ROAD TRAFFIC AND INJURY RISK IN ETHNIC MINORITY POPULATIONS

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RESEARCH SERIES


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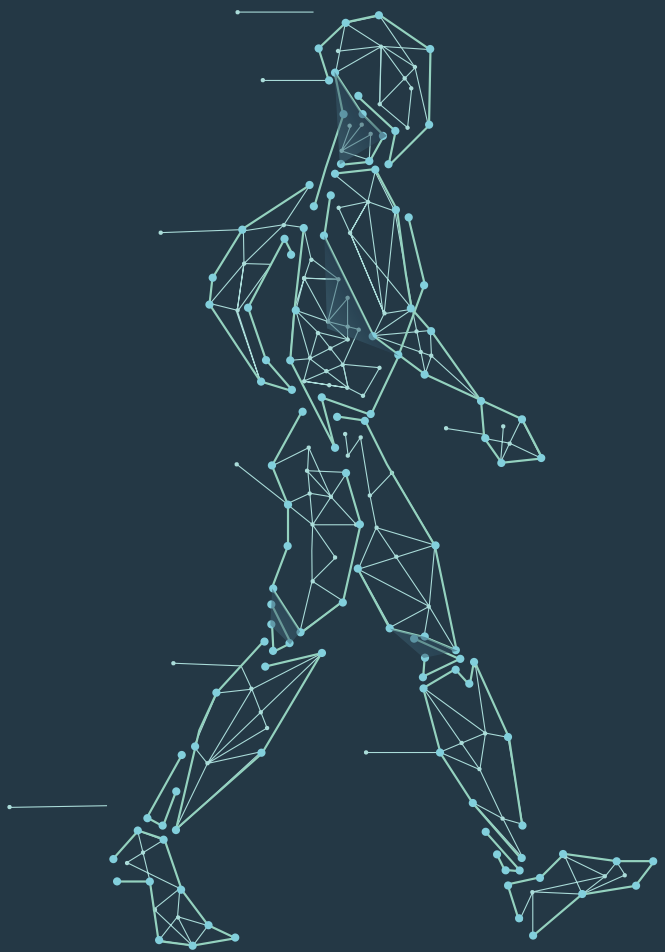
ROAD TRAFFIC AND INJURY RISK IN ETHNIC MINORITY POPULATIONS

UNDERSTANDING THE EVIDENCE AVAILABLE TO RESEARCHERS, ASSESSING RISK, AND PROPOSALS FOR FUTURE INVESTIGATIONS

A RESEARCH SERIES REPORT BY AGILYSIS, IN PARTNERSHIP WITH LIVING STREETS

MAY 2021



FOREWORD

Britain's poorest people and people from ethnic minority groups already bear the brunt of traffic congestion and air pollution. This important new report shows that they are also more likely to be a casualty on Britain's dangerous roads.

At Living Streets, our vision is for streets to be safe and welcoming places for people from all walks of life. Agilysis' research finds that people from an ethnic minority (excluding white minorities) and a deprived area, are three times more likely to be killed or injured walking on Britain's roads than a white person from a non-deprived area.

Deprivation doubles the risk of becoming a pedestrian casualty. People from an ethnic minority (excluding non-white minorities) are 25% more likely to be a casualty than white pedestrians. However, the research, which looked at ten years of collisions reported to the police across Britain, cannot tell us why some groups are more at risk.

It is likely to be due, in part, to the amount of time spent as a pedestrian. The National Travel Survey shows that people from ethnic minorities and deprived backgrounds are more likely to walk and less likely to have a car. At Living Streets we believe that Black lives matter and we would like to see more research into the causes of these worrying inequalities.

It is important to remember that the risk from walking remains low: most people walk on British streets all their lives without incident. And walking's significant benefits for physical and mental health, vastly outweigh the risk of injury. The solution then is not less walking but safer streets.

Living Streets is committed to making streets safer for everyone, and this important new research will inform our campaigns and the areas where we work. This is why we support Vision Zero – a target of zero deaths and serious injuries on our roads. Slower speeds, better crossings and less traffic can all help reach that goal.

The University of Westminster's Active Travel Academy found that low traffic neighbourhoods established during the coronavirus lockdown are benefitting poorer and ethnic minority communities in London, because local authorities and Transport for London used equity criteria in their planning. This approach should be adopted nationwide so that low traffic neighbourhoods are offered first in areas where there is greatest risk of road collisions.

