

# Who runs in Glasgow?

**Analysis of participation in three of Glasgow's major distance running events: the Great Scottish Run, the Women's 10K and the Junior Great Scottish Run**



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## Executive summary

Glasgow hosts a number of major distance running events each year. Participation in such events could bring potential individual and population health benefits, but little has been reported about who enters for these events. This study set out to find out who does and who does not enter for three major distance running events held annually in Glasgow: the Great Scottish Run (GSR), Junior Great Scottish Run (JGSR) and the Women's 10K (W10K). The analysis is based on entry data from these events over four years (2008-2011) and focuses on the age, gender, geographic and deprivation profile of entrants from Glasgow.

The three events have attracted as many as 35,000 entrants annually in recent years with entrants coming from across Scotland. Over 10,000 entrants were Glasgow residents, representing a significant proportion of Glasgow's population.

A summary profile of entrants to each race in the period 2008-2011 is given below:

### Great Scottish Run (GSR)

- On average 19,500 adults entered the half marathon and 10K race each year.
- Entrants came from all 32 Scottish local authorities.
- 25% of entrants were from Glasgow, equating to 1% of Glaswegians aged 15 years or older.
- The majority of Glasgow entrants were 25-34 years of age and relatively few were 55 years or older (6%).
- Entry levels vary hugely across the city. In some neighbourhoods as many as 27 per 1,000 adults entered while in others the entry rate was only 2 per 1,000.
- Entry levels were six times higher in the least deprived decile in Glasgow compared to the most deprived decile.
- Only 23% of entrants came from the more deprived half of the city.

### Junior Great Scottish Run (JGSR)

- Between 1,500 and 1,900 children have entered this event each year.
- Entrants have come from 31 out of the 32 local authorities in Scotland with approximately half coming from Glasgow.
- 1.6% of 9-17 year olds in Glasgow entered the event on average each year.
- More boys than girls entered for the race in each age group.
- Entries dropped rapidly in the teenage years, particularly among girls.
- In some neighbourhoods entry rates were three to four times higher than the Glasgow average e.g. Anniesland, Jordanhill & Whiteinch (6.2%), Kelvindale & Kelvinside (5.1%), Shawlands & Strathbungo (4.5%), but in the majority of neighbourhoods entry rates were lower than the Glasgow average and in some entry rates were extremely low e.g. Ibrox & Kingston and Easterhouse (0.1%).
- The entry rate in the least deprived part of Glasgow was 3.7%, more than double the Glasgow average and four times greater than that in the most deprived decile of the city.

### Women's 10K (W10K)

- There were between 10,000 and 13,000 entrants to this race annually over the last four years.
- Over the last four years entrants have come from all 32 local authorities in Scotland.
- One third of entrants were from Glasgow, representing 1.5% of women in Glasgow.
- Two-thirds were aged between 25-44 years, nearly a fifth were aged 45-64 years, but less than 1% were older than 65 years of age.
- In 15 neighbourhoods less than 1% of women entered the race, while in the areas with the highest entry rates, rates were almost double the Glasgow average (of 1.5%) e.g. Shawlands & Strathbungo (3.1%), Pollokshields West (3.6%) and Langside & Battlefield (3.8%).
- The entry rate from the least deprived parts of the city was over four times greater than that in the most deprived areas of the city.

So, it is clear that certain population groups are less likely to participate. These include teenage girls in the junior race and older adults in the adult races. There are large variations in entry rates across the city by neighbourhood: people living in the least deprived parts of Glasgow are four to six times more likely to enter than people from the most deprived areas. Addressing the low participation of certain groups might involve targeted marketing and engagement, piloting new jogging networks and working with schools.

Additional further research is proposed: to explain why some people do not take part and what might encourage greater participation; to profile regular runners compared to first-time runners; and to compare those who enter and participate with those who enter but do not participate in order to assess whether particular population groups are more likely to drop out. It is also suggested that a longitudinal study of entrants' physical and mental health pre- and post-race would help identify if there are measurable health benefits of participating in these runs.

This study of a defined topic – running event participation – illustrates how, if high quality demographic data were available for other sporting, leisure and cultural activities in Glasgow, similar profiling could be undertaken.

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## 1. Introduction

Levels of physical activity in Scotland are generally low, particularly among adults. This is also true in Glasgow, a city that suffers from a range of health, social and poverty related issues. Participation in physically active sport could potentially have a very positive impact on population health if undertaken regularly and by a significant proportion of the population.

The Great Scottish Run (GSR) has been an annual event in Glasgow for 29 years. The event has grown from its beginnings as the Glasgow Marathon in 1982, when 8,246 runners entered, and now consists of three days of running events. The School Challenge takes place on the Friday and has 3,000 school children taking part in a 1K and various 'come-and-try' sports activities. The Junior Great Scottish Run (JGSR) takes place on the Saturday with two races in which more than 1,500 junior runners compete in a 1.5K and a 3K race; and the Great Scottish Run (GSR), which takes place on the Sunday, consists of a 10K and a Half Marathon.

The Women's 10K (W10K) started in 1993 with 3,000 entrants. Event entry rose steadily to a peak of just under 15,000 in 2006 and has fluctuated since. There were 10,000 entrants in 2012.

In recent years annual entries to the GSR, W10K and JGSR have risen to as many as 35,000 runners, with over 10,000 entrants from Glasgow itself.

It is reasonable to suppose that many of those taking part in these runs, particularly the longer events, will be exercising close to, or above, the recommended levels for maintaining physical health<sup>a</sup>. With relatively large proportions of the Glaswegian population taking part (1.6% of children in the JGSR, 1.5% of women in the W10K and 1.0% of adults in the GSR) there is the potential that training for the event (and taking part) will have a significant positive health impact.

However, little has been reported on who takes part in these events. Given this context, this study investigates the demographic patterning of entrants to these three annual distance running events in order to understand who **does** and **does not** take part.

Prior to describing the analysis, a brief description is given of current knowledge about physical activity and obesity in Scotland, of Glasgow's health context, and of national and local health and sports related policy.

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<sup>a</sup> In the UK, the current minimum recommended level of physical activity for **children aged 5-18** is that they should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day and that 'vigorous intensity activities', including those that strengthen muscle and bone, should be incorporated at least three days a week.

For **adults aged 19-64 years**, the guideline is that over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of ten minutes or more e.g. 30 minutes on at least five days a week. Alternatively, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or combinations of moderate and vigorous intensity activity. Adults should also undertake physical activity to improve muscle strength on at least two days a week.

*Physical Activity Guidelines in the UK: Review and Recommendations, Department of Health, May 2010*  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_127931](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_127931)

## 1.1. Patterns and trends in physical activity and obesity at a Scottish level<sup>1</sup>.

National levels of physical activity, sporting participation and obesity are summarised below, derived from data collected from the Scottish Health Survey in 2010.

### *Physical activity and sporting participation*

- In 2010, 39% of adults aged 16 years and over in Scotland met the physical activity recommendations. Men were more likely to meet them than women (45% compared with 33%). There was no significant change in the proportions meeting the recommendations between 2008 and 2010.
- 44% of adults had participated in sporting activities in the previous four weeks. Sports participation decreased with age from 68% of those aged 16-24 to 13% of those aged 75 and over.
- The most common sporting activities for adults were working out at a gym/exercise bike/weight training (15%), doing exercises (e.g. press-ups, sit ups) (14%), swimming (12%) and running/jogging (11%).
- In 2010, 72% of children (75% of boys and 70% of girls) met the physical activity recommendations including school-based activity. Although there was little change for boys between 2008 and 2010, the proportion of girls meeting the recommendations appears to have increased from 64% in 2008.

### *Obesity*

- Levels of adult obesity have risen significantly over the last 15 years from 17.2% in 1995 to 27.4% in 2010 among adults aged 16-64 years.
- Obesity rates increase with age, from 13.3% in those aged 16-24 to a peak of 38.3% in those aged 55-64 years (2010 data). The combined prevalence of overweight and obese was lowest in adults aged 16-24 (33.8%) and highest (77.9%) for those aged 55-64.
- In 2010, 29.9% of children aged 2-15, (31.1% of boys and 28.5% of girls) were overweight or obese.

## 1.2. Health in Glasgow

Glasgow's poor health profile is well known. Life expectancy is below the Scottish average: Glaswegian men live for four years less than the Scottish average, and Glaswegian women live two and a half years less than the Scottish average. In addition, women in Glasgow live six years longer than men. Poverty is a key factor in health outcomes. Male life expectancy is 13-14 years higher in the least deprived areas than in the most deprived. For women, the gap is 8-9 years.

Lifestyle is also a major influence on health outcomes. Despite recent improvements, Glaswegians still smoke more than in the rest of Scotland – around a third of adults in the city smoke, the highest rate of any local authority area in Scotland. Alcohol and drug-related deaths in Glasgow are far above the Scottish average. Obesity has risen both locally and nationally: over a quarter of Glaswegian adults are obese, and two thirds are overweight. Four-out-of-ten adults in the city met the recommended levels of physical activity in 2008, which was in line with the national average<sup>2</sup>.

Recent research led by the Glasgow Centre for Population Health has identified a so-called 'Glasgow Effect' in relation to health, that is an excess of mortality beyond that which can be explained by current indices of deprivation<sup>3</sup>.

### 1.3. National policy context

Successive devolved governments in Scotland have made efforts to promote physical activity as part of a healthy lifestyle, and have developed initiatives to help adults and children increase their activity levels. These included:

- The 2003 Physical Activity Taskforce publication *Let's Make Scotland More Active: A strategy for physical activity*<sup>4</sup>.
- The Scottish Government's 2008 action plan *Healthy Eating, Active Living: An action plan to improve diet, increase physical activity and tackle obesity (2008-2011)*<sup>5</sup>.
- The Scottish Government's *Route Map for tackling obesity*<sup>6</sup>.
- The Curriculum for Excellence<sup>b</sup>, adopted in schools from August 2010, which sets out a framework for children and young people (aged 3 – 18 years) to experience, on a regular basis, a wide range of purposeful, challenging, progressive and enjoyable physical activities in addition to the required two hours of PE.
- The Active Schools<sup>c</sup> programme which is designed to encourage young people to be involved in physical activity and sporting opportunities outwith PE lessons.

