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An exploratory analysis of traffic and collision patterns pre- and post-20mph (32 km/h) implementation in Edinburgh and Glasgow, UK

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The introduction of 20mph speed limits in urban and residential areas is an increasingly common intervention to mitigate excessive speeds and combat road safety inequalities. In this article, road safety data spanning 12 years (2010–2022) are analysed to examine the potential road safety benefits of newly introduced 20mph zones in Edinburgh and Glasgow, UK. We conduct exploratory and statistical analyses of traffic and road traffic collisions data in Edinburgh and Glasgow to evaluate the effects of the 20mph zones on traffic volumes and various road safety indicators. The findings of the exploratory analysis show that the 20mph schemes likely contributed to reduced car traffic in both case cities. The rate of collisions also reduced in the years following 2016 (i.e., the year the 20mph schemes were introduced); however, the effect on collision severity was more ambiguous. The estimation of collision severity models (binary logit with random parameters and heterogeneity in means) provides further insights into the impact of 20mph speed limits on road safety in the pre- and post-20mph periods, focusing on a collision class that disproportionately affects pedestrians and cyclists: low-speed, single-vehicle collisions. The model estimation results suggest that the post-20mph period was associated with significantly reduced collision severity among single-vehicle, low-speed observations; however, this relationship was not replicated for a pedestrian-involved subset of collisions. The COVID-19 lockdown period was also found to have significant moderating effects on collision severity in the post-20mph period, partially explaining counterintuitive collision severity trends in the post-20mph period.

KEYWORDS
20 mph speed limit, collision frequency, collision severity, discrete outcome modelling, pedestrian safety, unobserved heterogeneity

1 Introduction

20mph (32 km/h) speed limits are becoming increasingly common in city centres and contiguous residential areas. A growing body of evidence shows that 20mph speed limits can reduce the frequency and severity of road traffic collisions (Cleland et al., 2020; Hu and Cicchino, 2024; Jones and Brunt, 2017; Kokka et al., 2024; Yannis and Michelaraki, 2025; Quddus et al., 2025), while also improving safety outcomes for the most vulnerable road users:

pedestrians and cyclists (Isaksson-Hellman and Töreki, 2019; Keall et al., 2022). In Scotland, Transport Scotland's, (2021) *Vision Zero* approach to road safety aims to eliminate all serious casualties and fatalities from Scotland's roads by 2050. This requires Scottish local authorities to improve road safety for pedestrians and cyclists, who are significantly more likely to be seriously injured in single-vehicle collisions (i.e., vehicle–pedestrian or vehicle–cyclist collisions). Moreover, this class of collision is disproportionately concentrated in urban, residential and, in general, built-up areas (DfT, 2023a).

The City of Edinburgh Council (CEC) and Glasgow City Council (GCC) introduced a more comprehensive network of 20mph roads on city centre and residential streets in 2016 in response to the national road safety agenda. The extent of the CEC and GCC schemes varied: the CEC was more ambitious, adopting 20mph as the default speed limit on the majority (around 80%) of city centre and residential streets (CEC, 2019). While GCC also introduced a 20mph zone in the city centre, most residential streets remained at 30mph (GCC, 2016).[1] It should be noted that GCC has recently approved plans for a "city-wide" 20mph zone that bears more resemblance to the CEC approach (GCC, 2023).

In this article, we conduct an exploratory analysis of road traffic collisions and traffic data for Edinburgh and Glasgow during the 2010–2022 period, examining the effects of each city's 20mph scheme on traffic volumes, collision frequency, and severity. Subsequently, statistical models are estimated to evaluate the impact of period-specific (i.e., pre- versus post-20mph) and city-specific (Edinburgh versus Glasgow) variables on collision severity among a specific subset of collisions that tend to affect vulnerable road users: low-speed (occurring on 20mph or 30mph roads), single-vehicle collisions. We also account for and discuss the potentially confounding effects of the COVID-19 pandemic on traffic and collision trends during the post-implementation period.

