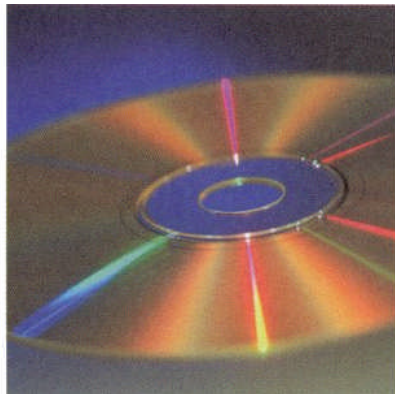


Health of People who Travel to Work:
The Effect of Travel Time and Mode of
Transport on Health

What Have we Learned from the Kent and
Medway Health and Lifestyle Survey?



Dr Ann Palmer
Honorary Senior Research Fellow

Centre for Health Services Studies
University of Kent

June 2005

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**WHAT HAVE WE LEARNT FROM THE KENT AND MEDWAY HEALTH
AND LIFESTYLE SURVEY?**

**Dr. Ann Palmer
Honorary Senior Research Fellow
Centre for Health Services Studies
University of Kent
A.P.Palmer@kent.ac.uk**

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The Effect of Travel Time and Mode of Transport on Health

What have we learnt from the Kent and Medway Health and Lifestyle Survey?

Executive summary

This is the first study of the health of people travelling to work. The paper describes a study from the 2001 Kent and Medway Health and Lifestyle Survey. It focusses on the health of people commuting to London and those working elsewhere who were travelling for more than 45 minutes.

There were 3195 people currently employed, of whom 328 described themselves as a 'commuter' defined in the study as someone who works in London. Men working full time were more likely to commute than women. In all 647 people were travelling 45 minutes or more to work, 51% of commuters were travelling for 90 minutes or more.

74% of people aged 16-74 in employment were using some form of rail or road transport; 56.8% drove a car and 6.4% went by train. 17.8% of car drivers took longer than 45 minutes to arrive at work. 84% of people travelling by train and 37% travelling by bus took 45 minutes or longer.

Commuters reported better health than those working outside London. They were less likely to have visited a doctor in the past 2 weeks, they could more easily walk a mile and climb stairs, but their lifestyles are less healthy and they were more likely to be obese, more likely to smoke and less likely to eat healthily. People travelling by bus, and those working from home were more likely to be depressed than people travelling by train or driving a car; depression did not seem to be related to whether or not someone commutes.

The study found that there appears to be a healthy commuter effect, but there appears to be a significant risk for people travelling by bus; this may be that they choose this method of travel because they are less fit. A larger study focussing on people travelling 45 minutes or more to work is called for.

To Commute

- To travel some distance between one's home and place of work on a regular basis - Oxford English Dictionary
- Workers whose journey from home to work normally does not take less than 45 minutes - Costa et al.¹

Factors affecting Health of People who Commute

Current literature explores a number of facets of the effect of travel to work on people's health, however nowhere has any report of the physical and mental health of commuters been found.

Where people choose to live and work affects such important aspects of people's travel patterns as journey times, number of changes, stability^{2 3}. People travelling to work are putting themselves at increased risk including risk of RTAs^{4 5}, rail crashes⁶, terrorism, also because they are driving while tired^{7 8} they are at additional risk of road accidents. People travelling to work are exposed to respiratory disease due to dust, CO^{9 10}, noise¹¹, volatile hydrocarbons¹², smoke¹³, and infection.

The social consequences of travel to work include isolation from family and friends, separation from health protective amenities, for example it is difficult to visit a doctor out of hours or to visit a leisure centre, and exacerbation of inequalities. The hours spent away from home or travelling mean commuters have reduced leisure hours, difficult working hours, less opportunity to sleep¹⁴, greater stress^{15 16 17 18}, risk of depression¹⁹, change in biological rhythms²⁰, fatigue, and difficult family and social life^{21 22}.

Access to exercise, diet, attitudes to active commuting^{23 24 25 26 27 28 29}, sedentary lifestyle, leisure time³⁰ are all affected by spending time commuting and as a result are likely to affect health³¹. Developments in Transport Policy are now being encouraged to take into account the effect on the health of the commuter^{32 33}.

