014)<sup>58</sup>.

Further data analysis to profile communities and target the least active groups requires to be undertaken in collaboration with partners at a local level to inform the range of physical activity initiatives that are provided in local areas and improve engagement with key groups. Continued advocacy for physical activity opportunities which are accessible to vulnerable communities and groups should be undertaken in conjunction with partners.

Rigorous evaluation of physical activity interventions is required in order to better understand what interventions work best and for whom, to improve outcomes from NHSGGC physical activity programmes.

## **5.4 Obesity**

The health implications of obesity at both a national and personal level are serious. The National Obesity Observatory (2010)<sup>59</sup>, estimate that average life expectancy is reduced by two to four years in the body mass index (BMI) range 30–35 (obese) and by eight to ten years in the BMI range 40–50 (severely obese).

The annual cost to NHS Scotland of overweight and obesity combined may be as much as £600 million (Spice Briefing, Obesity in Scotland, 2015<sup>60</sup>). The average health care costs for people with a BMI of 40 are estimated to be at least twice those for people with a BMI of 20 (within normal weight range). However, taking into account the total economic burden of obesity, the cost is estimated to range from £0.9 billion to £4.6 billion per year, including GP and Practice Nurse consultations, medication for obesity related diseases e.g., hypertension, hospital bed days, lost working days etc.

Some of this rapid change of weight gain is linked to the “obeseogenic environment”; Societal and technological changes such as more sedentary jobs; more affordable car journeys; bigger food portions and more sophisticated targeting of unhealthy convenience food, all impact on our daily choices.

Other factors increasing our risks of developing obesity are area deprivation, socio-economic status (SES), gender and ethnicity.

The data captured in the Scottish Health Survey 2014<sup>61</sup> is based on physical measures of height and weight compared to the self reported height and weight recorded in the NHSGGC’s Health and Well Being Survey 2015<sup>62</sup>.