2 Methods

This study utilises UK Government Department for Transport (DfT) datasets for police-reported collisions—namely STATS19 (DfT, 2023a)—and traffic counts, specifically Annual Average Daily Flow (DfT, 2023b). These datasets were integrated to evaluate traffic and collision trends throughout the 2010–2022 study period. The STATS19 dataset categorises police-reported collisions into three levels of injury severity: *slight*, *serious*, and *fatal*. Table 1 outlines the periods corresponding to pre- and post-20mph implementation in Edinburgh and Glasgow; here, 'all collisions' describes the total frequency of collisions per period, while the 'single-vehicle, low-speed collisions' column describes a subset of single-vehicle collisions occurring on 20mph or 30mph roads. The additional focus placed on single-vehicle, low-speed collisions allows pedestrian safety to be studied more closely, given that vehicle–pedestrian collisions account for approximately 62–65% of the single-vehicle subset in Edinburgh and 83–85% in Glasgow (DfT, 2023a).

1 Note: to view the 20mph network boundaries in Edinburgh and Glasgow, see CEC (2019) and GCC (2024), respectively.

The total frequency of collisions reduced considerably in the post-20mph period in both cities, notwithstanding the relative equivalence of stage durations (~2,250–2,500 days). Although this is encouraging, a more robust assessment of collision trends can be provided by controlling for traffic volume. The road traffic collision rate (or exposure) is calculated by considering the frequency of collisions per year, divided by total Annual Average Daily Flow (AADF); in other words, AADF multiplied by 365. Multiplication by 100,000 yields the rate of collisions per 100,000 vehicles, (as shown in Equation 1) as follows:

$$Collision\ rate = \left(\frac{Annual\ RTC\ frequency}{365(AADF)} \right) \times 100{,}000 \quad (1)$$

The rate of collisions resulting in a serious injury or fatality—referred to as *killed or seriously injured* (KSI) outcomes—is evaluated in the same way. We consolidate the traditional three-level severity scale (slight, serious, and fatal) into a binary KSI outcome because the absolute frequency of fatalities is relatively low; treating them as a stand-alone category could potentially result in unstable estimates and potentially skew the exploratory analysis, especially in the presence of exceptional events such as single collisions involving multiple fatalities. This approach is fully consistent with previous research and practice in road safety (Taheri et al., 2025; Le, 2026). Regarding the calculation of rates, it is acknowledged that collision and KSI frequencies are ideally normalised by both AADF and road length (Washington et al., 2020). However, considering that the primary goal of these calculations is to offer a preliminary screening of the evolving collision and KSI rate over the study period, and given the unavailability of road length data, the normalisation is performed solely using traffic flow exposure. This approach is particularly pertinent in urban settings, where traffic flow serves as a primary indicator of risk exposure.

Following the exploratory analysis, binary collision severity (KSI) models are estimated using a Random Parameters Binary Logit (RPBL) framework. Here, Y = 0 represents a slight injury and Y = 1 represents a serious or fatal (KSI) injury. RPBL models are estimated for two subsets of the road traffic collision data: single-vehicle, low-speed observations, and a vehicle–pedestrian collision subset of the single-vehicle, low-speed data. The inclusion of random parameters in the modelling framework allows the potential influence of unobserved heterogeneity—unobserved characteristics not captured in the collision severity data—to be accounted for (see Washington et al., 2020).

3 Results

3.1 Exploratory analysis: traffic, collision frequency, and collision severity

Traffic, collision frequency, and severity trends in Edinburgh and Glasgow were assessed across two datasets: all observed collisions, and a single-vehicle, low-speed subset (see also Table 1). This dual approach was adopted to facilitate a more explicit focus on

TABLE 1 Pre- and post-20mph periods in Edinburgh and Glasgow.

