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Creating the future of transport

Mobile phone and seat belt usage rates in London 2009

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Transport Research Laboratory

PUBLISHED PROJECT REPORT PPR418

Mobile phone and seat belt usage rates in London 2009

by **S Narine, LK Walter and SC Charman**

Prepared for: Project Record: **Mobile Phone and Seat Belt Usage Rates in London**

Client: **Transport for London, London Road Safety Unit (Kirsty Novis)**

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Executive summary

The fourth annual London Mobile Phone and Seat Belt survey was carried out in March 2009. The survey observes mobile phone use by drivers and restraint use by drivers and passengers of cars, taxis and vans. The London survey was carried out at 33 sites on weekdays, and 10 sites were revisited at the weekend. The results from the previous three London surveys and the Department for Transport (DfT) October 2008 survey are included in this report for comparison. A total of 11,851 cars and taxis, and 2,410 vans were observed at the 33 sites. Passengers totalled 4,031 in cars and taxis, and 487 in vans. Due to a change in the survey methods (as detailed in Walter & Charman, 2009) approximately half the number of vehicles were surveyed in 2009 compared to 2008, however these numbers are sufficient to draw robust conclusions from the survey.

In general restraint use has increased year on year since the surveys began in 2006. In 2009, there was an overall increase in restraint use by all drivers and passengers, with the exception of front seat car passengers where restraint use fell from 86% (2008) to 81% (2009). In general restraint use is higher on weekends in comparison to weekdays.

The proportion of car drivers wearing seat belts did not change from 2008 to 2009, remaining at 89%. There was a substantial rise in the number of taxi drivers observed to be wearing seat belts in 2009 (31%) in comparison to 2008 rates (14%). However it is possible that this increase reflects the easier identification of private hire vehicles (via a new TfL sticker system) and the higher wearing rates of their drivers in comparison to the wearing rates of hackney carriage drivers. Taxi passenger restraint use increased from 17% (2006) to 22% (2009). Van driver wearing rates increased from 61% (2008) to 68% (2009).

When detailed analyses of the survey results by sex, age group and seating position were conducted, the survey results indicated that male car occupants continued to have lower restraint use than female car occupants, with the exception of rear seat passengers in the age groups 5-13, 14-29 and 30-59 years.

For most age groups the proportion of children unrestrained or incorrectly restrained has decreased since 2008. An increase in the use of car seats was observed for the youngest age groups, and these results are now similar to the most recent DfT survey results for other urban areas.

Analyses of the survey results by area found that Central London had the lowest wearing rates for all car occupants except rear seat passengers, and North West London had the highest rates for car drivers and front seat passengers.

In 2009 a significant increase in the use of hand-held mobile phones was observed for the drivers of all vehicles. In general, trends have shown an increase in hand-held mobile phone use since 2007 when increased penalties for using a mobile phone whilst driving were introduced. Hand-held mobile phone use was highest in North East London in 2009. In addition, hands-free phone use has increased considerably for all vehicles, in particular for taxi drivers, since the first survey in 2006.

The Police issue Fixed Penalty Notices (FPNs) for seat belt and mobile phone driving offences. FPN rates were calculated using the number of FPNs issued in each area divided by the traffic volume observed for that area. The FPN rate was the highest in Central London for seat belt and mobile phone offenders. North West London had the lowest seat belt FPN rate (0.34 FPNs per million vehicle kilometres) and South East London had the lowest FPN mobile phone rate (0.69 FPNs per million vehicle kilometres).

Estimates of the potential casualty savings from increased restraint use and decreased mobile phone use were calculated using the 2009 survey results, alongside the known effectiveness of restraints and increased likelihood of collision when using a mobile phone. It was estimated that increasing seat belt wearing rates of car occupants to that found in the DfT survey could have saved 98 KSI casualties in London in 2008. Similarly, decreasing the use of hand-held mobile phones by car, taxi and van drivers in London to that observed in the DfT survey could have saved an estimated 112 KSI casualties.

1 Introduction

The fourth annual London Mobile Phone and Seat Belt survey was carried out in March 2009. A series of mobile phone and seat belt observations are made each year at 33 sites in London, with 10 sites revisited at the weekend. The purpose of the survey is to collate data from the London sites and analyse vehicle occupants' restraint use (by vehicle type, occupant seating position, age and sex of the vehicle occupant) and drivers' use of mobile phones (hand-held or hands-free).

The 33 sites are classified into three road types (TLRN, BPRN and Minor roads), five areas that make up the London region (South East, South West , North East, North West and Central) and seven Police areas (Central, NE, NW, SW Hampton, SW Merton garage, SE and City of London) allowing analysis of results by road type and area.

For comparison, data from previous surveys in London and from sites in built up areas in England (the DfT October 2008 survey) are also presented. The unpublished methodology report (Walter and Charman, 2009) provides a detailed description of the methodology used and is available on request.

Section 3.1 provides the restraint wearing rates for vehicle occupants. Section 3.2 details the use of mobile phones by drivers. All tables refer only to results obtained during the weekdays (unless otherwise stated) and combined results for weekday and weekend can be seen in Appendix B. Sample sizes for the results shown in Section 3 are shown in Appendix A. In Section 4 the number of Fixed Penalty Notices for seat belts and mobile phones are analysed and related to the results in Section 3. Section 5 provides estimates of the potential casualty savings that could be expected with an increase in the use of restraints and a decrease in the use of hand-held mobile phones to the same levels as other urban areas in England.

2 Method

The survey was designed to provide a consistent measure of seat belt and drivers' mobile phone use over time by surveying the same sites in each borough each year. Thus, the method is the same as that for the previous London surveys (Broughton & Buckle, 2006, Walter et al, 2007 and Knowles et al, 2008) and to the established DfT survey (TRL, 2009). This consistency enabled comparisons to be made between London and other urban areas in England.

The survey was carried out using observational methods at 33 sites across Greater London, one in each borough and one in the City of London. Twelve sites were on the TLRN, 11 were on the BPRN and 10 on Minor roads. The sites were chosen to give a balanced view of seat belt and drivers' mobile phone use in London and to monitor changes over time. They were not designed to be representative of or to provide comparisons between, individual boroughs.

In the previous three surveys each site was visited for eight sessions (a whole day). In 2009, each site was surveyed for four sessions in either the morning or the afternoon (half a day).

For complete details on the survey methods, see Walter & Charman (2009).

3 Results

In the 2009 survey, 11,851 cars and taxis, and 2,410 vans, were observed at the 33 sites (see Table 3.1). This is approximately half the number of vehicles that were surveyed in 2008, because of a change in the surveying methods for 2009 (as specified in the method document: Walter & Charman, 2009).

In 2009, 2,403 front seat and 1,023 rear seat passengers were observed in cars. The number of front and rear seat passengers in vans and taxis was small so their totals were combined: 605 taxi and 487 van passengers. This is an average of 0.33 passengers per car, 0.41 passengers per taxi vehicle and 0.20 passengers per van.

Table 3.1: Number of vehicles and occupants observed by year

Vehicles & Occupants	2006	2007	2008	2009
Car	27,638	30,126	29,052	10,367
Front seat passenger	8,534	8,893	8,839	2,403
Rear seat passenger	4,343	4,734	4,374	1,023
Taxi	1,497	2,027	1,798	1,484
Passenger	790	1,095	905	605
Van	4,709	6,006	5,314	2,410
Passenger	1,252	1,550	1,394	487

The London road network is divided into three road types (TLRN, BPRN and Minor), and the survey sites were chosen to ensure all of the road types were represented. Table 3.2 details the number of vehicles observed in the 2009 survey and the annual traffic flow by road type in London in 2008 (traffic volume is measured in million vehicle kilometres). Both traffic flow and numbers of vehicles observed were used in the calculation of the weighting system discussed in the method report (Walter & Charman, 2009).

Table 3.2: Distribution of vehicles observed (2009) and annual traffic (2008) by road type in London

Road type	Vehicles observed		Traffic volume (million vkm)[1]	
	Car or taxi	Van	Car or taxi	Van
TLRN	6,271	1,357	7,294	1,462
BPRN	5,200	881	7,162	720
Minor	4,775	739	10,261	1,680

[1] Transport for London (2008a and 2008b).

3.1 Restraint wearing rates

The following sections provide details on the use of seat belts and restraints by vehicle occupants. These results are presented by vehicle type, seating position, age and sex of vehicle occupant, road type, London area and day of the week.

3.1.1 Restraint use by vehicle type and seating position

The seat belt wearing rates for car, taxi and van drivers and passengers from 2006 to 2009 are shown in Table 3.3. Car driver restraint rates remained unchanged from 2008 at 89%, 7% lower than the 2008 DfT survey rate. The proportion of front seat car passengers wearing seat belts decreased by 5% in 2009, widening the gap between the DfT and London survey results. The proportion of rear seat car passengers wearing restraints increased from 63% (2008) to 67% (2009) in comparison to 88% observed in the recent DfT survey. Higher restraint use was observed in 2009 for drivers and passengers of vans; increasing from 61% to 68% for drivers and 48% to 53% for passengers.

The proportion of taxi drivers wearing restraints increased from 14% in 2008 to 31% in 2009. Since the survey in 2008, private hire vehicles in London can now display Public Carriage Office (PCO) branding on the front and rear of their vehicles in order to pick up and set down passengers on most red routes. This has made private hire vehicles easier to detect by survey staff. As a result, a greater proportion of the taxis observed in 2009 are likely to be private hire vehicles. Unlike hackney carriage drivers, drivers of private hire vehicles are legally required to wear a seat belt when they are not carrying a fare paying passenger (and are permitted to abstain from wearing a seat belt when they are). Therefore, private hire vehicle drivers are likely to have higher wearing rates than hackney carriage drivers, explaining the increase in taxi driver wearing rates observed in 2009. Taxi passenger restraint rates increased slightly from 21% to 22%.