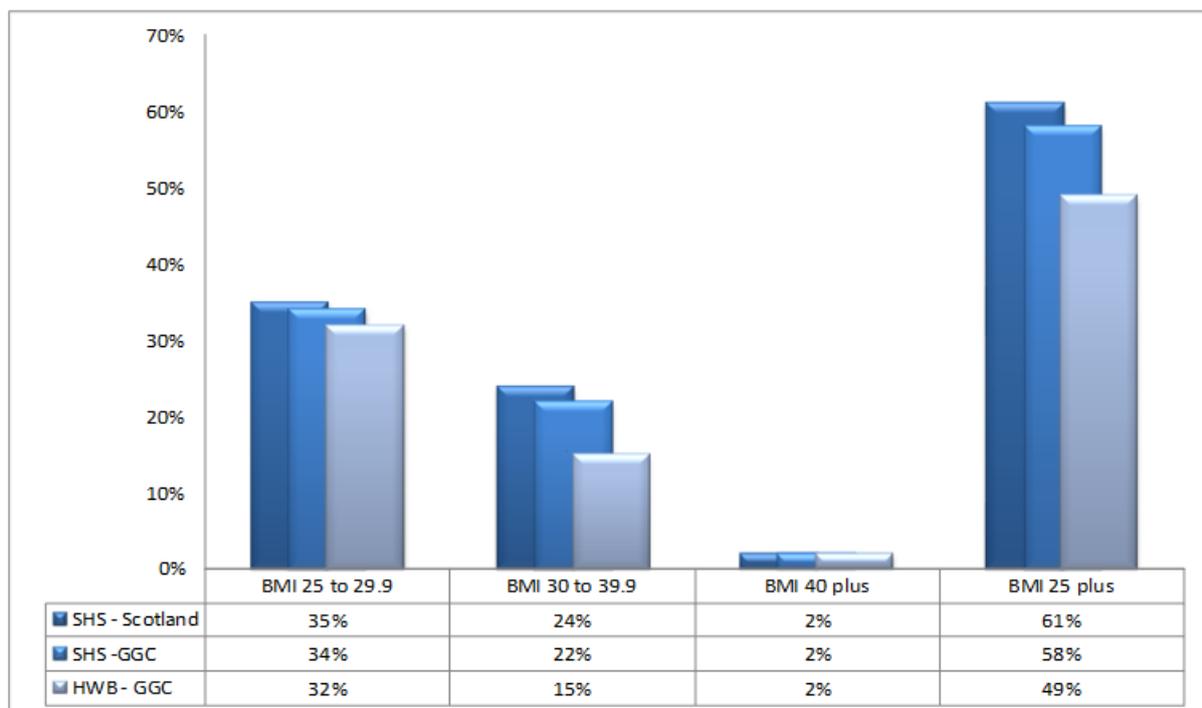
#### **5.4.1 Prevalence of Obesity**

Nationally, the prevalence of overweight, including obesity has increased from 52.4% to 62.6% from 1995 to 2008 and has since 2008 stayed stable. The HWB Survey<sup>63</sup> however indicates a more worrying trend with continued increase of self reported overweight, including obesity increasing from 43% in 2008 to 49% in 2014. The HWB Survey data are lower than the national data, suggesting an under estimation of weight, often associated with self reports of weight or BMI (Merrill and Richardson, 2009<sup>64</sup>; Lazalle 2013<sup>65</sup>).

Levels of obesity increase significantly with age, peaking in the 55-64 age range in both sexes. In the 16-24 year olds, more women than men are obese (16.9% vs. 9.2% for men). More men are overweight but women tend to be more obese. Data suggests that women’s onset of being obese starts earlier than for men and continues to progress with more women becoming severely obese than men.

**Figure 5.20: BMI Categories**

**(Source: Scottish Health Survey (2008 to 2011) and NHSGGC HWB Survey (2015))**



The HWB Survey data (2015) closely mirrors national patterns for gender and age. Men are generally more overweight than women in both surveys. The exception being women aged 45-64 which is marginally higher than men within the HWB Survey (2015). Women in general are slightly more obese up to the age of 44 and the figures are thereafter are more equal for both sexes. When looking at all BMI categories out with a healthy weight however, more men than women have an unhealthy weight. Table 4 illustrates the gender differences across BMI categories and age bands.

**Table 4: BMI, gender and age differences cumulative data**

**(Source: Scottish Health Survey (2008-2011) and NHSGGC HWB Survey (2015))**

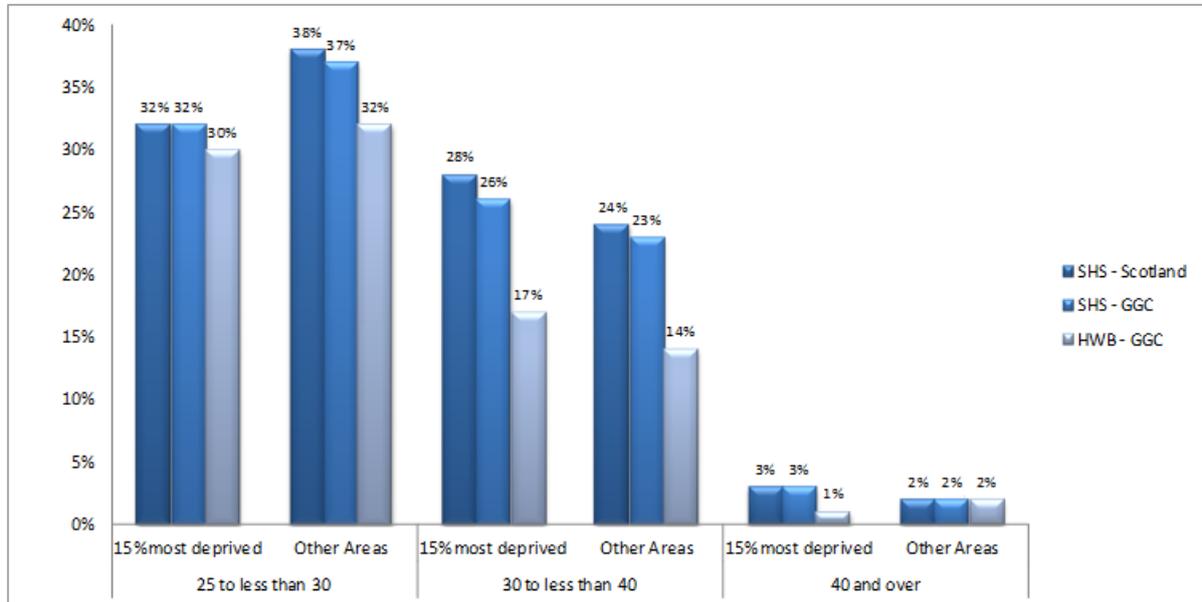
	Overweight		Obese		Overweight, obese, severely obese	
	Men	Women	Men	Women	Men	Women
<b>Total</b>	39%	32%	25%	27%	65%	59%
<b>Age 16-44</b>	37%	27%	19%	21%	56%	48%
<b>Age 45-64</b>	42%	35%	34%	34%	76%	69%
<b>Age 64+</b>	44%	38%	30%	30%	74%	68%