National policy makers and politicians must ensure that this levelling up approach is baked in to the roll-out of low traffic neighbourhoods, school streets and play streets so that more people, from all communities, can enjoy safer streets.

Mary Creagh
Chief Executive, Living Streets
the UK charity for everyday walking

ABOUT AGILYSIS

Agilysis was setup by an experienced team with a background in transport safety. Through their work with associated company, Road Safety Analysis, the team bring a wealth of experience in areas of synthesising research, analytics, data visualisation, evaluation, intervention design, and behaviour change.

The team of 17 have, to date, won eight Prince Michael International Road Safety Awards, three Chartered Institution of Highways & Transportation Road Safety Awards as well as numerous other accolades. Agilysis has established itself as a leading provider of road safety services in the UK, with a growing portfolio of work overseas.

Our ambition is:

To transform road safety management by building capacity in countries which currently lack good quality infrastructure.

To improve health outcomes by creating data driven insight that will underpin better policy, practice and investment decisions

To lead high performing countries into continued improvement through innovation in practice, research and evaluation

Find out more by visiting:

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SUMMARY OF FINDINGS

Postcode analysis of pedestrians involved in reported injury collisions in Great Britain was undertaken to compare the backgrounds of those injured. Four groups of pedestrian casualties were analysed.

The analysis revealed that deprived ethnic minority pedestrians are over three times more likely to be a casualty on Britain's roads than White non-deprived pedestrians.

The findings show that deprivation plays a significant role in the likelihood of a pedestrian being injured in a collision, and that being from an ethnic minority plays an additional part.

Ten years of police reported personal injury collision data from Great Britain was analysed to identify correlations between risk and community deprivation and ethnicity.

The annual pedestrian casualties per 100, 000 were:

62 Ethnic minority (excluding White minority) pedestrians living in deprived areas

48 White pedestrians living in deprived areas

24 Ethnic minority (excluding White minority) pedestrians not living in deprived areas

20 White pedestrians not living in deprived areas

BACKGROUND

Typical research into road safety trends and patterns tends to focus on road environments or the actions of those involved in a collision, with infrequent reference to the profiles of those injured. Analysis is usually limited to age and gender, which only provides a rudimentary review of demographics. Agilysis has significant experience of analysing data in much more detail, linking to other datasets, and providing detailed personas for typical casualty types.

In 2020, our research and analytics teams were posed a question about whether people from different ethnic backgrounds were more or less likely to be injured on the roads of Great Britain.

Throughout this report, we use the phrase 'ethnic minorities' to reference all non-White communities. The team acknowledge the problematic nature of grouping different ethnic groups together under one phrase and are keen to approach this topic in a sensitive manner. The current term recommended by Government is 'ethnic minorities (excluding White minorities)', which we have chosen to use.


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DATA AND SCOPE OF THE STUDY

The STATS19 official ONS data source is a database of the circumstances of personal injury road collisions in Great Britain which have occurred since 1979, the types of vehicles involved and the consequential casualties. The statistics relate only to collisions on public roads which are reported to the police and subsequently recorded using the STATS19 reporting form.

The data variables include some personal information, including age, gender and postcode (although the latter is redacted from public records). Postcode analysis has proven particularly insightful in recent years and has been used to understand risk levels experienced by different communities.

Postcode data can be used to:

- Understand differences between home location and collision location
- Understand home deprivation levels (through linkages to the Index of Multiple Deprivation)
- Understand home rurality (through linkages to Government classifications of rural and urban settlements)
- Do sociodemographic profiling (through linkages to classification systems such as Mosaic[1] and Acorn[2]).

Analysing the relative risk of different communities assists road safety practitioners with identifying target audiences and addressing social inequalities.

One data variable **not** included in STATS19 is casualty or driver ethnicity. It means there has been little analysis of the relative road safety risk of different ethnic groups.

This study uses the most recent five years of STATS19 data (2009-2018), alongside census data (2011) to estimate the relative risk levels of different ethnic groups. A study in 2007[3] in London, using a similar methodology to that proposed here, found that Londoners classified as from a 'black' background were on average 1.3 times more likely to be injured on the roads than those from a 'white' background.

This study, 13 years on, examines some of the same data sources but at a national level.

The focus of this study is **pedestrian casualties**. Whilst it is possible to repeat this analysis for all casualties (regardless of mode) or for vehicle drivers and passengers (including cyclists), it was decided to focus on one particular user type.

