Alternatives to Private Car Use by Mobile NHS Staff

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Abstract

This study explored the travel patterns, needs and constraints of mobile healthcare professionals using as a case study, the Avon and Wiltshire Mental Health Partnership Trust which operates a scheme offering alternatives to private car use. Using self-categorization theory it examines the role of workgroup social norms amongst other factors influencing participation in the scheme. It also aimed to assess how the scheme affected commuting and private travel. This study used an online survey completed by 306 staff, telephone interviews, a focus group, and analysis of financial and carbon data. There was a strong association between mode for commuting and mode for work travel. A quarter of respondents had used the pool cars; of these 30% reported reducing their commuting by car. Perceived attitudes of management and colleagues both improved the fit of binary logistic regressions on pool car and electric bike use. There was a strong bivariate association between the dependent variables and individual environmental attitudes, but the latter did not improve the fit of the model. A focus group with a team using electric bikes found evidence of increased staff motivation due to strengthened in-group social identity. This overcame the gender imbalance of cycling elsewhere in the organisation. The findings suggest considerable potential for modal shift to cycling and walking by mobile professionals covering urban areas.

Introduction and Aims

In 2009, Avon and Wiltshire Mental Health Trust (AWP) introduced a pioneering scheme which offered electric bicycles and one electric pool car as an alternative to employees' own cars (or bikes), initially for one team, which became known as the 'Zero Petrol Team'. Like most teams in AWP, most of the team's work involved visiting clients in their homes. The scheme was later expanded, with the purchase of 20 low-emission diesel Smart cars for use by staff across the Trust's sites in Bristol. In 2012, the Golow project, as it was then named, was set up as a separate social enterprise, which continued to provide similar services to AWP, and other public sector employers. This study used AWP as a case study to explore the travel patterns and needs of mobile NHS professionals, and the potential for initiatives such as Golow to offer alternatives to private car use elsewhere in the NHS. Through a combination of a survey, interviews and a focus group it aimed to explore the travel patterns, needs and constraints of AWP's Bristol-based staff, their experience of the Golow scheme and the factors explaining the participation or non-participation of staff and teams.

Literature Review

Very little research has been done, and little has been written, about the travel of healthcare professionals, apart from the travel plans and travel surveys of individual trusts (in the UK). A search of the international literature revealed several papers about rural medical services in more sparsely populated countries, and some papers about the travel of patients to healthcare facilities, but none about the work travel of healthcare professionals in a comparable context to this study.

In a rare example from the peer-reviewed literature referring to the NHS, Cavill et al. (2007) surveyed the directors of public health in English Primary Care Trusts (PCTs – a tier of the NHS which will be removed from 2013) on issues related to cycling. Around a third of PCTs had identified someone with responsibility for cycling – covering the PCT's own staff and/or

promotion of cycling in the local population. 37% of PCTs paid staff a mileage allowance for cycling on trust business. 8% provided pool bicycles.

Most of the literature on mobile workers has tended to focus on commercial or managerial 'business travellers', often focussing on the influence of new technologies. As Cohen (2010) points out, the literature has tended to neglect "traditionally female" occupations: that study looked at mobile hairstylists; the same is true of nursing. Of more direct relevance to this study are a number of writings about 'auto-mobility' and the role of the car for social workers involved in home visiting.

A central role for the car as "comfort zone, a safe place" emerged unexpectedly from a qualitative study concerned with representations of fear amongst social workers and counsellors (Smith, 2003). Drawing on Sheller's (2004) concepts of "automotive emotions", Ferguson (2009, 2008) outlines a number of other aspects of the relationship between mobile social workers and their cars. Cars are sometimes used as a place of tranquillity, of reflection after difficult encounters with clients, as well as a refuge from "office politics". They sometimes act as a "mobile office", providing confidential space for writing notes, using ICTs, supervision, peer support or debriefing. Cars can provide a "transitional space" which can help to achieve breakthroughs in relationships with clients by placing them in an environment of "encircling warmth", where barriers to communication may be overcome.

Social workers' cars can also be perceived by clients as representations of status and power, particularly as many clients are too poor to own cars themselves. Thus, "while cars bring worker and client together in ever speedier times, the momentum is for cars to drive professionals, so to speak, away from a deeper identification with and connection to their ("car-less") clients" (Ferguson, 2009).

