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Commuting-related Stress: Consequences and Implications

Tony Cassidy

The psychological and physical consequences of stress could probably be described as a twentieth-century plague. The extent of its human consequences are impossible to estimate, though the proliferation of literature stands witness to its immensity. In the area of work it is estimated that nearly 10 per cent of the UK's GNP is lost each year through various stress-related consequences such as sickness absence, labour turnover, lost production, recruitment and selection costs, and medical expenses[1]. The critics of the stress explosion, who argue that the widespread use of the concept is evidence of a self-fulfilling prophecy or "whinge effect", no doubt have some validity but, even allowing for such, there is still sufficient evidence to indicate that the issue should be taken very seriously. The breadth of effects has been well documented in most areas of life but a few aspects have been omitted. One of these is the effects of commuting, an aspect of life which has become extremely important for a large number of individuals. In a review of research in 1988, Costa *et al.*[2] state that the number of commuters has increased rapidly across the European Community, that distances travelled have increased, while time taken has actually decreased. London is probably the most obvious example of

of the growth which is being experienced by most large towns and cities on a slightly smaller scale. Department of Transport statistics for 1989 estimate that 3,674,000 people work in London. Of these 730,000 are commuters. Train commuters account for 473,000, car users 161,000 and 96,000 travel by bus.

The side effect of greatly expanded numbers of people travelling longer distances faster, which has attracted most attention, is the increased frequency and risk of large-scale accidents and disasters. Both the day-to-day effects and the longer-term consequences for individual commuters have been largely ignored.

Furthermore there is a tendency in research to treat aspects of life as independent of each other, particularly in regard to work stress. It is very clear in the area of organizational behaviour generally that one cannot hope to understand behaviour in the work setting independently of behaviour and experience outside the workplace. Large organizations are clearly aware of the need to consider the family, social and leisure life of their workers in achieving and maintaining organizational health and effectiveness. The following summarizes some research which has attempted to provide some initial understanding of the effects of commuting and the role of any consequences in the

overall life experience of the person — what has been termed "an ecological model", by Novaco et al. [3].

RESEARCH FINDINGS

The area has indeed been underresearched, but what data are available suggest that not only is commuting a source of stress in itself, but that it has consequences in the way in which it interferes with family and leisure activities, and increases absenteeism from work.

In a study of commuter stress, Costa et al. [2] showed that commuters generally experienced a more stressful life style, with increased psychological and physical health problems. The majority of commuters, in this study, used public transport.

Gulian et al. [4] looked at driver stress which they describe as "an aggregate of negative feelings, cognitions and behaviours, heightened aggression, increased alertness close to anxiety, a dislike of driving and, not least, frustration and irritation provoked by the interaction with other road-users, mainly in relation to overtaking". They identify a dimension of alertness which differentiates stressed drivers, and ranges from a positive alertness to a potentially dangerous anxiety.

Schaeffer et al. [5] found that systolic and diastolic blood pressure were increased and

behavioural performance deteriorated on high-impedance routes. However this effect was mediated by the level of control which individuals had over the commute. Further support for the negative physical and psychological consequences of commuting is presented by Stokols et al. [6].

Novaco et al. [7] found that physical impedance and subjective impedance have differential effects. They found that physical impedance related to task performance, absenteeism, job turnover, mood at work, and physical health. Subjective impedance also related to a number of physical and psychological variables, most notably evening home mood, and reported chest pains. The study focused on driving as the mode of transport.

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COMMUTERS GENERALLY EXPERIENCED A MORE STRESSFUL LIFE STYLE

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The current research adapts the ecological model of Novaco et al. [7] and uses this adaptation (see Figure 1) as a framework for the study.

PARTICIPANTS

A total of 370 workers (217 males and 153 females) in London were accessed by questionnaire. Participants were categorized in a number of ways including distance of commute, duration of commute, length of time commuting this distance and impedance which was the average miles per hour during commute. The numbers in each category are shown in Table I.

VARIABLES MEASURED

In addition to information on the duration and distance of commute, mode of transport was recorded. There were 124 who used a car, and 189 who used public transport.