Allied to the above initiatives, the following physical activity targets, monitored by the Scottish Health Survey, exist for adults and children in Scotland:

***50% of adults, and 80% of children aged 16 and under, should be meeting the current recommended levels of physical activity by the year 2022***

The Scottish Government has an explicit commitment through one of its 50 national indicators within the National Performance Framework<sup>d</sup> to 'increase physical activity.'

### 1.4. Local policy context

Glasgow City Council has a *Healthy Weight Action Plan*<sup>7</sup> and a physical activity strategy<sup>8</sup>. The Council's 2014 Commonwealth Games legacy strategy and its action plans relate to physical activity and healthy weight. Other related strategies include the Council's *Joint Staff Health Strategy* and its new *Travel Plan*.

Glasgow Life's strategic objectives<sup>e</sup> are '*to encourage participation, involvement and engagement in culture and sport for all*' and include a specific aim '*to enhance the health and wellbeing of people who live, work and visit the City*'. Their *Annual Review*<sup>9</sup> provides a summary of the range of sports clubs, activities and events that Glasgow Life run or support.

Glasgow Life's strategic objectives for the Great Scottish Run are:

- To encourage citizens to participate in a major road race event.
- To establish a world-class course with the capacity for expansion in order to enhance the runners' experience.
- To be recognised as a world class race attracting national and international TV coverage and media interest.
- To promote health and lifestyle benefits associated with running and sport generally
- To encourage visitors to the city to participate in a major road race event in order to create an event of scale and ensure economic impact.

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<sup>b</sup> For more details see: [www.ltscotland.org.uk/curriculumforexcellence/index.asp](http://www.ltscotland.org.uk/curriculumforexcellence/index.asp)

<sup>c</sup> For more details see: [www.sportscotland.org.uk/ChannelNavigation/Topics/TopicNavigation/Active+Schools/](http://www.sportscotland.org.uk/ChannelNavigation/Topics/TopicNavigation/Active+Schools/)

<sup>d</sup> For more details see: <http://www.scotland.gov.uk/About/scotPerforms>

<sup>e</sup> For more details see: <http://www.glasgowlife.org.uk/about-us/Pages/Glasgow-Life-Strategic-Objectives.aspx>



## 2. Aims

As outlined, there are potential individual and population health benefits of participation in these events, but little has been reported on who does and who does not take part.

The aim of this work is to provide a better understanding of the demographic patterning of entrants to three major distance running events held annually in Glasgow, namely the Great Scottish Run (GSR), the Women's 10K (W10K) and Junior Great Scottish Run (JGSR). The study describes the age, gender, geographic and deprivation profile of entrants and in the main focuses on entrants who are Glasgow residents.

The findings lead naturally to questions of equity and inclusion, which are raised in the discussion section of the report. It is not the purpose of this report to change how these events are run and marketed, but the findings should inform whether such decisions need to be taken.

## 3. Methodology

### 3.1. Data sources

Analysis was undertaken on four years of entry data (2008-2011) for three distance running events held in Glasgow: the Great Scottish Run (GSR), the Women's 10K (W10K) and Junior Great Scottish Run (JGSR). The events are organised by Glasgow Life and Glasgow City Council in conjunction with Strathclyde Police.

The GSR comprises two events, a 10K run and a Half Marathon. The event is a road race starting in George Square and finishing in Glasgow Green. In recent years there have been around 19,500 entrants (Table 1).

The JGSR is also separated into two events, a 1.5K run and a 3K run, which take place in Glasgow Green. There have been between 1,500 and 1,900 entrants annually in the last four years. Both events – the JGSR and GSR – are held over the same weekend in early September each year.

The W10K is a 10K road race that takes place in the south-side of the city and is held in May each year. Entries for this event have averaged around 12,000 in the last four years.

**Table 1 Summary of entrant numbers by race, 2008-2011<sup>f</sup>**

Year	Great Scottish Run (GSR)	Women's 10K (W10K)	Junior Great Scottish Run (JGSR)
2008	17,226	11,901	1,892
2009	19,170	12,506	1,897
2010	20,692	13,042	1,673
2011	21,166	10,753	1,582

Glasgow Life provided the Glasgow Centre for Population Health with *entrant* data covering recent years for each event<sup>9</sup>. It is worth noting that entrants may not all participate on the day, although given there is an entrance fee it is reasonable to assume that the majority who pay to enter also take part. For example, in the 2011 W10K, 81% of entrants completed the race.

<sup>f</sup> These figures are likely to slightly underestimate the true number of entries, as only electronic entries are summarised here.

<sup>g</sup> In this report the terms 'entering' and 'participating' in the races are used interchangeably, although strictly speaking the data analysed were entrant data and not all those entering will have actually taken part.

### 3.2. Pre-processing

There were five common variables from each event used in the analysis: event type; year; age of participant; gender; and postcode. Further geographic variables were added to these datasets via linkage (using SPSS) to a postcode look-up file provided by ISD Scotland. These were council, ward, health board of residence and data zone. Finally, linking on data zone<sup>h</sup>, further variables specific to Glasgow participants were added. These were deprivation decile based on a Glasgow Index of Multiple Deprivation<sup>i</sup> and Glasgow Neighbourhood<sup>j</sup>.

Within each set of event records there were postcodes that could not be matched to Scottish postcodes to create the geographic variables. In some cases this was because an entrant was from outside Scotland and in others the postcode was not complete or formatted correctly to enable a match to be made. Table 2 shows the percentage of entrant records for which a link to a Scottish geography could be made.

**Table 2 Percentage of entrants' records linking to a Scottish residence postcode**

Year	Great Scottish Run (GSR)	Women's 10K (W10K)	Junior Great Scottish Run (JGSR)
2008	92.7%	96.2%	98.6%
2009	91.9%	94.7%	96.4%
2010	88.9%	92.2%	94.7%
2011	84.4%	84.0%	90.2%

The proportion of records for which a link to a Scottish geography has been made was consistently above 90% between 2008 and 2010 but only 84% of records for entrants to the women's 10K matched to a Scottish postcode in 2011. This reduction in matches over time could be due to a deterioration in the quality of postcoding of records but could also reflect an increase in the number of entrants from outside Scotland.

### 3.3. Analysis

The final file was analysed in Excel using pivot tables. Population estimates derived from Small Area Population Estimates (SAPE) published by NRS<sup>k</sup> were applied to create population based rates.

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<sup>h</sup> Data zones are groupings of 2001 Census output areas with populations of between 500 and 1,000 household residents. There are 6,505 data zones across Scotland, which nest within local authority boundaries. Glasgow has 695 datazones. <http://www.scotland.gov.uk/Publications/2005/02/20697/52626>

<sup>i</sup> The **Glasgow Index of Multiple Deprivation (GIMD)** is a local index of deprivation based on the Scottish Index of Multiple Deprivation (SIMD) applied to Glasgow datazones. The purpose of creating this local index of deprivation is to be able to analyse an outcome against an even distribution of deprivation deciles within the city. Under the national index, SIMD, 50% of Glasgow's population appears in the two most deprived deprivation deciles.

<sup>j</sup> There are 56 neighbourhoods, or housing forum areas, in Glasgow. Their populations vary from around 1,500 in Carmunock in the south of the city to over 20,000 in Hillhead and Woodlands to the west of the city centre.

<sup>k</sup> National Records for Scotland (NRS), formerly the General Register Office for Scotland, publish small area population estimates (SAPE) annually at a data zone level across Scotland  
<http://www.gro-scotland.gov.uk/statistics/theme/population/estimates/special-area/sape/index.html>

## 4. Results

### 4.1. Great Scottish Run (GSR), 2008-2011

Between 2008 and 2011 there were on average 19,500 entrants to the GSR race. The trend in entrant numbers each year was upward (Table 3). This estimate is based on electronic entries and therefore does not include people who entered using paper forms. Bearing in mind this caveat, it is notable that in the majority of years there have been entries from all 32 local authority areas in Scotland. A quarter of entrants have been Glasgow residents and 59% from the wider Glasgow and Clyde Valley region, which covers eight local authority areas<sup>1</sup>.

11% of entrants (averaged over the four years) had a postcode that could not be mapped to a Scottish local authority. A provisional analysis of these postcodes from the 2010 event suggests that about half of the entrants were from other parts of the UK or other countries and about half were Scottish entrants whose postcode details were incomplete or poorly formatted.