Ferguson (2008) notes that professionals' experience of home visits had not been systematically researched: the observations above are based on limited research evidence. He notes that historically, mobile social work began with the use of bicycles in the late 19th century. As this study will show, bicycles continue to be used by mobile professionals in the NHS. No literature was found on this subject – for health or social work. Apart from passing references in the literature about travel plans described in the previous section, cycling for work purposes (as distinct from cycle commuting) is a little-researched area.

The Golow project followed responses by the NHS and AWP to environmental, as well as public health, concerns. In exploring the factors explaining staff participation or non-participation, the study will consider the influence of environmental attitudes. Social psychological studies have tended to find relatively weak associations between environmental values and specific behaviours (Bamberg, 2003). Social norms within groups also exert a significant and lasting influence on the personal norms of group members. Several studies have illustrated how the political values of groups such as college sororities influenced members from differing backgrounds, in ways which endured long after the individuals left those environments (Newcomb 1943, Seigel and Seigel 1957 cited in: Hogg and Reid, 2006). Similarly, experimental studies have shown how a group norm, once established, can persist in the group even when the original members have all left (MacNeil & Sherif, 1976 cited in: Hogg and Reid, 2006).

Amongst the theories used to account for these observations, self-categorization theory explains these influences in terms of social identity. Individuals create or bolster their sense of identity through membership of "in-groups", perceived in relative terms in contrast to "out-groups" with different characteristics. The process by which social norms evolve within groups is complex and not fully understood. Hogg and Reid (2006) maintain that both observed behaviour and communications within the group help to instil group norms within its members. Conformity to an in-group norm does not necessarily involve copying observed behaviour, however: the individual constructs a perceived in-group norm from observing behaviour within the group and in salient out-groups (Hogg and Abrams, 1988).

In an organisational context, it has been noted that employees tend to identify more strongly with smaller work groups or "sub-units" (Ashforth and Mael, 1989) because "people are more likely to identify with work groups with which they are familiar, and with which they perceive greater similarity. Experimental interventions which increase awareness of the distinctiveness of a sub-group are likely to increase social identification, which may, in turn,

increase "engagement and productivity" (van Dick *et al,* 2005). Within groups, leaders may emerge who embody the prototypical norms. These leaders tend to identify more strongly with the group than others, and to behave in more group-oriented ways. This enables them to generate trust amongst other members, and to lead the group in new directions (Hogg and Reid, 2006).

Methodology

The research aims implied a mixture of quantitative and qualitative methods. An online survey was designed to ask about work travel, awareness and use of the Golow scheme, commuting, car ownership and the private travel of staff, with menus of reasons for modal choices and their advantages and problems. These menus included open text 'other' options, explored further in the telephone interviews. The survey also included six statements, designed to assess individual attitudes towards transport and the environment with responses on a 5 point Lickert scale.

The researcher worked with the Golow manager and AWP's IT staff to pilot the survey and disseminate the invitation to participate to all 1,658 staff based in Bristol and South Gloucestershire. Participants in the survey were asked if they would be willing to take part in a second stage of semi-structured telephone interviews, designed to probe issues arising from the survey. 5 managers and 10 staff were interviewed. A focus group was also conducted with 7 members of the 'Zero Petrol Team'.

Survey Findings

The online survey was completed by 306 people, a response rate of 18.5%. Roughly three-quarters were female and two-thirds worked full-time; 18% worked shifts. Nursing staff and administrative staff both made up around a third of the sample, with other health professionals making up most of the remainder.

Two thirds of the nursing staff travelled at least once a week, compared to 19% of the administrative staff. Private cars were the main modes of travel for work for 60% of respondents, followed by employees' own bicycles (15%). The pool cars were the main mode for 7% and electric bikes for 2%.

Household car ownership was similar to the city-wide averages for households containing employees in Bristol from the 2001 Census (90% had at least one). The proportion of car commuters was also very similar to the Census average for Bristol, but more (17%) cycled and fewer used public transport (18%) than the Census average.

There was a very strong association between the main modes of commuting and of work travel, significant at the 99% level. 93% of those who commuted by car also used it for work travel; 80% of those who cycled to work, likewise used the bicycle for work travel.

72% of respondents were aware of the Golow scheme, 11% were unaware and 17% were "vaguely aware but I had not thought about using" the cars or bikes.