Table 3.3: Overall proportion of vehicle occupants using restraints

	Survey	Drivers	Passengers			Number of vehicles
			Front seat	Rear seat	All[1]	
Cars	London, 2006	82%	80%	49%		27,638
	London, 2007	87%	84%	65%		30,126
	London, 2008	89%	86%	63%		29,052
	London, 2009	89%	81%	67%		10,367
	DfT, Oct 2008	96%	96%	88%		12,325
Taxis	London, 2006	14%			17%	1,497
	London, 2007	12%			19%	2,027
	London, 2008	14%			21%	1,798
	London, 2009	31%			22%	1,484
Vans	London, 2006	51%			40%	4,709
	London, 2007	56%			49%	6,006
	London, 2008	61%			48%	5,314
	London, 2009	68%			53%	2,410
	DfT, Oct 2008	76%			61%	2,184

[1]Very few rear seat passengers were observed in vans and front seat passengers in taxis, so they have been combined.

The restraint wearing trends since 2006 are shown in Figure 3.1 (for drivers) and Figure 3.2 (for passengers). In the majority of groups the general trend is that wearing rates are increasing year on year. For drivers, the lower the initial restraint rate, the greater the increase observed. Car drivers' (having the highest restraint rate) rates have increased slowly and may have reached a plateau at 89%.

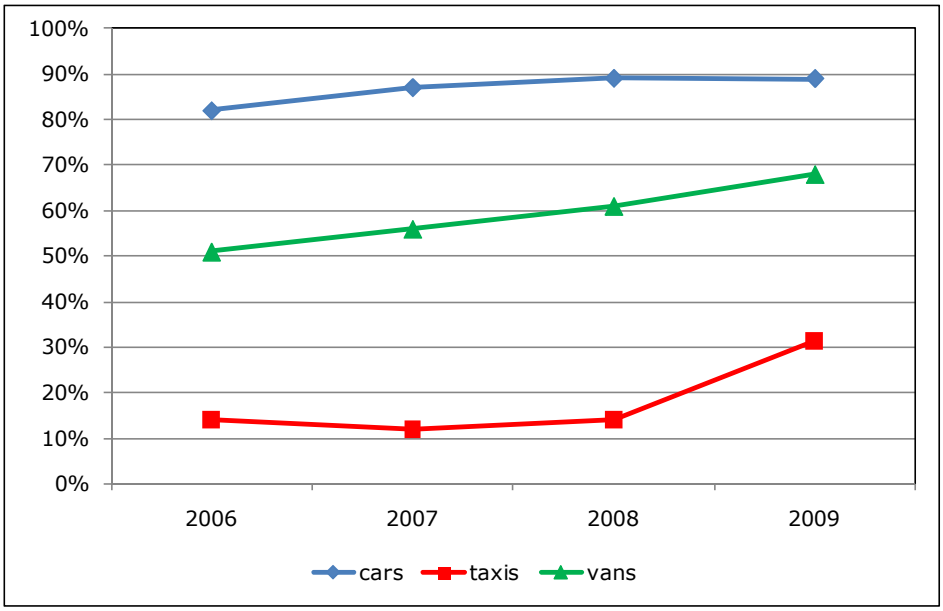

Figure 3.1: Proportion of restrained drivers by year and vehicle type

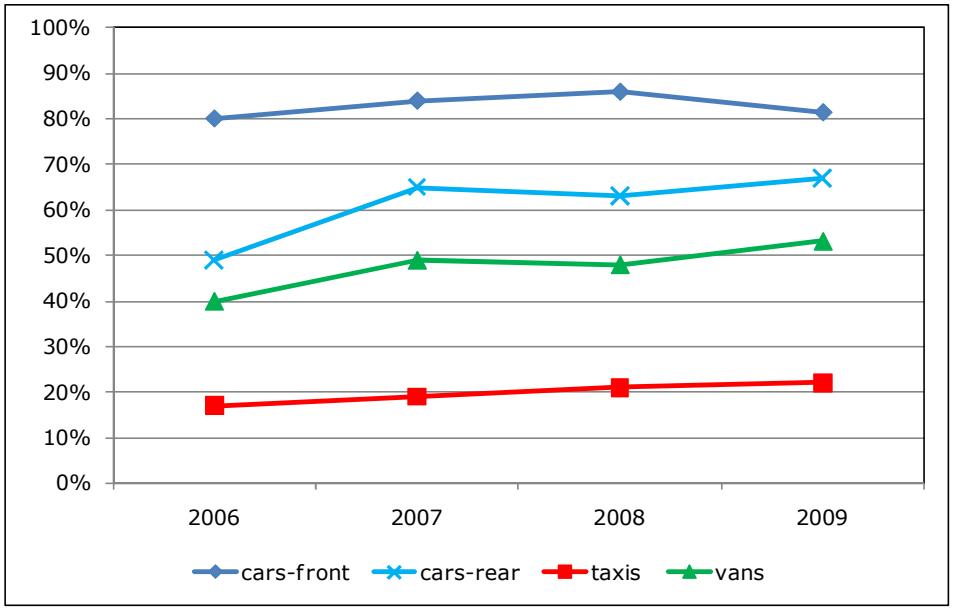

Figure 3.2: Proportion of restrained passengers by year and vehicle type

For passengers, restraint rates have also increased steadily over time. However restraint rates for front seat car passengers fell in 2009.

Table 3.4 indicates the proportion of male car occupants using restraints. Male drivers' overall rate remained unchanged from 87% in 2008.

Table 3.4: Proportion of male car occupants using restraints, by age and seating position[1]

Age group		2006	2007	2008	2009	DfT 2008
Driver	17-29	80%	80%	86%	84%	93%
	30-59	78%	85%	86%	88%	95%
	60+	83%	89%	89%	88%	97%
	All	79%	85%	87%	87%	95%
Front seat passenger	0-13	72%	85%	81%	77%	99%
	14-29	68%	72%	80%	71%	90%
	30-59	74%	81%	80%	80%	92%
	60+	84%	91%	89%	86%	98%
	All	73%	80%	81%	77%	94%
Rear seat passenger	0-4	74%	91%	71%	77%	99%
	5-13	54%	71%	68%	80%	90%
	14-29	36%	37%	42%	48%	54%
	30-59	31%	25%	40%	47%	77%
	60+	40%	51%	53%	64%	76%
	All	46%	60%	52%	64%	88%

[1] Sample sizes shown in Table A.1

The proportion of male front seat passengers wearing a seat belt fell by 4% from 81% (2008) to 77% (2009) moving further away from the 2008 DfT survey results (94%). In 2009, 64% of male rear seat passengers wore restraints compared to 52% observed in 2008. The wearing rate of front seat car occupants was lowest in 2009 for males between the ages of 14 and 29 years (71%). The wearing rates for male rear seat passengers aged 14-59 continues to be relatively low (47-48%) compared to the DfT survey rates, even though there were slight improvements in the 2009 survey compared to previous years.

Table 3.5 shows the proportion of females using restraints in cars by age and seating position. The proportion of female drivers using restraints dropped slightly in 2009. Female front passenger wearing rates fell from 89% (2008) to 85% (2009) which was similar to the overall trend of front seat passengers. However, the wearing rates for rear passengers increased from 56% to 64% moving slightly closer to the observed DfT 2008 rates of 87%.

Table 3.5: Proportion of female car occupants using restraints, by age and seating position[1]

	Age group	2006	2007	2008	2009	DfT 2008
Driver	17-29	87%	89%	92%	92%	98%
	30-59	88%	90%	93%	91%	97%
	60+	91%	94%	95%	94%	98%
	All	88%	90%	93%	92%	97%
Front seat passenger	0-13	75%	81%	88%	78%	98%
	14-29	79%	79%	86%	81%	96%
	30-59	87%	88%	90%	85%	96%
	60+	93%	93%	94%	92%	98%
	All	86%	86%	89%	85%	97%
Rear seat passenger	0-4	79%	92%	65%	89%	98%
	5-13	54%	75%	73%	73%	90%
	14-29	35%	47%	50%	44%	68%
	30-59	36%	43%	44%	46%	77%
	60+	56%	55%	66%	68%	80%
	All	42%	63%	56%	64%	87%

[1] Sample sizes shown in Table A.2

The decreasing overall trend in front seat passenger wearing rates appears to be across both sexes and most age groups. In particular there is a large decrease in rates for young females (0-13 years) and young adult males (14-29 years).

Figure 3.3, Figure 3.4 and Figure 3.5 display the use of restraints by seating position, sex and age. It is clear that in general fewer male drivers and front seat passengers wore seat belts than female drivers and front seat passengers in 2009, but between the age groups of 5-59 years the proportion of female rear passengers wearing restraints was slightly lower than that of males.