City	Stage	Period	Duration (days)	All collisions	Single-vehicle, low-speed collisions
Edinburgh	Pre-20mph implementation	1st January 2010 until 30th April 2016	2,311	7,399	2,591
Edinburgh	Post-20mph implementation	1st May 2016 until 31st December 2022	2,435	4,322	1,413
Glasgow	Pre-20mph implementation	1st January 2010 until 20th March 2016	2,270	7,752	2,505
Glasgow	Post-20mph implementation	21st March 2016 until 31st December 2022	2,476	5,339	1,590

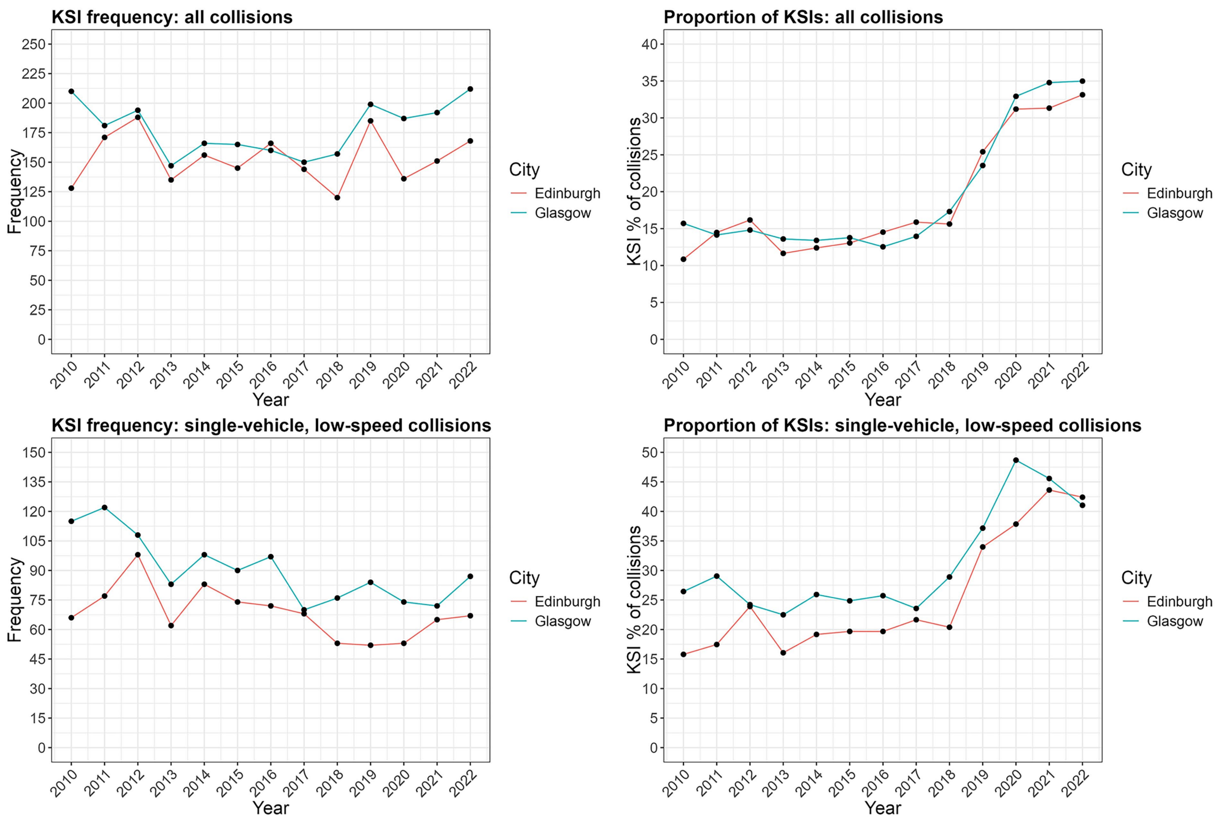

FIGURE 1
Top left: KSI frequency (all collisions); Top right: Proportion of collisions resulting in KSI (all collisions); Bottom left: KSI frequency (single-vehicle, low-speed subset); Bottom right: Proportion of collisions resulting in KSI (single-vehicle, low-speed subset).

vehicle–pedestrian collisions. The data and code used to produce the results shown in this section are available at the following repository.[2] Figure 1 displays KSI frequency and the proportion of collisions resulting in KSI outcomes across both the full dataset and the single-vehicle, low-speed subset. Figure 2 displays collision frequencies for all observations and the single-vehicle subset, and also collision and KSI rates; the latter are frequency-based statistics corrected for exposure (AADF). To provide context regarding the traffic exposure correction, Appendix Table A1 details AADF per mode in Edinburgh and Glasgow during the study period. Regarding the interpretation of Figures 1 and 2, it should be noted that the trend lines serve only as a guide to differentiate between annual averages; they do not represent continuous trends, as the 'year' axis comprises discrete data points.