Respondents were asked their reasons for their main modes of work travel. Those who drove cited driving straight from home to another location (37%) and feeling safer by car (26%). Those who cycled or walked mentioned feeling healthier (69%) and wanting to make a positive contribution to the environment (66%).

76 respondents (25%) had used a pool car at some point: "saving wear on my own car" was the most cited reason for this, by 47%. 27 respondents had used an electric bike at some point. Of those who had not, 12% stated that they would use one (if available – in some cases no bikes were available to their team); 29% said 'possibly' and 59% would not. The reasons for this could equally have applied to cycling in general: 35% felt safer driving and 22% found it more convenient.

The survey also included six statements, designed to assess individual attitudes towards transport and the environment. These were used in the statistical analysis described in the next chapter. One of these statements, shown in Figure 1, enabled a comparison with the British Social Attitude Survey, suggesting that the attitudes of AWP staff are considerably

more pro-environmental than the general population (National Centre for Social Research, 2011).

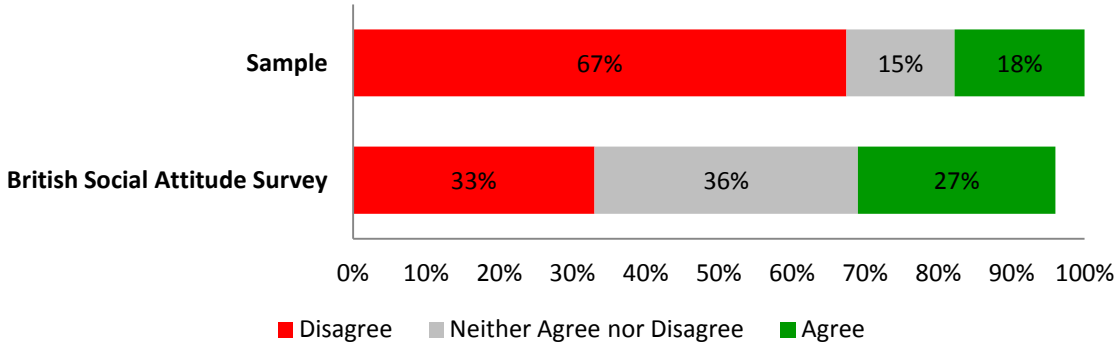

Figure 1 Agreement with the Statement: '*People should be able to use their cars as much as they like, even if it causes damage to the environment*'

Interview Analysis and Discussion – Work Travel

Most of those interviewed, including the focus group participants, worked in multi-disciplinary community-based teams, with nurses forming the largest proportion. Visits to clients' homes occupied much of the working week for most of the non-managers, though for the doctors and a drug and alcohol worker, most consultations were in hospitals or clinics. Their travel, like those of the managers, was mainly between fixed bases. Most of the teams covered sectors of the city, so most visits were in relatively compact geographical areas, although several interviewees mentioned that exceptions could occur – where a client moved house for example, and the same team continued to visit them for a transitional period.

Some interviewees referred to the unpredictability of their travel needs. This was particularly the case for members of the crisis teams, who could be called at short notice to home visits anywhere within their areas (Bristol or South Gloucestershire). They worked shifts and operated an on-call rota, where they could be called out during the night. Participants in the focus groups, by contrast, who work with clients with longer-term, less acute needs, were usually able to plan their visits to provide logical routes – though they also made occasional emergency visits. Two other interviewees explained that they tried to cluster or chain their trips, but circumstances sometimes prevented this.

The most cited reason for driving for work, by 37%, was the need to travel straight from home to an external site. Several interviewees mentioned that this was their normal pattern. In one case, a manager explained that he would work from home to miss the rush hour if required to travel to a meeting later in the morning. Travelling straight from home for the first visit, or back home after the last one, was also mentioned in the focus group by people who travelled by electric bike.

Carrying equipment and dropping off other people were mentioned as reasons for driving by 18% and 16% of those who drove as a main mode, respectively. Most of those interviewed did not need to carry substantial amounts of equipment. Two exceptions were a nurse who ran a community gardening project, and sometimes carried gardening tools and a doctor who stated that she sometimes needed to carry "small equipment" such as a sphygmomanometer and blood taking equipment. Most interviewees mentioned occasionally carrying other people, usually clients, as passengers. For some of those who normally travel for work by other means, pool cars were used on those occasions where lifts were offered to clients. Alternatively, those with a personal car available, who usually commuted by other modes, would drive on those days when they expected to give lifts to clients. One community nurse, who did not have a driving licence said she would never offer lifts to clients and that this had never "been an issue", explaining that: "if they can't come to me, I go and see them".

