What should an Incoming Government do to Improve Planning for Transport?

Include Local People

An investigation of the relationship between transport and health whilst examining the importance of local people and adopting a bottom-up approach to transport planning policies and procedures

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Tables and Figures

Appendices

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Introduction

The relationship between socioeconomic status and both mental and physical health is widely recognised; poor socioeconomic conditions are tied to worse health. Alongside this, it is being increasingly recognised that place and space have an impact on human health. In other words, the community and environment in which a person finds themselves plays an important role in determining their health. A new public health agenda has emerged over the past fifteen years that is based on a shift in focus from treating sickness and illness to promoting health (CABE, 2006). A vast range of potential solutions to Britain's health and inactivity crisis have been suggested by a number of different professional bodies, with the link between transport and health appearing increasingly frequently within these solutions. It is widely recognised that health, transport planning and built environment professionals need to work together to meet the challenge of the cost of treating chronic diseases related to increasing levels of obesity. One such chronic disease is cardiovascular disease.

As an answer to the question of what can an incoming government do to improve planning for transport, this paper suggests that the primary objective of any incoming government should be to use transport planning as a way of promoting health and in the process to reduce chronic diseases such as cardiovascular disease. It argues that this can only be successful when local people and their opinions are involved in the process, as both health and transport decision-making processes are characteristics of the individual.

To validate this suggestion, this paper aims to build on the growing evidence base that details the relationship between transport and health by investigating whether a link between transport and cardiovascular disease can be established. Existing literature concerning the relationship between cardiovascular disease, general health and transport is firstly reviewed, before data collection and analysis undertaken to support this research paper is detailed. The implications of the results of this data analysis are then discussed, followed by the results of an online survey undertaken as part of this research. Finally, a set of conclusions and research recommendations are presented alongside scope for potential future research.

Literature Review

Cardiovascular disease, defined as the collective term for all diseases that affect the circulatory system, is the leading cause of death and disability in the Global North, accounting for more than half of all deaths in the European region (World Health Organisation, 2012). It is the main cause of death in the United Kingdom and was responsible for 191,000 deaths in the UK in 2008. The disease is estimated to cost the UK government and the National Health Service a total of £3 billion annually (British Heart Foundation, 2012). Research into the causes of cardiovascular disease is well established; it can be traced back to the 1940s when Ancel Keys advanced the idea that CVD is not "an inevitable result of aging" but is instead related to social and environmental factors. A large

body of evidence exists that shows a wide range of potential causes of and risk factors for cardiovascular disease, including smoking, high blood pressure, high cholesterol, obesity, family history, ethnicity and age. However, there is an inequitable geographic spread of CVD across the United Kingdom – other social factors also play a role in influencing CVD risk.

The Whitehall Study (and the follow up Whitehall II Study) is one of the most celebrated to investigate the causes of cardiovascular disease. The study found that car ownership is related to risk factors of CVD, demonstrating the fact that a link can be seen between CVD and transport.

People's transport decisions are influenced by the distance that they have to travel and the way in which they perceive the physical environment. Thus, land use decisions and good planning can encourage people to make sustainable travel choices by improving the quality of the built environment and connections between places. In urban areas, it is possible for walking and cycling to be incorporated into daily routines in place of travelling short distances currently travelled by car (for example, for travel to and from work, school and shopping activities). Compact, transit-supportive built environment and walkable neighbourhood patterns are frequently associated with increases in physical activity (Frank et al., 2004; Frank et al., 2012; King et al., 2003; Lopez, 2004).

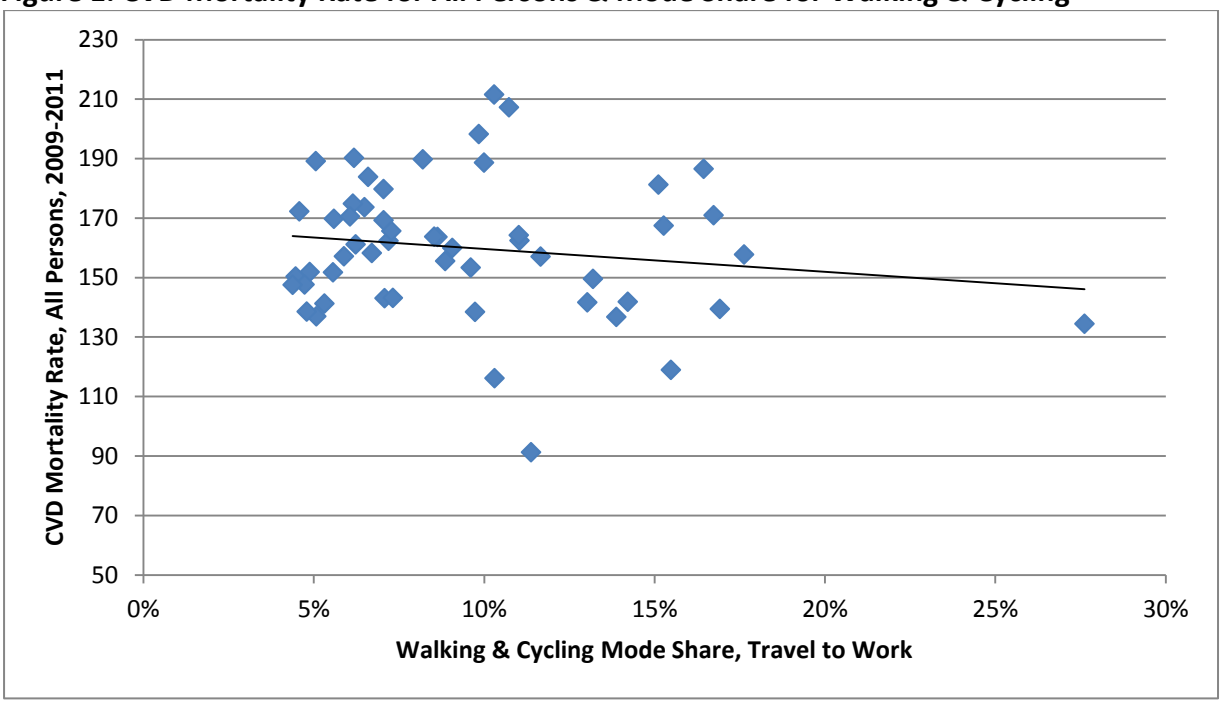
Moderate physical activity through walking and cycling as part of a person's daily routine can and should form an important part of an integrated strategy to promote physical activity and to improve health. A number of studies have demonstrated the protective effect that leisure-time activity can have on cardiovascular disease risk factors (for example Metsios et al., 2007; Myers, 2003; Warburton et al., 2006). However, it is important to note that a large proportion of these studies have been undertaken in North America, Australia and Scandinavia, and therefore may produce different results to the United Kingdom given the differences that exist in racial and ethnic composition, transport services, patterns and infrastructure and cardiovascular disease risk profiles (Furie & Desai, 2012). There is a need for further research to be undertaken in the UK context to investigate the active transport-cardiovascular disease relationship.

Research

As part of this research paper, the relationship between the mode share held by walking and cycling to travel to work and cardiovascular disease mortality rates for men, women and all persons have been compared at a total of 54 locations spread across England to investigate whether a link between the walking, cycling and CVD can be established. This has been done using walking and cycling mode share from "Method of Travel to Work" data from the 2011 Census and CVD mortality rate data from cardiovascular disease local authority health profiles produced by the South East Public Health Observatory (SEPHO). The two have been plotted against each other to investigate whether a correlation exists. The SEPHO CVD health profiles bring together a wide range of data on cardiovascular