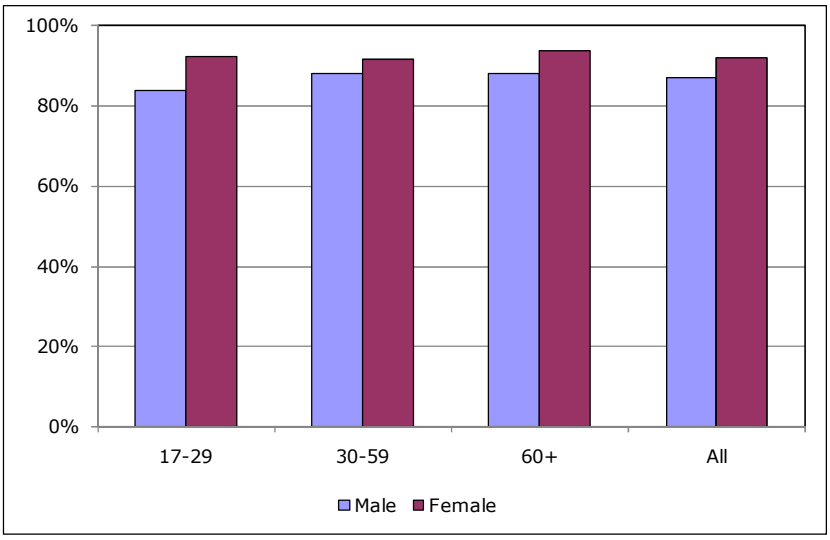

Figure 3.3: Proportion of restrained drivers by age and sex, 2009

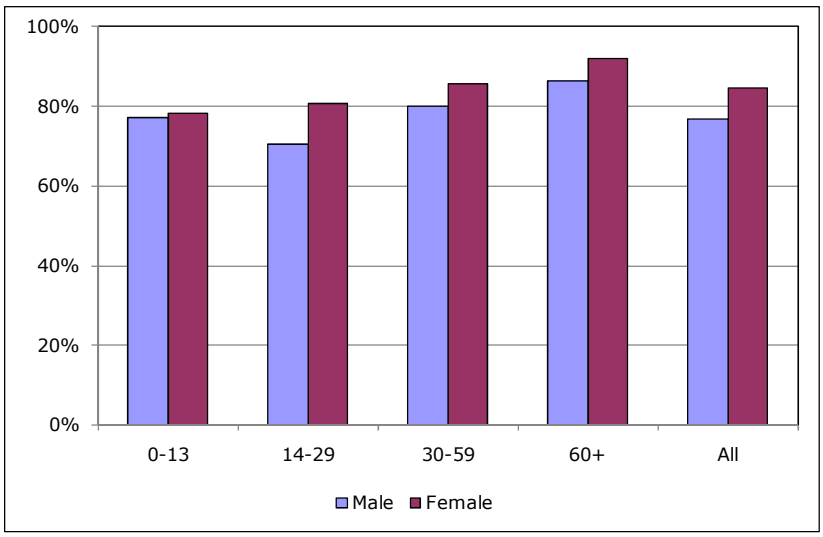

Figure 3.4: Proportion of restrained front seat passengers by age and sex, 2009

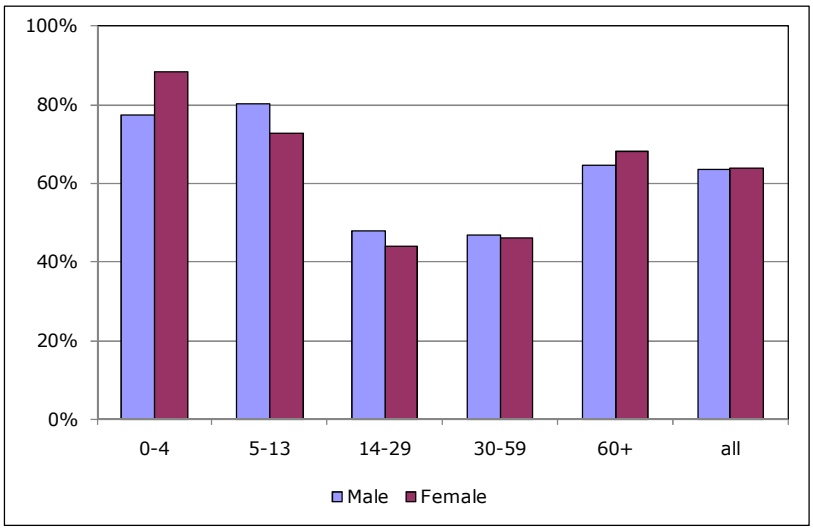

Figure 3.5: Proportion of restrained rear seat passengers by age and sex, 2009

3.1.2 Use of child restraints

The use of child restraints is split into three age categories (0-4 years, 5-9 years and 10-13 years) and displayed in Table 3.6. In general, for children aged 0-4 years, the trend is encouraging. Seat belts and booster cushions/seats are not appropriate for most 0-4 year olds. As shown in Table 3.6, the proportion of 0-4 year old children wearing seat belts and on booster seats/cushions has decreased from 32% (2008) to 18% (2009) in the front seat, and from 15% (2008) to 10% (2009) in the rear seat. The proportion of unrestrained or incorrectly restrained children (including those sitting on other passenger's laps) aged 0-4 has also decreased from 25% (2008) to 13% (2009) on the rear seat, and from 21% (2008) to 18% (2009) on the front seat. The proportion of children aged 0-4 using child seats and baby seats increased from 2008 to 2009. In 2009, these rates were similar to those found in the most recent DfT survey.

Table 3.6: Use of child restraints in cars by children aged 0-4 years

	Restraint type	2006	2007	2008	2009	DfT 2008
Front seat passengers	Seat belt	17%	1%	10%	8%	19%
	Booster seat/cushion with seat belt	9%	50%	22%	10%	12%
	Child seat	20%	19%	35%	41%	41%
	Rear facing baby seat	12%	26%	11%	23%	27%
	No restraint /incorrectly restrained	36%	1%	11%	18%	1%
	Carried on lap	6%	2%	10%	0%	0%
	Number observed	168	142	115	65	58
Rear seat passengers	Seat belt	32%	3%	5%	1%	3%
	Booster seat/cushion with seat belt	13%	42%	10%	9%	16%
	Child seat	25%	39%	51%	66%	67%
	Rear facing baby seat	6%	7%	9%	11%	13%
	No restraint /incorrectly restrained	17%	4%	21%	13%	1%
	Carried on lap	7%	4%	4%	0%	0%
	Number observed	902	1,119	860	335	657

Table 3.7: Use of child restraints in cars by children aged 5-9 years

	Restraint type	2006	2007	2008	2009	DfT 2008
Front seat passengers	Seat belt	57%	61%	61%	33%	79%
	Booster seat/cushion with seat belt	8%	16%	22%	38%	19%
	Child seat	8%	4%	4%	3%	0%
	Rear facing baby seat	0%	0%	0%	0%	0%
	No restraint /incorrectly restrained	27%	18%	13%	24%	2%
	Carried on lap	1%	1%	0%	2%	0%
	Number observed	490	371	314	103	143
Rear seat passengers	Seat belt	34%	43%	36%	12%	44%
	Booster seat/cushion with seat belt	12%	23%	22%	58%	40%
	Child seat	7%	6%	16%	7%	7%
	Rear facing baby seat	1%	0%	0%	0%	0%
	No restraint /incorrectly restrained	42%	26%	26%	22%	8%
	Carried on lap	2%	1%	0%	1%	1%
	Number observed	867	1,011	831	183	308

The trend for children aged 5-9 years is similar for front and rear seat passengers (see Table 3.7). The proportion of children in this age group that were observed wearing adult seat belts increased from 2006 to 2008, and nearly halved in 2009. The proportion of those using booster seats and cushions with seat belts has increased steadily since 2006. On the front seat, the proportion of unrestrained, incorrectly restrained or children sitting on the laps of other passengers has doubled from 13% (2008) to 26% (2009), and on the rear seat this proportion has dropped slightly since 2008 (from 26% to 23% in 2009). These rates are considerably higher than those observed in the DfT survey.

Table 3.8: Use of child restraints in cars by children aged 10-13 years

	Restraint type	2008	2009	DfT 2008
Front seat passengers	Seat belt	86%	88%	97%
	Booster seat/cushion with seat belt	1%	3%	1%
	Child seat	1%	0%	0%
	Rear facing baby seat	0%	0%	0%
	No restraint /incorrectly restrained	13%	10%	2%
	Carried on lap	0%	0%	0%
	Number observed	362	40	97
Rear seat passengers	Seat belt	62%	69%	88%
	Booster seat/cushion with seat belt	2%	7%	1%
	Child seat	8%	0%	0%
	Rear facing baby seat	0%	0%	0%
	No restraint /incorrectly restrained	28%	24%	11%
	Carried on lap	0%	0%	0%
	Number observed	503	37	121

The proportion of children aged 10-13 years using child restraints has been reported since 2008.

The proportion of children aged 10-13 years using child restraints has been reported since 2008. As shown in Table 3.8, the proportion of children wearing seat belts has increased from 86% (2008) to 88% (2009) on the front seat and from 62% (2008) to 69% (2009) on the rear seat. The proportion of unrestrained children has decreased from 13% (2008) to 10% (2009) on the front seat and from 28% (2008) to 24% (2009) on the rear seat. Similarly to both other age groups the proportion of unrestrained children remains considerably higher than that recorded in the DfT survey. Figure 3.6 combines data from Table 3.6 to Table 3.8 and shows the proportions of children who were wearing seat belts, using a child car seat, and who were unrestrained. This graph shows the high proportion of 0-4 and 5-9 year olds restrained on car seats, and the majority of 10-13 year olds using seat belts.