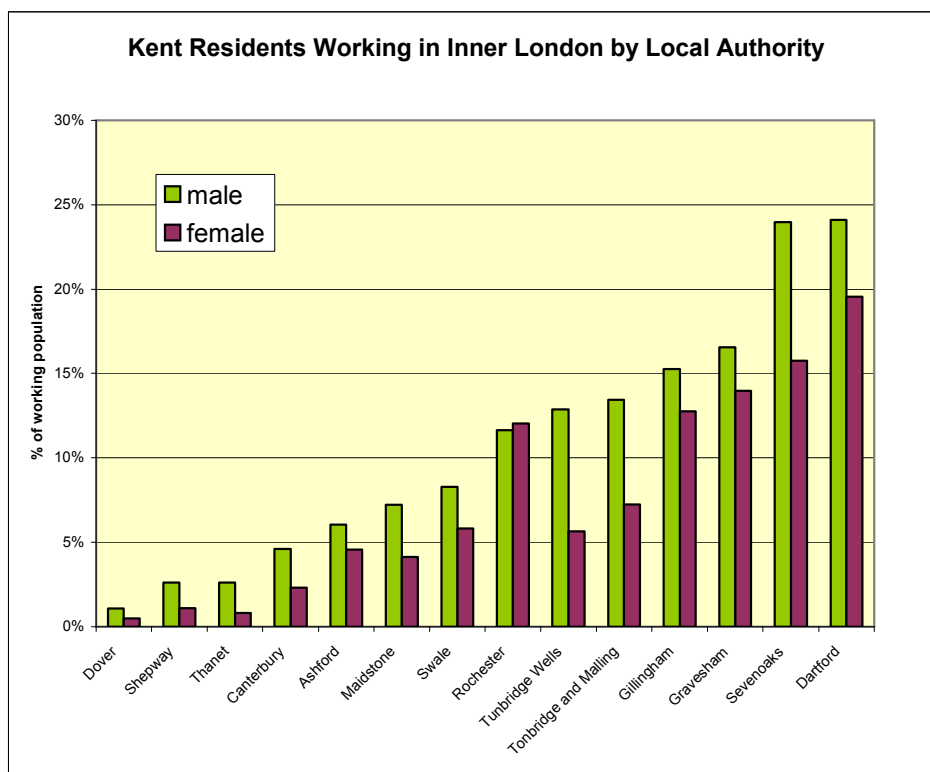
Hypothesis

- That commuters will be less healthy as a result of long hours (travel + working hours) which result in a reduction of access to and motivation for a healthy diet and exercise, also increased stress and likelihood of smoking and alcohol consumption

Findings from the Census

The 1991 Census illustrated that more people travel outside their local area for work the closer they live to London; in Dover two in 150 men and one in 150 women were travelling to Greater London, but have the furthest to travel. In Dartford more than one in two men and one in three women commute to Greater London, In Dartford one in four women and one in four men were traveling to inner London to work (Figure 1). 11% of working people from Dartford were working in Bexley, the neighbouring Authority which comes under Greater London.

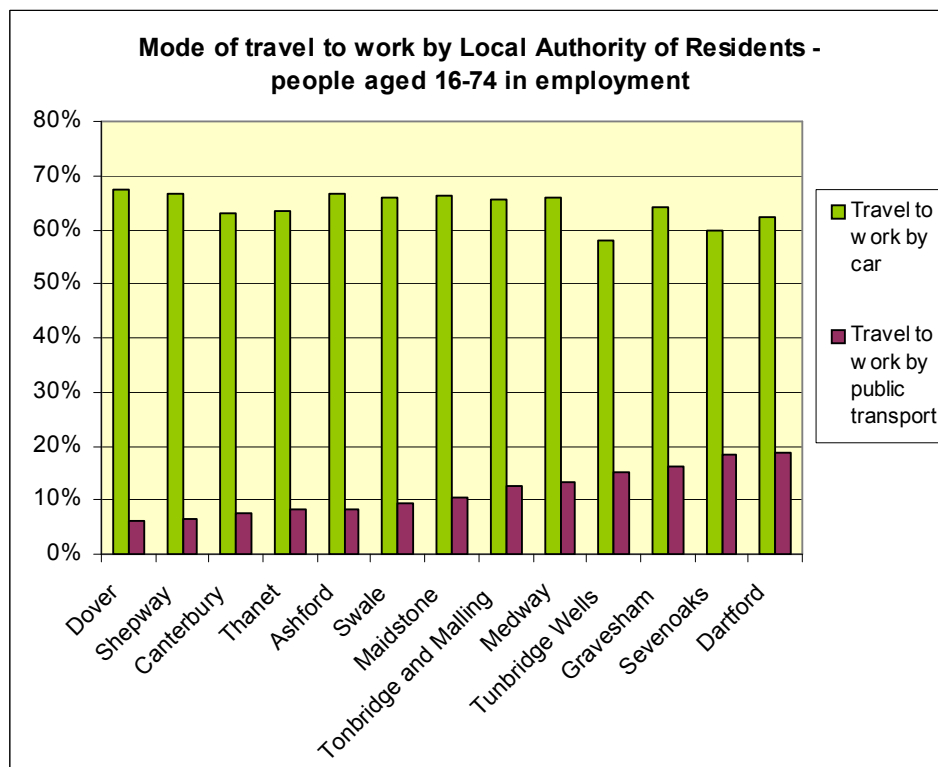
Figure 1



Source: 1991 Census

The 2001 Census confirms that people living closer to London are more likely to use public transport to travel to work (Figure 2).

Figure 2



Source: 2001 Census

Who is in the survey?