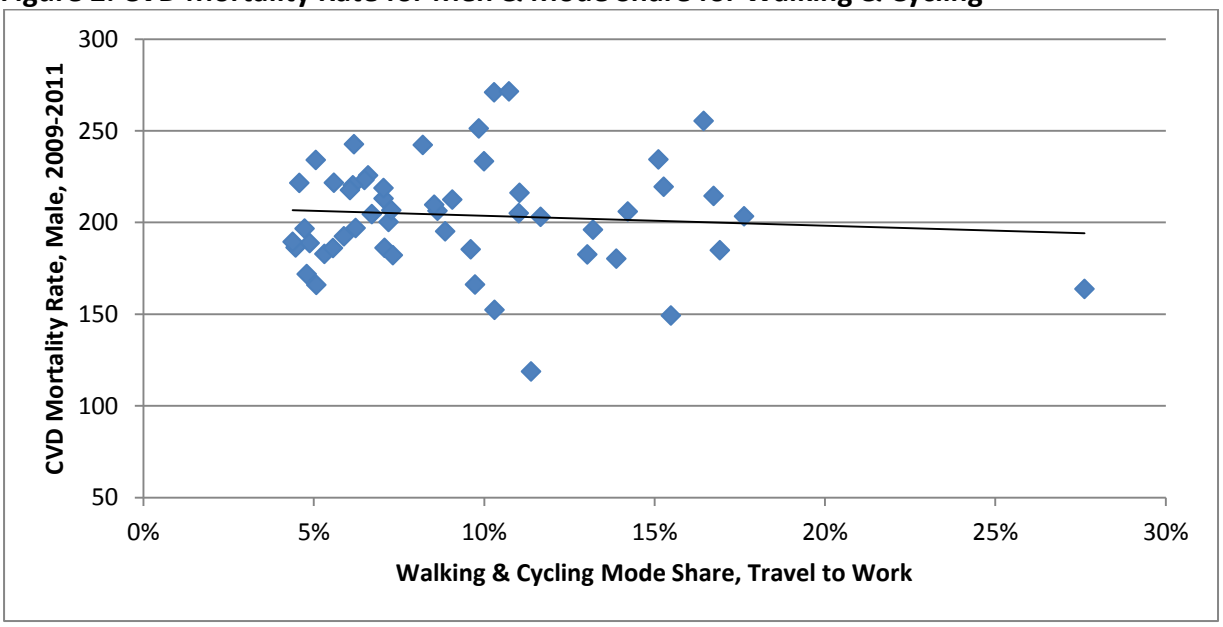
disease in upper-tier local authorities within England with the aim of providing information to health care professionals, commissioners and other interested parties to aid planning and development (SEPHO, 2012). The relationship between walking and cycling to work and cardiovascular disease mortality rate (per 100,000 people) is detailed graphically below for all persons (**Figure 1**), men (**Figure 2**) and women (**Figure 3**).

Figure 1: CVD Mortality Rate for All Persons & Mode Share for Walking & Cycling



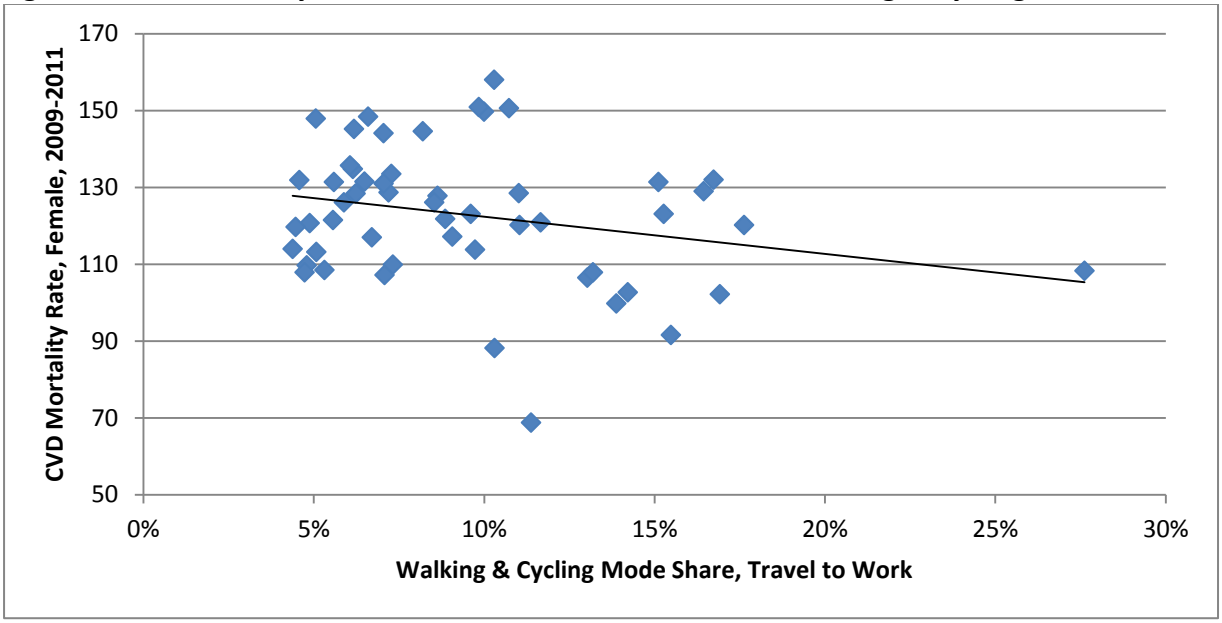
(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

Figure 2: CVD Mortality Rate for Men & Mode Share for Walking & Cycling



(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

Figure 3: CVD Mortality Rate for Women & Mode Share for Walking & Cycling



(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

It can be seen that a correlation exists between the mode share held by walking and cycling for travel to work and cardiovascular disease mortality rates; as the mode share held by walking and cycling increases, in general the CVD mortality rate (per 100,000 population) decreases. This correlation is seen to be more pronounced for women than it is for men.

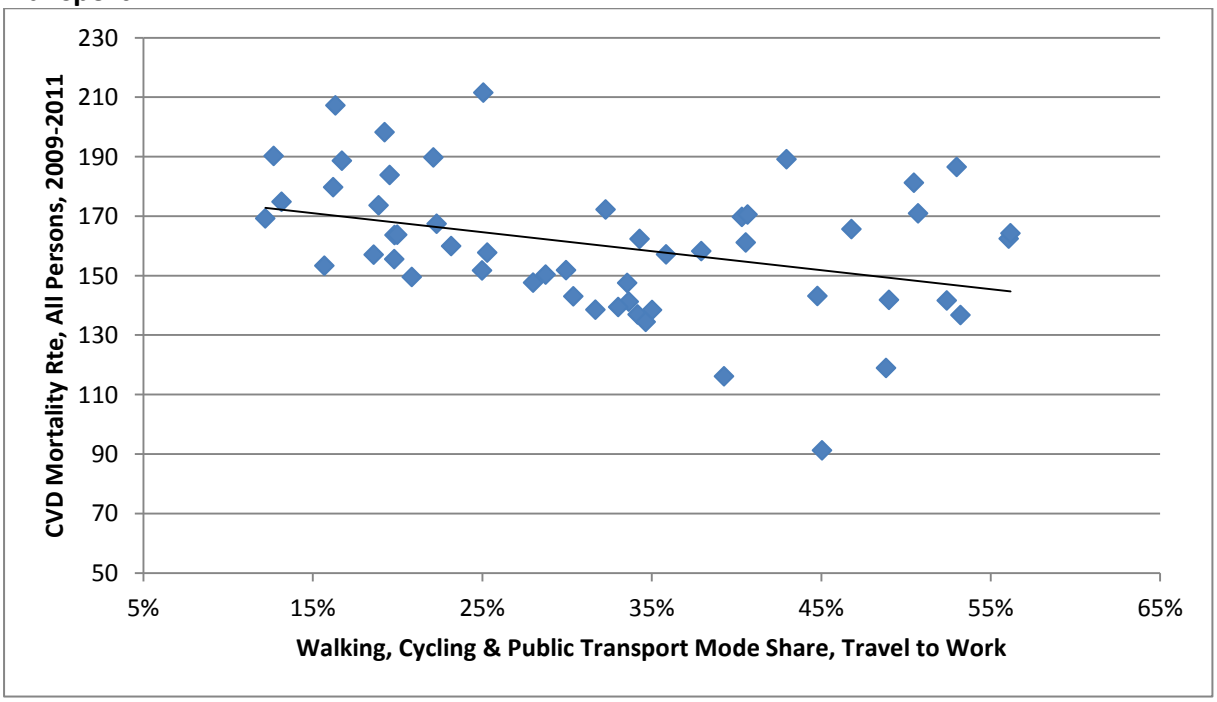
By transforming daily routines into an opportunity for physical activity, active transport can overcome many of the traditional barriers that prevent engagement in leisure-time or occupational physical activity (Furie & Desai, 2012). However, despite a wealth of evidence that details the health benefits of physical activity as already outlined, particularly for sedentary populations, efforts to increase leisure-based physical activity have, on the whole, not achieved the desired results. As previously detailed, a number of studies have demonstrated the protective effect that leisure-based activity can have on cardiovascular disease risk factors. However, these studies focus solely on leisure-based physical activity with walking and cycling considered as primary modes of transportation. Should a focus on just walking and cycling as primary modes of transport be considered to be too linear? This paper has so far focused on walking and cycling as transport modes that promote health. However, a focus solely on these modes does not provide the complete picture; public transport provision, such as through rail and bus services, can also play a role in encouraging physical activity, and therefore plays a role in both improving health and potentially reducing the risk of chronic diseases such as cardiovascular disease.