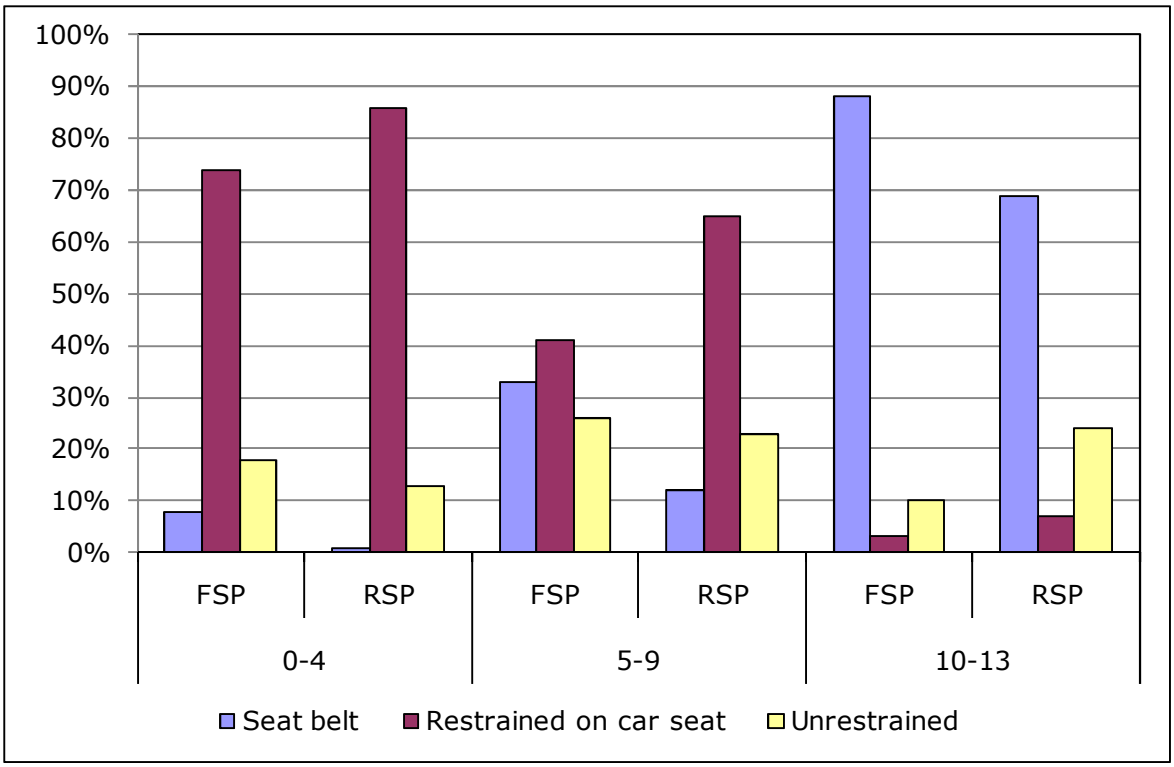

Figure 3.6: Child restraint wearing rates in cars, 2009

3.1.3 Restraint use by road type

Table 3.9 shows the proportion of car occupants using restraints by road type. In 2009, the wearing rate for drivers was the highest on TLRN roads, and similar restraint rates were observed on BPRN and Minor roads. Front seat car passenger wearing rates were identical on TLRN and BPRN roads but slightly higher on Minor roads. Rear seat car passenger restraint use rates were the highest on Minor roads at 75% and lowest for BPRN roads at 60%.

The proportion of drivers and rear seat passengers using restraints on the TLRN network was slightly higher in 2009 than in 2008, rising from 90% to 91% (for drivers) and 64% to 65% (for rear seat passengers). Car occupants' restraint rates on the BPRN roads remained unchanged for drivers and rear seat passengers. Front seat passenger restraint rates were lower by 4% in 2009 in comparison to 2008. For minor roads the use of restraints varied over time, with the most notable change occurring for rear seat passengers; a higher proportion wore restraints in 2009 (75%) in comparison to 2008 (66%) and 2007 (69%).

In accordance with the general trend, restraint use increased for most car occupant groups and on most roads. The decrease in wearing rate of front seat passengers observed in Figure 3.2 appears only to be reflecting in wearing rates observed at TLRN and BPRN sites.

Table 3.9 Proportion of car occupants using restraints, by road type[1]

	Car occupant	2006	2007	2008	2009
TLRN	Driver	82%	90%	90%	91%
	Front seat passenger	82%	88%	89%	81%
	Rear seat passenger	50%	65%	64%	65%
BPRN	Driver	83%	86%	88%	88%
	Front seat passenger	77%	81%	85%	81%
	Rear seat passenger	39%	52%	60%	60%
Minor	Driver	82%	85%	88%	87%
	Front seat passenger	79%	83%	82%	83%
	Rear seat passenger	55%	69%	66%	75%

[1] Sample sizes shown in Table A.3

3.1.4 Use of restraints by area

Car occupant wearing rates in five different areas of London are shown in Table 3.10. Central London had the lowest proportion of drivers (80%) and front seat passengers (71%) restrained whilst in the North West of London it was observed that 94% of drivers, 90% of front seat passengers and 67% of rear seat passengers were using restraints (the highest across London for drivers and front seat passengers).

Table 3.10: Car occupant wearing rates by area, 2009

Area	Driver	Front seat passenger	Rear seat passenger
South West	89%	79%	58%
South East	90%	81%	76%
North West	94%	90%	67%
North East	85%	79%	69%
Central	80%	71%	59%
London	89%	81%	67%

Figure 3.7, Figure 3.8 and Figure 3.9 show wearing rates of car occupants across London.

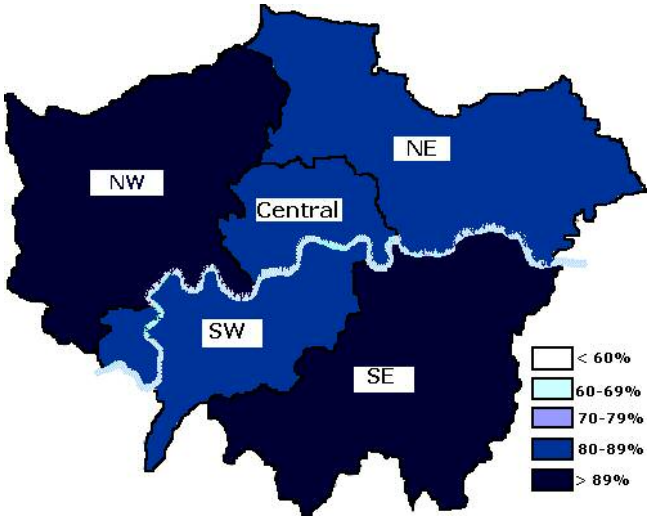

Figure 3.7: Proportion of car drivers using seat belts by area, 2009

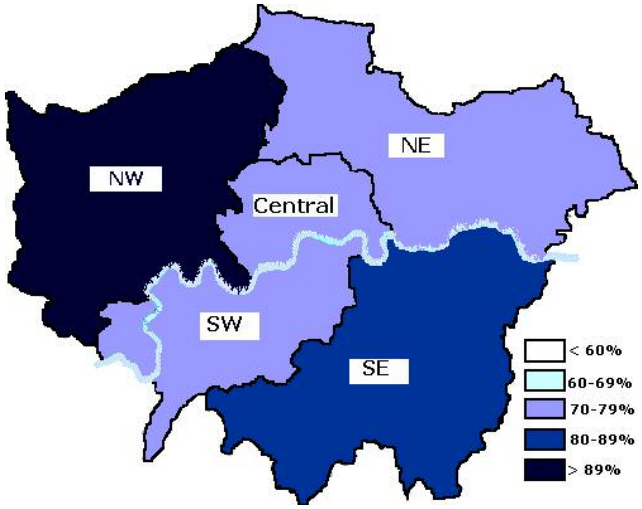

Figure 3.8: Proportion of car front seat passengers using restraints by area, 2009

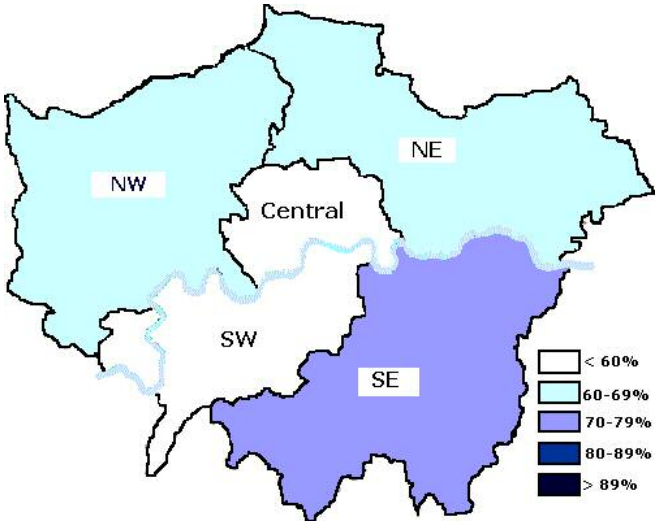

Figure 3.9: Proportion of car rear seat passengers using restraints by area, 2009

Details of the seat belt rates for car occupants classified by Police areas are shown in Table 3.11. The Central Police area had the lowest driver restraint rates (83%). In the North West and South West Hampton areas higher proportions (94%) of drivers wearing seat belts were observed.

Table 3.11: Car occupant wearing rates by Police area, 2009

Police area[1]	Driver	Front seat passenger	Rear seat passenger
Central	83%	70%	57%
NE	84%	77%	69%
NW	94%	89%	61%
SW Hampton	94%	93%	80%
SW Merton	88%	82%	59%
SE	90%	79%	74%
City of London	89%	..	..
London	89%	81%	67%

[1]The results for the City of London are based on small numbers and are therefore subject to more variation than the other areas. The rates for front and rear seat passengers have not been calculated.

3.1.5 Restraint use by day of the week

The London survey is carried out during weekdays and at some sites at the weekend. Table 3.12 shows the proportion of car occupants wearing restraints by day of the week. In 2009, 83% of front seat passengers were observed wearing restraints during the week in comparison to 85% at the weekend. Overall, there were slightly higher results on weekends than weekdays for all car occupants in London.