Some of the issues identified by Ferguson (2009, 2008) were raised in some interviews. Two interviewees mentioned using the time spent with clients when driving them. One nurse explained:

> "there will be somebody that I've got to take to a hospital appointment... and then we go off somewhere after in the car to talk so we have some privacy, 'cos he's at home with his parents, so there's a couple of times where the use of the vehicle is really important."

Two other interviewees explained that they gave lifts to patients who were in a state of crisis or suffering from anxieties which might affect their willingness to travel. One interviewee and one focus group participant explained that they would normally encourage clients to make their own way to consultations, but sometimes a lift was required to ensure attendance.

The pros and cons of giving lifts to clients was a significant issue in the focus group, where participants all used electric bikes as their main mode, with occasional use of pool cars (including for a lift in the example above). This had reduced their propensity to offer lifts to clients. One participant expressed a view on this, which appeared to reflect a consensus:

> "...in some ways that is good for the client because you are saying to somebody 'you have to get there' rather than just automatically say 'I will give you a lift'. You are making them a bit more independent."

The most common alternative to driving for work purposes was cycling (15%). Bristol's status as a cycling city was mentioned several times in the focus group, with one participant explaining that cycling is "not seen as bizarre" in Bristol. A binary logistic regression was performed with cycling for work as the dependent variable and four covariates: age, gender, frequency of travel and a binary job category (distinguishing the administrative staff and non-clinical managers/professionals, from those directly involved in health or social care). Of these, only gender was significant at the 5% level. 11% of women and 23% of men reported cycling as their main mode. Although the difference was not statistically significant, the over 45s in the survey cycled slightly more than their younger colleagues (confounding some perceptions mentioned in the focus group).

Two of the interviewees cycled as their main mode for work travel. Both mentioned some circumstances where they would drive, such as bad weather or longer distances. One psychiatrist explained that he would cycle more in summer than in winter, but most of the interviewees who cycled said that they would only change to another mode (driving their own or a pool car) in extreme weather conditions. One woman mentioned circumstances where "it matters what I look like" and "turning up sweaty" would not be appropriate.

Safety concerns were the most cited, by 35% of people who would not consider using an electric bike. Three of the interviewees raised this issue. One male professional referred to "near death experiences on road raged roads of Bristol and the cycle paths that tend to disappear as soon as you hit a busy roundabout". A drug and alcohol worker said she had once witnessed a "nasty accident" involving a cyclist which had "put her off" cycling altogether.

6% of the survey respondents mainly walked for work travel. Four interviewees mentioned walking, particularly within the inner city and for shorter distances: one nurse aged over 60 explained that she would walk for distances up to a mile as that was "about as much as I can manage on a workday at my advanced age!"

Two interviewees mentioned using buses for some work travel (the only mention of rail was one manager who complained that it was too expensive for journeys to London). One interviewee was selected because she did not have a driving licence, nor did she cycle. She was required to make frequent home visits across one sector of the city. She walked to work, and used a combination of walking and buses, including two-bus journeys in some cases. She lived within the area and would walk for 20 minutes to their base, or directly to her first visit, which had taken an hour that morning. She would occasionally take a taxi and colleagues would sometimes offer lifts if they were driving in the same direction. "I would not ask for a lift unless I was desperate" she explained.

Driving and recruitment policy was discussed in two of the interviews with multi-disciplinary team managers. One stated:

> "I think on the standard application form it says 'do you have transport available or do you have a license?' so we have an idea before they come for their interview. I would say they need some form of transport but it's all negotiable really."

He explained that one member of his team cycled for all his visits.

Another manager explained that she "wouldn't want to discriminate" against non-drivers. She was asked what would happen if a larger proportion of her staff did not drive. Her initial reaction was to say that would not be feasible, that a balance would be needed. On further questioning, she clarified that the electric bikes would be acceptable as an alternative to driving. The need for a balance (i.e. not too many in one team) would apply to staff such as the one cited above, who neither drive, nor cycle.