There is a large body of evidence within the United States that links public transport users and physical activity. A study by LaChapelle and Frank (2009) found that users of public transport users within the United States are almost three and a half times more likely to

meet the US Surgeon General's physical activity recommendations of a minimum of 150 minutes of physical activity per week. Meanwhile, Basser and Dannenberg (2005) have found that public transport users spend on average 19 minutes a day walking to and from stations and transit services, with 29% of people walking for more than 30 minutes daily as part of their journey. It is clear therefore that government focus in improving health and reducing cardiovascular disease risk through transport should not be solely on the promotion of walking and cycling as primary modes of transport, but should also incorporate the promotion of bus and train service use for travel.

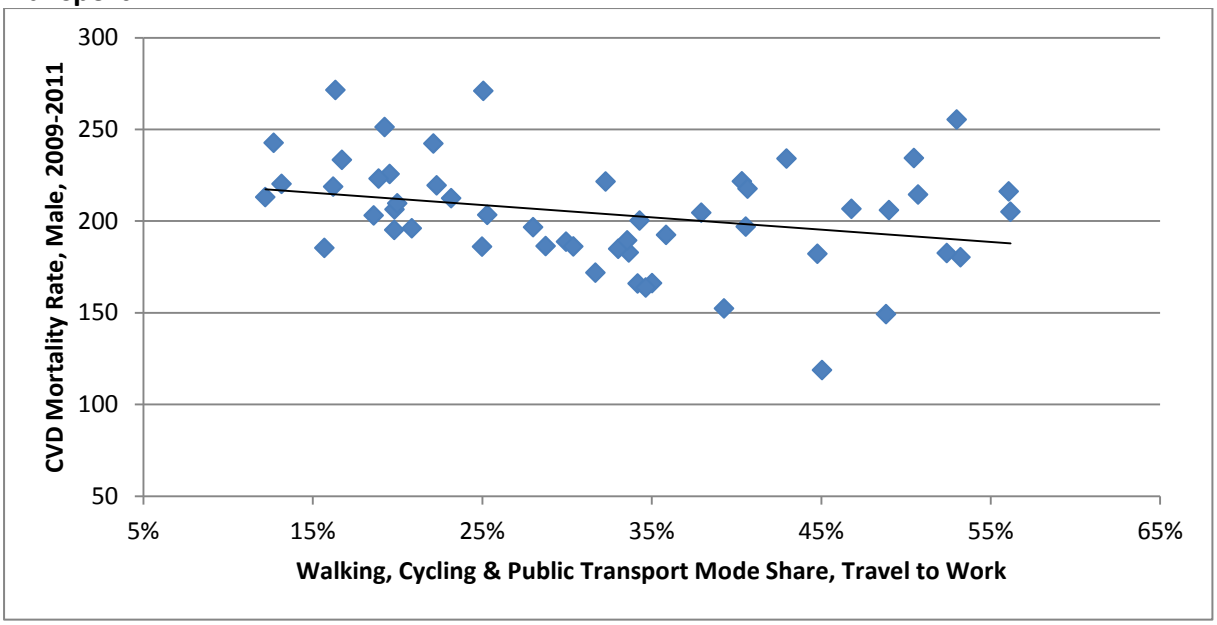
To confirm the hypothesis that the use of public transport can have a positive effect in reducing a population's risk of cardiovascular disease, the relationship between the mode share held by walking, cycling and public transport to travel to work and cardiovascular disease mortality rates for men, women and all persons have been compared at the same 54 locations across England. The relationship between this mode share and cardiovascular disease mortality rate (per 100,000 people) is shown below for all persons (**Figure 4**), men (**Figure 5**) and women (**Figure 6**). Full data analysis is contained at **Appendix B** for information.

Figure 4: CVD Mortality Rate for All Persons & Mode Share for Walking, Cycling & Public Transport



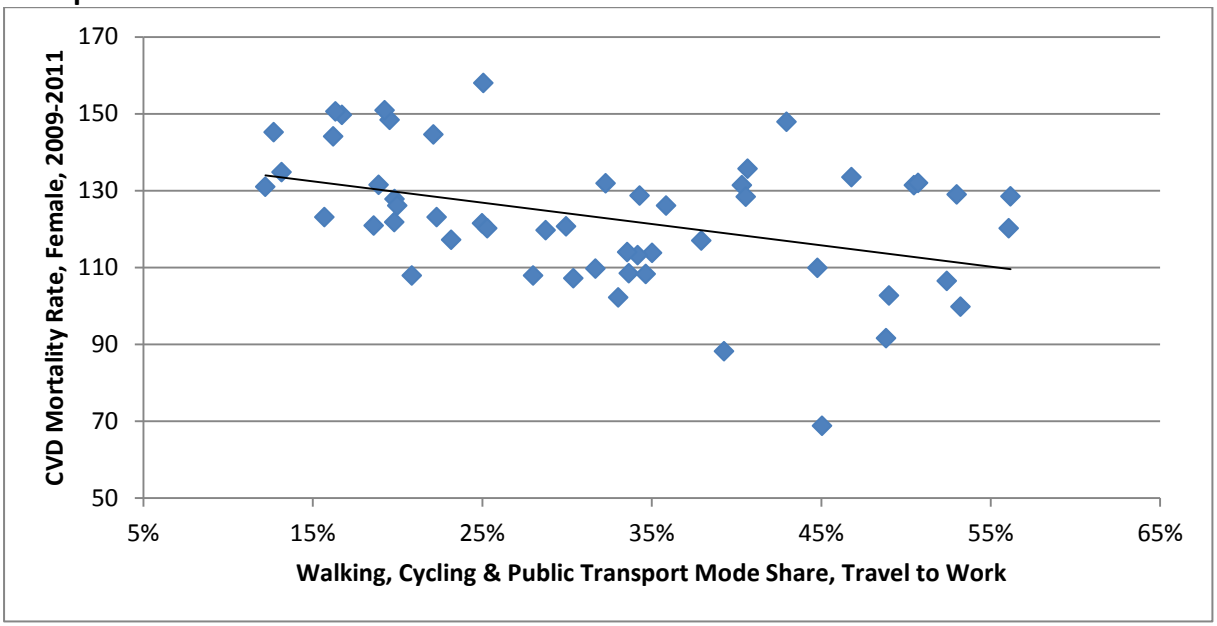
(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

Figure 5: CVD Mortality Rate for Men & Mode Share for Walking, Cycling & Public Transport



(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

Figure 6: CVD Mortality Rate for Women & Mode Share for Walking, Cycling & Public Transport



(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

When the mode share held by walking and cycling is combined with that of public transport (bus, train, underground, tram and light rail services), a stronger correlation with CVD mortality rate for all ages can be seen, with the trendline decreasing from 135 deaths per

100,000 population at the lowest mode share to 110 deaths per 100,000 population at the highest mode share. The correlation is more defined for women than for men.

The top five highest mode shares held by walking and cycling are found in the following locations:

- Cambridge: 28%
- York: 20%
- Bristol: 18%
- Brighton: 17%
- Hackney: 17%

When public transport is incorporated into this, the top five highest mode shares are found in the following locations:

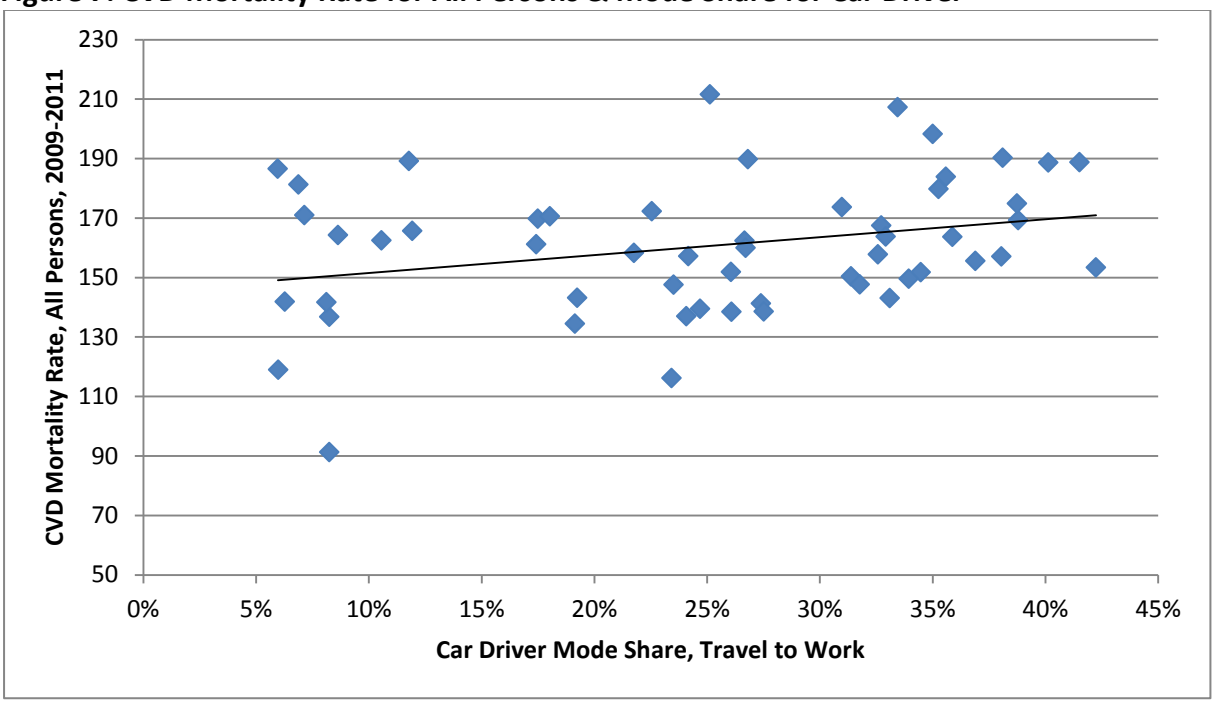
- Wandsworth: 56%
- Lambeth: 56%
- Islington: 53%
- Hammersmith & Fulham: 53%
- Southwark: 52%