Table 3.12: Proportion of car occupants using restraints, by day of the week

	Car occupant	2006	2007	2008	2009
Weekday	Driver	85%	87%	89%	89%
	Front seat passenger	82%	82%	84%	83%
	Rear seat passenger	55%	60%	58%	69%
	Number of cars	6,387	7,000	8,381	3,771
Weekend	Driver	85%	87%	91%	90%
	Front seat passenger	81%	84%	89%	85%
	Rear seat passenger	49%	67%	67%	71%
	Number of cars	6,929	6,558	7,513	4,156

3.2 Use of mobile phones in London

The following tables and figures compare mobile phone usage by drivers across London. Table 3.13 shows mobile phone usage in London from 2006 to 2009 and the DfT 2008 survey results. Overall, the use of mobile phones by drivers increased in 2009, particularly the use of hands-free mobile phones. The most notable changes were observed for van and taxi drivers, with these increases mainly due to the sharp rise in the use of hands-free mobile phones. All results were significantly higher than the 2008 survey; in fact the 2009 results for hand-held mobile phones were twice that of the DfT 2008 survey results for car and van drivers.

Table 3.13: Overall proportion of drivers using mobile phones in London

Mobile type	Vehicle	2006	2007	2008	2009	DfT 2008
Hand-held	Car	2.6%	1.4%	1.9%	2.8%*	1.4%
	Taxi	1.1%	0.7%	0.6%	1.6%*	
	Van	3.8%	1.8%	2.7%	4.5%*	2.2%
Hands-free	Car	1.2%	2.3%	3.1%	4.8%*	0.8%
	Taxi	0.8%	3.1%	7.5%	14.3%*	
	Van	1.0%	4.9%	4.9%	9.9%*	0.7%
All	Car	3.8%	3.7%	5.0%	7.7%*	2.2%
	Taxi	1.9%	3.8%	8.1%	15.8%*	
	Van	4.8%	6.7%	7.7%	14.4%*	2.9%
Number of vehicles	Car	27,640	30,126	29,052	14,523	12,706
	Taxi	1,497	2,027	1,798	1,723	
	Van	4,709	6,006	5,312	2,977	2,184

*Differs significantly from 2008 result

Figure 3.10 and Figure 3.11 show the trends in mobile phone use by car, taxi and van drivers in London since 2006. The minimum level of hand-held mobile phone use since the London survey began in 2006 was observed in 2007, immediately after the increase in the penalties for using a hand-held mobile phone. Since then, the proportion of drivers using hand-held mobile phones has increased steadily. The use of hands-free kits has increased considerably since 2006 for all drivers, most noticeably for taxi drivers.

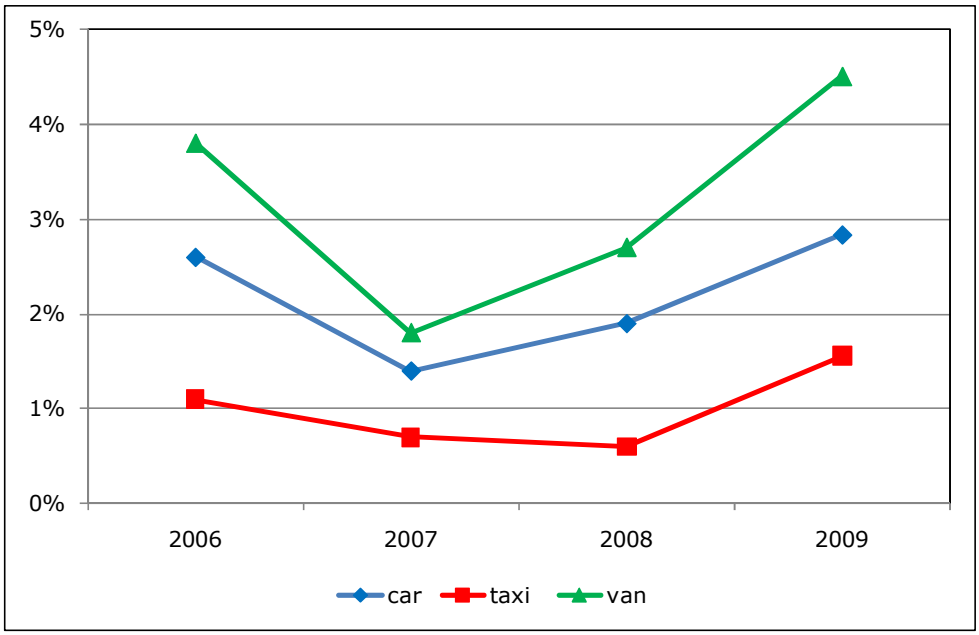

Figure 3.10: Trends in hand-held mobile phone use, London survey

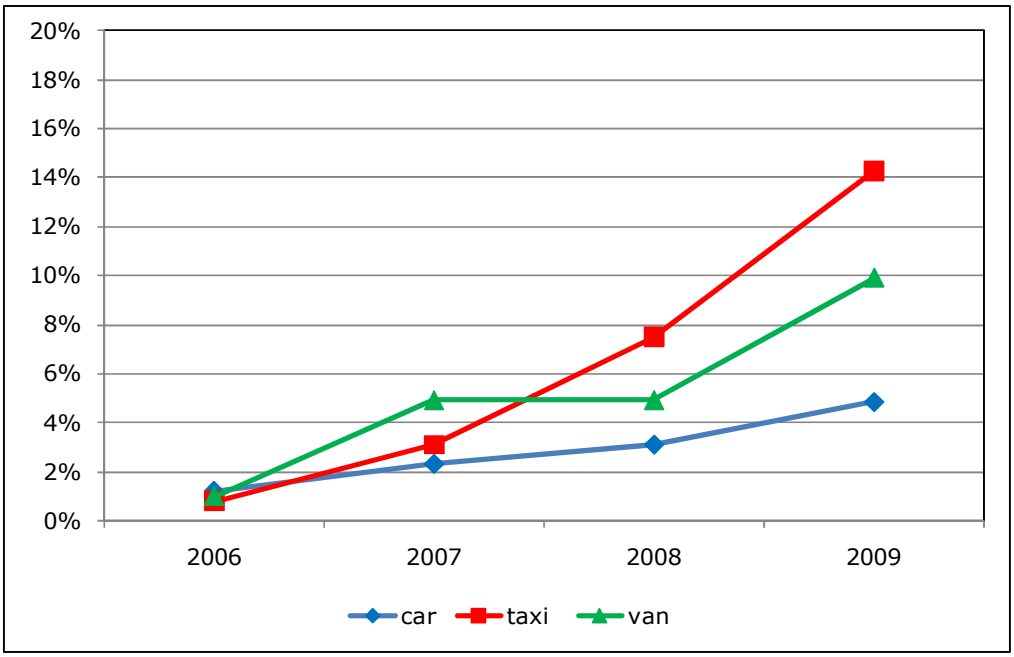

Figure 3.11: Trends in hands-free mobile phone use, London survey

3.2.1 Use of mobile phones by sex and age of driver

In 2009, a greater proportion of males used hand-held mobile phones when compared to females (Figure 3.12), with the exception of the age group 17-29. Most age and gender combinations displayed a similar pattern to the general trend presented in Figure 3.10.

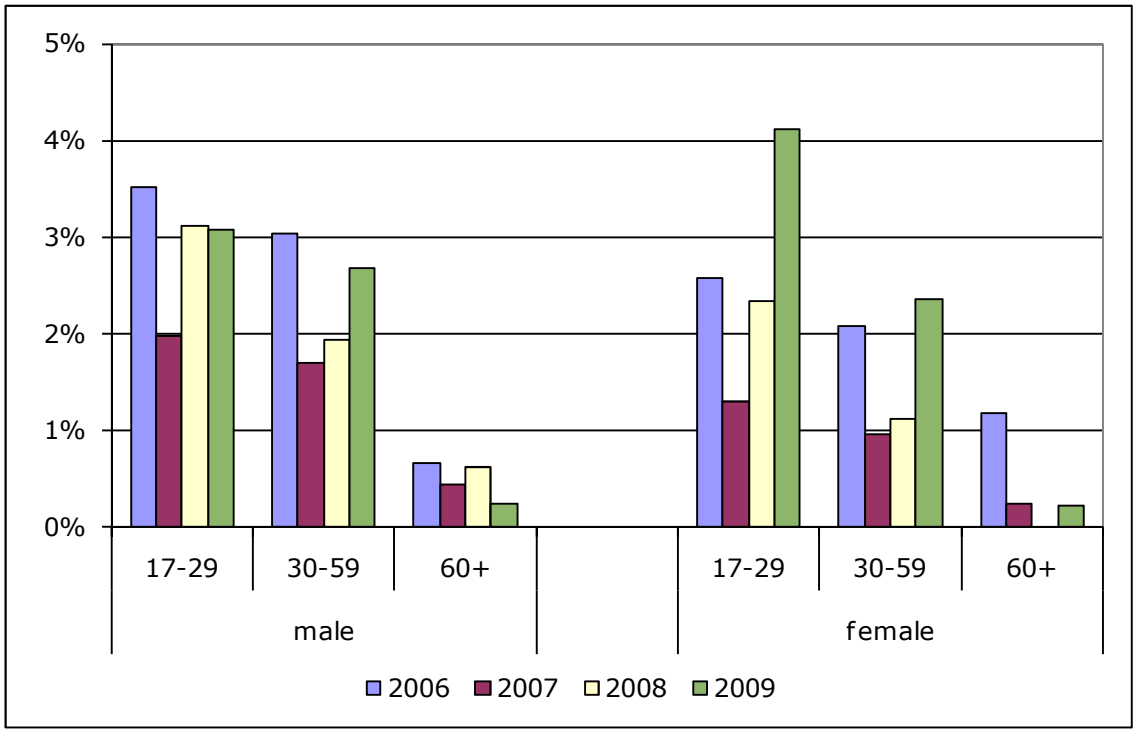

Figure 3.12: Hand-held mobile phone use by car and taxi drivers in London, by age and sex

Figure 3.13 compares the use of hands-free mobile phones by car and taxi drivers by age and sex. In general there has been a steady increase in hands-free mobile phone use. Since the survey began in 2006, male drivers' hands-free mobile phone use has increased more rapidly than for female drivers.