Obesity levels are in general higher in the most deprived communities, although the differences are levelling out due to increasing levels of obesity in the least deprived areas in recent years (Zhu J, et al. 2015<sup>66</sup>). In addition, the impact of deprivation is more notable in relation to female obesity levels than males.

In line with the national data, the HWB Survey reports a higher prevalence of overweight is in the least deprived communities but more people are obese in the most deprived areas.

**Figure 5.21: BMI category by deprivation**

**(Source: Scottish Health Survey (2008 to 2011) and NHSGGC HWB Survey (2015))**



The HWB survey also provides information on eating habits and there are some encouraging trends in that the consumption of snacks high in fat and sugar have decreased with 4.9% in the bottom 15% areas (change 2008-2011).

In 2011, consumption of five portions of fruit and vegetables was achieved by only 39%, indicating that the many of the known nutritional benefits associated with disease prevention found in these foods continue to be missed by large parts of the population in NHSGGC.

### 5.4.2 Room for Improvement

The majority of the NHSGGC adult population are overweight or obese. This coupled with the level of under reporting of weight and BMI within the HWB Survey, are indications that the social norm is now one of public acceptability of overweight and potentially an under recognition of the implications of the condition. Obesity requires recognition as a major public health challenge within Greater Glasgow and Clyde.

A multi stranded approach is therefore required which includes:

- Increase recognition and awareness of the impact of obesity within the population and develop understanding and skills to enable individuals to increase or maintain physical activity levels, cook and eat a healthy diet and effectively self manage their weight on a long term basis. (NICE, 2015<sup>67</sup>; Mackie and McCann, 2014<sup>68</sup>).
- Develop an effective targeting strategy for weight management services which addresses the needs of men in achieving a healthier weight and actively supports younger women who are more likely to become obese, to lose weight at levels which will provide health gain. This strategy should be complementary to a universal weight management service, widely available in areas of deprivation.
- Increase the routine identification of individuals who are overweight within primary and secondary care settings and provide appropriate services to support weight loss including the development of life-skills to support longer-term weight management. Services require a combination of calorie deficit diets, increased physical activity and motivational interventions along with more intensive dietary regimes and potentially weight loss surgery for people with complex conditions and severe obesity as advocated by SIGN Management of Obesity, 2010<sup>69</sup>. Current uptake of weight management services is lower than anticipated across NHSGGC. (E Anderson, 2012<sup>70</sup>).

- An upstream population approach with local and national partners is imperative to address the wider obeseogenic environment described within The McKinsey Global Institute's economic analysis of interventions related to tackling obesity (2014)<sup>71</sup>. Both nationally and locally a more strategic and encompassing approach is required with partners to respond to the obeseogenic environment; influencing the food and drink sector; retailers and caterers creating an exemplary position of public sector provision; improving food access in deprived local communities; as well as creating an active physical environment supporting green space and active travel.

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