It is noted that locations with the highest mode share held by walking, cycling and public transport are all London boroughs. These are likely to feature as a result of London's comprehensive and efficient public transport system.

This analysis demonstrates that a relationship between active transport (walking, cycling and public transport) and CVD mortality rates exists in England – in general, locations with a higher mode share held by active transport modes for travel to work have a lower CVD mortality rate per 100,000 people. An argument can therefore be made that government focus should be steered towards the promotion of these modes. Such promotion could result in a modal shift in favour of these modes, leading to reductions in CVD mortality rates alongside associated economic benefits.

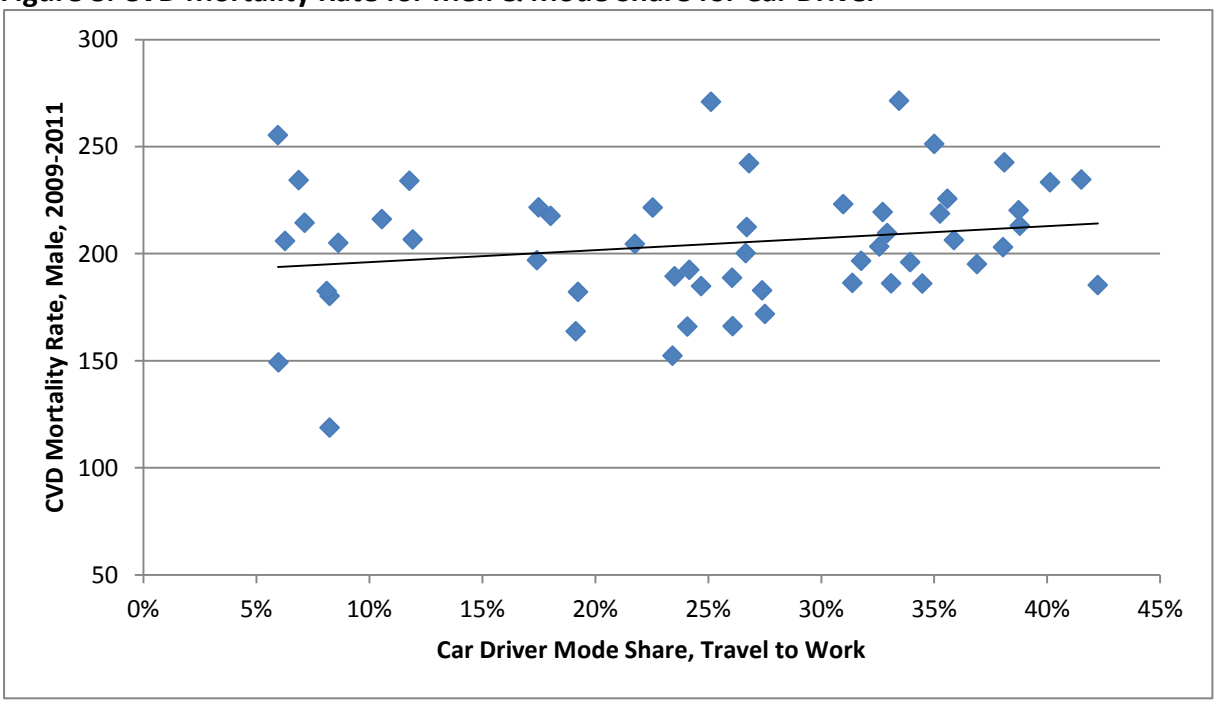
To further this argument, it is important to investigate whether a correlation exists between private car use to travel to work and cardiovascular disease mortality rates – do areas with higher car usage for travel to work tend to have higher CVD mortality rates? In order to answer this question, the relationship between the car driver mode share held for travel to work and cardiovascular disease mortality rates for men, women and all persons have been compared at the same 54 locations across England using 2011 Census data and health profiles produced by the SEPHO. The relationship between this mode share and CVD mortality rate (per 100,000 people) is provided overleaf for all persons (**Figure 7**), men (**Figure 8**) and women (**Figure 9**).

Figure 7: CVD Mortality Rate for All Persons & Mode Share for Car Driver



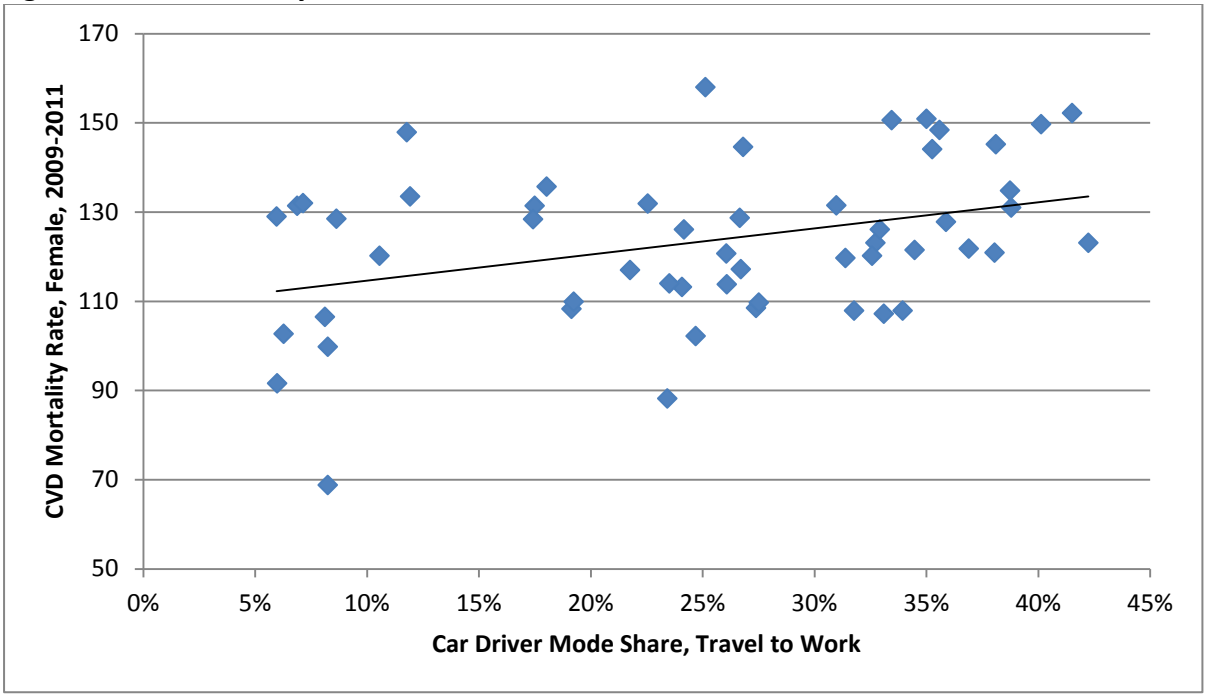
(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

Figure 8: CVD Mortality Rate for Men & Mode Share for Car Driver



(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

Figure 9: CVD Mortality Rate for Women & Mode Share for Car Driver



(Census, 2011, Method of Travel to Work; SEPHO, 2012, Local Authority Health Profiles)

It can be seen that the suggested hypothesis that increases in private car use for travel to work are accompanied by an increase in CVD mortality rates. As with that between CVD and the mode share held by active travel modes, the relationship is more pronounced for women than it is for men. From this data, it can be assumed that a shift from travel to work by private car to travel by active modes (public transport, walking and cycling) will result in CVD mortality rate reductions.