[1] https://www.experian.co.uk/assets/marketing-services/brochures/mosaic-ps-brochure.pdf

[2] https://acorn.caci.co.uk/

[3] Steinbach R, Edwards P, Green J, and Grundy C (2007) Road Safety of London's Black and Asian Minority Ethnic Groups: A report to the London Road Safety Unit. London: LSHTM.

LIMITATIONS OF THE ETHNICITY DATASET

It should be acknowledged that the most recent census data is from nine years ago in 2011. There will have been population changes over this period, with the ethnic makeup of Great Britain altering with time. The use of 10 years of collision data at a national level should help to mitigate this but the results should be interpreted thinking about how the next census may show differences in ethnic composition. Ethnicity at postcode level, which is required to match to STATS19, is not available from a more recent source.

In this initial study, the focus is on analysing populations and collisions which occurred in England and Wales, because the same ethnic classifications are used in these countries. Scotland has slightly different descriptions, albeit the same number of groups. Attempts could be made to match across the two classification systems in a subsequent analysis.

In the Steinbach et al study (2007), ethnic groups recorded in the census were amalgamated into broader groups to increase sample size. The national 10-year sample should be large enough to allow conclusions to be drawn from the census categories, but it was useful to bring groups together into broader classifications for some elements of the analysis.

Whilst postcode data was used for classification purposes, analysis will be conducted at higher geographical levels due to the potential for data protection issues. For clarity, casualty postcode has been matched to ONS Output Area (OA) using the table published in the ONS website[4].

African

Caribbean

Other Black

Bangladeshi

Chinese

Indian

Pakistani

Other Asian

English/Welsh/Scottish/Northern

Irish/British

Gypsy or Irish Traveller

Irish

Other White

White and Asian

White and Black African

White and Black Caribbean

Other Mixed

Arab

Any other ethnic group

Figure 1: Ethnicity groups in the 2011 census data

[4] https://geoportal.statistics.gov.uk/datasets/80628f9289574ba4b39a76ca7830b7e9_0/data

RELATIONSHIP WITH DEPRIVATION

There is a well-established link between road safety risk and deprivation levels. Previous research undertaken by our team as well as other researchers have identified pedestrians and cyclists from deprived backgrounds as being at increased risk of being injured in a road collision.

This study therefore plots deprivation levels and road safety risk against each other, comparing communities by ethnicity to understand possible relationships between factors.


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METHODOLOGY

The biggest limitation with research of this kind is the lack of ethnicity reporting in STATS19 collision data. When collecting a range of other personal data, there is an opportunity for ethnicity to be included (even self-defined ethnicity) to understand how different communities are at risk of collision-involvement. However, home postcode of casualties is often recorded, allowing for a degree of socio-demographic research into the people and communities that are most often injured in collisions. The 2011 census, which provides the relative populations of each ethnic group at postcode data, can then be matched to data on casualties for which home postcode is known.

This allows for a weighting for casualties by ethnicity that, although unreliable at the individual casualty level, can provide an appropriate proxy for the number of casualties from each ethnic group when aggregated to a national level. For example, if a casualty resides in a postcode whose population is 10% ethnic minority (excluding White minorities), this casualty will count as 0.1 ethnic minority (excluding White minorities) casualties when aggregated.

When considering these proximate casualty numbers by ethnicity, it is important to view them in the context of what proportions of the population these ethnic groups comprise, and hence what numbers of casualties one would expect from each ethnic group in an ideal equitable society. We have therefore calculated, analysed and compared casualty rates per 100,000 population which represent the ratio between the observed (proximate) number of casualties of an individual ethnicity to the expected number of casualties of this ethnicity based solely on population share.

$$\frac{\text{annual number of casualties from ethnic group in 25\% deprived areas}}{\text{number of people from ethnic group in 25\% deprived areas}} \times 100{,}000$$

The Index of Deprivation is the official measure of relative deprivation in England, which is comprised of seven distinct domains of deprivation: income, employment, health deprivation and disability, education, skills and training, crime, barriers to housing and services, and living environment. After calculating the level of deprivation experienced by people in each neighbourhood, each area is then ranked according to their level of deprivation relative to that of other areas. For this analysis, the focus has been on pedestrian casualties who live in the 25% most deprived and 25% least deprived neighbourhoods.

RESULTS

For this initial study, we matched pedestrian casualties. The total number of matched pedestrians where a valid postcode was recorded 189,102. Of these, 137,270 (72.6%) were matched proportionately as 'White' with the remaining 51,832 (27.4%) as 'Ethnic Minority (excluding White minorities)'.