2 https://github.com/torransemple/20mph_collisions_exploratory_analysis

3.2 Collision severity (KSI) models

Table 2 presents the RPBL model estimation results. Model 1 examines the influence of 'location' and 'period' indicator variables on the likelihood of KSI outcomes for the single-vehicle, low-speed subset. Model 2 provides an equivalent analysis, focusing specifically on vehicle–pedestrian collisions within that subset. An example interpretation of the independent variables (detailed in the variable description column) is as follows: in Model 1, the location indicator reveals that the indicator group (Glasgow)—comprising 50.6% of observations—significantly increased the likelihood of a KSI outcome ($Y = 1$) relative to the control group (Edinburgh). The average marginal effects (MEs) for each independent variable are also reported; these describe the change in the probability of a KSI outcome given a unit change in the independent variable.

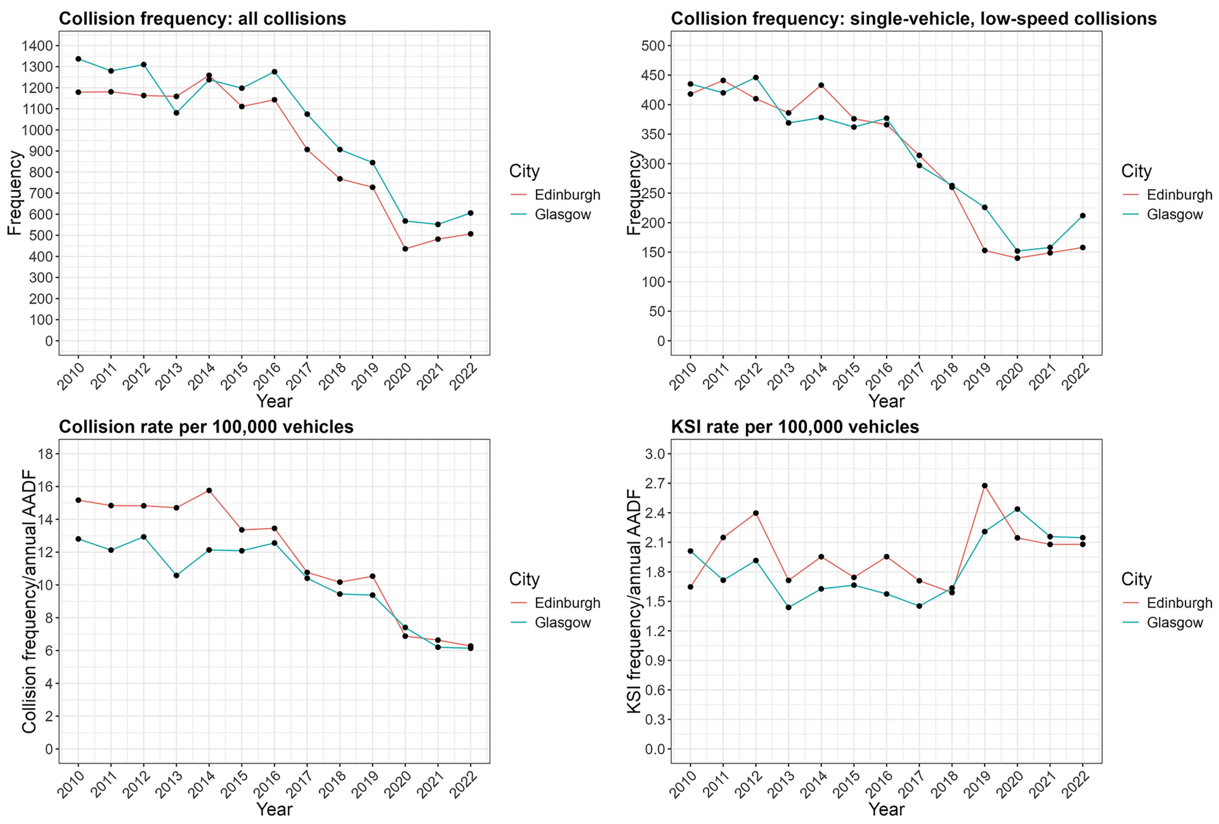

FIGURE 2
Top left: Collision frequency (all collisions); Top right: Collision frequency (single-vehicle, low-speed subset); Bottom left: Collision rate (all collisions); Bottom right: KSI rate (all collisions).

4 Discussion

4.1 Traffic trends

Notable differences in typical traffic patterns were observed after the introduction of more extensive 20mph zones in 2016 (see Appendix Table A1). Glasgow consistently had a higher overall volume of cars than Edinburgh but fewer buses and cycles. This higher AADF in Glasgow is likely attributable to its larger population: Glasgow's metropolitan population is ~621,000, compared to 515,000 in Edinburgh (National Records of Scotland, 2022). Between 2016 and 2019, notable shifts occurred across all modes. The reduction in total AADF and the corresponding decrease in car traffic suggest that the 20mph schemes may have influenced modal choice and overall traffic volume. The relative decrease in car traffic from 2016 to 2019 was 22.8% in Edinburgh and 12.0% in Glasgow. The simultaneous downturn in bus traffic in both cities during this period is noteworthy and somewhat counterintuitive, as a reduction in private car usage typically correlates with increased public transport demand. Instead, concurrent reductions in car and bus traffic drove the overall decline in total AADF during this period.