As well as biographical data on age, sex, occupation, education, marital status, length of time in job, a range of other variables was measured in regard to general life experiences, and the domains outlined in the
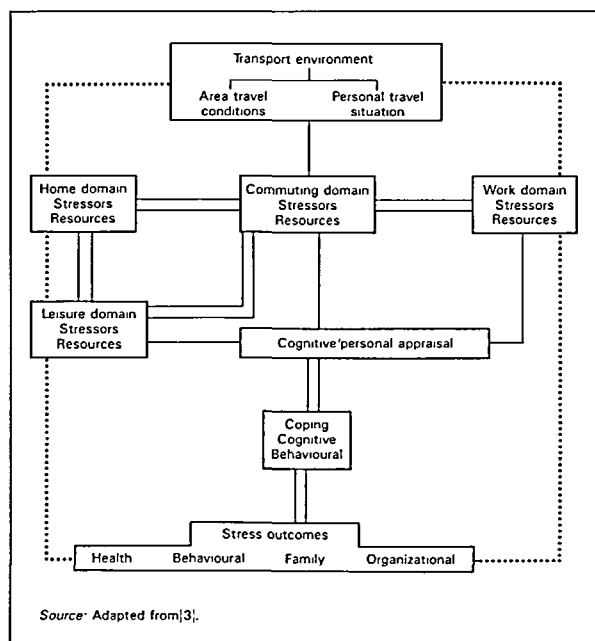

FIGURE 1.
Ecology of Commuting Stress

	Number in sample
Distance of commute	
0.5 miles	109
6-15 miles	114
16-30 miles	67
Over 30 miles	56
Duration of commute	
0-30 minutes	137
30-60 minutes	121
Over 60 minutes	97
Time commuting	
1-29 months	73
30-60 months	99
60-131 months	80
Over 132 months	91
Impedance	
17 mph or less	207
17.3-30 mph	97
Over 30 mph	66

TABLE I.
Breakdown of Participants by Categories

model (see Figure 1), i.e. home, commuting, work, leisure and personal domains. The measures tried to identify some of the sources of stress and resources in each of these domains as follows:

- *Home domain*: Perceived stress, social support, length of time spent at home, and whether individuals used home life to help them to cope with work problems. Perceived financial stress was also assessed.

- *Commuting domain*: Perceived stress and experienced mood during commute.

- *Work domain*: Perceived stress, job commitment, and a measure of sources of stress at work.

- *Leisure domain*: Attitude to and experience of leisure time, exercise frequency, amount of time spent socializing and perceived fitness.

- *Personal domain*: Problem solving and attributional style, hopelessness, control, achievement motivation, confidence, perceived general stress and life satisfaction.

Although this study is in only the early stages of what is anticipated as a major study, it has produced some very significant findings. First of all it must be stated that the relationship between commuting and stress is neither simple nor straightforward. Not all commuting is stressful, and the effects may be mediated. However, there are indications of possible long-term consequences which may merit preventive intervention.

Distance of Commute

Although longer-distance commuters do report less positive and more negative experience of commuting, they do not perceive themselves as any more stressed than any other group. Neither do they report any difference in work stress. They do, however, score higher on achievement motivation and job commitment. They also exhibit a more positive and confident problem-solving style and a more positive attitude to leisure (see Figure 2). This suggests that they have developed positive ways of coping with the long commute. Drivers tend to feel more in control and often find a long uninterrupted drive quite relaxing. Train travellers are able to engage in positive activities, such as reading or catching up on work, during a long uninterrupted train journey.