The Kent and Medway Health and Lifestyle Survey is a large survey of 8071 adults aged 16 and over living in Kent and Medway. A random sample of one in a hundred people aged 16-74 and one in twenty five people aged 75 registered with a General Practitioner in Kent and Medway were sent a postal questionnaire in summer 2001; prepaid envelopes were enclosed for return, with one reminder post card sent after 2 weeks. Poorly responding areas of Dartford, Gravesham and Swanley and Medway and Swale were sent a second reminder enclosing a second copy of the questionnaire. 15,958 people were surveyed, 8071 people responded; this is a 51% response rate overall and

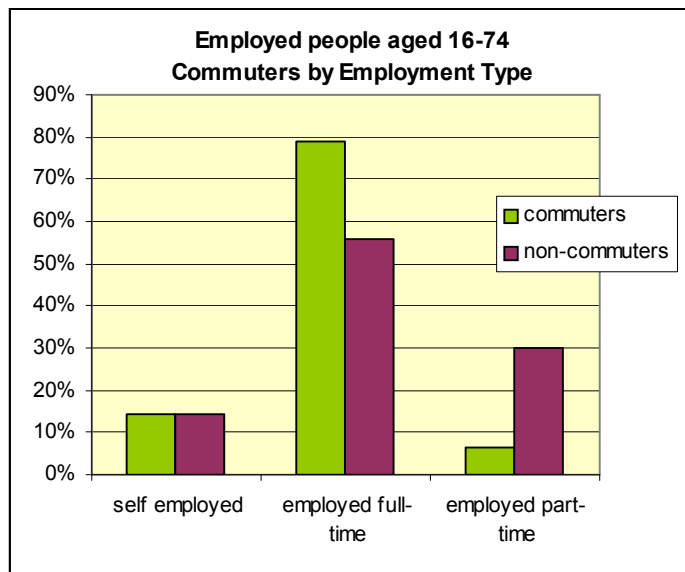
48% aged 16-74. Demographic details of the responders and information about their general health and lifestyle are published in the main survey report³⁴.

Employment and Travel to Work

The survey asked questions about employment and travel to work, and because it primarily asked about health and lifestyle the survey provides a rich source of information about working people.

There were 3195 people aged 16-74 who were currently employed; 3088 (96.7%) reported whether or not they were a commuter. 15% were self employed, 58% were full time employed and 28% were part time employed. 31% of commuters and 48% of people who don't work in London did not provide their working hours so it has not been possible to use this information.

Figure 3



The survey asked :

'How do you usually travel to work?' 'Do you work in London (a commuter)?'

In our sample of employed people aged 16-74, 3193 provided information about whether they commute and how long it takes to travel to work. 328 described themselves as a

'commuter' defined in the study as someone 'who works in London'. In all 647 people were travelling 45 minutes or more to work; 228 of these for 90 minutes or longer and 73 for more than 2 hours. 51% of commuters were travelling for 90 minutes or more.

326 employed people aged 16-74 (11% of the sample) were commuters and 89% were not. People in full time employment were significantly more likely to be commuting than those who were self employed or part timers. 14.8% of people in full time employment were commuters; this compared to 10.4% who were self employed and only 2.6% of part timers ($p < 0.001$).

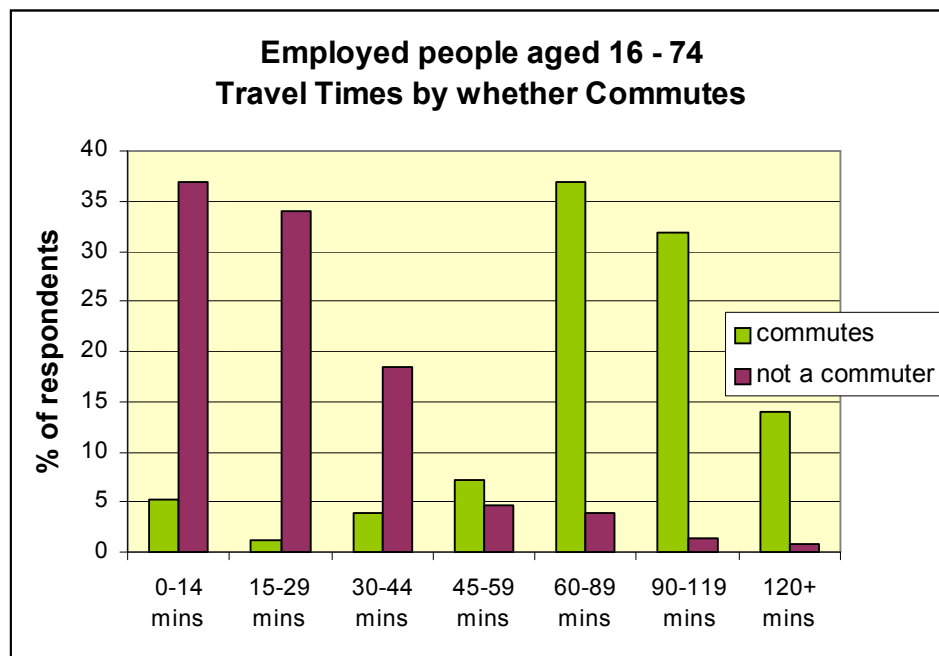
18.9% of men in full time employment were commuting compared to only 10.4% of women ($p < 0.001$). Although more men in part time employment commuted (5.0%) compared to 2.2% of women the difference was not significant.