The post-2019 period is heavily influenced by the 2020 COVID-19 pandemic inflection point. Low traffic volumes were recorded across all modes during 2020, except for cycles. This concurs with previous Scottish studies that observed general decreases in distances travelled and a hesitancy to use public transport, which continued into 2021 and 2022 (Downey et al., 2022). Conversely, elevated outdoor exercise rates (Semple et al., 2021) likely underpin the surge in cycling traffic observed in 2020. Given that the most stringent lockdown period in Scotland was between 24th March 2020 and 9th August 2021 (Scottish Government, 2021), pre-pandemic travel norms may have been expected to resume from the last quarter of 2021. This seems to be the case for cars and cycles, with the former even marginally exceeding 2019 levels.

4.2 Collision severity trends

As shown in Figure 2, collision frequencies for all observations and the subset of single-vehicle, low-speed collisions demonstrate a sharp decline in collision frequency in both cities between 2016 and 2019: a relative reduction of 36.3 and 33.8% in Edinburgh and Glasgow, respectively. To contextualise these findings, it is worth noting that the total number of reported collisions across all roads in Scotland decreased by approximately 30.1% during the same period (Transport Scotland, 2023). The more substantial reduction in collisions in Edinburgh and Glasgow suggests that local policies, including 20mph schemes and other traffic calming measures, may have driven a decline that exceeds the national rate. The equivalent reduction in single-vehicle, low-speed collisions was even more pronounced: a 58.2% and 40.1% reduction in Edinburgh and Glasgow, respectively.

Figure 1 illustrates KSIs in absolute terms (annual frequency) and as a proportion of total observations. Presenting both metrics is crucial to avoid misleading insights being drawn from the proportional data alone. Figure 1 suggests that annual KSI frequencies remained reasonably stable in Edinburgh and Glasgow across the study period

TABLE 2 Random parameters binary logit (RPBL) model estimation results.