When advertising vacancies, AWP generally avoids requiring applicants to drive or own cars. Their Head of Employment Services explained: "I would expect the local manager to agree how [mobility] can be achieved locally during a recruitment process." Some adverts for positions involving travel within Bristol make no mention of transport requirements. The typical formula used for jobs covering more dispersed areas, requires candidates to be: "mobile with the facility to move quickly across a geographically dispersed area with limited access to public transport."

Experience of the Pool Cars and Electric Bikes

Most staff who had used the pool cars were generally positive about the experience – and most interviewees expressed support or enthusiasm for the Golow scheme as a whole. The two most cited advantages of the pool cars were that: "it saves wear on my own car" and "it is simpler than filling in expense forms". Both of these were mentioned in the interviews, with two interviewees explaining that the process of booking the cars was easier than claiming expenses.

Avoidance of parking constraints was not offered on that menu of advantages; eight people raised this in the interviews. Several of AWP's sites are subject to parking restrictions. Employees commuting by car – and wanting to use it for work travel – are obliged to park their cars some distance from those sites.

Members of the Crisis Team explained that the normal system for booking pool cars was unsuitable for their purposes. A different system had been arranged for those teams, where the cars were booked out to the team as a whole, with no requirement for individual booking. The finance officer explained that these cars were amongst the most heavily used, covering between 11,000 and 17,000 miles a year.

One of the managers, responsible for several teams believed the system would not be suitable for managers with city-wide responsibilities, though she thought it was a good idea for community staff who covered smaller areas and had more predictable travel patterns. One psychiatrist commented that the need to return the cars to their original base made them unsuitable for her.

Half of the pool car users in the survey ticked that they were "sometimes unavailable – more pool cars were needed". Nine of the interviewees, from across different locations and teams, mentioned this problem, explaining that the cars were popular and that demand was not being satisfied. One said that some people had "lost interest because they couldn't get a booking". A psychiatrist suggested this could be addressed by greater flexibility, moving cars which she believed were under-used elsewhere, to make them available to her team, based in one of the central locations with limited parking.

Of the 27 survey respondents who reported using the electric bikes, 19 (70%) were male, following a similar pattern to cycling in general. These 27 people were distributed across 8 different locations. They included 20 clinical/social work staff, of whom 16 travelled more than three times a week. The main advantages cited in the survey were similar to those using their own bikes: a desire to "make a positive contribution to the environment" (52%) and health (44%) and "time in the open air" (44%).

There was unanimity in the focus group that the electric bikes were quicker and more reliable than driving – the latter was cited as one of a range of perceived benefits to clients. Two participants expressed the view that the clients were more appreciative of, or responded better to staff who travelled by bike:

> "they have never said it, but I do sometimes feel they might not have turned up if I had been driving there... because those people talked about me cycling and know that I cycle around quite a lot... it might have made them think: 'Well actually I can do this' because they know if there's no-one there ... I've travelled all that way for no reason."

In a variation on the observations of Ferguson (2009, 2008) about car use by social workers, two participants mentioned that they had cycled with clients:

> "I cycle with people in the summer mainly, and also I have got a few people, because ... they haven't got a bus pass so I have introduced them to the bike project down in Stokes Croft where you can volunteer and get a free bike."

These impressions about advantages for clients were linked to others about advantages for staff, particularly related to health, fitness, mood and motivation. The "de-stressing" properties of cycling, particularly on the off-road paths (of which Bristol has several) were contrasted with the stress of driving in heavy traffic. The link between the states of mind of staff and clients was believed to be particularly important in a unit involved in support and recovery:

> "we are trying to inspire people to move their lives forward and this all adds into it, you can't separate that. We are much more invigorated in our work, and that is partly because of this ... bike thing."

Some participants including the team manager believed the scheme had reduced sickness absence, although it was not possible to obtain any quantitative data on this.

In a reflection of Sheller (2004)'s observations on automotive emotions, there was evidence of emotional attachment to the bikes themselves. These were expressed explicitly by the three female participants who all said: "we love our bikes". Two participants were social workers, employed by Bristol City Council, who had worked as part of the AWP team, but were about to be separated in a reorganisation. There was some uncertainty over whether they would be able to keep their electric bikes, and both of them made a strong plea to be able to keep them. Apart from the practical problems losing the bikes would cause, the demeanour of at least one participant suggested a possible emotional loss.