The survey asked

*'How long does it take you on average to get to work? _____ hours
_____ minutes'*

10.5% of Kent and Medway commuters arrive at work in under 45 minutes compared to 89% of non-commuters; 83% of commuters take more than an hour to arrive and 14% take longer than 2 hours (Figure 2). The difference is highly significant (Chi sq. = 2020; $p < 0.000$).

Figure 4



The survey asked:

'How do you usually travel to work? (please tick the box for the longest part, by distance, of your usual journey to work)'

6.3% of people in the sample were working at home, 9.9% went to work on foot, and 2.1% by bike. 6.7% did not respond to the question (66% of these did not respond if they were commuting either).

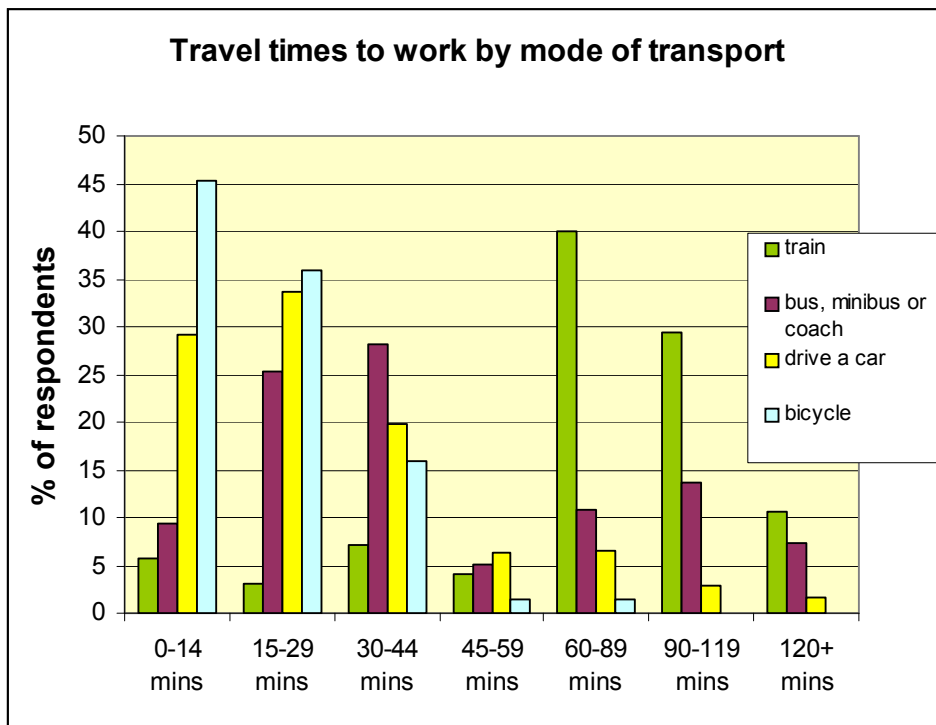
Thus 74% were using some form of road or rail transport:

- 56.8% drove a car to work
- 5.3% were a passenger in a car
- 6.4% went by train
- 4.0% by bus or coach
- 1.4% by motor bike

59% of people working at home were self employed compared to 4.1% on the train, 2.9% on the bus and 11.8% driving a car. 80.5% of people travelling by train and 60.3% on the bus were full time; 63% driving a car were full time employed and 22.1% part time.

People travelling to work by train (84%) and bus (37%) were those most likely to take longer than an hour to arrive at work, although there was a cohort of bus travellers who were travelling for a much shorter period. 81% of bus travellers and 76% of train travellers who were not commuters arrived at work in less than 45 minutes. There were also 342 car drivers (17.8%) in the sample who took longer than 45 minutes to arrive. 6.4% of car drivers were commuters; 83.6% of this group took longer than 45 minutes to get to work.

Figure 5



Only 5% of part time employees travelled more than 45 minutes to work compared to 20% of self employed people and 25% of full time employed people. More than 60% of part timers travelled less than 20 minutes as did nearly 60% of self employed people (Figure 6).