Scenario	Distribution of KSI	
	Slight (Y = 0)	Serious or Fatal (Y = 1)
Model 1: pre-20mph (n = 5,096)	3,967 (77.8%)	1,129 (22.2%)
Model 1: post-20mph (n = 3,003)	2066 (68.8%)	937 (31.2%)
Model 1: total (n = 8,099)	6,033 (74.5%)	2066 (25.5%)
Model 2: pre-20mph (n = 3,803)	2,872 (75.5%)	931 (24.5%)
Model 2: post-20mph (n = 2,317)	1,585 (68.4%)	732 (31.6%)
Model 2: total (n = 6,120)	4,457 (72.9%)	1,663 (27.1%)

Variable description	Model 1: RPBL model for single-vehicle, low-speed collisions		
	Coeff.	t-stat	MEs (Y = 1)
Constant	−1.04	−31.72	–
Location indicator: 1 if Glasgow (50.6%), 0 if Edinburgh (49.4%)	0.29	7.19	0.0150
Period indicator: 1 if post-20mph (37.1%), 0 if pre-20mph (62.9%)	−0.30	−5.26	−0.0079
Standard deviation of parameter density function	*2.57*	*26.19*	
Heterogeneity in the mean of period indicator random parameter Period indicator: COVID-19 indicator (1 if collision occurred during COVID-19 lockdown (4.1%), 0 otherwise)	0.92	7.68	–
Number of observations	8,099		
Log likelihood at zero	−4599.11		
Log likelihood at convergence (RPBL)	−4520.77		
Akaike Information Criterion (AIC)	9051.54		
Bayesian Information Criterion (BIC)	9086.54		

Variable description	Model 2: RPBL model for vehicle–pedestrian collisions		
	Coeff.	t-stat	MEs (Y = 1)
Constant	−0.94	−24.86	–
Location indicator: 1 if Glasgow (56.7%), 0 if Edinburgh (43.3%)	0.24	5.43	0.0601
Period indicator: 1 if post-20mph (37.9%), 0 if pre-20mph (62.1%)	−0.01	−0.20	−0.0025
Standard deviation of parameter density function	*1.47*	*20.87*	
Heterogeneity in the mean of period indicator random parameter Period indicator: COVID-19 indicator (1 if collision occurred during COVID-19 lockdown (4.1%), 0 otherwise)	0.44	3.76	–
Number of observations	6,120		
Log likelihood at zero	−3591.69		
Log likelihood at convergence (RPBL)	−3554.23		
Akaike Information Criterion (AIC)	7118.46		
Bayesian Information Criterion (BIC)	7152.06		

for both the full dataset and the single-vehicle, low-speed subset. One notable difference between the full set of collisions and the single-vehicle, low-speed subset is that the proportion of KSIs is slightly higher for the latter. This reiterates the importance of protecting vulnerable road users, particularly pedestrians, who are disproportionately represented in this category of collision. Given that KSI frequency was effectively consistent over time for both collision classes, the proportional counterparts shed light on the temporal composition of collisions. This leads to an interpretation that may appear counterintuitive: while the proportion of KSIs has significantly increased in both Edinburgh and Glasgow, the frequency graphs confirm that the total number of KSIs has not significantly risen. The reason for the increased proportion of KSIs after 2018 is that the overall rate of collisions has decreased (see Figure 2). It is also worth noting the remarkable similarity between Edinburgh and Glasgow in terms of annual changes in the proportion of collisions resulting in KSIs. This potentially indicates parallel shifts in each city that could be attributable to more 20mph roads or other unaccounted-for phenomena. In summary, the collision frequency fell considerably after 2016, coinciding with the expansion of 20mph schemes; however, this reduction was primarily driven by collisions resulting in less serious injuries. Furthermore, the post-2019 period should be interpreted with caution, given the potentially confounding effects of COVID-19.