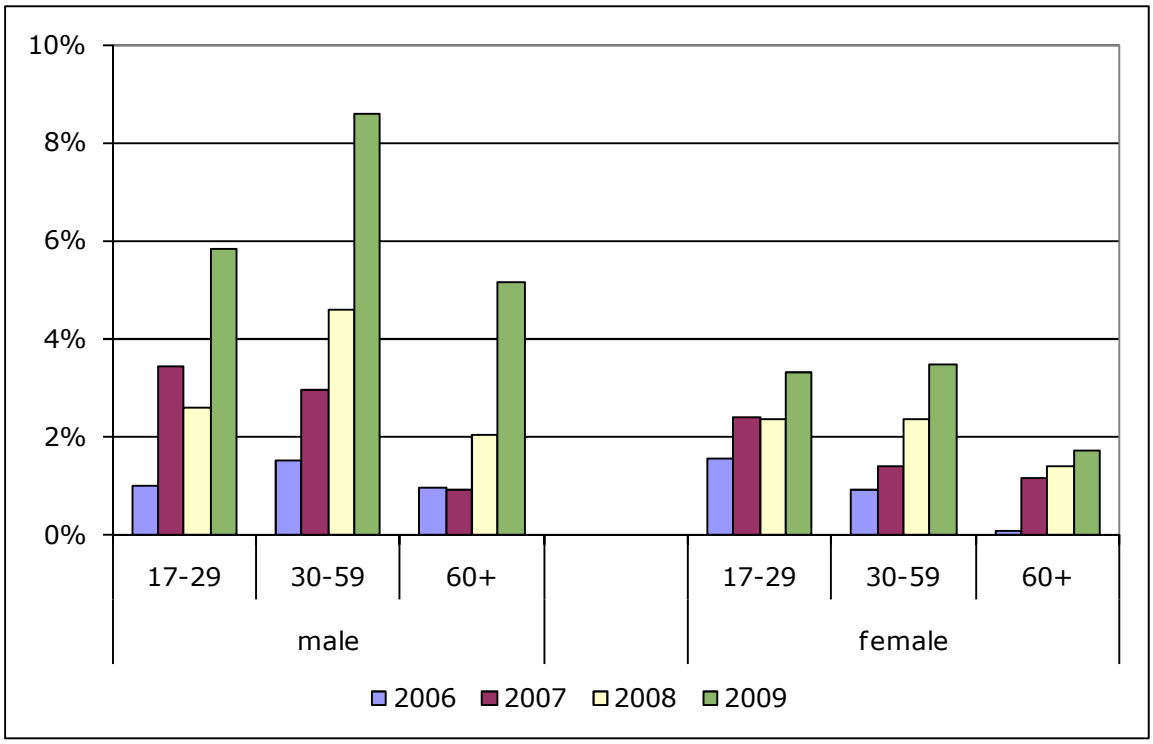

Figure 3.13: Hands-free mobile phone use by car and taxi drivers in London, by age and sex

3.2.2 Use of mobile phones by area

Figure 3.14, Figure 3.15 and Table 3.14 compare the proportion of car and taxi drivers using mobile phones in the five different areas of London. The use of hand-held mobile phones was greatest in the North East area, while the use of hands-free was greatest for Central London (11.4%).

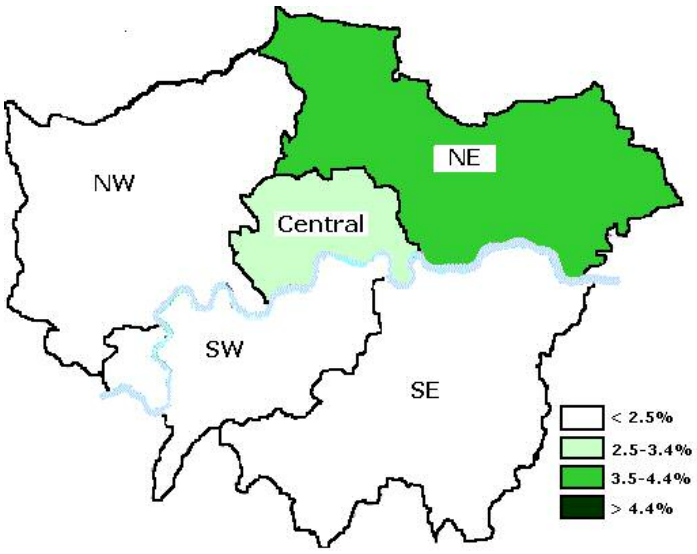

Figure 3.14: Proportion of car and taxi drivers using hand-held mobile phones by area, 2009

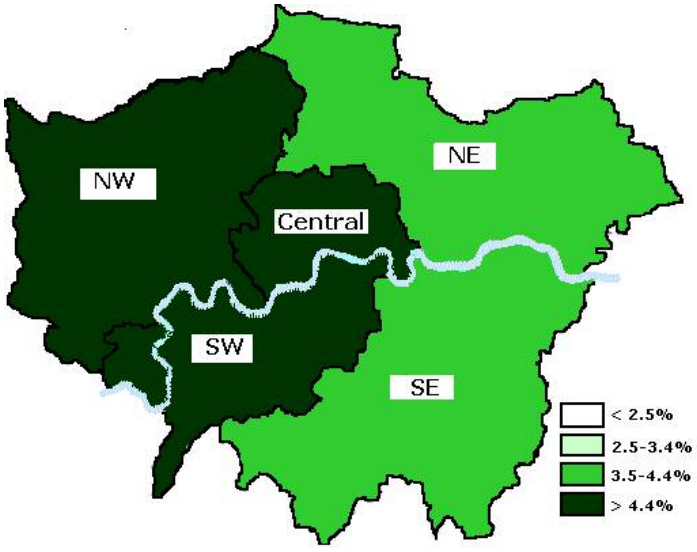

Figure 3.15: Proportion of car and taxi drivers using hands-free mobile phones by area, 2009

Table 3.14: Proportion of car and taxi drivers using mobile phones by area, 2009

Area	Hand-held	Hands-free	All
South West	2.4%	4.5%	6.8%
South East	2.4%	4.4%	6.8%
North West	2.3%	7.0%	9.3%
North East	3.6%	3.6%	7.2%
Central	2.5%	11.4%	13.9%
London	2.6%	6.3%	8.9%

Table 3.15 shows the proportion of car and taxi drivers using mobile phones by Police area in London. The proportion of drivers using hand-held mobile phones was lowest in the South West Hampton area (1.8%) and highest in North East London (3.4%). The proportion of drivers using hands-free mobile phones was very high in the Central area (14.5%) and lowest in the North East area (3.5%).

Table 3.15: Proportion of car and taxi drivers using mobile phones by Police area, 2009

Police area[1]	Hand-held	Hands-free	All
Central	2.4%	14.5%	16.9%
NE	3.4%	3.5%	6.9%
NW	2.5%	5.9%	8.4%
SW Hampton	1.8%	7.8%	9.5%
SW Merton	2.5%	4.6%	7.2%
SE	2.4%	4.7%	7.1%
City of London	2.9%	5.6%	8.5%
London	2.6%	6.3%	8.9%

[1] The results for the City of London are based on small numbers and are therefore subject to more variation than the other areas.

3.3 Correlation between seat belt and mobile phone use

London surveys conducted in the past showed that drivers' rates of mobile phone use were correlated with their use of seat belts. Table 3.16 shows the proportion of drivers using mobile phones by restraint status. Drivers who were not restrained were more likely to have been observed using either a hand-held or a hands-free mobile phone than those drivers who were restrained. This difference was most apparent for van drivers using hand-held mobile phones.

Table 3.16: Proportion of drivers using mobile phones by restraint status

Seat belts		Mobile type	2006	2007	2008	2009
Cars and taxis	Worn	Hand-held	2.2%*	1.1%*	1.6%*	2.4%*
		Hands-free	1.1%	2.2%*	3.0%*	5.7%*
		All	3.3%*	3.2%*	4.6%*	8.1%*
	Not worn	Hand-held	3.6%	2.8%	2.7%	3.6%
		Hands-free	1.2%	3.3%	5.4%	8.6%
		All	4.8%	6.1%	8.0%	12.2%
Vans	Worn	Hand-held	2.3%*	1.4%*	2.1%*	3.6%*
		Hands-free	1.2%*	5.5%*	4.9%*	10.8%*
		All	3.5%*	6.9%*	7.0%*	14.4%
	Not worn	Hand-held	5.3%	2.4%	3.6%	6.4%
		Hands-free	0.9%	4.1%	5.1%	8.3%
		All	6.2%	6.5%	8.7%	14.7%

*Differs significantly from drivers not wearing seat belts

Table 3.17 details the proportion of drivers wearing a seat belt by mobile phone use. The London 2009 survey found that seat belt wearing rates continued to be higher for drivers who were not using a mobile phone compared to drivers using a mobile phone.