**Table 3 Entrants to GSR by local authority area, 2008-11**

Local Authority	Entries by year					Average entries over 4 years	% of entries from each LA per year				
	2008	2009	2010	2011	Total over 4 years		2008	2009	2010	4 year average	
Aberdeen City	175	213	264	272	924	231	1.0%	1.1%	1.3%	1.3%	
Aberdeenshire	130	139	178	193	640	160	0.8%	0.7%	0.9%	0.9%	
Angus	81	82	88	100	351	88	0.5%	0.4%	0.4%	0.5%	
Argyll & Bute	280	272	338	233	1123	281	1.6%	1.4%	1.6%	1.1%	
Clackmannanshire	53	73	85	92	303	76	0.3%	0.4%	0.4%	0.4%	
Dumfries & Galloway	106	129	122	176	533	133	0.6%	0.7%	0.6%	0.8%	
Dundee City	96	108	121	145	470	118	0.6%	0.6%	0.6%	0.7%	
East Ayrshire	349	384	385	464	1582	396	2.0%	2.0%	1.9%	2.2%	
East Dunbartonshire	973	1034	1019	898	3924	981	5.6%	5.4%	4.9%	4.2%	
East Lothian	127	163	162	113	565	141	0.7%	0.9%	0.8%	0.5%	
East Renfrewshire	811	986	948	856	3601	900	4.7%	5.1%	4.6%	4.0%	
Edinburgh, City of	1264	1440	1422	1268	5394	1349	7.3%	7.5%	6.9%	6.0%	
Eilean Siar	15	13	12	13	53	13	0.1%	0.1%	0.1%	0.1%	
Falkirk	292	311	340	402	1345	336	1.7%	1.6%	1.6%	1.9%	
Fife	292	351	461	478	1582	396	1.7%	1.8%	2.2%	2.3%	
<b>Glasgow City</b>	<b>4675</b>	<b>4976</b>	<b>5058</b>	<b>4929</b>	<b>19638</b>	<b>4910</b>	<b>27.1%</b>	<b>26.0%</b>	<b>24.4%</b>	<b>23.3%</b>	
Highland	100	97	138	136	471	118	0.6%	0.5%	0.7%	0.6%	
Inverclyde	252	318	309	256	1135	284	1.5%	1.7%	1.5%	1.2%	
Midlothian	81	109	105	85	380	95	0.5%	0.6%	0.5%	0.4%	
Moray	23	18	20	26	87	22	0.1%	0.1%	0.1%	0.1%	
North Ayrshire	542	528	648	516	2234	559	3.1%	2.8%	3.1%	2.4%	
North Lanarkshire	1166	1334	1315	1387	5202	1301	6.8%	7.0%	6.4%	6.6%	
Orkney Islands	2	1	0	3	6	2	0.0%	0.0%	0.0%	0.0%	
Perth & Kinross	141	188	220	212	761	190	0.8%	1.0%	1.1%	1.0%	
Renfrewshire	964	997	985	1079	4025	1006	5.6%	5.2%	4.8%	5.1%	
Scottish Borders	126	154	157	175	612	153	0.7%	0.8%	0.8%	0.8%	
Shetland Islands	22	18	9	18	67	17	0.1%	0.1%	0.0%	0.1%	
South Ayrshire	340	388	362	390	1480	370	2.0%	2.0%	1.7%	1.8%	
South Lanarkshire	1489	1640	1815	1819	6763	1691	8.6%	8.6%	8.8%	8.6%	
Stirling	258	329	313	332	1232	308	1.5%	1.7%	1.5%	1.6%	
West Dunbartonshire	411	411	507	405	1734	434	2.4%	2.1%	2.5%	1.9%	
West Lothian	336	407	480	385	1608	402	2.0%	2.1%	2.3%	1.8%	
Not known	1254	1559	2306	3310	8429	2107	7.3%	8.1%	11.1%	15.6%	
<b>Total Entrants</b>	<b>17226</b>	<b>19170</b>	<b>20692</b>	<b>21166</b>	<b>78254</b>	<b>19564</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

Table 4 summarises the age profile of entrants. Approximately two-thirds of all entrants were aged between 25 and 44 years. Only around 10% of entrants are aged 15-24 years. The proportion of entrants drops with age and only 6% were over 55 years of age. Entrants aged 65 years and above made up just less than 1% of all entrants.

<sup>1</sup> The Glasgow and Clyde Valley region takes in eight West of Scotland local authorities: Glasgow City, East Dunbartonshire, West Dunbartonshire, Renfrewshire, East Renfrewshire, Inverclyde, North Lanarkshire, South Lanarkshire.

**Table 4 Entrants to GSR 2008 - 2011, by age group**

<b>No of entrants by age group</b>					
<b>Age band</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Average over 4 years</b>
15-24	1699	1969	2075	2447	<b>2048</b>
25-34	5724	6297	7080	7027	<b>6532</b>
35-44	5826	6398	6878	6816	<b>6480</b>
45-54	2957	3294	3542	3589	<b>3346</b>
55-64	801	896	970	1049	<b>929</b>
65+	148	159	135	176	<b>169</b>
<b>Total</b>	<b>17155</b>	<b>19013</b>	<b>20680</b>	<b>21104</b>	<b>19503</b>

<b>% of entrants by age group</b>					
<b>Age band</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Average over 4 years</b>
15-24	9.9%	10.4%	10.0%	11.6%	<b>10.5%</b>
25-34	33.4%	33.1%	34.2%	33.3%	<b>33.5%</b>
35-44	34.0%	33.7%	33.3%	32.3%	<b>33.2%</b>
45-54	17.2%	17.3%	17.1%	17.0%	<b>17.2%</b>
55-64	4.7%	4.7%	4.7%	5.0%	<b>4.8%</b>
65+	0.9%	0.8%	0.7%	0.8%	<b>0.9%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

The following results are limited to entrants from Glasgow City, representing approximately 25% of all entrants. More Glaswegian women than men entered the event and this is particularly notable in the 15-24 and 25-34 year age groups (Table 5). However, in the 55 years and older age group there were more men than women. The majority of Glasgow entrants were in the 25-34 year age group.

**Table 5 Age and gender of entrants to GSR 2008-2011, Glasgow residents only**

<b>No of Glasgow entrants split by age and gender</b>											
Age band	Males					Average over 4 years	Females				Average over 4 years
	2008	2009	2010	2011	2008		2009	2010	2011		
15-24	265	264	218	254	<b>250</b>	240	312	276	304	<b>283</b>	
25-34	898	914	1017	932	<b>940</b>	993	1097	1244	1139	<b>1118</b>	
35-44	722	725	681	677	<b>701</b>	661	712	730	698	<b>700</b>	
45-54	334	341	324	339	<b>335</b>	323	365	353	313	<b>339</b>	
55+	137	142	123	146	<b>137</b>	71	88	92	97	<b>87</b>	
<b>Total</b>	<b>2356</b>	<b>2386</b>	<b>2363</b>	<b>2348</b>	<b>2363</b>	<b>2288</b>	<b>2574</b>	<b>2695</b>	<b>2551</b>	<b>2527</b>	

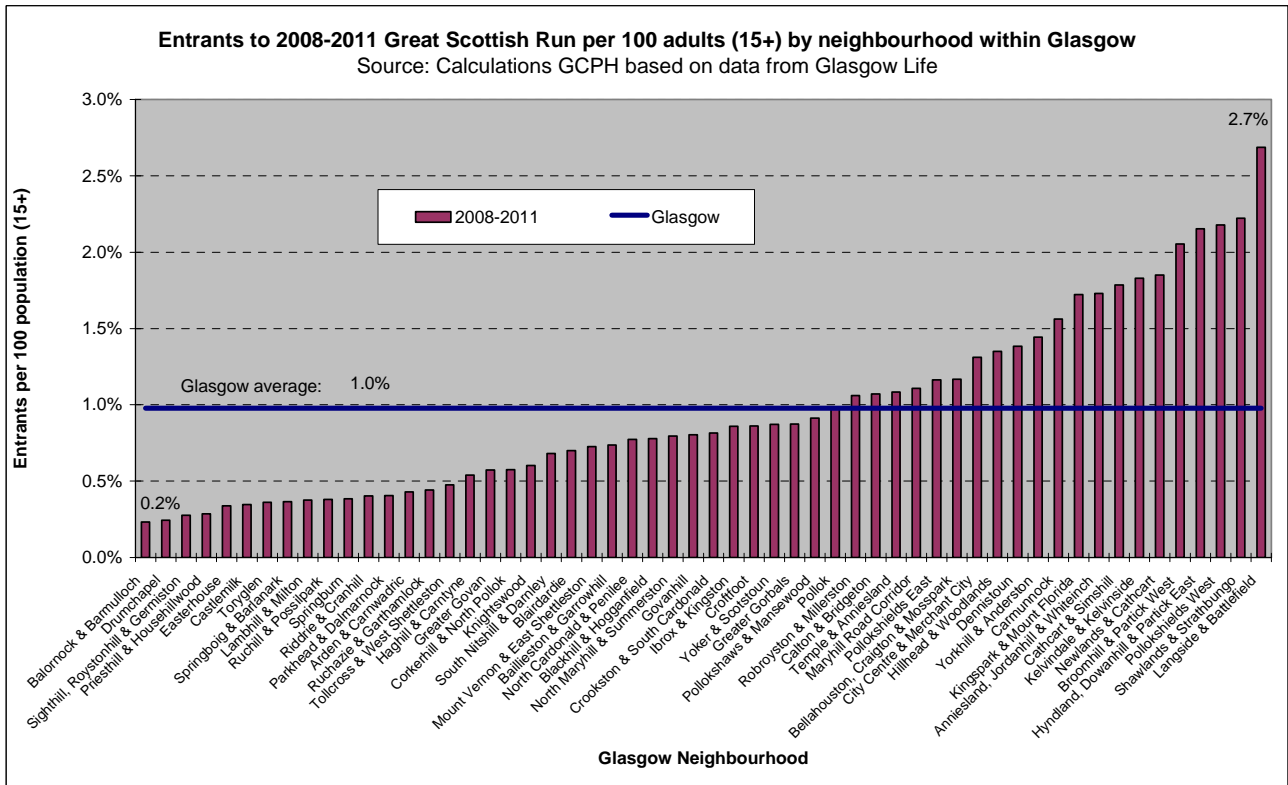
<b>% of Glasgow entrants split by age and gender</b>											
Age band	Males					Average over 4 years	Females				Average over 4 years
	2008	2009	2010	2011	2008		2009	2010	2011		
15-24	11.2%	11.1%	9.2%	10.8%	<b>10.6%</b>	10.5%	12.1%	10.2%	11.9%	<b>11.2%</b>	
25-34	38.1%	38.3%	43.0%	39.7%	<b>39.8%</b>	43.4%	42.6%	46.2%	44.6%	<b>44.3%</b>	
35-44	30.6%	30.4%	28.8%	28.8%	<b>29.7%</b>	28.9%	27.7%	27.1%	27.4%	<b>27.7%</b>	
45-54	14.2%	14.3%	13.7%	14.4%	<b>14.2%</b>	14.1%	14.2%	13.1%	12.3%	<b>13.4%</b>	
55+	5.8%	6.0%	5.2%	6.2%	<b>5.8%</b>	3.1%	3.4%	3.4%	3.8%	<b>3.4%</b>	
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	

Analyses by neighbourhood and deprivation show how the pattern of participation varies geographically and by socioeconomic circumstance across the city.