Figure 2 also presents collision and KSI rates (i.e., collision and KSI frequency corrected for traffic volume) during the study period. This approach (see also Hauer (1995) and Federal Highway Administration (2014)) is used to control for exposure, providing a more realistic illustration of collision *rates*. These rates refer to all observations, as the subset of single-vehicle, low-speed observations was not directly comparable to citywide AADF. The y-axes can be interpreted as follows: for collision rate, the maximum y-axis value (18) corresponds to 18 collisions per 100,000 vehicles, whereas the maximum KSI rate (3) represents 3 KSIs per 100,000 vehicles. The collision rate trend reinforces the findings of Figure 2, as the rate of collisions fell considerably between 2016 and 2019. The KSI rate, however, remains more ambiguous. Both cities saw an increase in KSI rates between 2018 and 2019, which remained higher than all previous years in Glasgow and all but pre-2013 levels in Edinburgh. A possible explanation is that although the KSI rate was low immediately following the expansion of 20mph roads (2017–2018), aggressive driving behaviours, which increased during the pandemic (Lopetrone and Biondi, 2023), may have contributed to the higher KSI rate that persisted from 2020 to 2022.

4.3 Collision severity models

The RPBL models (see Table 2) were estimated to assess the impact of several key independent variables—location (Edinburgh versus Glasgow), period (pre- versus post-20mph implementation) and COVID-19 lockdown restrictions—on binary collision severity (KSI). Likelihood ratio tests confirmed that the estimated RPBL models provided a statistically significant improvement over both the corresponding fixed-parameters models and the intercept-only specifications, supporting the relevance and significance of the presented specifications. In both models, the location indicator variable showed that collisions occurring in Glasgow were significantly more likely to be serious or fatal, when compared to the control group (Edinburgh). The associated average marginal effects indicate that KSI collisions were 1.5% more likely among all single-vehicle collisions and 0.6% more likely for the pedestrian-related subset in Glasgow. This finding may suggest that the Edinburgh 20mph approach has been more effective in reducing KSIs within these collision classes; however, this could also reflect existing differences between the case cities that are not related to the most recent 20mph schemes.

The directional effect of the period indicator (see Table 1 for period definitions) was less consistent. In Model 1, the post-20mph period was associated with a significantly reduced likelihood of KSIs compared to the pre-20mph control group, yet the directional effect of the equivalent variable in Model 2 was statistically insignificant. This finding implies that the 20mph interventions may have had more pronounced effects on single-vehicle, low-speed collisions generally, and a lesser impact on pedestrian-related incidents. The period variables also produced statistically significant random parameters in both models, suggesting heterogeneous effects on collision severity. Of the collisions that occurred after the implementation of the 20mph limit, 55% in the single-vehicle, low-speed category and 50% in the pedestrian-related subset were associated with less serious injuries. Some of this variation was explained by the COVID-19 lockdown variable, which captured heterogeneity in the mean of the random parameter distribution: in both models, collisions in the post-20mph period were significantly more likely to be serious or fatal if they occurred during the COVID-19 lockdown. This finding supports the previous observation that COVID-19 likely had confounding effects on collision severity (from 2020 onwards), which might otherwise have been misattributed to the expansion of 20mph networks in Edinburgh and Glasgow.

5 Conclusion

This article explored the effects of expanded 20mph speed zones on traffic and road safety outcomes in Edinburgh and Glasgow. A traffic trend analysis found a reduction in car traffic from 2016 to 2019, which is likely at least partially attributable to the expansion of 20mph zones. However, the post-2020 period was complicated by the COVID-19 pandemic, which significantly affected travel behaviour across all modes. In terms of road safety, overall collision frequencies declined markedly after 2016, the year coinciding with the 20mph expansions, both across all collisions and a single-vehicle, low-speed subset. The analysis of KSI frequency showed that the reduction in collisions following 2016 was primarily driven by declines in slight injuries, given that the number of KSIs remained within an expected range across the study period. Subsequently, the calculation of collision rate substantiated the downward collision trend from 2016 in both cities, while accounting for exposure (i.e., traffic volume). The relatively high KSI rates observed in 2019 remain anomalous, particularly since they predate any COVID-19-related impacts. Nonetheless, modest reductions in KSI rates from 2016 to 2018 in both cities may reflect some benefits in terms of reduced collision severity.