Figure 6

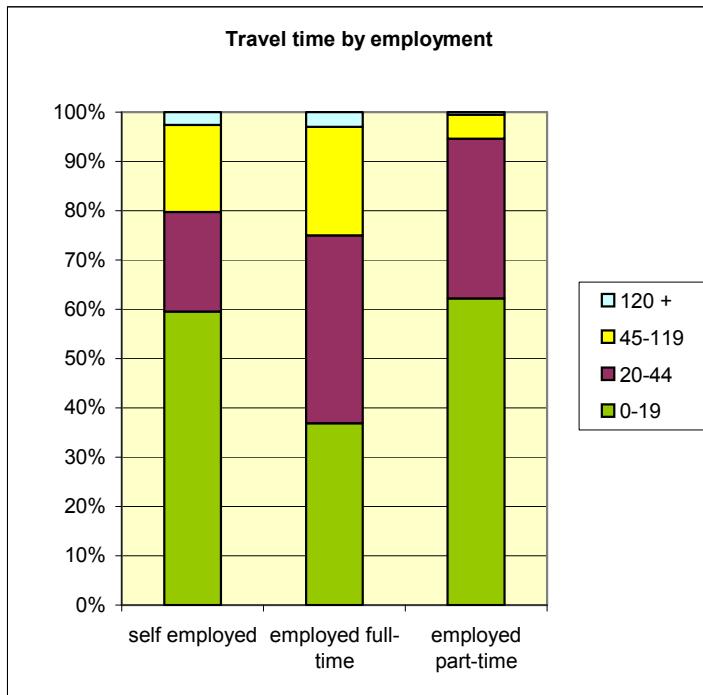
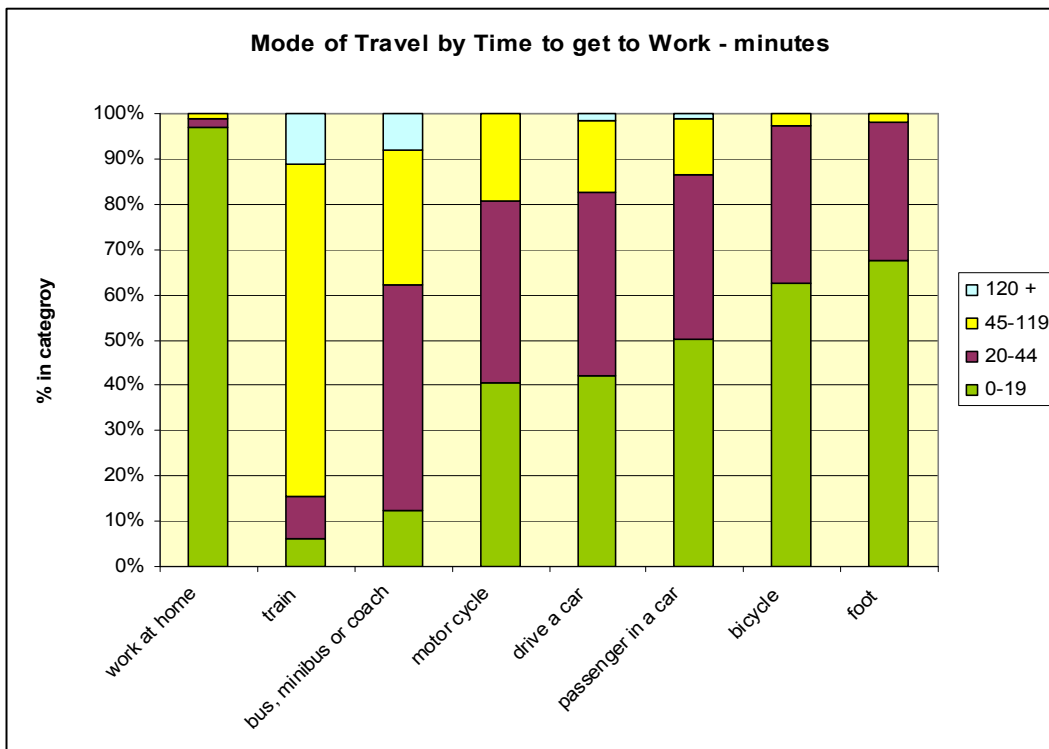


Figure 7



Health of People who Travel to Work. The Effect of Travel Time and Mode of Transport on Health. What have we learnt from the Kent and Medway Health and Lifestyle Survey?

Travel and General Health

General Health

In this survey commuters reported better general health than those who are working outside London, and fewer are disabled. They are less likely to have visited a doctor in the last 2 weeks, or to have been given a prescription; they could more easily walk a mile and climb stairs, but their lifestyles are less healthy and they were more likely to be obese, more likely to smoke and less likely to eat healthily.