1% of Glaswegians aged 15 years or older entered the race each year on average over the four years. There is, however, a large geographical disparity in the popularity of this race across

Glasgow. In the neighbourhoods where the race was most popular, as many as 2.7 per 100 adults entered, while in neighbourhoods where it was least popular only 0.2 per 100 entered (Figure 1).

**Figure 1 Entrants to 2008-2011 GSR per 100 adults by Glasgow neighbourhood**



Entry rates were six times higher from the least deprived areas compared to the most deprived areas. In the most deprived decile only 0.3% of adults entered, while in the least deprived decile 1.9% entered (Figure 2).

**Figure 2 Entrants to 2008-2011 GSR per 100 adults by deprivation decile**

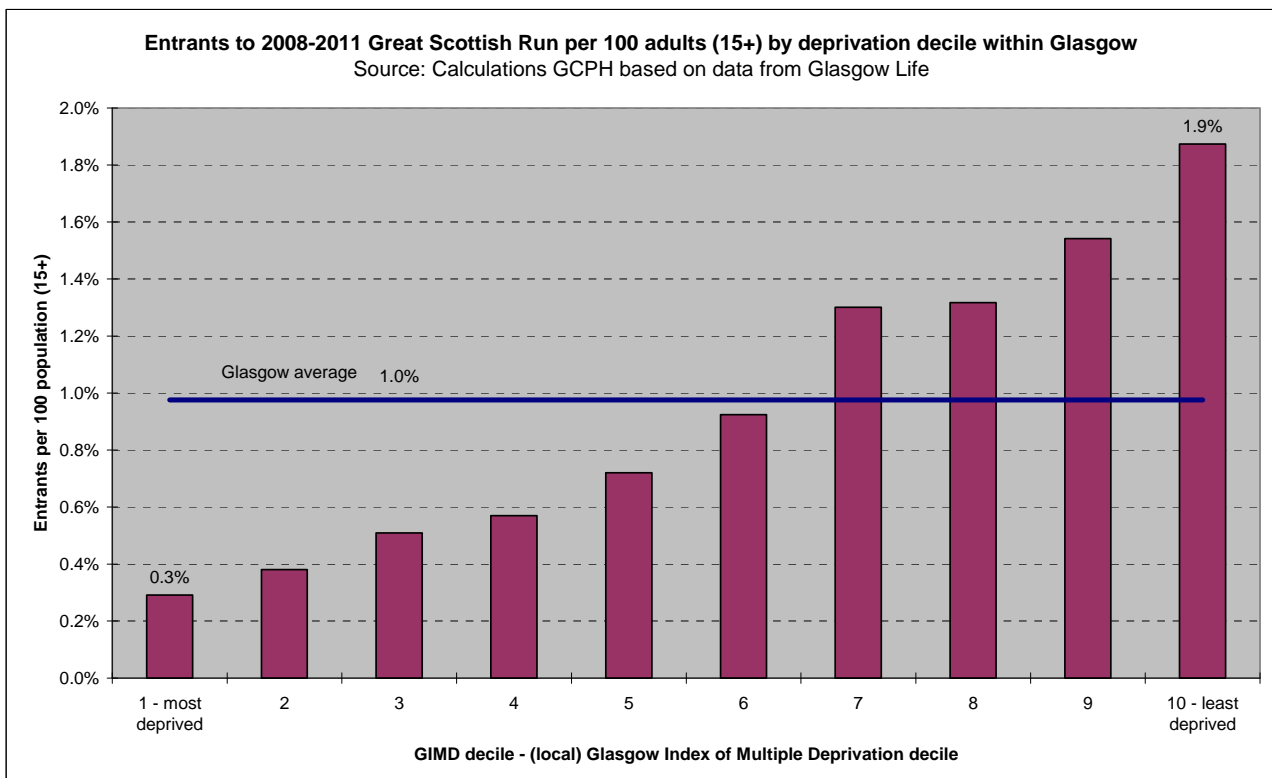
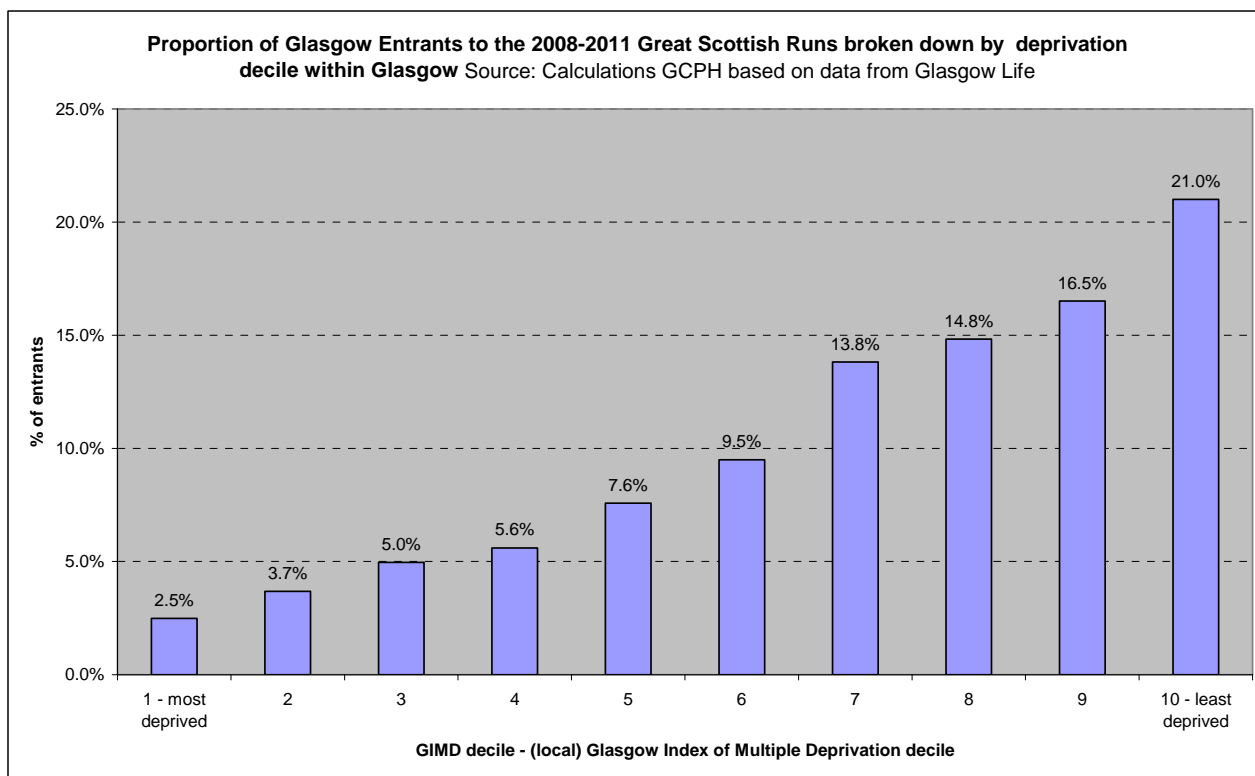


Figure 3 provides an alternative way of presenting this disparity in participation, where the entrants are divided proportionately across deprivation deciles. If entrants were equally likely to come from each deprivation decile then each bar would sit around 10%, but this is not the case. 2.5% came from the most deprived areas (decile 1) of the city compared to 21% from the least deprived areas (decile 10), and only 23% of entrants came from the more deprived half of the city (i.e. deciles 1-5).

**Figure 3 Proportion of entrants to 2008-2011 GSR from each deprivation decile**



It is worth bearing in mind that entrants who made paper entries have not been included in this analysis. If paper based entrants are not equally distributed across the population, their inclusion might alter the gradient of entrants shown in Figures 2 and 3.

### Key findings

- On average 19,500 adults entered the half marathon and 10K race each year.
- Entrants came from all over Scotland – all 32 Scottish local authorities are represented.
- 25% of entrants came from Glasgow, equating to 1% of Glaswegians aged 15 years or older
- The majority of Glasgow entrants were aged between 25-34 years and relatively few were 55 years or older (6%).
- Entry levels varied hugely across the city. In some neighbourhoods as many as 27 per 1,000 adults entered while in others the entry level rate was only 2 per 1,000.
- Entry levels were six times higher in the least deprived decile in Glasgow compared to the most deprived decile.
- Only 23% of entrants came from the more deprived half of the city.