Table 3.17: Proportion of drivers wearing seat belts by mobile phone use in London

	Driver using	2006	2007	2008	2009
Cars and taxis	hand-held phones	69%*	66%*	76%*	73%*
	hands-free mobile phones	78%	77%*	74%*	73%*
	any mobile phones	72%*	73%*	75%*	73%*
	Drivers *not* using mobile phones	79%	84%	84%	81%
Vans	hand-held phones	32%*	44%*	47%*	54%*
	hands-free mobile phones	59%	63%*	67%*	73%*
	any mobile phones	38%*	58%*	61%*	67%
	Drivers *not* using mobile phones	52%	56%	62%	68%

*Differs significantly from drivers not using a mobile phone

The proportion of restrained car and taxi drivers using hand-held phones decreased from 76% in 2008 to 73% in 2009. However the proportion of restrained van drivers using a mobile phone has increased since the survey began.

The proportion of car and taxi drivers that were correctly restrained did not differ according to the type of mobile phone being used (73% for both hand-held and hands-free mobile phones). In comparison, 81% of drivers who were not using any mobile phone were correctly restrained. In the case of van drivers, 73% of those using a hands-free mobile phone were restrained in comparison to just 54% of those using a hand-held mobile phone. Where van drivers were not using a mobile phone at all, seat belt wearing rates were 68%.

4 Law Enforcement

The Metropolitan and City of London Police forces issue Fixed Penalty Notices (FPNs) for unrestrained vehicle occupants and drivers using hand-held mobile phones. The following analysis is based on 2008 data from the two forces. The number of FPNs and rate (relative to traffic flow) across five London areas are shown in Table 4.1.

As in 2007 (Knowles, Walter and Buckle, 2008), the police issued almost twice as many mobile phone FPNs than seat belt FPNs in 2008, even though the proportion of people not wearing seat belts was considerably higher than the proportion of drivers using mobile phones. Seat belt FPN rates varied from 0.34 per million vehicle kilometres in North West London to 1.04 per million vehicle kilometres in Central London, with an average rate of 0.49 per million vehicle kilometres across London. On average, 0.94 mobile phone FPNs were issued per million vehicle kilometres by the Police in London in 2008, with rates varying from 0.69 per million vehicle kilometres in South East London to 1.77 per million vehicle kilometres in Central London. Figure 4.1 shows the rate at which FPNs for hand-held mobile phones and non-use of restraints were issued by area.

Table 4.1: Number and rate of Fixed Penalty Notices in London, 2008

Area	Seat belt		Mobile Phone		Traffic volume (million vkm) [2]
	Number	Rate[1]	Number	Rate[1]	
South West	2,498	0.48	5,841	1.13	5,174
South East	2,650	0.41	4,408	0.69	6,432
North West	3,083	0.34	7,138	0.78	9,128
North East	3,238	0.45	5,264	0.74	7,151
Central	4,456	1.04	7,563	1.77	4,269
London	15,925	0.49	30,214	0.94	32,154

[1]Rate is calculated as number of FPN divided by traffic volume
[2]Department for Transport (2008a)

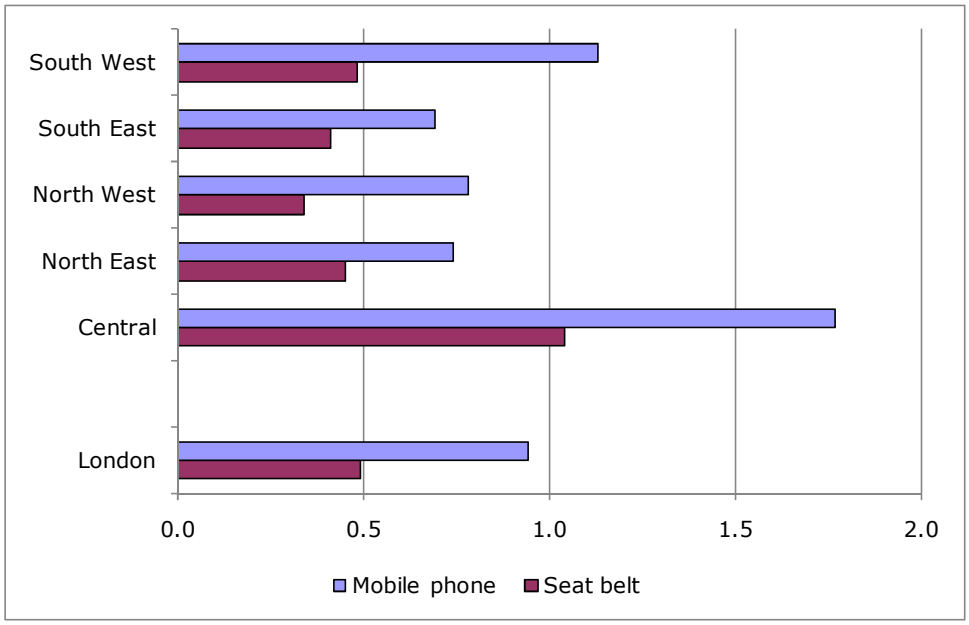

Figure 4.1: Rate of Fixed Penalty Notices (per million vehicle-km) in London, 2008

5 Estimated casualty savings

Research has shown that wearing a seat belt decreases a vehicle occupant's risk of a severe injury when an accident occurs (e.g. Broughton & Walter, 2007), and that using a mobile phone whilst driving increases the risk of being involved in an accident (e.g. Redelmeier & Tibshirani, 1997).

Given the results from the survey it is possible to estimate the number of casualties who would have been likely to avoid injury or suffer a less severe injury had they been wearing a seat belt, and the number of casualties that could have been avoided if the driver had not been using a mobile phone.

The detailed method and assumptions required are specified in the method document (Walter & Charman, 2009).

5.1 Estimated casualty saving of increased seat belt use

The overall wearing rate of car occupants (combining drivers, front and rear seat passengers proportionally) reported in the 2009 London survey was 85.4%. In the DfT survey, 95.2% of all car occupants were observed to be correctly restrained. It is estimated, and shown in Table 5.1 that if the proportion of car occupants wearing restraints in London was equal to that found in the most recent DfT survey, then there could have been a reduction of 98 killed or seriously injured (KSI) casualties and 286 slightly injured casualties.

Table 5.1: Estimated car occupant casualty saving in London per year if restraint use increased to level found by DfT survey

Casualty	2008 casualties	Casualty saving	Value*
KSI	880	98	£28.6m
Slight	12,149	286	£4.1m
Total	13,029	384	£32.7m

*defined using average value of preventing a casualty at June 2007 prices (DfT, 2009)

If every car occupant wore the correct restraint (a 100% wearing rate) it is estimated that 147 who were seriously injured or who died in 2008 might have been saved. In addition it is estimated that 427 slightly injured casualties could have been saved (Table 5.2).

Table 5.2: Estimated car occupant casualty saving in London per year if restraint use increased to 100%

Casualty	2008 casualties	Casualty saving	Value*
KSI	880	147	£42.6m
Slight	12,149	427	£6.1m
Total	13,029	573	£48.7m

* defined using average value of preventing a casualty at June 2007 prices (DfT, 2009)

The current London road safety target for road casualties who are killed or seriously injured is a reduction of 50% by 2010 compared to the 1994-98 baseline of 6,684. A reduction of 53% had already been achieved in 2008; however had each car occupant been correctly restrained then the reduction is estimated to have been 55% from the baseline.

5.2 Estimated casualty saving of decreased mobile phone use

The overall use of hand-held mobile phones by drivers was 2.7% in the London 2009 survey (taking into account car, van and taxi driver use proportionally). The 2008 DfT survey recorded just 1.6% of drivers using a hand-held mobile phone. A reduction of hand-held mobile phone use by drivers in London to that recorded in the DfT survey is estimated to lead to a large reduction in casualty numbers. Table 5.3 shows that the estimated number of fatally or seriously injured casualties could have reduced by 112 in 2008 and the number of slightly injured casualties could have reduced by 782. This translates to an overall estimated saving of £41m.

Table 5.3: Estimated casualty saving in London per year if mobile phone use decreased to level found by DfT survey

Casualty	2008 casualties	Casualty saving	Value*
KSI	3526	112	£30.2m
Slight	24,627	782	£11.2m
Total	28,153	894	£41.3m

* defined using average value of preventing a casualty at June 2007 prices (DfT, 2009)

If the use of hand-held mobile phones was eliminated completely (a 0% level of hand-held mobile phone use), 267 serious injuries and fatalities and 1,865 slight injuries in 2008 could have been avoided according to the estimates presented in Table 5.4.

Table 5.4: Estimated casualty saving in London per year if mobile phone use was eliminated

Casualty	2008 casualties	Casualty saving	Value*
KSI	3,526	267	£71.9m
Slight	24,627	1,865	£26.6m
Total	28,153	2,132	£98.6m

* defined using average value of preventing a casualty at June 2007 prices (DfT, 2009)

There were 3,526 KSI casualties in London in 2008. If hand-held mobile phone use had been eliminated, this is estimated to have been reduced by 267. This represents a reduction in KSI casualties of 57% compared to the 1994-98 baseline of 6,684.

6 Summary

The 2009 Mobile Phone and Seat Belt survey was carried out in March at 33 sites in London, following similar methods and analysis used in each annual survey carried out since 2006. The results within this report are compared to results from the three previous London surveys and results from the latest DfT survey (built-up area roads only) in England. The detailed method and assumptions are specified in a separate unpublished report (see Walter and Charman, 2009).