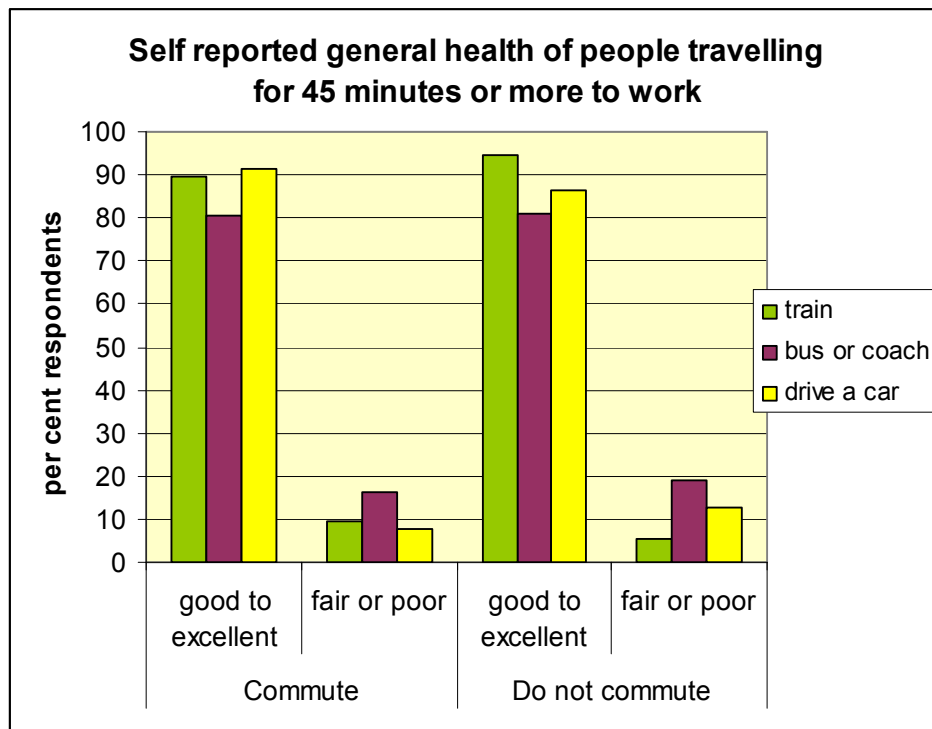
9.9% of people commuting to London and travelling 45 minutes or longer reported their general health to be fair or poor; this compares to 12.6% who travel for 45 minutes or more and do not go into London to work (Figure 8). 9.1% of people travelling by train for 45 minutes or longer reported their general health to be fair or poor, compared to 16.0% on the bus, and 11% who drive a car.

Long Standing Illness or Disability

20.4% of the 328 people commuting to London and travelling more than 45 minutes and 19.7% of all 365 commuters in the study said they had a long standing disability or illness. This compares to 24.9% of the 313 people travelling 45 minutes or more but not into London, and 28.2% of all people travelling to work but not working in London reported a long standing disability or illness.

22.2% of the 189 people travelling for 45 minutes or longer, by train, reported they had a long-standing disability or illness compared to 19.6% on the bus and 22.8% driving a car.

Figure 8



Limits to daily activity

Commuters were less likely to report their activity to be limited than were people who were not commuting. More people commuting to London and travelling for 45 minutes or longer reported they have no limit in moderate activity or to their ability to climb a flight of stairs or to walk a mile. People travelling by bus or coach were more likely to report a limit to their activity than those on the train or driving a car. 84% of all people of working age in this study (3496 people) reported they had no limit to moderate activities; this ranged from 80.5% of people working at home and 81.3% travelling by bus to 94.7% of those travelling to work by bicycle.

Table 1

Health Limits – people aged 16-74 who travel for 45 minutes or more to work by whether a commuter

	Commuter (n=328)	Not a commuter (n=313)	significance
No limit to moderate activity	88.1%	83.7%	n.s.
No limit to climbing one flight of stairs	92.7%	89.5%	n.s.
No limit to walking more than a mile	87.8%	84.0%	n.s.

Table 2

Health Limits – all people aged 16-74 who travel for 45 minutes or more to work by mode of travel

	Train (n=189)	Bus (n=51)	Car Driver (n=342)
No limit to moderate activity	87.3%	84.3%	87.4%
No limit to climbing one flight of stairs	93.7%	84.3%	93.0%
No limit to walking more than a mile	88.9%	82.4%	86.5%

Health Behaviour

Smoking

It is more likely that people who travel passively are also current smokers; smoking rates are higher amongst those travelling on the bus and those who are car passengers. Car drivers also smoke more heavily than those who are on the train. Smoking rates are heavier amongst those with longer journeys except for those travelling on the train.

22.6% of commuters (who travel for more than 45 minutes) are current smokers compared to 25.3% of those travelling for 45 minutes who do not go into London and

23.6% travelling for less than 45 minutes and not going into London. The difference in smoking between travellers for more than 45 minutes who do and don't commute is significant ($p=0.001$)

Commuters are also more likely to have given up smoking than non-commuters; more than one in four people travelling by train, or car drivers have given up smoking; people travelling by bus are significantly less likely to have given up smoking. Only 20.9% of all people travelling by bus have given up smoking ($n= 139$); 30.2% are current smokers compared to 23.1% of all people driving a car to work and 16.0% who travel by train ($p<0.05$).