Ethnicities classes as 'White' are 'English/ Welsh/Scottish/Northern Irish/British', 'Gypsy or Irish Traveller', 'Irish', and 'Other White'. 'Ethnic minorities (excluding White minorities)' comprises the remaining ethnicities outlined in Figure 1.

Each of these weighted casualties from the various ethnic groups is then matched to the IMD decile associated with postcode matched output area.

The analysis focuses on the 25% most and least deprived communities, accounting for 101,858 people injured whilst walking. Of these, 71,512 (70.2%) were matched proportionately as 'White' with the remaining 30,346 (29.8%) as 'Ethnic Minority (excluding White minorities)'.

As Figure 2 shows, the annual pedestrian casualties per 100, 000 were:

- Ethnic minority (excluding White minority) deprived: 62
- White deprived: 48
- Ethnic minority (excluding White minority) non-deprived: 24
- White non-deprived: 20

This means that ethnic minority pedestrians from deprived communities are over **three times** more likely to be injured on Britain's roads than White non-deprived pedestrians.

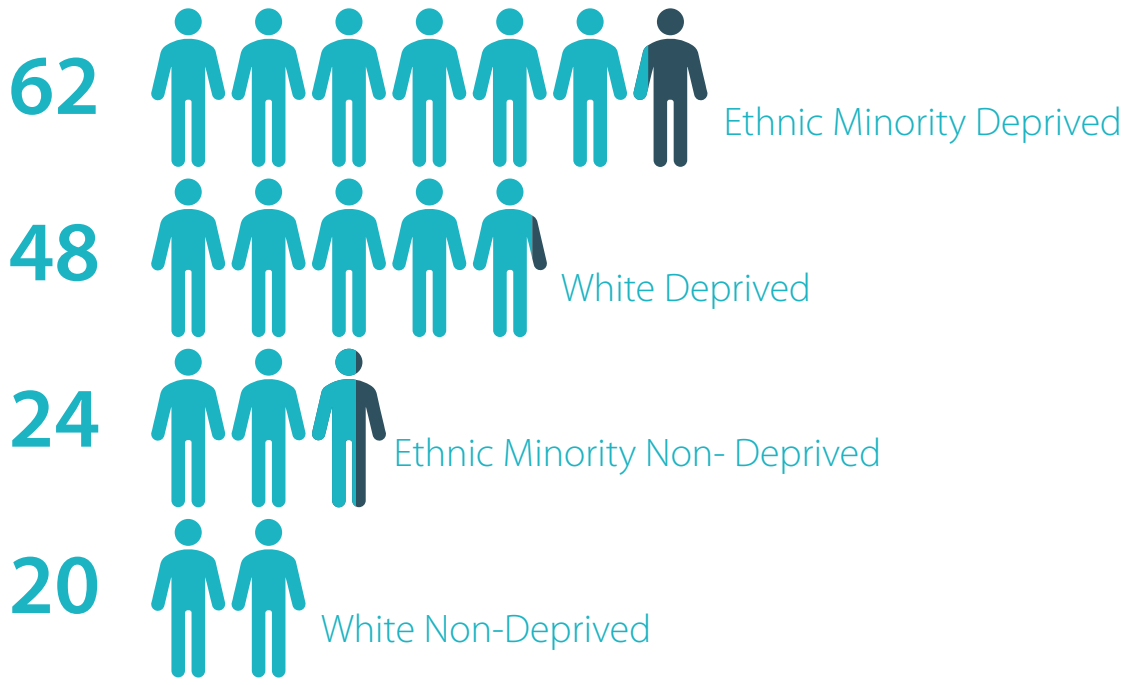
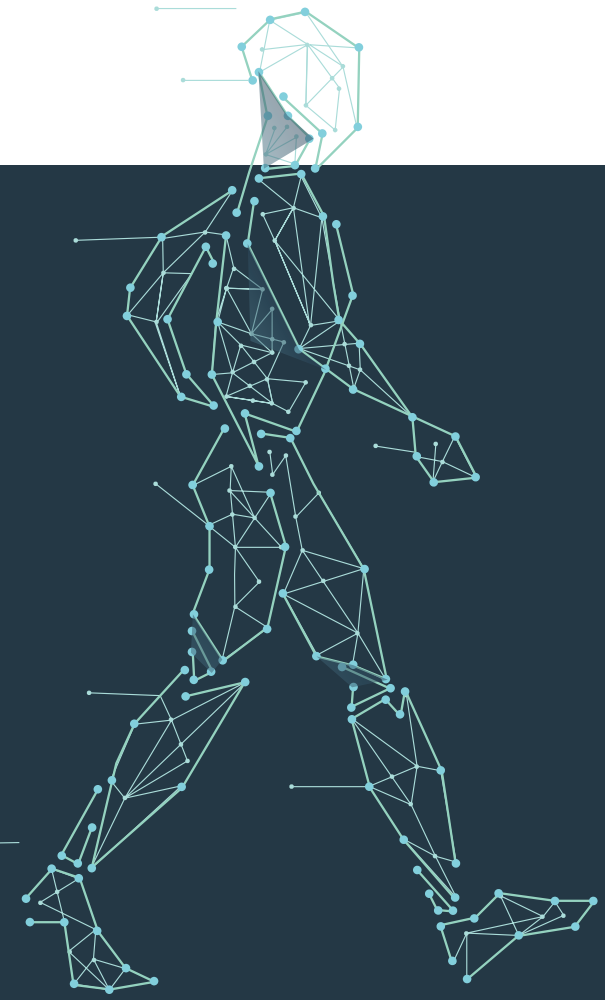