The RPBL models expanded on the exploratory analysis, providing statistical evidence that the post-20mph period has been associated with reduced collision severity among the single-vehicle, low-speed subset, when controlling for location. In the pedestrian subset, however, the association between the period variable and collision severity was less consistent; in other words, the period variable did not have a clear directional effect in the post-20mph period. The model estimation results also disentangle the effects of the post-20mph period from those of COVID-19 restrictions. In both models, post-20mph collisions that occurred during the COVID-19 lockdown were significantly more likely to be serious or fatal, which supports the thesis that the pandemic contributed to the elevated rate of KSIs recorded from 2020 to 2022. This is a particularly crucial and novel finding: we demonstrate that simple year-on-year collision severity trends are likely distorted by the COVID-19 period, thereby masking the underlying safety benefits of the 20mph schemes and potentially leading to the erroneous conclusion that such interventions were ineffective.

In summary, the findings suggest that the recent 20mph schemes have contributed to a lower rate of collisions in Edinburgh and Glasgow, yet this reduction is largely confined to collisions resulting in less serious injuries. Despite the varying 20mph approaches adopted in each city, traffic and road safety trends were remarkably similar. The model estimation results provided a more rigorous assessment of collision severity in each city by identifying inherent differences between collision severity norms in Edinburgh and Glasgow, which may be partially explained by their differing 20mph policies. Generally, the post-20mph variable reduced the likelihood of KSIs, suggesting some promising road safety benefits; however, the specific effects on pedestrian safety remain less conclusive. Ultimately, further longitudinal analyses are required to more accurately disentangle the long-term effects of newly introduced 20mph zones from confounding influences of broader contextual factors such as the COVID-19 period. From a policy perspective, the study findings highlight the need for local authorities to evaluate 20mph schemes through longer-term monitoring frameworks that account for wider contextual disruptions, rather than relying solely on short-term comparisons of collision or severity trends.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Ethical approval was not required for the study involving humans in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and the institutional requirements.

Author contributions

TS: Conceptualization, Formal analysis, Methodology, Visualization, Writing – original draft, Writing – review & editing. GF: Conceptualization, Formal analysis, Methodology, Visualization, Writing – original draft, Writing – review & editing.

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Appendix

TABLE A1 Annual average daily flow (AADF) for all traffic, cars, buses and cycles in Edinburgh and Glasgow (2010–2022) [based on DfT (2023b)].

Year	City	Total AADF	AADF: Cars	AADF: Buses	AADF: Cycles
2010	Edinburgh	21292.7	17211.9	472.7	140.8
2011	Edinburgh	21803.2	17602.2	459.0	153.9
2012	Edinburgh	21487.9	17330.6	478.8	145.1
2013	Edinburgh	21592.0	17333.5	498.3	145.6
2014	Edinburgh	21880.1	17476.3	495.7	140.5
2015	Edinburgh	22784.8	18066.9	516.6	132.8
2016	Edinburgh	23278.9	18325.3	481.8	124.6
2017	Edinburgh	23082.7	18099.5	451.0	123.0
2018	Edinburgh	20690.8	16226.2	375.7	125.2
2019	Edinburgh	18937.8	14928.1	350.1	135.8
2020	Edinburgh	17370.9	13093.4	270.7	167.9
2021	Edinburgh	19901.3	14966.2	284.5	136.9
2022	Edinburgh	22134.9	16663.8	300.8	128.0
2010	Glasgow	28604.8	22837.9	413.8	61.9
2011	Glasgow	28921.4	23037.0	423.9	71.8
2012	Glasgow	27751.1	21887.1	400.3	63.5
2013	Glasgow	27999.3	21967.6	418.3	69.0
2014	Glasgow	27956.7	21973.4	388.1	67.6
2015	Glasgow	27158.9	21354.4	365.1	68.0
2016	Glasgow	27836.6	21885.4	323.9	67.9
2017	Glasgow	28301.3	22008.5	305.3	66.7
2018	Glasgow	26302.8	20432.1	271.9	74.5
2019	Glasgow	24683.6	19270.1	252.4	85.8
2020	Glasgow	21013.0	15616.0	170.9	110.2
2021	Glasgow	24380.0	18187.5	174.8	88.3
2022	Glasgow	27049.5	20442.4	192.7	83.0