Figure 9

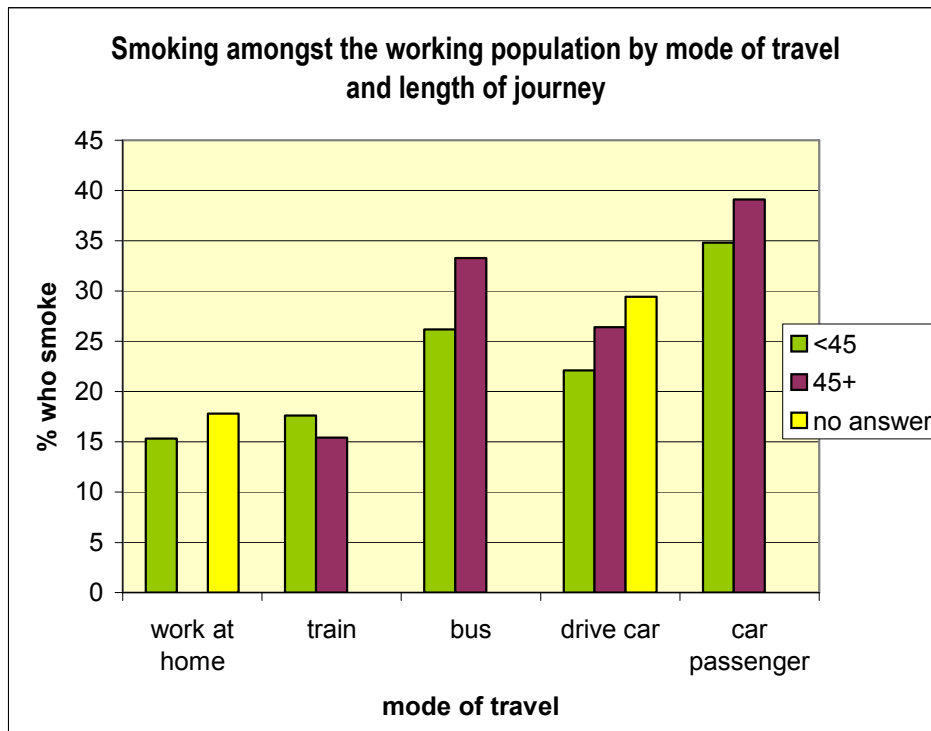


Table 3**Health of employed people aged 16-74 who travel for 45 minutes to work or longer
Commuters and Non-Commuters**

	Commuters (n=328)	Non Commuters (n=308)	significance
Smokes daily or even occasionally	22.6%	25.3%	p=0.001
Used to smoke	28.0%	25.9%	n.s.
Exercise more than 3 times a week	30.8%	31.9%	n.s.
Exercise more than 5 times a week	12.2%	14.4%	n.s.
BMI > 25	53.5%	51.9%	n.s.
BMI > 30	13.8%	15.2%	n.s.

Table 4**Health of employed people aged 16-74 who travel for 45 minutes to work or longer
By mode of travel**

	Train (n=189)	Bus (n=51)	Car driver (n=340)	significance
Smokes daily or even occasionally	15.3%	33.3%	26.3%	p<0.001
Used to smoke	25.9%	17.6%	28.7%	p<0.05
Exercise more than 3 times a week	27.5%	29.4%	31.9%	n.s.
Exercise more than 5 times a week	10.6%	3.9%	14.3%	p<0.001
BMI > 25	48.1%	51.0%	57.9%	n.s.
BMI > 30	12.7%	8.2%	16.1%	n.s.

Exercise

Respondents were asked:

*'On **average**, how often do you undertake **any** physical activity which lasts for **30 minutes** or more?'*

There was very little difference in the amount of exercise taken by people travelling 45 minutes or longer, whether they are commuting to London or not. Similarly 31.9% of car drivers were exercising three times a week (c.f. commuters 30.8% and non-commuters 31.9%) and another 14.3% were exercising 5 times a week, however only 27.5% of people on the train exercised 3 times a week, but another 10.6% exercise 5 times a week. 29.4% of people on the bus exercise 3 times a week, but very few (only 3.9% exercise 5 times a week) are exercising more than this.

Table 5

All people travelling to work aged 16-74

	Train (n=224)	Bus (n=135)	Car driver (n=197 2)	Bicycle (n=75)	Foot (n=340)	Work at home (n=220)
Exercise more than 3 times a week	29.3%	28.1%	28.0%	66.7%	40.6%	41.8%
Exercise more than 5 times a week	12.0%	10.1%	11.6%	44.0%	21.6%	20.5%
BMI > 25	47.3%	48.9%	53.1%	40.3%	41.2%	47.5%
BMI > 30	12.5%	8.1%	15.7%	11.1%	12.1%	11.1%

Obesity

There is no significant difference between the BMI of commuters and others travelling for 45 minutes or more to work. Car drivers who travel for 45 minutes or more do appear in this study to be heavier, with 57.8% who have a BMI greater than 25 compared to 48.1% on the train; 16.1% have a BMI greater than 30 compared to 8.2% who travel on the bus.