One factor promoting a degree of emotional attachment – as well as administrative simplicity – is that, unlike the pool cars, each electric bike in the Zero Petrol Team (and one other allocated to a manager elsewhere) was allocated to one person, who would ride it home at the end of the day, with no booking involved. One focus group participant commented that being able to ride the bike home was "what makes it work". In other locations where electric pool bikes were made available, these were either used frequently by one person at a time, or else, were used only infrequently. The focus group was asked what lessons they would draw for other NHS trusts from their experience. One man commented on the importance of the service and maintenance arrangements. Another said:

> "I would say it was an incredibly valuable thing, but I think it would be important for any other organisation to pilot it with a small group of people who are already into cycling ... to normalise the process and then use that as a way of expanding it..."

Several interviewees said the availability of pool cars had enabled them to start or increase their frequency of cycling or walking to work. Those who made these statements implied that commuting in their own car was something they would prefer to avoid if possible, either because they preferred cycling or walking or because they wanted to avoid congestion or parking problems. One interviewee explained that commuting by electric bike took around 10 minutes, compared to 20 to 25 minutes by car – a recent experiment conducted by UWE staff provided some objective support for these observations, on another commuting route in Bristol during the rush hour (UWE, 2011).

Two interviewees explained that they commuted by car because they needed to take children to school. One nurse explained that he would drive on days when he was carrying children, and cycle on other days, particularly during the school holidays. At all times he would try to use the pool car or electric bike for work travel. A female professional explained that she would always prefer to commute in her own car, partly because it has a child seat, but would make use of pool cars, if and when available, for journeys during the middle of the day.

Two survey respondents who said they had reduced car ownership were interviewed. One of these, who now shared one car with a partner, had since experienced occasions where a pool car was unavailable and was wondering whether she had made a mistake in giving up her own. The other explained that she had not actually given up a car, but that the availability of pool cars had enabled her to avoid buying a second household car. She added: "I would have had to consider whether I could have taken the job if they hadn't had the pool car".

Several of the focus group participants mentioned that the electric bikes had altered their travel behaviour outside of work. The electric bikes were available for private use and several participants mentioned making considerable use of them. One had lived without a car for six months, but had reacquired one which was mainly used by his wife. One now used the electric bike instead of his own bike, and another had given up a moped.

Attitudes and Factors Influencing Participation

The factors influencing participation in the Golow scheme were investigated in two ways: through statistical analysis of the survey responses, and through the interviews and focus group. The survey included six measures of individual attitudes towards transport and the environment, as well as questions on travel behaviour, demographic information and the attitudes of colleagues and management towards the Golow scheme. A binary logistic regression was performed with use of the pool car as the dependent variable. The covariates included the six measures of individual attitude as well as the following eight binary variables:

- Frequent traveller (> 3 times per week for work)
- Management positive towards the Golow scheme,
- Colleagues positive towards the Golow scheme
- Car in the household
- Age (over/under 45)
- Job (clinical/support – the former includes a small number of social workers)
- Gender
- Usually commutes by own car

		B	S.E.	Wald	df	ρ	Odds Ratio
Step 4[a]	Frequent traveller	1.047	.345	9.230	1	.002	2.848
	Management positive	1.378	.361	14.618	1	.000	3.969
	Colleagues positive	.837	.352	5.656	1	.017	2.310
	Support job	-.982	.394	6.205	1	.013	.375
	Constant	-2.130	.331	41.471	1	.000	.119

a. Variable(s) entered on step 4: Colleagues positive

Table 1 – Binary Logistic Regression on Probability of Using a Pool Car

The variables included in the resulting model are shown in Table 1. Interestingly, none of the individual attitudes improved the fit of the model, whereas the perceived attitudes of management and colleagues were both significant: those perceiving a positive attitude amongst their management are nearly four times (3.969) as likely to use a pool car as those whose managers are sceptical, or unaware. These issues were explored further in the

interviews. As expected, clinical staff and more frequent travellers were more likely to use the pool cars (those who never travelled for work were excluded from the dataset).