Overall, there was an increase in restraint use by most road user groups. In 2009 a higher percentage of drivers wore seat belts in taxis and vans; however the seat belt wearing rate for car drivers remained the same as 2008 rates (89%). The proportion of front seat car passengers wearing restraints fell from 86% to 81% between 2008 and 2009; however the proportion of rear seat passengers wearing seat belts increased from 63% to 67% in the same period. Wearing rates have increased gradually for all groups of vehicle occupants since 2006, excluding front seat car passengers where a drop in wearing rate was observed between 2008 and 2009.

The wearing of seat belts for male occupants continued to be lower than for female occupants, with the exception of rear seat passengers, where results varied. The 2009 survey found that male front seat passenger rates were the lowest between the ages of 14-59. The percentage of male and female restrained rear seat passengers was low for age groups 14-29 years and 30-59 years.

Small numbers of children observed meant that results across the four years are variable, however comparing results of 2009 with 2008 shows an overall improvement in wearing rates. For the youngest group (aged 0-4 years) the proportion using inappropriate seat belts and booster seats and cushions has decreased along with the proportion who are unrestrained or incorrectly restrained. Compared to 2008, proportionately more children aged 5-9 years were observed using booster seats/cushions, and considerably fewer were unrestrained or incorrectly restrained on the front seat. A slight increase in children unrestrained or incorrectly restrained was observed on the rear seat for this age group. Similarly for 10-13 year old children, the proportion using seat belts has increased and the proportion that were unrestrained decreased since 2008.

Wearing rates of car drivers across London in 2009 were highest on TLRN roads and in the North West area of London, and lowest on BPRN and minor roads and in the Central London area. Conversely, passenger restraint rates were higher on minor roads in comparison to rates on BPRN and TLRN roads.

The proportion of drivers using hand-held mobile phones increased significantly for all vehicles in 2009. The minimum level of hand-held phone use was observed in 2007 just after the increase in penalties for using a mobile phone whilst driving. Since then the proportion of drivers using hand-held mobile phones has increased steadily, now considerably higher than before the increased penalties were introduced. The use of hands-free kits has increased since 2006 for all drivers, most noticeably for taxi drivers. For car and van drivers, the proportion using hand-held phones was twice that of the DfT 2008 survey.

Similar to previous years, the proportion of drivers using a mobile phone who were restrained was observed to be lower than those who were not using a mobile phone. The survey results also showed that 2.4% of restrained car and taxi drivers used a hand-held phone in comparison to 3.6% of those who were unrestrained. Van drivers displayed similar patterns for hand-held mobile phones.

Fixed Penalty Notice (FPN) rates were calculated for the five areas of London. The rates per million vehicle kilometres varied between areas. The seat belt FPN rate was lowest in the North West, which had the highest seat belt wearing rates for car drivers and front seat car passengers. The seat belt FPN rate was highest for the Central area which also had the lowest wearing rates for car drivers and front seat car passengers. Mobile phone

Conversely, FPN rates were lowest in the North East of London where the use of hand-held mobile phones is greatest.

Given certain assumptions it is possible to estimate the effect of increased restraint use and decreased mobile phone use on casualty numbers. Increasing the wearing rates of car occupants in London to the levels found in the DfT survey could have saved an estimated 98 KSI casualties in 2008. Similarly, if the proportion of drivers using mobile phones were to reduce to those found in the DfT survey then it is estimated that 112 fewer people could have been killed or seriously injured in road accidents in London in 2008.

Acknowledgements

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Appendix A Sample sizes for tables in report

Table A.1: Proportion of male car occupants using restraints, by age and seating position (Table 3.4)

Age group		2006	2007	2008	2009	DfT 2008
Driver	17-29	2,991	2,520	3,440	1,588	1,158
	30-59	13,097	14,218	13,573	4,338	3,972
	60+	2,365	2,576	1,627	478	1,627
	All	18,470	19,368	18,736	6,404	6,757
Front seat passenger	0-13	448	417	417	101	165
	14-29	1,047	994	994	377	310
	30-59	1,705	1,982	1,982	477	397
	60+	299	328	328	76	207
	All	3,497	3,732	3,732	1,031	1,079
Rear seat passenger	0-4	232	312	202	122	316
	5-13	530	613	327	103	220
	14-29	342	340	378	102	87
	30-59	447	377	272	88	45
	60+	83	76	58	9	28
	All	1,640	1,747	1,259	424	696

[1]Sample sizes for all age groups may not equal the sum of the age groups due to occupants with unknown age

Table A.2: Proportion of female car occupants using restraints, by age and seating position (Table 3.5)

	Age group	2006	2007	2008	2009	DfT 2008
Driver	17-29	2,265	2,210	2,210	1,321	1,474
	30-59	6,210	7,530	7,530	2,380	3,390
	60+	664	958	958	200	704
	All	9,158	10,725	10,725	3,901	5,568
Front seat passenger	0-13	370	304	304	73	133
	14-29	1,353	1,236	1,236	397	499
	30-59	2,549	2,575	2,575	664	796
	60+	675	871	871	192	699
	All	4,947	5,005	5,005	1,326	2,127
Rear seat passenger	0-4	235	304	304	120	341
	5-13	537	629	629	102	209
	14-29	591	478	478	98	125
	30-59	712	553	553	92	76
	60+	154	140	140	24	85
	All	2,237	2,156	2,156	434	836

Table A.3: Proportion of car occupants using restraints, by road type (Table 3.9)

Road type	Year	Drivers	Passengers	
			Front seat	Rear seat
TLRN	2006	10,894	3,447	1,749
	2007	11,971	3,605	1,794
	2008	11,959	3,826	1,999
	2009	3,849	884	388
BPRN	2006	7,726	2,264	1,111
	2007	9,181	2,561	1,399
	2008	9,082	2,665	1,249
	2009	3,440	766	279
Minor	2006	9,018	2,823	1,483
	2007	8,974	2,727	1,541
	2008	8,011	2,348	1,126
	2009	3,039	742	312

Appendix B Results for the entire week (including weekend data)

Data in the tables below present information on the use of restraints by vehicle occupants and drivers using mobile phones taking into account observations on both weekdays and weekends from the London 2009 survey.

The proportions of correctly restrained occupants in vehicles are detailed in Table B.1. The combined data for the entire week caused the percentage of front and rear car occupant rates to increase slightly and reduced the restraint rates for taxi and van occupants.

Table B.1: Overall proportion of vehicle occupants using restraints

Vehicle	Drivers	Passengers			Number of vehicles
		Front seat	Rear seat	All	
Car	89%	83%	69%		14,523
Taxi	34%			25%	1,723
Van	67%			50%	2,977

Table B.2 shows the proportion of car occupants restrained classified by the three road types in London. The proportion of restrained car drivers was highest on TLRN roads and lowest on Minor roads. Wearing rates for front and rear seat passengers were lowest on BPRN roads, 82% and 62% respectively. Weekday only rates display similar pattern to the results shown in the table below.

Table B.2: Proportion of car occupants using restraints, by road type

Road type	Proportion using restraints			Sample size		
	Drivers	Passengers		Drivers	Passengers	
		Front seat	Rear seat		Front seat	Rear seat
TLRN	91%	83%	71%	5,601	1,560	715
BPRN	89%	82%	62%	4,604	1,200	545
Minor	88%	83%	71%	4,318	1,229	640

Table B.3: Proportion of male car occupants using restraints, by age and seating position

	Age	Wearing rates	Sample Size
Driver	17-29	84%	2,444
	30-59	89%	5,994
	60+	89%	683
	All	88%	9,121
Front seat passenger	0-13	79%	189
	14-29	74%	633
	30-59	81%	715
	60+	88%	119
	All	78%	1,656
Rear seat passenger	0-4	84%	203
	5-13	78%	230
	14-29	49%	183
	30-59	52%	134
	60+	55%	12
	All	67%	762

Table B.3 shows the wearing rates associated with male car occupants grouped by age and seating position.

Below, in Table B.4, are the wearing rates for female car occupant. Restraint rates are still the lowest for rear seat passengers aged 14-59.

Table B.4: Proportion of female car occupants using restraints, by age and seating position

	Age	Wearing rates	Sample Size
Driver	17-29	92%	1,867
	30-59	92%	3,220
	60+	94%	285
	All	92%	5,372
Front seat passenger	0-13	78%	135
	14-29	82%	753
	30-59	87%	1,115
	60+	93%	283
	All	86%	2,286
Rear seat passenger	0-4	88%	204
	5-13	73%	229
	14-29	46%	230
	30-59	55%	192
	60+	72%	41
	All	65%	896

Table B.5 shows the overall proportion of drivers using mobile phones on weekdays and weekends. Van driver usage of hand-held mobile phones was higher than cars and taxis in 2009, and taxi driver usage of hands-free mobile phones was higher than both car and van driver rates.

Table B.5: Overall proportion of drivers using mobile phones in London

Vehicle	Hand-held	Hands-free	All	Number of vehicles
Car	2.8%	4.3%	7.1%	14,523
Taxi	1.5%	14.7%	16.2%	1,723
Van	4.4%	10.3%	14.6%	2,977

Mobile phone and seat belt usage rates in London 2009

The fourth annual London Mobile Phone and Seat Belt survey was carried out in March 2009. The survey observes mobile phone use by drivers and restraint use by drivers and passengers of cars, taxis and vans. The London survey was carried out at 33 sites on weekdays, and 10 sites were revisited at the weekend. A total of 11 851 cars and taxis, and 2410 vans were observed at the 33 sites.

In general, restraint use has increased year on year since the surveys began in 2006. In 2009, there was an overall increase in restraint use by all drivers and passengers, with the exception of front seat car passengers where restraint use fell from 86% (2008) to 81% (2009).

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