People who drive a car to work are heavier when all are considered, with 53.1% who have a BMI greater than 25 and 15.7% above 30. There are also 47.5% of people who work at home who have a BMI greater than 25; this compares to 40.3% who cycle and 41.2% who walk to work. (Only 1/75 cycles for more than 45 minutes and only 5/340 walk for this long).

Mental Health

There was no difference in the prevalence of depression during the past two weeks between commuters and non-commuters travelling 45 minutes to work; in both groups 25.6% reported reported feeling sad or depressed in the past two weeks. The rate was slightly higher amongst people on the bus (29.4%) and people driving a car (27.5%) than those on the train (23.3%).

The difference is greater over two years when 25.5% of people travelling to work by bus for 45 minutes or longer reported feeling sad and depressed for two years compared to 10.8% of people driving a car and 12.2% travelling by train.

However, 33.6% of people working from home reported feeling depressed in the past two weeks and 15.5% in the past 2 years. 36.7% of all people who travel to work by bus (regardless of length of time travelling) reported feeling sad or depressed in the past 2 weeks, and 21.6% reported being depressed for two years; this compares to 12.7% of people driving a car and 13.3% on the train who reported being depressed for 2 years.

Conclusions

The evidence from the analysis of the Kent and Medway survey shows that people commuting from Kent and Medway to London are probably more healthy than other working people. This begs the question why? Are they self selected because they need to be fit to negotiate the long journey, walking from station to station, using the underground etc. Or do people working in London generally fall into the more affluent socio-economic groups who are better educated, better informed, and more likely both to lead a healthy lifestyle but also to have better health.

There is very little evidence from the literature to support this finding; most of the published work highlights the health problems commuters are subjected to as a result of unclean air, risk of accidents, and to some extent unsocial hours and long days with disturbed sleep patterns. This work does not support the theory that commuters cannot have the time to look after their health (defined as diet and exercise, smoking and alcohol).

Discussion

This is the first study to examine the health status of people travelling to work. Previous work has concentrated on the effects of the environment including pollution and risk (4-13), and there has been work which examines the possibility of sleep deprivation, upset to patterns of waking, effect on family life for people who travel to work (12-22). There is also a literature examining the effect of work on health. There is a growing literature on active commuting (23-30), however this work assumes the benefits of cycling or walking over the car.

This study specifically sets out to analyse the health status of individuals who travel more than 45 minutes to work, or who call themselves a commuter; it therefore includes people travelling by car across the county or to other parts of the south east as well as those who travel into London. People who called themselves a commuter were by definition here people travelling into London.

Health outcomes in this study included self reported health, self reported long term illness or disability and health limits (questions from the SF-36). In addition this study starts to provide insights into the risk of obesity related to different modes of travel. In particular the study has highlighted that people travelling into London (commuters) were more healthy by these measures, but there is also a significant difference in the health status by mode of transport, the study picking up a significant risk amongst people travelling on the bus, who reported poorer health, were more likely to smoke, less likely to exercise 5 times a week and more likely to suffer from depression. Car drivers were those most likely to be obese.

This study used a small sample of commuters (n=326) and suggests a bigger study would be valuable to examine in depth the possibility of a healthy commuter effect, and also why we have found that the health of people on the bus is so much worse, for example are they from a more deprived background, in more poorly paid jobs, or do they take the bus for convenience because they are less able to cope with the amount of physical activity demanded by train travel.

APPENDIX

Survey Questions

How do you usually travel to work? (please tick the box for the longest part, by distance, of your usual journey to work)

- | | |
|-------------------------------|--------------------------|
| Work mainly at or from home | <input type="checkbox"/> |
| Train | <input type="checkbox"/> |
| Bus, minibus or coach | <input type="checkbox"/> |
| Motor cycle, scooter or moped | <input type="checkbox"/> |
| Driving a car or van | <input type="checkbox"/> |
| Passenger in a car or van | <input type="checkbox"/> |
| Bicycle | <input type="checkbox"/> |
| On foot | <input type="checkbox"/> |

Other (please specify)

Q65. How long does it take you on average to get to work? _____ hours
_____ minutes

Q66. Do you work in London (a commuter) Yes No

Q70. Which of the following best describes your employment position?

- | | |
|---|--------------------------|
| I am self employed | <input type="checkbox"/> |
| I am employed full-time (more than 30 hrs a week)
(How many hours exactly?_____) | <input type="checkbox"/> |
| I am employed part-time (less than 30 hrs a week) | <input type="checkbox"/> |
| I am retired | <input type="checkbox"/> |
| I am unemployed and looking for work | <input type="checkbox"/> |
| I am not working and not looking for work | <input type="checkbox"/> |
| I am unable to work due to disability or ill health | <input type="checkbox"/> |
| I am caring for my home and family/dependents | <input type="checkbox"/> |
| I am a full-time student | <input type="checkbox"/> |
| Other (please describe below) | <input type="checkbox"/> |
-

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