As such, the primary objective of any incoming government should be to use transport planning to reduce incidence of chronic diseases such as cardiovascular disease through the promotion of walking, cycling and particularly public transport for travel to work. As previously stated the success of such promotion depends on the extent to which local people and their opinions are involved in the process. It is important that local people are aware of the potential health benefits associated of a change in travel patterns towards active travel. Rather than implementing a set of large scale top-down measures with no consultation or consideration of local contexts, it is important that the government ask local people what measures would encourage them to alter their method of travel to work: both health and transport decision making processes are characteristics of the individual. However, before this can be done, it is important that the general population are aware of the relationship between health and transport that has been demonstrated in this paper and that an understanding of the level of knowledge on this relationship is sought.

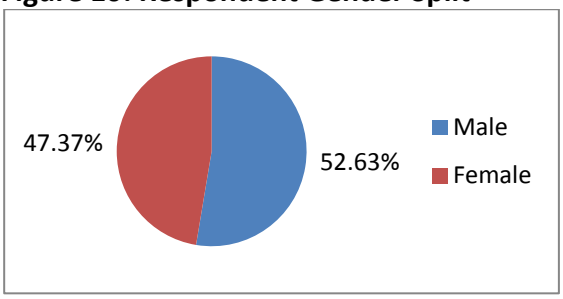
Online Survey Analysis

Thus far, this research has demonstrated that an increase in walking, cycling and public transport usage for travel to work correlates with a decrease in cardiovascular disease mortality rates. At the same time, it has argued that the individual is at the heart of both these factors – health profiles and transport choices are both characteristics of the individual. However, does the general public recognise this link, despite the wealth of literature that links transport and health? In order to answer this question an online survey has been undertaken, with a total of 80 respondents. The survey was undertaken to provide an understanding of general walking, cycling and public transport usage patterns, and of respondents' understanding of the link between transport choices and CVD risk factors. In order to provide consistency with the rest of this paper's research, only transport choices for travel to work have been considered.

Respondent Profile

A total of 80 respondents completed the online survey, which ran between for a total of four weeks during October and November 2014. A near-equitable gender split for respondents was recorded, with 53% of respondents male and 47% female, as shown in **Figure 10**.

Figure 10: Respondent Gender Split



Respondents were also asked to provide their home postcode, to ensure an equitable geographical spread of responses across the country was obtained and to avoid geographical concentration within one area. Responses were received from locations including London, Birmingham and other locations in the Midlands, Brighton, Cambridge, Essex, Gateshead, Lancashire, Plymouth and Sheffield.

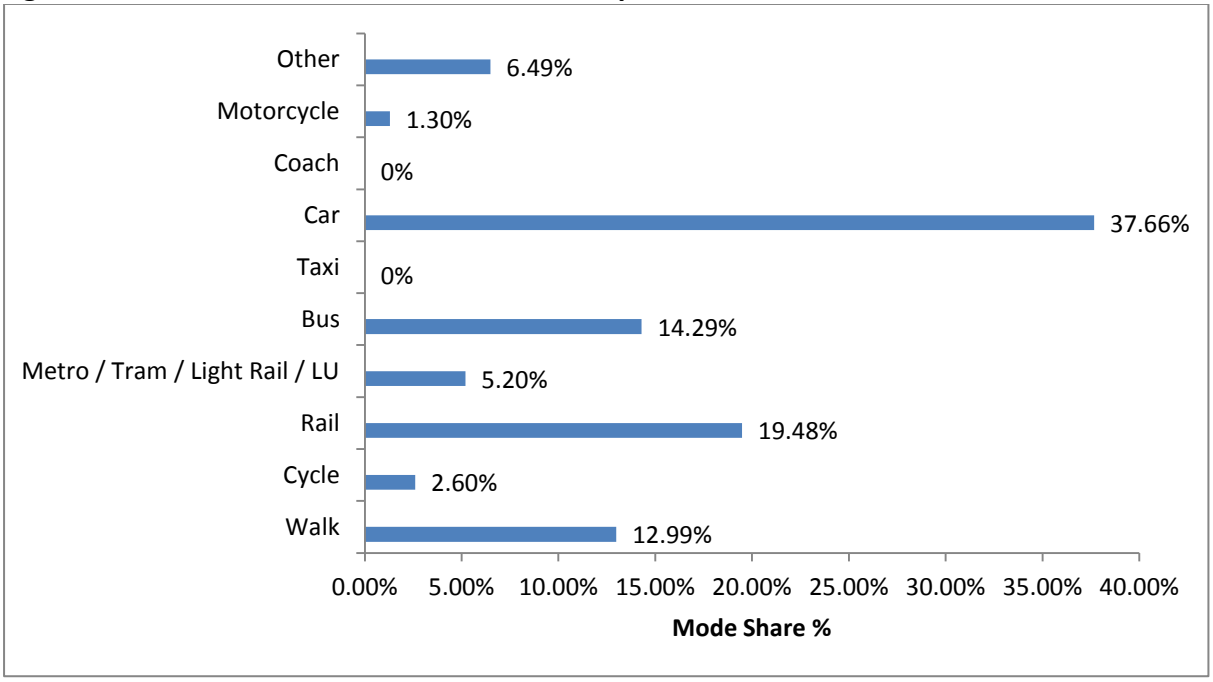
Mode of Travel to Work

Travel patterns for respondents were varied, with the private car the most frequently cited method of transport to and from work (38%). 13% of respondents walk to and from work, whilst 3% cycle. 39% of respondents travel via public transport, broken down as follows:

- Rail 19.5%
- Bus 14.3%
- Metro / Tram / Light Rail 1.3%
- London Underground 3.9%

One respondent works from home. The mode split for travel to and from work for all respondents is provided in **Figure 11**.

Figure 11: Mode Share, Travel to Work: All Respondents

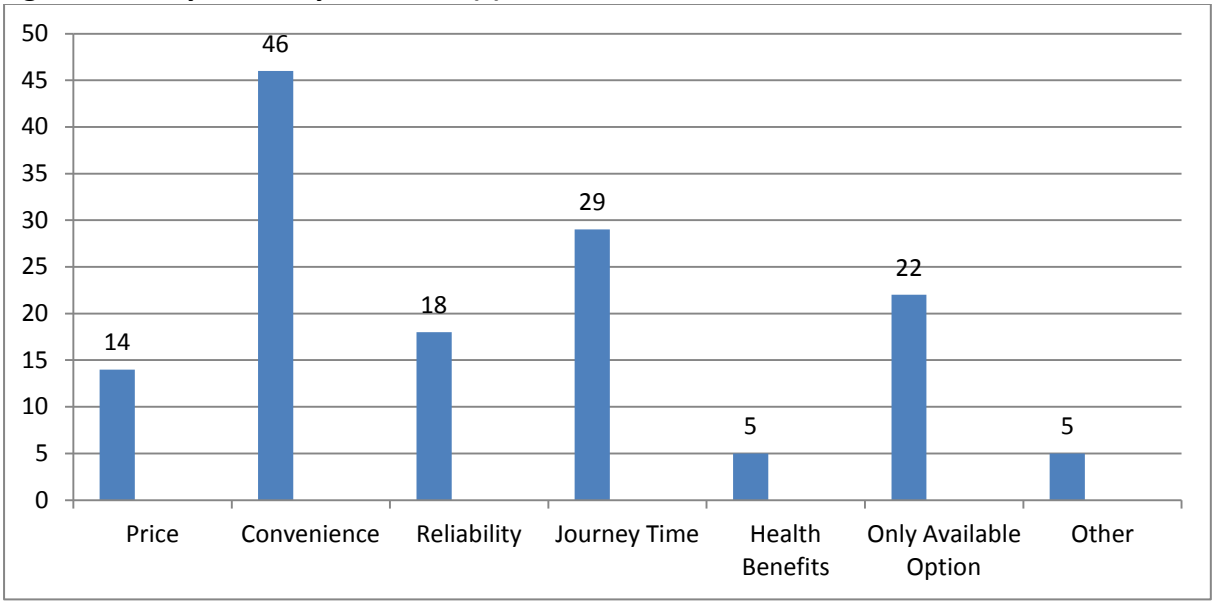


Data were also gathered on why people make the transport decisions detailed in **Figure 8**, and to investigate whether health benefits are considered to be important when making transport choices. Convenience and journey time were the two most commonly cited reasons for existing travel patterns, cited by 46 and 29 respondents respectively. Reliability was given by 18 respondents as a reason for their current travel patterns, and 22 respondents stated that their current mode of transport is the only option available to them.