#### 4.2. Junior Great Scottish Run (JGSR), 2008-11

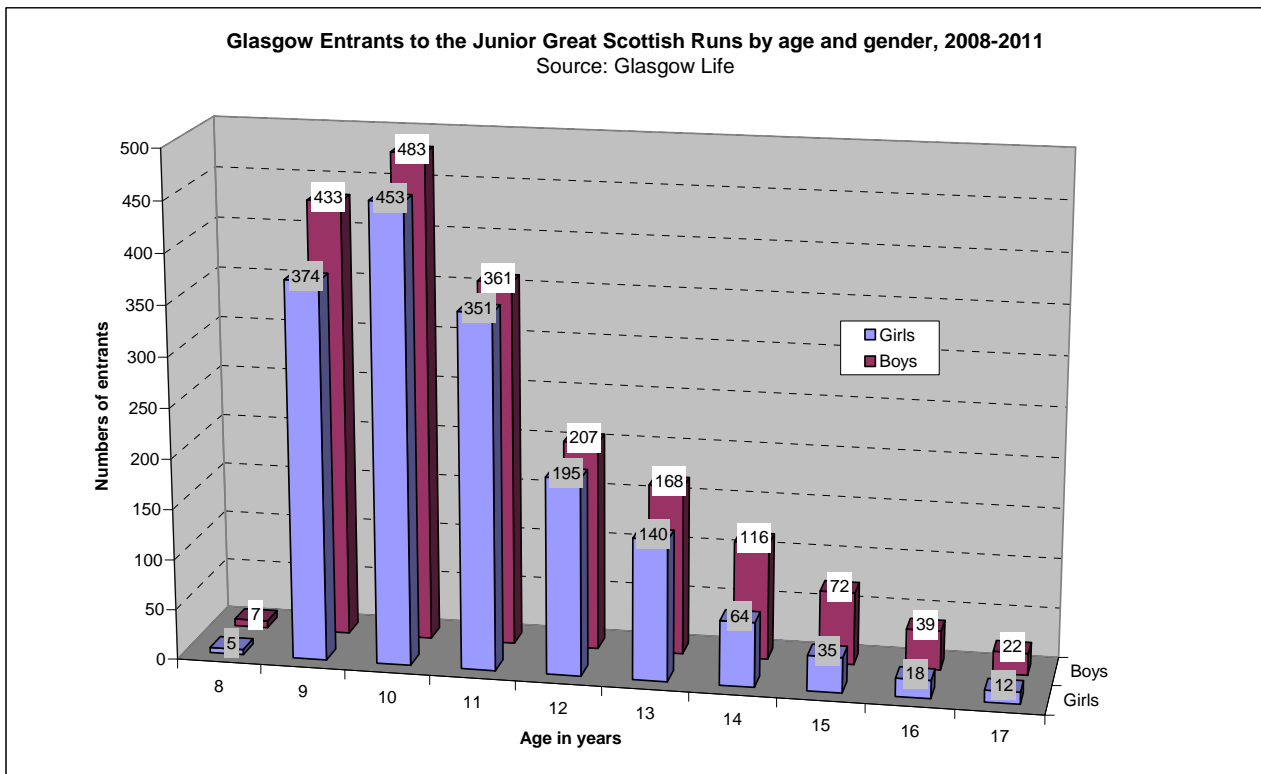
In the period 2008-2011, there were between 1,500 and 1,900 entries for this event each year. Half have been children living in Glasgow, but a sizeable minority have come from other local authority areas such as South Lanarkshire (10.7%), East Dunbartonshire (7.6%) and East Renfrewshire (5.3%). Entrants have come from 31 out of the 32 local authority areas in Scotland over the last four years (Table 6).

**Table 6 Entrants to the JGSR by local authority area, 2008-11**

Local Authority	2008	2009	2010	2011	Total over 4 years	% of total
Aberdeen City		1			1	0.0%
Aberdeenshire	3	8	1	1	13	0.2%
Angus	1	2	3	2	8	0.1%
Argyll & Bute	30	23	35	14	102	1.4%
Scottish Borders		5	3	2	10	0.1%
Clackmannanshire	1	3	6	2	12	0.2%
West Dunbartonshire	69	51	60	43	223	3.2%
Dumfries & Galloway	3	3	2	5	13	0.2%
Dundee City	1	1			2	0.0%
East Ayrshire	22	27	8	8	65	0.9%
East Dunbartonshire	154	155	141	87	537	7.6%
East Lothian			1		1	0.0%
East Renfrewshire	82	97	70	124	373	5.3%
Edinburgh, City of	4	3	5	8	20	0.3%
Falkirk	5	11	7	4	27	0.4%
Fife	6	11	2	1	20	0.3%
<b>Glasgow City</b>	<b>1035</b>	<b>981</b>	<b>800</b>	<b>750</b>	<b>3566</b>	<b>50.6%</b>
Highland	3	2	3	1	9	0.1%
Inverclyde	18	15	14	15	62	0.9%
Midlothian		3	4		7	0.1%
North Ayrshire	31	26	27	18	102	1.4%
North Lanarkshire	81	85	72	89	327	4.6%
Perth & Kinross	15	27	7	10	59	0.8%
Renfrewshire	78	82	78	55	293	4.2%
Shetland Islands				1	1	0.0%
South Ayrshire	9	10	8	5	32	0.5%
South Lanarkshire	200	186	212	159	757	10.7%
Stirling	13	9	6	16	44	0.6%
West Lothian	1	2	7	6	16	0.2%
Eilean Siar			2	1	3	0.0%
Unknown	27	68	89	155	339	4.8%
<b>All Entrants</b>	<b>1892</b>	<b>1897</b>	<b>1673</b>	<b>1582</b>	<b>7044</b>	<b>100.0%</b>

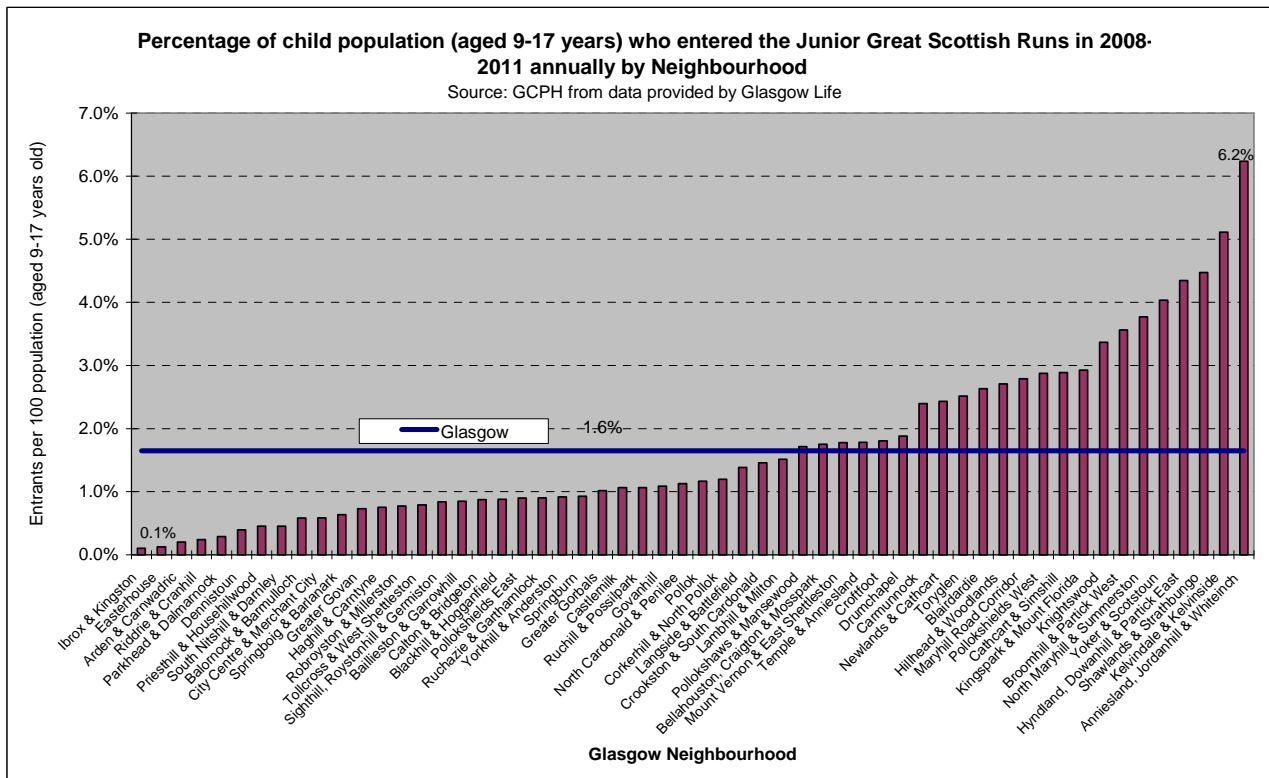
Figure 4 shows a breakdown of all entrants from Glasgow by age and gender over four years, 2008-2011. The ages of children involved range from 8 to 17 years, although in 2009 and 2010 the ages were restricted to nine years and above and in one year a 19 year old took part. Over the four events from 2008-2011 more boys than girls entered in each age group. The peak age for entering was ten years old. Entries dropped progressively with age among teenagers, particularly among girls.

**Figure 4 Glasgow entrants to the JGSR by age and gender, 2008-2011**



Analysis of participation rates within each of the 56 Glasgow neighbourhoods shows a large variation across the city (Figure 5).