Although none of the individual attitudes were significant in the regression model, a bivariate cross-tabulation revealed a negative association between pool car use and agreement with the statement: "people should be allowed to use their cars as much as they like, even if it causes damage to the environment" ($X^2 = 4.361$, df = 1, ρ = 0.037). This is consistent with much of the literature, which suggests that environmental attitudes exert an *indirect* influence on related behaviour (Bamberg, 2003, Matthies and Blöbaum, 2007). Further cross-tabulations revealed strong associations between the same measure of environmental attitudes and two of the variables included in the regression model: the perceptions of management and colleagues' attitudes towards the Golow scheme.

There are two plausible explanations for these associations, which are not mutually exclusive. The first is the 'false consensus effect' whereby people tend to "see their own behavioural choices and judgements as relatively common and appropriate to existing circumstances" (Ross *et al,* 1977). The mechanisms by which this occurs are many and complex, but a substantial body of evidence suggests that people's perceptions are often influenced in this way (Mullen *et al,* 1985). So in this case, the environmental values would influence more specific attitudes towards the Golow scheme, and this in turn would influence how individuals perceived the attitudes of others towards the scheme.

The second explanation, which could be partly influenced by the first, relates to group norms (Hogg and Reid, 2006). These issues were probed in the interviews and focus group, discussed below.

A similar analysis was performed for use of the electric bikes. A binary logistic regression was performed with covariates including the six measures of individual attitude and the first 7 of the 8 binary variables shown in Table 1 plus: "cyclist outside work".

		B	S.E.	Wald	df	ρ	Odds Ratio
Step 5[a]	Management positive	1.421	.636	4.988	1	.026	4.140
	Colleagues positive	1.447	.625	5.360	1	.021	4.251
	No car in household	1.505	.739	4.143	1	.042	4.505
	Cyclist outside of work	1.651	.637	6.714	1	.010	5.215
	Gender (male)	2.176	.569	14.640	1	.000	8.811
	Constant	-6.168	.886	48.473	1	.000	.002

a. Variable(s) entered on step 5: No car in household

Table 2 Binary Logistic Regression on Probability of Using an Electric Bike

The variables included in the model are shown in Table 2. As expected, men were more likely to use the electric bikes as were people with no car and those who cycled outside of work. Again – whatever the reason – the perceived attitudes of management and colleagues were statistically significant, whereas the measures of individual attitude were not.

Only two of the 27 electric bike users in the survey came from the Zero Petrol Team. In that team, all the permanent staff, and most of those temporarily assigned there, used the electric bikes regardless of gender. Of the seven participants, all the men had cycled previously, whereas of the three women: one had not cycled, one was a "fair weather cyclist" and the third only cycled outside work.

As with the pool car use, the individual attitudes were not included in the final model, but a cross-tabulation showed a significant relationship between electric bike use and the measure of environmental attitude ($X^2 = 4.490$, df = 1, ρ = 0.034).

Some interviewees commented on the differences in participation rates of different teams. A psychiatrist commented that her team, which had embraced the scheme, had already included a lot of cyclists. One manager was responsible for two teams, one of which made considerable use of pool cars and electric bikes. The other team made less use of both. In seeking to explain the difference, he described the low-use team as more of a "traditional team" – they were slightly older on average; more of them lived outside Bristol and commuted by car. Both areas were urban and compact, but the high users covered a more central area of the city. He also explained that the organisation of caseloads differed between the two. In the low user group, clients were allocated to individual staff, whereas the high user group shared their caseloads, "so there's more of a... philosophy of sharing things..."

The manager used an electric bike himself, and was "very much encouraging of green travel". He had been managing the high user group for longer. As suggested by Taylor (2007), there was evidence of some local managers, often motivated by environmental considerations, providing leadership on these issues. Several interviewees praised the Golow manager, particularly in the focus group with the Zero Petrol Team, where he had originally been the team manager, playing the role of the leader embodying 'prototypical norms' discussed by Hogg and Reid (2006).

Several participants mentioned varying levels of environmental commitment. One expressed strong personal convictions. Another explained:

> "[the Golow manager] comes out of a pure green agenda. I don't think I do. I think that's good, but ultimately is it going to save me money, is it going to make me a bit fitter, is it going to make my job easier – those things first."

There was considerable evidence that the use of electric bikes had strengthened in-group norms and the sense of group identity, partly by reference to salient outgroups, as posited by Hogg and Abrams (1988). For example:

> "It was part of the identity of the service you provide, identified as that, that's why none of us would like to go back to our cars now, because that would feel like letting the team down."