Most importantly for this research, however, is the fact that only five respondents (7%) stated that their travel patterns are based on the health benefits provided. As such, it can be assumed that the relationship between health and transport is not widely recognised or understood by the general public.

Figure 12 overleaf provides a full breakdown of reasons respondents gave for using their chosen mode of transport to travel to and from work.

Figure 12: Why Travel by this Mode(s)?



Travel Choice Influencing Factors

Respondents were presented with the following factors and asked to rate their importance in influencing transport decisions for travel to work on a scale of 1-10 (where 1 represents not at all important and 10 represents very important):

- Price;
- Convenience;
- Reliability;
- Journey Time; and
- Health Benefits.

The rating of importance given to each of these factors by respondents is detailed in **Figure 13** with full results provided in **Table 1**.

Figure 13: Importance of Travel Factors

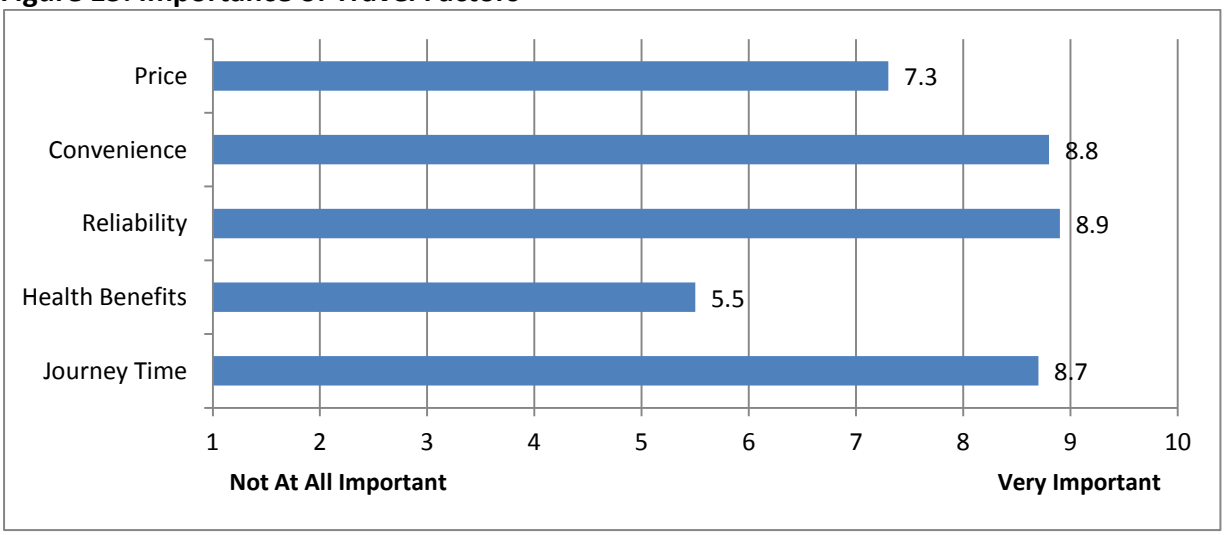


Table 1: Importance of Travel Factors

Importance (Least to Most)												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Ave**	**Total**
Price	4	1	2	0	7	6	12	16	3	19	7.3	70
Convenience	0	1	0	2	2	1	4	13	8	38	8.8	69
Reliability	0	1	2	0	1	0	3	14	8	36	8.9	65
Journey Time	0	1	0	2	3	0	5	15	10	32	8.7	68
Health Benefits	9	3	5	4	13	6	12	9	1	6	5.5	68

It has been found that reliability is the most important factor in terms of influencing transport decisions for travel to work, with a weighting of 8.9 on a scale of 1-10, where 1 represents not at all important and 10 represents very important. Convenience and journey time are of equal following importance, with a weighting of 8.8 and 8.7 respectively.

Health benefits were rated to be the least influential factor, with an overall weighting of 5.5. Six respondents (8%) see health benefits as very important (with a rating of 10), whilst nine respondents (12%) do not see any importance in health benefits (with a rating of 1). It can be assumed therefore that health benefits are not considered to be an important deciding factor when making transport choices for travel to work.

Cardiovascular Disease & Transport

To gauge current level of understanding of the relationship between cardiovascular disease and transport in terms of travel to work, respondents were asked to rate on a scale of 1-10 how related they believe CVD risk and mode of travel to work to be, as detailed in **Table 2**. A rating of 1 represents a belief that no relationship exists, whilst a rating of 10 represents believe in a strong relationship between the two.

Table 2: CVD – Travel to Work Relationship Rating

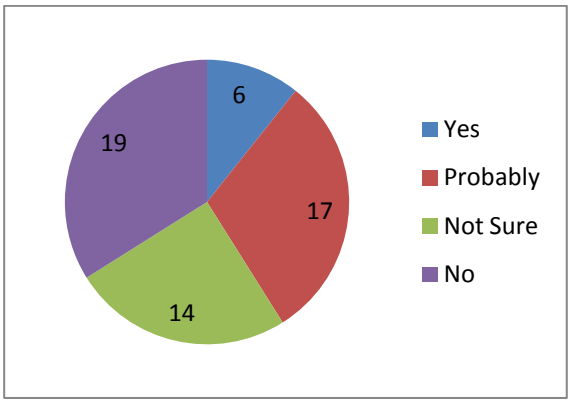
Relatedness (Not At All Related to Very Related)												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Ave**	**Total**
Relevance	6	2	5	2	16	12	12	10	0	4	5.6	69

Of the 69 respondents that answered this question, the mean weighting given to the relationship between CVD and travel to work is 5.6. This highlights the lack of understanding of both the relationship between cardiovascular disease and transport in terms of travel to work and the potential health benefits of active transport, and demonstrates the necessity for any incoming government to actively publicise the fact that as the mode share held by public transport, walking and cycling increases, CVD mortality rates in general decrease and potential reductions in individual CVD risk factors.

CVD-Transport Link Influence

Respondents were informed of the fact that this research has identified a relationship between CVD and transport choices for travel to work. Respondents were asked whether a clear explanation and publication of this relationship, its implications and the potential benefits of changes to individual travel patterns by the government would influence their own travel choices for journeys to work. Responses are detailed in **Figure 14**.

Figure 14: Would clearly explained information on the link between CVD and travel to work influence individual travel choices?

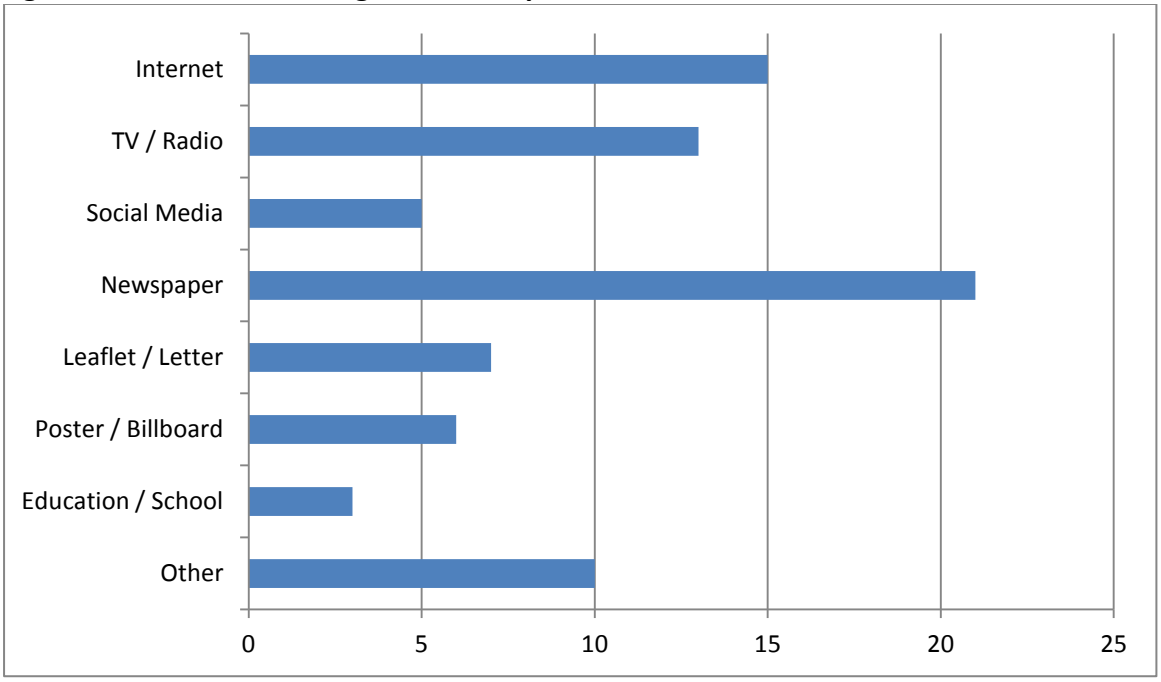


11% of respondents said that this information would influence their travel patterns, 30% said it would probably influence their travel patterns, whilst 34% said it would not influence their travel patterns. Although the percentage of respondents who answered yes to this question may seem low at 11%, it is important to note that a potential modal shift of 11% in favour of walking, cycling and public transport for travel to work represents a far greater shift than that usually targeted through large-scale, top-down urban realm improvement projects.