**Figure 5 Percentage of children who entered the JGSR, 2008-2011, by neighbourhood**

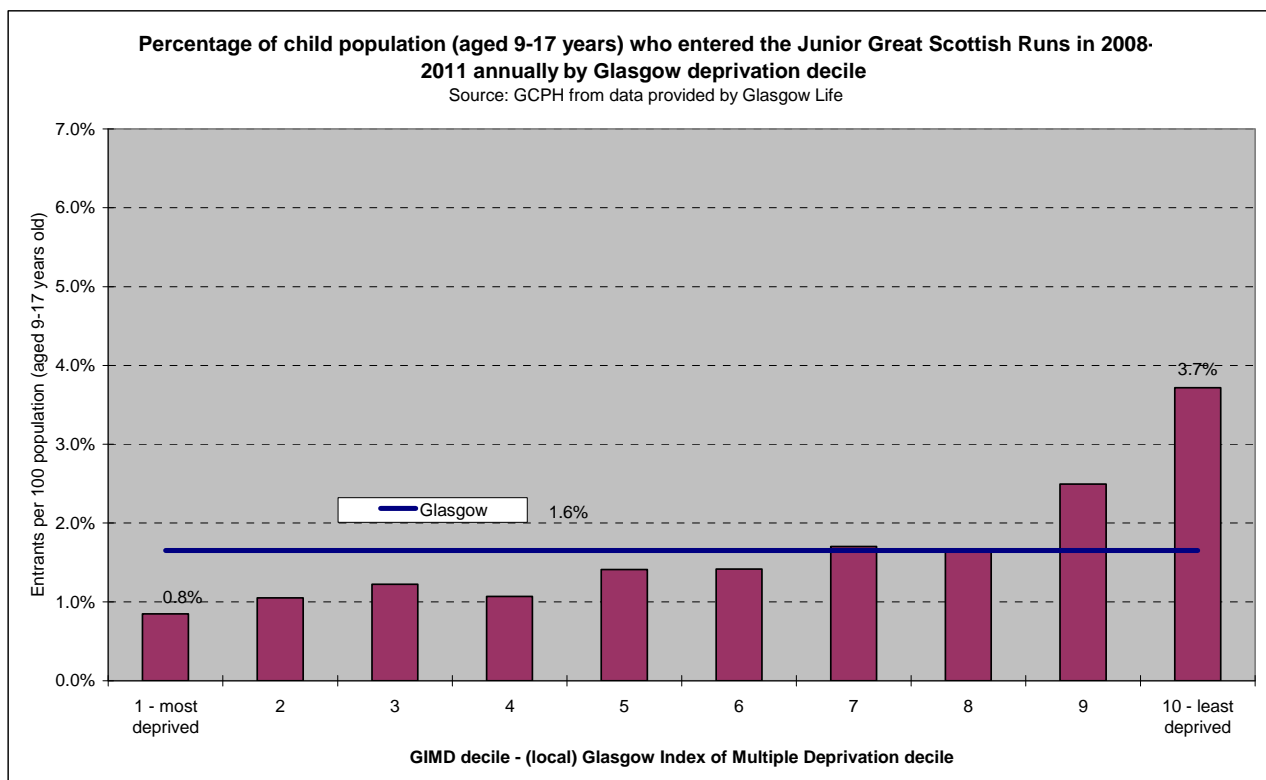




On average in each of the four years, 1.6% of all children (aged 9-17) in Glasgow entered the event. However, there were large variations in participation levels across the city. In Anniesland, Jordanhill & Whiteinch 6.2% of children entered, approximately four times higher than the Glasgow average and entry rates were also relatively high in Kelvindale & Kelvinside (5.1%), Shawlands & Strathbungo (4.5%), Hyndland, Dowanhill & Partick East (4.3%), and Yoker & Scotstoun (4.0%). In many other neighbourhoods entry rates were much lower than the Glasgow average and, in some, participation rates dropped to extremely low levels: in Ibrox & Kingston and in Easterhouse participation levels were down to 0.1%.

There is a negative association between entry rates and deprivation (Figure 6), although the gradient associated with deprivation is not linear. The two least deprived deciles stand out as having much higher entry rates than other areas. In the least deprived part of Glasgow (GIMD decile 10) the entry rate was 3.7% – double the Glasgow average – and in the second least deprived area the entry rate was 2.5%, which is 50% above the Glasgow average. However, in six-out-of-ten of the Glasgow deprivation deciles entry rates were lower than the Glasgow average. In the most deprived Glasgow decile less than 1% of children entered for the race. Overall, the entry rate from the least deprived parts of the city was over four times greater than that in the most deprived areas of the city.

**Figure 6 Percentage of child population (aged 9-17 years) who entered the JGSR, 2008-2011, by Glasgow deprivation decile**



## Key findings

- Between 1,500 and 1,900 children have entered the JGSR each year.
- Entrants have come from 31 out of the 32 local authorities in Scotland with approximately half coming from Glasgow.
- In each of the years, on average 1.6% of 9 – 17 year olds in Glasgow entered the event.
- More boys than girls entered for the race in each age group.
- Entries dropped rapidly in the teenage years, particularly among girls.
- In some neighbourhoods entry rates were three to four times higher than the Glasgow average e.g. from Anniesland, Jordanhill & Whiteinch 6.2% of children entered, Kelvindale & Kelvinside (5.1%), Shawlands & Strathbungo (4.5%), Hyndland, Dowanhill & Partick East (4.3%), and Yoker & Scotstoun (4.0%).
- In the majority of neighbourhoods entry rates were lower than the Glasgow average and in some participation rates dropped to extremely low levels e.g. in Ibrox & Kingston and Easterhouse participation levels were down to 0.1%.
- The entry rate from the least deprived 10% of Glasgow areas was 3.7%, more than double the Glasgow average and four times greater than that in the most deprived decile of the city (where 0.8% of children entered the race).

### 4.3. Women's 10K, 2008-2011

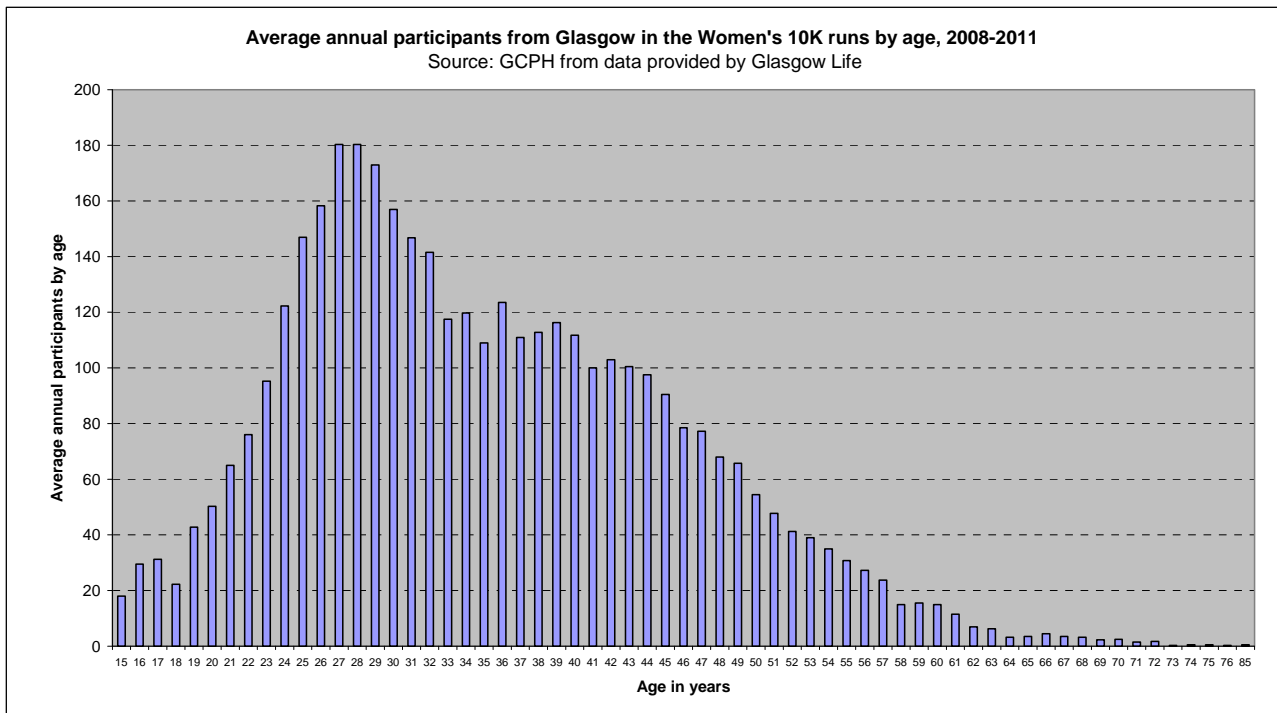
Over the last four years, between 10,000 and 13,000 people have entered this race annually. Entrants have come from all 32 Scottish local authorities (Table 7). Approximately 33% of entrants have been Glasgow residents.

**Table 7 Entrants to the W10K by local authority area, 2008-11**

Local Authority	2008	2009	2010	2011	Total over 4 years	% of Total
Aberdeen City	28	27	39	39	133	0.3%
Aberdeenshire	24	19	34	22	99	0.2%
Angus	21	10	17	13	61	0.1%
Argyll & Bute	284	241	259	190	974	2.0%
Scottish Borders	55	58	63	48	224	0.5%
Clackmannanshire	28	41	43	35	147	0.3%
West Dunbartonshire	464	461	430	329	1684	3.5%
Dumfries & Galloway	96	105	115	127	443	0.9%
Dundee City	51	34	35	32	152	0.3%
East Ayrshire	263	281	214	204	962	2.0%
East Dunbartonshire	759	759	770	562	2850	5.9%
East Lothian	26	26	27	31	110	0.2%
East Renfrewshire	734	737	803	548	2822	5.9%
Edinburgh, City of	282	232	236	276	1026	2.1%
Falkirk	96	111	175	125	507	1.1%
Fife	98	77	104	92	371	0.8%
<b>Glasgow City</b>	<b>4170</b>	<b>4428</b>	<b>4200</b>	<b>3128</b>	<b>15926</b>	<b>33.0%</b>
Highland	83	75	76	55	289	0.6%
Inverclyde	228	257	233	138	856	1.8%
Midlothian	11	20	21	11	63	0.1%
Moray	9	6	13	9	37	0.1%
North Ayrshire	303	287	285	213	1088	2.3%
North Lanarkshire	777	837	901	653	3168	6.6%
Orkney Islands				2	2	0.0%
Perth & Kinross	72	55	62	60	249	0.5%
Renfrewshire	888	926	994	690	3498	7.3%
Shetland Islands	2	2	3		7	0.0%
South Ayrshire	171	190	214	150	725	1.5%
South Lanarkshire	1114	1258	1341	966	4679	9.7%
Stirling	193	189	188	161	731	1.5%
West Lothian	105	82	116	115	418	0.9%
Eilean Siar	8	10	10	7	35	0.1%
Not known	458	665	1021	1722	3866	8.0%
<b>All entrants</b>	<b>11901</b>	<b>12506</b>	<b>13042</b>	<b>10753</b>	<b>48202</b>	<b>100.0%</b>