However, there is a suggestion that the picture may hide possible longer-term ill-effects. Longer distance commuters, despite the aforementioned positive factors, report significantly less time spent at home, socializing and engaging in active leisure. The effect of a disturbance of the balance between the various life domains over a
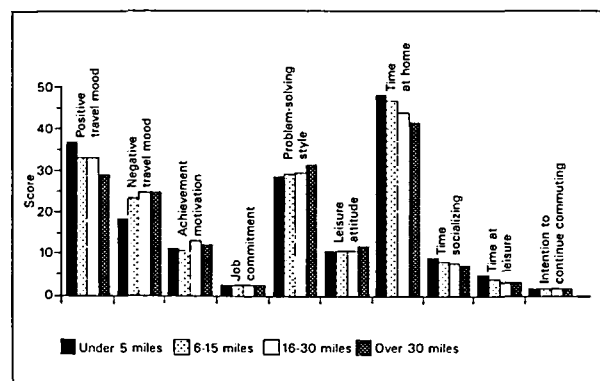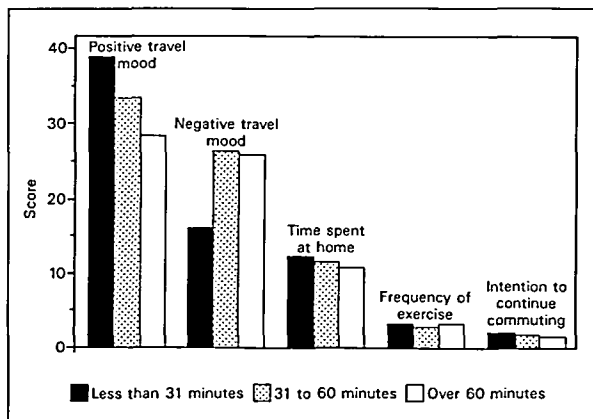

FIGURE 2.
Distance of Commute

FIGURE 3.
Duration of Commute

long period is not clearly understood, but would warrant careful monitoring. The fact that longer-distance commuters also report a lower score on intention to continue commuting this distance is indicative of a recognition of its undesirability.

Duration of Commute

Simply looking at duration of commute suggests that the longer the time on the journey the less positive and more negative is the experience. Intention to continue commuting is also decreased, as is time spent at home, socializing and in active leisure. The most outstanding finding in this category, however, is the significantly higher level of stress at work reported by those experiencing longer durations of commute. It is not clear if there is a causal relationship, but the fact that these individuals are still in the job suggests that the stress is not solely generated by the work (see Figure 3).

Impedance, or Speed of Commute

It is clear, if not entirely surprising, that this is the best stress indicator. Those experiencing more impedance report a more negative experience of commuting, higher general levels of stress, lowered life satisfaction, more hopelessness, less social support, and a less positive problem-solving style. They also report lower achievement motivation, less confidence, poorer attitude to fitness, less time spent at work, and more time spent socializing. Furthermore they

indicate more time spent at home, but higher levels of home stress (see Figure 4). This conglomeration of effects is not easily interpreted and one must be cautious about drawing strong conclusions.

However the data suggest that the experience of impedance, which would in most cases be the result of interruptions on the journey, introduces a learned helplessness aspect in which the individual experiences hopelessness and lack of control. It is too much of a coincidence to find higher levels of home stress and socializing among this group not to surmise that this negative effect of commuting plays at least a partially causal role. More work is being done in an attempt to clarify and make more specific the aspects of impedance experienced, and the related consequences, but the data already collected are sufficient to conclude that impedance in commuting is a stressful experience. This supports the findings of Novaco et al.[7] in the US.

Length of Time Commuting This Distance

Those who have been commuting for a longer time report less negative and more positive experience of commuting. The first thing to be said is that it is likely that the long-term commuters are a sample of hardier commuters who have survived after those less hardy have ceased to commute. The data support the vulnerability research in that these hardier individuals do exhibit more positive problem-solving styles, more perceived control, and more optimism. However they report lower achievement motivation but higher commitment to their
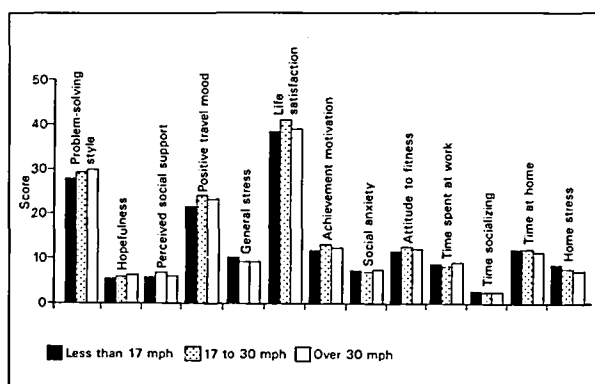