What should the government do?

As argued throughout this paper, it is important that local people are made aware of the potential health benefits associated with a change in travel patterns for travel to work and that the government ask local people what measures would encourage them to alter their method of travel to work. To align the survey firmly with the overarching question that this research aims to answer of what can an incoming government do to improve planning for transport, respondents were asked how they believe the government should better publicise the relationship between active transport (walking, cycling and public transport) and cardiovascular disease, with the aim of encouraging alterations in travel patterns that increase uptake of public transport, walking and cycling to travel to and from work. Consideration of this facilitates this paper not only to present an argument that advocates the importance of incoming government including local people as a means to improving planning for transport, but to also present a series of potential ways in which this can be done. Suggested methods to publicise this information are presented in **Figure 15** overleaf.

Figure 15: How should the government publicise this information?



A wide range of suggestions were put forward as ways to publicise the link between CVD and travel to work, and the potential implications of this link. The most popular suggestions are as follows:

- Newspaper 21
- Internet 15
- TV / Radio 13
- Leaflet / Letter 7
- Poster / Billboard 6
- Social Media 5
- Via education / at school 3
- In the workplace 2
- Other 8

Other, less frequently suggested methods to publicise this link included promotional material at doctor surgeries, advertising at rail stations, advice to be given from an independent medical body or by scientific experts, a celebrity campaign and incentive schemes that reward active travel to work.

Conclusion & Research Recommendations

Academic research recognises that shaping and using the built environment for the promotion of health and an active lifestyle is a powerful tool that should be included as a means of changing lifestyles and behaviour; regular physical activity can improve health through reduction in the risk of obesity, coronary heart disease, type 2 diabetes and cardiovascular disease. However, recent government focus to promote health and active lifestyle choices has been centred on a top-down approach with large-scale (and often expensive) programmes, projects and policies.

In returning to the questions of what can an incoming government do to improve planning for transport, this paper advocates government support for planning that enables and encourages greater use of walking, cycling and public transport as a way of promoting long-term health benefits, particularly in terms of reducing cardiovascular disease mortality rates and associated risk factors. It is important to note that health is a characteristic of the individual, and as such this paper argues that the potential for success of such promotion increases significantly when local people and their opinions are involved in the process.

Through the undertaking of an online survey, a number of suggestions have been put forward as ways in which an incoming government could better publicise the relationship between active transport (walking, cycling and public transport) and cardiovascular disease, including producing promotional material that aims to encourage alterations in travel patterns that increase uptake of public transport, walking and cycling to travel to and from work. Such material can be adapted for publication in the printed press, online and in television and radio broadcasts.

The short term costs associated with a number of these recommendations is recognised. However, as previously outlined, cardiovascular disease is estimated to cost the UK government and the National Health Service a total of £3 billion annually (British Heart Foundation, 2012). It is believed that the long term economic benefits of increased active travel and reduced CVD mortality rates will negate these costs.

It is important that such measures are implemented alongside the continued use of recommended design standards for public realm improvements that aim to promote active travel, such as Manual for Streets and the recently-published Welsh Active Travel Act, which provides a legislative obligation for local authorities to plan developments with a strong focus on enabling walking, cycling and public transport use for utility transport. There should also be promotion of the application of such measures through the use of tools that demonstrate the quantifiable health benefits of walking, cycling and using public transport to travel to work, such as the World Health Organisation's Health Economic Assessment Tool.

It is important to note that although walking, cycling and public transport usage away from travel to work are important, this does not fall within the scope of this study. Similarly, this study has only focused on the relationship between transport and cardiovascular disease. There is potential for further research to be undertaken on the relationship between transport and other diseases, following a similar methodology to that employed for this study.

Appendix A

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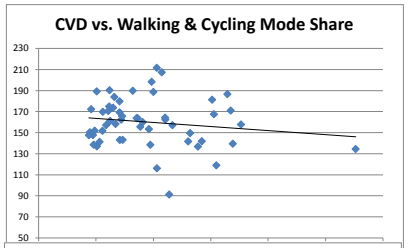
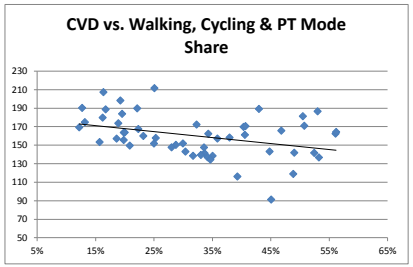
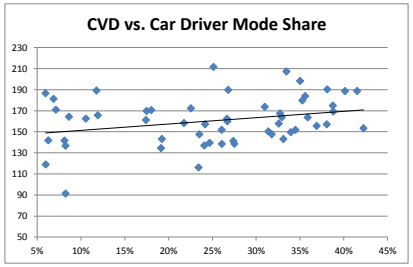
Appendix B

	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18	
	England		Gateshead		Manchester		Tower Hamlets		Bromley		Hammersmith		Islington		Dagenham		Newham		Richmond		Croydon		Enfield		Camden		Kingston		Bexley		Barnet		Ealing		Greenwich	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Car Driver	14345882	37%	52698	36%	96210	25%	13517	7%	60948	27%	12002	8%	9839	6%	28763	23%	26963	12%	32271	23%	63568	24%	58378	26%	10904	6%	31212	26%	52068	31%	62228	24%	54991	22%	32664	17%
Car Passenger	1264553	3%	5954	4%	10056	3%	1038	1%	3378	2%	710	0%	714	0%	2143	2%	2053	1%	1341	1%	4057	2%	3510	2%	793	0%	1778	1%	3389	2%	3593	1%	3228	1%	2268	1%
Underground / Metro / Tram	1027625	3%	4323	3%	2897	1%	47191	24%	5026	2%	38996	27%	31987	19%	16488	13%	52770	23%	10605	8%	11367	4%	21369	10%	37305	21%	2967	2%	2830	2%	44774	17%	45437	18%	18076	10%
Train	1343684	3%	733	0%	5938	2%	7557	4%	46672	21%	4466	3%	6170	4%	9349	7%	16507	7%	21768	16%	42531	16%	16413	7%	7089	4%	18777	16%	27680	17%	10065	4%	10117	4%	27721	15%
Bus	1886539	5%	14106	10%	47727	12%	14750	8%	11355	5%	13802	9%	22214	13%	9504	7%	17488	8%	7531	5%	24916	9%	18367	8%	16076	9%	8520	7%	9762	6%	20351	8%	23363	9%	19052	10%
Taxi	131465	0%	498	0%	1914	0%	701	0%	786	0%	414	0%	845	1%	381	0%	348	0%	237	0%	611	0%	739	0%	770	0%	250	0%	940	1%	738	0%	396	0%	554	0%
Motorcycle	206550	1%	371	0%	855	0%	910	0%	1681	1%	2173	1%	1203	1%	636	0%	782	0%	1654	1%	1535	1%	974	0%	1237	1%	1174	1%	1457	1%	1849	1%	1714	1%	1264	1%
Bicycle	742675	2%	1342	1%	8708	2%	8112	4%	2254	1%	7420	5%	10204	6%	1084	1%	2239	1%	6062	4%	2172	1%	1957	1%	7072	4%	3351	3%	1295	1%	2473	1%	4944	2%	2738	1%
Foot	2701453	7%	8425	6%	30714	8%	21598	11%	9574	4%	12783	9%	16952	10%	4756	4%	9349	4%	8138	6%	13313	5%	8982	4%	17641	10%	8298	7%	6120	4%	10647	4%	12005	5%	7705	4%
Other	162727	0%	559	0%	1398	0%	1052	1%	894	0%	754	1%	721	0%	434	0%	769	0%	727	1%	1212	0%	979	0%	1095	1%	474	0%	621	0%	1339	1%	1077	0%	1106	1%
Not in Employment	13718653	35%	56202	38%	169227	44%	75679	39%	71171	32%	45934	32%	58384	35%	52351	41%	96504	42%	38575	28%	90061	34%	86402	39%	64867	37%	37716	32%	55755	34%	87785	34%	87944	35%	68901	37%
Work at Home	1349568	3%	2868	2%	7288	2%	4447	2%	8800	4%	6098	4%	5916	4%	1679	1%	3186	1%	8870	6%	7705	3%	5954	3%	8984	5%	5156	4%	3997	2%	12601	5%	7548	3%	4673	3%
All Residents	**38881374**	**100%**	**148079**	**100%**	**382932**	**100%**	**196552**	**100%**	**222539**	**100%**	**145552**	**100%**	**165149**	**100%**	**127568**	**100%**	**228958**	**100%**	**137779**	**100%**	**263048**	**100%**	**224024**	**100%**	**173833**	**100%**	**119673**	**100%**	**165914**	**100%**	**258443**	**100%**	**252764**	**100%**	**186722**	**100%**
Walking & Cycling		9%		7%		10%		15%		5%		14%		16%		5%		5%		10%		6%		5%		14%		10%		4%		5%		7%		6%
Walking, Cycling & PT		20%		20%		25%		50%		34%		53%		53%		32%		43%		39%		36%		30%		49%		35%		29%		34%		38%		40%
Car		37%		36%		25%		7%		27%		8%		6%		23%		12%		23%		24%		26%		6%		26%		31%		24%		22%		17%
CVD Mortality, All Persons		155.6		183.9		211.6		181.3		141.3		136.8		186.6		172.3		189.2		116.2		157.2		151.9		141.9		138.5		150.4		137.0		158.3		169.8
CVD Mortality, Male		195.2		225.7		271.0		234.4		182.9		180.3		255.4		221.6		234.1		152.4		192.5		188.8		206.0		166.2		186.4		166.0		204.6		221.7
CVD Mortality, Female		121.8		148.4		158.0		131.4		108.5		99.8		129.0		131.9		147.9		88.2		126.1		120.7		102.7		113.8		119.7		113.2		117.0		131.4