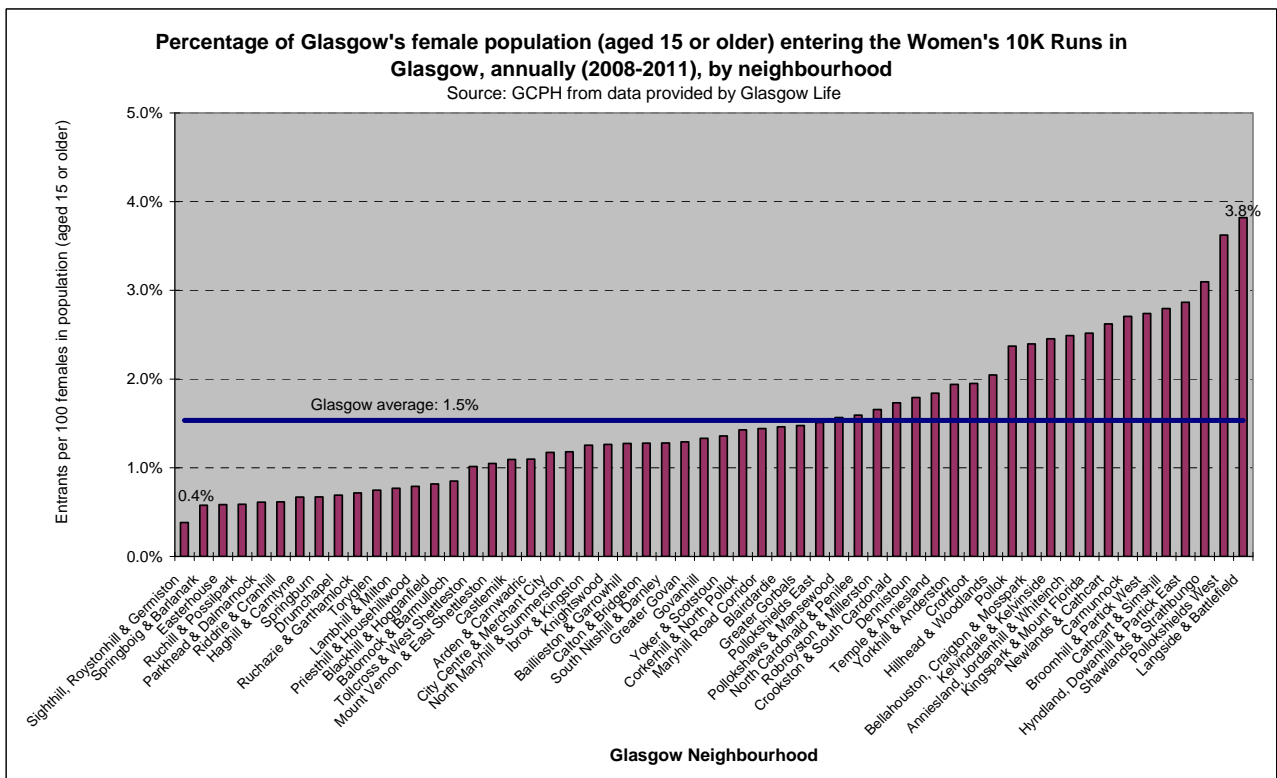
Figure 7 illustrates the age distribution of participants from Glasgow in the W10K over the period 2008-2011. Approximately 14% of entrants were aged 15-24 years, two-thirds were aged between 25-44 years, nearly a fifth of entrants were aged 45-64 and less than 1% were older than 65 years of age.

**Figure 7 Age distribution of participants from Glasgow in the W10K, 2008-2011**



Entry rates were much higher in some Glasgow neighbourhoods than others (Figure 8). In 15 neighbourhoods fewer than 1% of women entered the race, while in the areas with the highest entry rates, rates were more than double the Glasgow average (of 1.5%) e.g. Shawlands & Strathbungo (3.1%), Pollokshields West (3.6%) and Langside & Battlefield (3.8%).

**Figure 8 Percentage of Glasgow's female population who entered the W10K in 2008-2011 annually by neighbourhood**



Entry rates were higher in the less deprived areas of Glasgow. In the least deprived decile of Glasgow, the entry rate over the period was 2.7% which is almost double the Glasgow average. Entry rates reduced generally with increased deprivation and in the most deprived Glasgow decile only 0.6% of women entered for the race (Figure 9). Therefore, the entry rate from the least deprived parts of the city was over four times greater than that in the most deprived areas of the city.

**Figure 9 Percentage of Glasgow’s female population who entered the W10K in 2008-2011 annually by Glasgow deprivation decile**

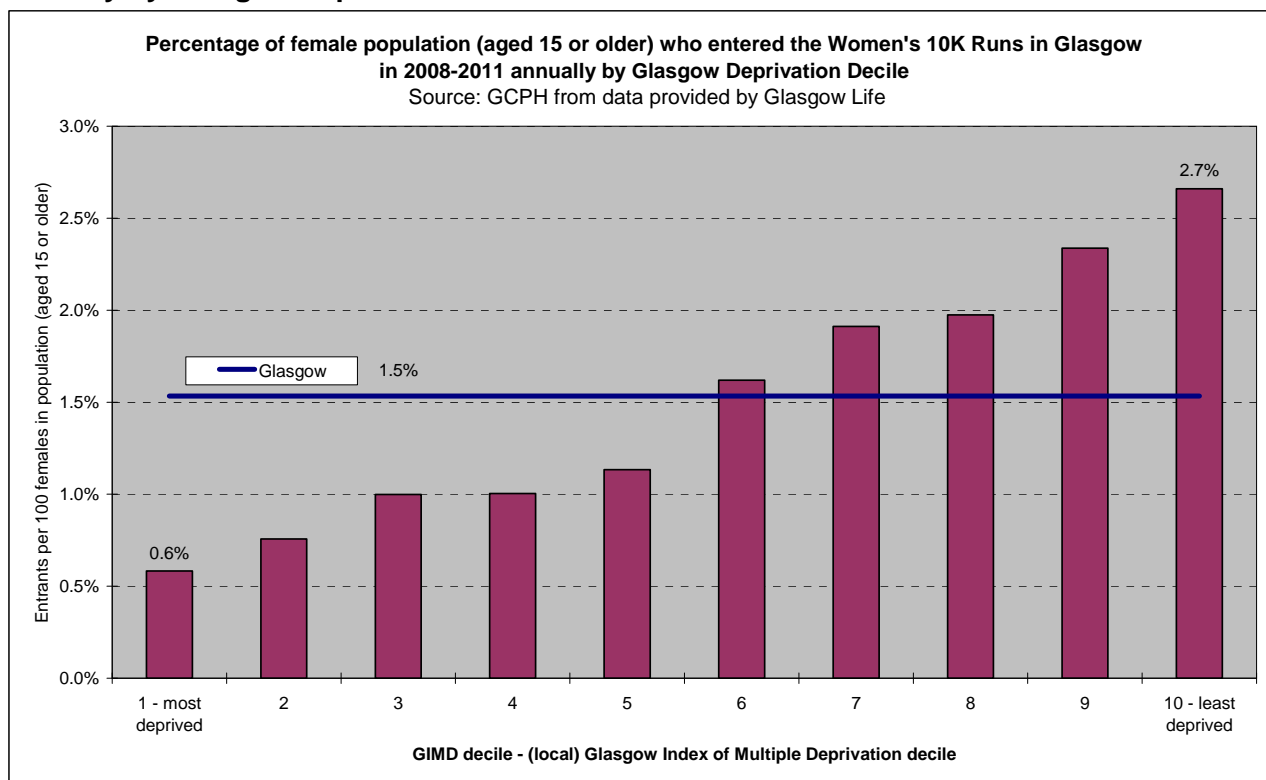


Figure 10 provides a different way of presenting the distribution of entrants by deprivation decile. In this graph, the proportion of all entrants from each deprivation decile is shown. Nearly a fifth of entrants (19%) to the races were from the least deprived decile in Glasgow, while in contrast less than 10% of women entered from the two most deprived deciles (3.3% from most deprived decile; 4.8% from second most deprived decile).

**Figure 10 Proportion of entrants in the W10K in Glasgow in 2008-2011 by Glasgow deprivation decile**



### Key findings

- There were between 10,000 and 13,000 entrants to this race annually over the last four years and entrants came from all 32 local authorities in Scotland.
- One third of entrants were from Glasgow, representing 1.5% of women in Glasgow.
- Two-thirds were aged between 25-44 years, a nearly a fifth were aged 45-64 years, but less than 1% were older than 65 years of age.
- In 15 neighbourhoods less than 1% of women entered the race, while in the areas with the highest entry rates, rates were almost double the Glasgow average (of 1.5%) e.g. Shawlands & Strathbungo (3.1%), Pollokshields West (3.6%) and Langside & Battlefield (3.8%).
- The entry rate from the least deprived parts of the city was over four times greater than that in the most deprived areas of the city.

## 5. Discussion

The foregoing findings highlight that the three events – the GSR, W10K and JGSR – are truly national events, successfully attracting entrants from right across Scotland. It is also clear that these events are more popular in some parts of Glasgow than others and that certain sectors of the population are more attracted to these events or find them more affordable than others.

Firstly, the age profile of entrants to the adult races – the GSR and W10K – is skewed toward to mid-aged adults (25-44 year olds) and participation drops with age, being particularly low among people aged 65 or older. Secondly, it is evident across all the races that participation is much higher in the least deprived communities of Glasgow. Thirdly, participation is higher in certain geographical areas, and while socioeconomic differences will play a part, it is likely that the location of sports centres and clubs is associated with higher levels of participation in surrounding neighbourhoods. Fourthly, among children, boys are much more likely to take part in the JGSR and there is a sharper drop off in participation among girls with increasing age in the teenage years.