Figure 2: Annual pedestrian casualties per 100,000 from most and least deprived communities

As previously mentioned, there is already a strong link between road casualties and deprivation, and similarly between ethnic group and deprivation. Those from the 25% most deprived communities account for 39.1% of pedestrian casualties, with 51.7% of ethnic minority pedestrian casualties living in the 25% most deprived neighbourhoods. This methodology attempts to untangle some of the relationships between ethnicity and deprivation. As Figure 2 shows, the rates per 100,000 people from non-deprived communities are similar, regardless of ethnicity. Deprivation plays a strong part in increasing pedestrian risk, but in these deprived neighbourhoods, those from an ethnic minority background are at an even higher risk of being injured whilst walking.

Increased risk will be related to exposure and the time a person spends walking and their access to other modes of transport. The National Travel Survey shows that in 2019, people living in households in the highest income quintile made 215 walking trips compared to 307 for those living in the lowest income quintile[6]. Furthermore, only 17% of White adults live in a household without access to a car or van compared to 39% of Black adults[7].

Additional analysis by specific ethnic groups has revealed that there is large variation in collision risk between different ethnic minority communities. Whilst this report focuses on highlighting the additional risks faced by ethnic minority pedestrians in general, further work could explore how risks differ amongst different communities.



[6]Table NTS0705, Travel by household income quintile and main mode or mode: England, (Department for Transport, 2020)

[7]Table NTS0707, Adult personal car access and trip rates, by ethnic group: England, from 2002, (Department for Transport, 2020)


I'm a
SHOE-PER

DISCUSSION

The broad analysis of pedestrian casualties identified increased casualty representations from ethnic minority (excluding White minority) groups, especially those living in deprived neighbourhoods.

As noted in the methodology, this analysis does not use a recorded ethnicity for individual casualties but instead uses a weighted value based on the areas in which they live. With the large sample size of around ¾ million total casualties, the authors are confident this is a robust set of results.

Further breakdowns by collision circumstance, location, vehicle type and age, casualty sex and age are also possible with the dataset held by Agilysis. It would also be possible to look at associated vehicles (the type of vehicle which was in conflict with the casualty/the casualty was occupying). Analysis of contributory factors is also possible, although careful consideration would need to be given to which factors are reported reliably and without bias. Agilysis welcomes discussions on the future potentials for more in-depth studies with other research organisations.

Much harder to reveal is why there is such inequality in casualty risk rates. Deprivation certainly plays a part, but it is not the whole of the story. The disparity may be a function of the types of areas inhabited by different ethnic groups. The authors are intrigued by this subject and are keen to hear submissions from those most able to understand the factors at play within these communities.

A Safe System approach to road safety requires the strengthening of all parts of the system, ensuring there are safe speeds, safe road designs, safe vehicles, safe road users and high-quality post-crash care. Further investigations into the appropriateness of the speed limits and pedestrian facilities (pavements and crossings); the safety ratings of the vehicles involved; and the behaviours of drivers and other road users will help to understand where the failings in the system are for these pedestrians.

27 Horsefair | Banbury | Oxfordshire | OX16 0AE
+ 44 1295 731810 | info@agilysis.co.uk | www.agilysis.co.uk

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An associated company of Road Safety Analysis
A company registered in England, Company Number: 10548841
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