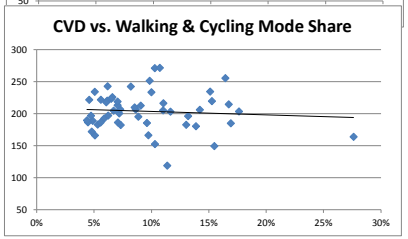
ALL PERSONS

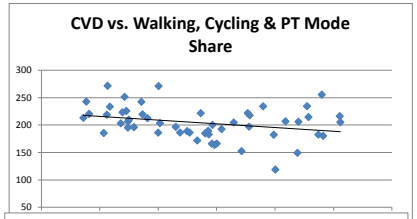


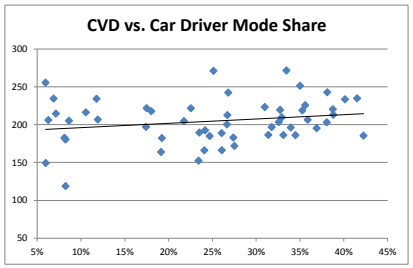




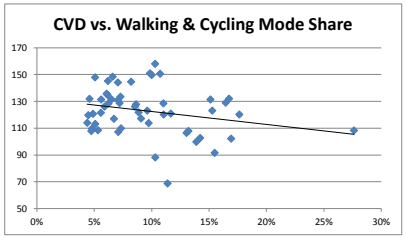
MALE

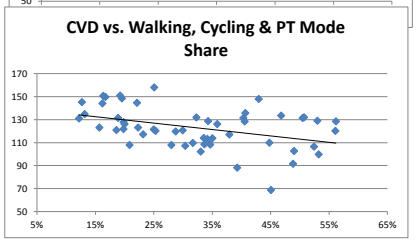


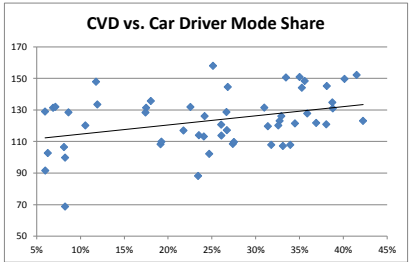




FEMALE







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Hounslow		Hackney		Sutton		Southwark		Newcastle		Liverpool		Brighton		Portsmouth		Birmingham		Haringey		Hillingdon		Harrow		Southampton		Westminster		Peterborough		Leeds		Bristol		Bournemouth		Preston		Salf
#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#
50695	27%	13382	7%	45912	33%	18226	8%	56851	27%	95678	27%	52042	25%	50299	33%	235505	31%	23023	12%	68925	34%	48077	28%	61164	34%	10499	6%	53100	40%	201221	36%	104729	33%	52347	38%	37751	36%	60601
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21001	11%	31604	17%	9104	7%	39293	18%	22137	10%	38601	11%	19018	9%	7197	5%	73117	10%	21738	11%	15731	8%	10274	6%	10433	6%	16398	9%	6571	5%	50541	9%	20216	6%	7841	6%	7272	7%	12007
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4160	2%	17312	9%	2066	1%	10898	5%	3308	2%	4062	1%	6910	3%	7148	5%	6629	1%	6142	3%	1936	1%	901	1%	5243	3%	5365	3%	5095	4%	6352	1%	16211	5%	4250	3%	1471	1%	2527
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5497	3%	6485	3%	4309	3%	6397	3%	3988	2%	5258	1%	10618	5%	3280	2%	14402	2%	6910	4%	5121	3%	6043	3%	3737	2%	9620	5%	3454	3%	14666	3%	9578	3%	4812	3%	2437	2%	3818
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	7%		17%		7%		13%		9%		8%		17%		15%		6%		7%		6%		5%		13%		15%		10%		9%		18%		12%		10%	
	34%		51%		30%		52%		23%		22%		33%		22%		19%		47%		25%		32%		21%		49%		17%		20%		25%		19%		18%	
	27%		7%		33%		8%		27%		27%		25%		33%		31%		12%		34%		28%		34%		6%		40%		36%		33%		38%		36%	
	162.4		171.0		143.1		141.7		160.0		189.8		139.5		167.5		173.7		165.7		151.8		138.6		149.6		119		188.7		163.7		157.8		157.1		
	200.3		214.5		186.2		182.6		212.5		242.3		184.9		219.5		223.2		206.7		186.1		171.9		196.1		149.3		233.4		206.4		203.4		203.1		
	128.7		132.0		107.2		106.5		117.2		144.6		102.2		123.1		131.5		133.5		121.5		109.7		107.9		91.6		149.7		127.8		120.2		120.9		

8	39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56	
ord	Stoke on Trent		Bedford		Brent		Sheffield		Walsall		Wolverhampton		Blackpool		Rochdale		Havering		Exeter		Cambridge		Wandsworth		Waltham Forest		Redbridge		Merton		Kensington		Lambeth		Barnsley	
%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
35%	70919	39%	48057	42%	40720	17%	135304	33%	74374	39%	63466	35%	34724	33%	58968	38%	54368	32%	27152	30%	18810	19%	25713	11%	34428	18%	46921	24%	28780	19%	10395	8%	20520	9%	70743	42%
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0%	879	0%	425	0%	1574	1%	1372	0%	695	0%	646	0%	562	1%	475	0%	1016	1%	706	1%	504	1%	3797	2%	1110	1%	762	0%	1408	1%	1683	1%	2385	1%	843	0%
1%	1601	1%	2912	3%	3859	2%	4374	1%	1778	1%	2215	1%	1948	2%	923	1%	1020	1%	3622	4%	17755	18%	13267	5%	3430	2%	1411	1%	3524	2%	3955	3%	13455	6%	720	0%
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10%		7%		10%		6%		9%		6%		7%		11%		6%		5%		19%		28%		11%		6%		4%		7%		11%		11%		6%
19%		12%		16%		41%		20%		13%		16%		16%		13%		28%		26%		35%		56%		41%		34%		45%		45%		56%		12%
35%		39%		42%		17%		33%		39%		35%		33%		38%		32%		30%		19%		11%		18%		24%		19%		8%		9%		42%
198.3		169.3		153.4		161.2		163.8		174.9		179.8		207.3		190.3		147.7				134.5		162.5		170.6		147.6		143.2		91.3		164.3		188.8
251.3		213.1		185.4		197.0		209.7		220.3		218.8		271.5		242.7		196.7				163.8		216.2		217.7		189.5		182.2		118.8		205.1		234.7
150.9		131.0		123.1		128.4		126.1		134.8		144.1		150.6		145.2		107.9				108.3		120.2		135.7		114.0		109.9		68.8		128.5		152.2