It is clear from other studies that certain factors act as enablers for physical activity while other factors are barriers. Cost, childcare, lack of time and low awareness have been reported as barriers among low income neighbourhoods<sup>10</sup>, while (in the same study) the need for support, confidence, competence, fun and socialising and accessibility of facilities were reported as factors that can promote participation.

There is limited local evidence on every one of these factors but a few can be explored and discussed in a little more detail.

### *Cost*

Cost of entry may be an important influence on whether people choose to enter. The cost of entry to the main GSR adults' races ranged from £18-£27 for the 10K and from £23-£32 for the Half Marathon in 2011. The entry cost for the W10K in 2011 was between £18 and £27. The same prices applied for unwaged and students in all the races. There were reductions for joint entries to more than one race e.g. W10K and GSR10K.

Entry to the JGSR was £6, reduced to £3 for Glasgow children with a Kidz card or Glasgow Young Scot Card. Given the pricing structure for the children's event, it is difficult to conclude that price would have been a significant barrier to entry for this event, but price and perceived value for money may be more significant in relation to the adult races. The cost of the race was brought up in focus groups involving women who had taken part in the 2011 W10K. However, 65% of respondents to a web-based survey rated the entry fee as very good or good value for money<sup>11</sup>. Of course these responses came from race entrants rather than people who had decided not to enter.

### *Motivations*

There is limited evidence on what motivates people to enter the races but drawing on Glasgow's Life internal research on the W10K, it is clear that there is great pride in it being 'a Glasgow women's race' and a tradition of taking part has grown. It is notable that 31% who had run were regular runners, suggesting that the majority of entrants were not regular runners. 30% had run the event for charity.

### *Access to and distribution of facilities and clubs*

Access to clubs, sports centres and the location of jogging networks may explain some of the geographical concentrations in entrants. Glasgow Life supports 20 weekly jogging network groups and 40 courses are run throughout the year catering for beginners, half marathon training, etc. They are located all over Glasgow:

South: Castlemilk, Gorbals, Bellahouston, Holyrood, Pollokshaws, Drumoyne, Nethercraigs  
North: Springburn  
East: Whitehill, Garrowhill, Easterhouse  
West: Scotstoun, Maryhill, Kelvin Hall

It is reported that approximately 300 people are running with these networks per week at the moment and this has increased gradually over the last few years<sup>m</sup>. Running clubs – of which there are at least 23 in the city<sup>n</sup> – also provide a focus for competitive running.

Living close to a park, path networks and other outdoor amenities may also play a part. There is increasing evidence that living near good quality, well designed outdoor spaces, such as woodland walks and parks, is associated with wellbeing and more physical activity, for example among older adults<sup>12</sup>.

However, a spatial analysis of run entrants taking account of the location of sports facilities, clubs and parks, alongside deprivation and population data would have to be undertaken to properly explore and assess their impact.

#### *Other events*

It is possible that the social gradient in running suggested by the analysis of these events presents a slightly flawed picture of this type of activity, by missing those who run but do not take part in these or any other formal running events or those who took part in other local runs. Glasgow Life has organised 5K and fun runs in a number of communities over the last few years and supports the Glasgow Running Network, which helps prepare new runners for taking part in these events.

Similarly, Parkrun<sup>o</sup>, a free timed 5K run held in Pollok Park, attracts up to 400 participants every week. This and other similar runs could in theory increase – or indeed decrease – entrance to the GSR and other runs.

#### *Health benefits?*

This analysis does not provide information on the potential benefits to physical and mental health of training and participating in the runs. Relatively little research has been undertaken to explore who takes part in distance running events and what the population health impact of this is. A preliminary search of the academic literature suggests that most studies focus on the potential health problems associated with distance running rather than the benefits. For example, Sanchez et al<sup>13</sup> note that acute musculoskeletal injuries are common among marathon runners, but also state that running does not result in increased rates of musculoskeletal disability. Other studies related to distance running have focussed on the risk of cardiac arrest during running events and the dangers of hyponatremia (low concentration of sodium in the blood), heat exhaustion and dehydration.

More positively, in one study the risk for incident stroke was reported to be substantially reduced in those who ran and exceeded the guideline physical activity level<sup>14</sup>. Another study, based on 21 years of follow-up, found that running in middle and older ages was associated with reduced disability in later life and a notable survival advantage, although the cohort followed up was younger, leaner and less likely to smoke than the control group at baseline<sup>15</sup>

A recent study did look at physical activity and body mass index of non-elite runners before and after participation in the 2008 Great North Run, the UK's largest mass participation sporting event<sup>16</sup>. The conclusions of this study were that 'the typical participant was male, mid-30s, from an area of low deprivation, with a "normal" BMI and who was moderately or highly active.' There were only minimal changes in physical activity and BMI in the two periods compared and the authors

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<sup>m</sup> Information supplied in February 2012 by Louise Morgan, Glasgow Life

<sup>n</sup> Figures from Scottish Athletics web site -

<http://www.scottishathletics.org.uk/index.php?p=23&listPage=1&listFilterRegion=7> (Accessed September 2012)

<sup>o</sup> For more information see <http://www.parkrun.org.uk/glasgow/home>



concluded that Great North Run participants are not those who would benefit most from increased physical activity. However, this study was carried out on a cross-sectional basis meaning that changes could not be investigated longitudinally for individuals. Moreover, the analysis did not focus on 'new' runners.

It would be possible to design a longitudinal study to assess the health and wellbeing impact of training and participation by collecting information from entrants pre- and post-race. If such a study was envisaged it would be useful to build in a focus on barriers and enablers to taking part, alongside questions to assess health benefit. It would also make sense to analyse new and regular runners separately given their different characteristics and baseline levels of health and fitness.

### *Opportunities*

Efforts to broaden out participation in these events could potentially be focussed on several different population groups. For the children's events marketing could be targeted towards encouraging more girls to take part, possibly with the help of schools. For the adult runs, efforts could be focussed on increasing participation in communities that currently have low levels of participation through, for example, piloting training sessions and introducing new jogging networks. In terms of older adults, consideration might be given to introducing shorter distance runs or walking events, recognising that preparation for shorter events may be a less daunting proposition.

In tandem with this, there is a need for better information on what would motivate more people from low-participation groups to take part. Are there tools to help, such as mobile phone 'apps' or access to training/motivational materials that might encourage greater interest in running?

Consideration also needs to be given to the physical environment in different neighbourhoods. Do aspects of the environment encourage or discourage physical activity? Can people easily run in their neighbourhoods? Is it safe? Safer, better lit and more pedestrian friendly environments are likely to encourage more people to be physically active in general.

## **6. Strengths and weaknesses of the study**

### **6.1. Strengths**

Race entry data over four years for three major running events have been analysed. The time of year of the races, and the courses used for the events, have remained relatively unchanged. The data quality of the limited number of variables analysed was good and entrants' postcodes were reasonably well coded. Approximately 90% of entrants could be assigned to a Scottish Local Authority. By making a link to a UK postcode file – which was not done in this study – it is likely that another 4-5% of entrants to the GSR would be picked up, who reside in the rest of the UK.

### **6.2. Weaknesses**

This study attempted to assess the population potentially benefiting from participation in three annual running events in Glasgow. However, the data analysed were based on entrants, and a proportion of entrants will not have actually participated. It is assumed that entrants will undertake regular training prior to participation and so will be achieving high levels of physical fitness at least in line with health recommendations. However, there is no way of knowing how many entrants do undertake regular moderate to vigorous physical activity training for these events or for how long they train. Running events represent just one physical activity. This analysis does not take account of any other physical activities that may be being undertaken in the population.

Specifically in relation to running, this analysis did not include those involved in running who did not take part in these events but participated in other running events. In summary, this analysis only provides a partial picture of participation in one sport and the actual impacts on physical and mental health of training and participating are impossible to assess without more detailed research.

## 7. Conclusions

Glasgow's three main distance running events – the GSR, W10K and JGSR – have attracted as many as 35,000 entrants annually in recent years with entrants coming from across Scotland. A significant proportion of Glasgow's population takes part in each of these events – 1% of adults in the GSR, 1.5% of women in the W10K and 1.6% of children in the JGSR – and there would be a potential for greater population health benefits if more entered.

However, it is clear that certain population groups are less likely to participate. These include teenage girls in the junior race and older adults in the adult races. Additionally, large variations in entry rates are evident across the city by neighbourhood, and in relation to deprivation. People living in the least deprived parts of Glasgow are between four to six times more likely to participate than people from the most deprived areas.

Approaches to increasing participation among current low participation groups might involve targeted marketing and engagement, piloting new jogging networks and working with schools. Qualitative research could inform such efforts, by examining why some people do not take part and what would encourage greater participation. The current entry data could also be supplemented to collect information more directly on what motivates those who do enter to do so. Gathering evidence relating to the marketing and targeting of similar events in other cities might also help in understanding how to boost participation among certain population groups.

The race entry data are of relatively high quality. Continued monitoring in future years would allow an assessment of the success of any initiatives to increase participation in particular sectors of the population. It would be relatively easy to set up a cycle of monitoring, reporting, evaluation and intervention.

Further analysis of the current entry data might be informative. For example, profiling regular runners compared to first-timers or charity runners. Additionally, it would be interesting to compare those who enter and participate with those who enter but do not participate to assess whether particular population groups are more likely to drop out.

Currently collected data cannot tell us whether participation in these events leads to sustained improvements in physical activity and health. A longitudinal study of entrants' characteristics and behaviours pre- and post-race would allow an investigation of the potential health benefits of the run and of the factors that are enablers and barriers to participating.

The approach taken in this analysis illustrates how with relatively good quality demographic data it is possible to analyse participation in a defined activity. In this study that defined activity was participation in running events, but if similar data were available for other sporting, leisure and cultural activities in Glasgow the same type of analysis would be possible. The value of these analyses would of course be dependent on the quality and comprehensiveness of event/participation recording.

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