SHORT REPORT

Does rear seat belt use vary according to socioeconomic status?

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Policy measures, including legislation, are one method of promoting health. Participation in many voluntary health promoting behaviours is strongly socioeconomically patterned, and this may also apply to behaviours governed by legislation.

Rear passenger seat belt use is one legally prescribed behaviour—having been made compulsory in the UK in 1991. Previous research on the socioeconomic distribution of seat belt use has relied on self-reported behaviours and is therefore subject to response bias, has focused on driver seat belt use, or has been undertaken in the USA where legislation is different from the UK.

We conducted the first UK-based observational study to investigate the association between rear passenger seat belt use and socioeconomic status (SES), using car value as a proxy measure of SES.

METHODS AND RESULTS

We observed 1032 rear seat passengers (RSPs) in 773 cars at six locations with slow car flow (for example, roundabouts and junctions) in Newcastle upon Tyne, UK over two 90-minute periods in June 2003. Details of cars containing RSPs (make, model, specification, and year of registration) and of all RSPs (approximate age, sex, position in the car, and seat belt use) were recorded. Cars registered before April 1987, when legislation requiring all new cars to be fitted with rear seat belts came into force, were excluded (n = 3).

Approximate age of RSPs was recorded as either babies in restraints, child under 14 years of age, or adult over 14 years of age. We estimated car value from recorded car details using an online car valuation guide (see web extra available at http://www.jech.com/supplemental). A separate validation study confirmed a reasonable correlation between car value estimated in this way and the registrar general’s social class of the car owner (n = 173, Spearman’s r = –0.30, p < 0.001).

After exclusions, full data were available for 1026 RSPs. The range of car values observed (£155–£36000) was skewed towards lower values (median £4428, IQR £2240–£7858). Overall, 74% of RSPs observed were wearing seat belts. Use did not vary by sex, but did vary by age, with 95% of babies in restraints, 76% of children, and 61% of adults wearing seat belts ($\chi^2 = 72.60, df = 2, p < 0.001$).

A significant trend was observed in RSP seat belt use by quintiles of car value (see Table 1), with a 2.2-fold increase in the odds of wearing a seat belt between the lowest and highest quintiles of car value. This trend remained after controlling for age and sex of RSPs ($\chi^2 = 7.9, df = 4, p = 0.005$).

**COMMENT**

In this, the first study of its type, we found that RSP seat belt use was significantly higher in people travelling in cars of greater value. Furthermore, car value was shown to be strongly associated with one well-used measure of SES. These findings reflect previous work concerning the socioeconomic distribution of other health related behaviours.

Because of the difficulty of recording the details of moving cars, our observations may have been subject to error. However, observation avoids the potential bias associated with self-reported seat belt use and we believe observational methods have the greatest potential for accuracy in this area. However, further work is required to confirm the accuracy and to investigate the representativeness of such observational data.

Despite an overall increase in rear seat belt use since it was made compulsory, compliance continues to depend largely on the voluntary behaviour of drivers and passengers. In common with other voluntary health promoting behaviours, our results suggest that seat belt use seems to be socioeconomically patterned, particularly among those old enough to enforce their own decisions on seat belt use. Such variations in response to compulsory health promotion interventions deserve further investigation, and, although there is controversy over the overall public health benefit of seat belt legislation, should be considered when developing interventions to reduce the associated socioeconomic inequality in car passenger injuries.

**Table 1** Seat belt use by rear seat passengers according to quintiles of car value

<table>
<thead>
<tr>
<th>Quintile of car value (value range)</th>
<th>Number of rear seat passengers wearing a seatbelt (%)</th>
<th>Odds ratio (95% confidence intervals)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (£155–£1902)</td>
<td>Babies in restraints: 31 (100) Children, &lt; 14: 65 (72.2) Adults, 14+: 43 (53.1)</td>
<td>1.00 (0.78 to 1.35)</td>
</tr>
<tr>
<td>2 (£1903–£3431)</td>
<td>31 (93.9) 73 (73.0) 42 (61.8) 146 (72.6)</td>
<td>1.09 (0.77 to 1.57)</td>
</tr>
<tr>
<td>3 (£3432–£5613)</td>
<td>32 (91.4) 67 (79.8) 45 (53.6) 144 (70.9)</td>
<td>1.33 (0.86 to 2.06)</td>
</tr>
<tr>
<td>4 (£5614–£8937)</td>
<td>40 (93.0) 61 (74.4) 52 (65.8) 153 (75.0)</td>
<td>2.15 (1.34 to 3.44)</td>
</tr>
<tr>
<td>5 (£8938–£36000)</td>
<td>30 (100) 99 (81.1) 42 (77.8) 171 (83.0)</td>
<td>1.93 (1.24 to 3.00)</td>
</tr>
<tr>
<td>All cars</td>
<td>164 (95.4) 365 (76.4) 225 (61.3) 754 (73.5)</td>
<td>1.00 (0.78 to 1.35)</td>
</tr>
</tbody>
</table>

*Odds ratio of rear seat passengers wearing seat belts in each quintile of car value compared with lowest quintile.

Abbreviations: SES, socioeconomic status; RSP, rear seat passenger
CONTRIBUTIONS
Jean Adams, Peter Heywood, and Martin White conceived the study, oversaw the development of methods, data collection, data entry, data analysis, and paper writing and will act as guarantors. Frances Colgan, Jo Petrie, and Amy Gospel helped develop the methods and took part in data collection, data entry, and paper writing. Frances Colgan drafted the paper. The following stage 3 medical students at Newcastle University contributed to the development of methods, data collection and data entry: Emma Bryant, Bevin Bhoyrul, Christopher Coldwell, Sarah Dawson, Benjamin Goodman, Rahul Gujadhur, Helmy Haja Mydin, Reem Hasan, and Joanne Lee.

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REFERENCES