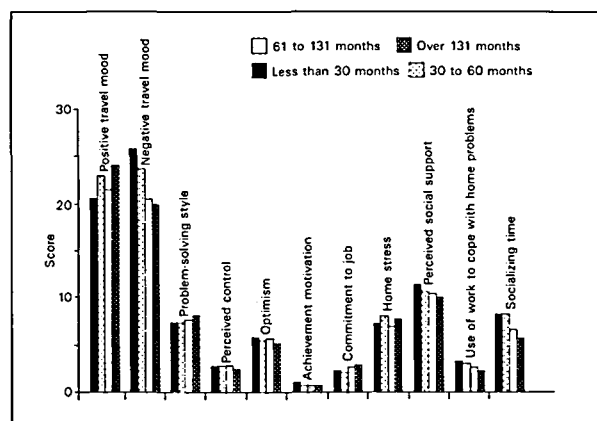**FIGURE 4.**
Impedance or Speed of Commute

FIGURE 5.
Length of Time Commuting This Distance

jobs (see Figure 5). This suggests the motivation to continue commuting is related to being committed to a particular job. Although not significantly different from others in terms of general stress they do perceive a more stressful home life, along with perceptions of less social support. In addition there is significantly less time spent at home and socializing.

There is a fairly clear indication here of a disturbance of the home experience, with a high level of commitment to the job. It is impossible to say if this imbalance is related to commuting or not, but it is reasonable to assume that commuting does not improve the situation. Furthermore the perceived control and confidence in problem solving, despite lower perceived social support, indicates an independent approach. The role of social networks and support in mental health is quite clear in the literature in that lack of social support is a risk factor in the stress experience. One cannot draw strong conclusions but it would seem reasonable to suggest that, for the longer term commuters, family relationships may be put at risk.

Train Users versus Car Drivers

The final aspect of this research which I wish to report concerns differences between those who commute by car and those who use public transport. Car users report a more positive and less negative travel experience than train travellers. They also feel more in control and perceive themselves as spending less time commuting and more time at home.

This perception of control, despite driving conditions which are often extremely difficult, is consistent with research findings in the US[5], which also show that control was positively correlated with lower stress, hostility and blood pressure.

In summary, the current research with support from the limited amount of previous research, suggests a number of effects of commuting. These effects will depend very much on the impedance or difficulty experienced. Effects indicated are increased general stress levels, increased stress at home and at work, decreased life satisfaction and a disruption of social, leisure and home life. The effects can be mediated by perceived control, problem-solving style, achievement motivation and commitment to the job.

Although the research is incomplete, it is possible to make some suggestions with regard to identifying and dealing with commuting stress. It is important to realize that it is likely that stress experienced will have more than one source or cause and that dealing effectively with stress involves looking at all the life domains. However, using the different categories helps in focusing on specific sources which may then be tackled.

DEALING WITH COMMUTING-RELATED STRESS

The identification of impedance as central to the generation of stress in commuting obviously points to aspects of dealing with the problem which are beyond the individual. The findings would indicate that employers and politicians must take the issue seriously. The psychological and physical health costs for the individual are impossible to estimate. The effects on family, friends and colleagues, given the symptoms of stress, are also extensive. The urgency of alleviating the human aspect should go without saying. As well as this there is the economic cost of lost days and lost production. Given the situation where high levels of impedance are a major source of stress the most obvious solution is to try to remove or reduce the sources of impedance. On the large scale there are two possibilities to be considered, (1) improving the rail and road systems, and (2) reducing the numbers of persons using the systems.