When the team was first established, the electric bikes generated interest in the media, involving the team with the Chief Executive. There was initially some concern about possible resentment amongst other the teams with whom they were to be "embedded". These factors appeared to strengthen the group's perception of other distinguishing characteristics:

> "maybe other people... are thinking: 'Oh you have got the easy side of mental health [support and recovery] so it is easier for you lot to do that...'"

As the team became more established, this perception declined. Nowadays, several participants added, the use of electric bikes was accepted as: "something that we do, part of our job".

There was a consensus that the electric bikes had brought the team together in other ways – increasing their motivation (in the ways described by van Dick *et al,* 2005) and their socialising outside of work.

Group social norms may persist, even when group membership changes. The way in which new members are inducted into the group is important to this process. The manager explained how she approached the issue with new recruits or temporary assignees:

> "it's done in a very matter of fact way. It's like: we are all on bikes and this is the way we operate. We have got one for you; here is the equipment; is it going to be a problem? Do you want a course, a safety course?... if there are health grounds or whatever, I am happy to talk about that but actually the whole team attitude, including myself, is: this is the way it is..."

Conclusions

This study suggests that much work travel by mobile NHS professionals in a relatively compact urban area such as Greater Bristol can be done by means other than the private car. The interviews revealed certain types of journey for which cars were needed or preferred but a substantial minority of both infrequent and frequent travellers including those regularly visiting clients in their homes, mainly cycle, walk and/or use public transport.

Many of the staff who mostly travelled by other means reported occasional needs for a car, when travelling outside their normal area, or carrying clients as passengers, for example. Although some of these people have a private car available, for others pool cars are essential – unless those journeys are allocated to another member of staff. The availability of pool cars has enabled many employees (30% of users in the survey) to reduce their commuting by car and in some circumstances, their household car ownership.

The most common alternative to driving – both for commuting and for work travel – was cycling, using the employee's own bike in most cases. A small minority of employees neither cycled nor drove and were able to fulfil the requirements of the job by walking and public transport. For operational reasons, any strategy to reduce private car use would need to largely rely on pool cars and cycling, with particular benefits from electric bikes. Public transport is appropriate for some longer and irregular journeys (e.g. to meetings) but would be less relevant for the daily travel of community-based staff.

The relatively small proportion of staff who had tried the electric bikes had found significant benefits from the assistance in hill-climbing and travel into strong winds. The reduction in sweating was an important benefit for experienced cyclists as well as novices. Although this study has not sought to quantify this, the users of electric bikes, including the manager of the Zero Petrol Team, generally agreed that this was quicker (and more reliable) than driving within the urban area.

The focus group also suggested a range of other less tangible benefits from the collective use of electric bikes. Some of these, such as the 'de-stressing' effects of exercise and fresh air between stressful visits, are inherent to the choice of mode. Others, such as the statements about motivation are probably at least partly due to increased social identification, as postulated by van Dick et al (2005). Team social norms are clearly an important factor in the acceptance and take-up of the Golow scheme and alternatives to private car use in general. The gender bias in cycling – also reflected in the use of electric bikes – is typical for the UK, though not in some other countries where rates of cycling are higher (Pucher and Buehler, 2008). Although it is a small-scale example, the experience of the Zero Petrol Team suggests that sub-groups may create new social norms which differ from those of the wider society and also provide practical support – in this case, to help female team members take up cycling, or cycling for work. The electric assistance appeared to facilitate that process.

At present, the Golow scheme represents a fairly small proportion of AWP's overall travel – the electric bikes even smaller. The findings of this study suggest that its scope could be considerably expanded. Only 31% of non-users said they would not consider using one of the pool cars. 59% of non-users said they would not consider using an electric bike. For most of these people, the reasons related to personal preferences rather than the nature of the travel itself. For those people who are not able or willing to cycle, a mixture of alternatives can still help to reduce private car use, where this is an agreed objective.

The findings add to the growing body of evidence that cycle routes which provide short-cuts and separation from general traffic are essential elements of any strategy to promote cycling in urban areas (Pucher et al, 2010). This appears to be the case even where the quality of the infrastructure is variable, and frequently criticised. The findings also suggest that parking restrictions can be a powerful motivator for modal shift within urban areas, including the often-overlooked category of work travel.

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