The latter mainly involves decisions about the location of work places, and indeed

many organizations have made decisions to relocate outside major cities. However, this, in itself, often leads to a relocation of the commuting problem on a smaller scale in places where the transport system is even less able to cope. Relocation must involve long-term and proactive planning of the commuting domain. The experience of many towns outside the London area is that commuter congestion is approached retrospectively and they are faced with an insoluble problem. Another possible way of reducing the usage of transport systems would be to spread the load across time. Major difficulties focus around "rush hours" which in fact account for only three to four hours of the day. It may be worthwhile for employers to consider changing the timing of the working day in some jobs.

As a psychologist I am more concerned with the person and with how that person can develop skills or methods for dealing with life which reduce stress levels. However, it is important that the problems of systems and structures are not passed back to the individual and that an attitude of fatalism about the way things are, to the effect that "you must make the best of a bad lot" does not develop.

Central to reducing the ill-effects of stress are the concepts of control and social support. Anything which increases the individual's perceptions of having control in a situation will reduce stress levels. Being in control means being proactive to some extent and this is important because the consequences of stress put pressure on resources which may create further sources of stress in the future. For example, stress in the individual puts pressure on the immediate family, which may lead to conflict within the family and the danger of the removal of the main source of social support for most individuals. Thus, taking a proactive stance is important in recognizing danger signs and preventing more serious problems. One of the first steps in dealing with stress is recognizing its existence. To this end the individual can engage in a review exercise of his or her life situation.

First of all, there is the need to identify clearly goals and values. What is it that he/she really wants from life, family, friends, work and leisure. An individual might start by taking one domain and thinking through what would happen if that domain were to disappear or change radically. For example,

what would your world look like if you no longer had your job? By going through this process you can begin to identify the value of each domain. The next stage would be to take each domain in turn and consider your behaviour in that domain. One way of doing this for home and work domains is to compare inputs and outcomes. If the ratio of what you put in and get out differs from what others put in and get out then you may need to consider your situation. Inputs and outcomes are not just material, but also involve emotional and psychological aspects. There are various ways in which you can evaluate a life domain and these are quite often personal. The next stage is to identify the source of any disturbance. Again taking each domain, look at how much it is affected by other domains. This might be an infringement of time or a draining of physical or psychological resources. It may be that insufficient time is spent with the family, or that the quality of that time is reduced because of lack of energy or motivation. It may be that a person has no structured leisure activities, or that social activities are limited to alcohol consumption. It is a good idea to make lists of activities typically undertaken and to see if there is a reasonable balance across all domains. The aim would be to look at ways of removing any imbalance.

In the commuting domain the first thing would be to look at ways of reducing the time and difficulty of the commute. Perhaps there is an alternative route which is less stressful. Perhaps there are times when the commute could be done outside rush hours.

Having considered possible changes to reduce stress, the next stage would be to look at personal resources. It has been shown that those who approach problems rather than avoid them, have confidence in their ability to solve problems, can generate a range of solutions, can implement and carry through chosen solutions, can accept the credit for effective problem solving and can learn from mistakes, are more resistant to stress. Again, recognizing areas of weakness is the first stage in removing them. Furthermore, being confident of having social support, being able to set realistic goals and to maintain a long-term outlook which is optimistic are mediators of stress.

In the commuting domain the important thing is to ward off feelings of helplessness by establishing whatever control is possible.

One way to do this is to treat the commute as a valuable aspect of the day's experience. This might be by using the time as part of the work day, in that you allocate particular bits of work to that time. Alternatively it might be a time for engaging in some structured relaxation. Another possibility would be to learn a new language, to undertake other forms of study or to become familiar with a new leisure activity. Making the time productive is a way of asserting your control.

The suggestion from research and anecdote is that, for many people, the tendency is to see the commute as a necessary evil, and a time lost from the rest of the life experience. Reclaiming that time helps to make it a more positive experience. In essence the process is to:

(1) Identify values and goals

(2) Evaluate the experience of each domain

(3) Identify sources of imbalance between domains

(4) Instigate changes which restore the balance

(5) Consider personal resources in terms of problem solving styles, social support and goal setting

(6) Take control.

□

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