

## Assessment of self-reported cycling injuries in Ireland: summary of preliminary survey data

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### I. INTRODUCTION

There is a well-established phenomenon of under-reporting of cyclist road traffic collisions (RTCs) internationally, which has recently been highlighted in an internationally distributed survey [1]. In Ireland, the under-reporting of cyclist RTCs has been shown by comparing police and hospital data [2,3]. Best practice countries, such as Sweden and the Netherlands, link hospital and police data, while countries with the greatest levels of under-reporting are those which compile their RTC data from police reports alone. Ireland is one such country, as the sole source of RTC data is police records.

The aim of this study is to enhance our understanding of the factors that contribute to the occurrence and severity of cyclist collisions in Ireland, with the long-term goal of identifying effective injury prevention strategies. Accordingly, an online survey was distributed to cyclists across the Republic of Ireland (ROI). The analysis in this paper is comprised of initial descriptive statistics of the reported collisions so far.

### II. METHODS

The online survey was designed to collect collision information from a target population of cyclists in the ROI who have been involved in collisions in the past five years, as well as behaviour and attitudes information from those who have not. On 24 March 2018 distribution of the survey began via cycling organizations and social media. There have been a total of 3,328 respondents so far (18 May 2018). Each respondent may enter details for up to four collisions, and for each collision the respondent is asked for detailed collision and injury information, and to choose either a single or a combination of contributing factors.

### III. INITIAL FINDINGS

A total of 942 collisions have been recorded so far: 238 (25%) were single-cyclist RTCs; 78 (8%) were cyclist-pedestrian RTC's; 57 (6%) were cyclist-cyclist RTCs; and 566 (60%) were RTC's involving motorized vehicles (MV's). For 499 of the RTCs the respondent sustained an injury 106 (21%) were reported to the police, 387 (78%) were unreported, and 6 (1%) did not state.

Of the 493 injured respondents who stated whether or not their RTC was reported to the police: 160 (32%) were single-cyclist RTCs; 35 (7%) were cyclist-pedestrian RTCs; 29 (6%) were cyclist-cyclist RTCs; and 269 (55%) were RTCs involving MVs. Comparing the percentages of RTC types for those reported and unreported to the police reveals stark differences (Fig.1). Notably, single-cyclist RTCs comprise 40% of unreported cyclist RTCs (156 out of 387), compared to 4% of reported RTCs (4 out of 106). Similarly, cyclist RTCs involving either other cyclists or pedestrians comprise 16% of unreported RTCs (61 out of 387), compared to 3% of reported RTCs (3 out of 106). Conversely, cyclist-MV RTCs comprise 44% of unreported RTCs (170 out of 387), compared to 93% of reported RTCs (99 out of 106).



Fig. 1. Comparison the percentages of RTC types for those reported and unreported to the police.

Fig. 2 shows the contributory factors by the percentage of respondents who selected them within each RTC type. Multiple contributory factors can be attributed to each RTC. The option of ‘other road user’ is omitted from Fig. 2 due to it being almost unanimously selected by respondents for all two-person RTCs.

In cyclist-MV RTCs, inadequate infrastructure was the more commonly cited contributory factor, 40% (98 out of 248). In cyclist-cyclist RTCs, respondents were more likely to identify themselves as a contributory factor, 41% (12 out of 29). In cyclist-pedestrian RTCs, respondents were also more likely to identify themselves as a contributory factor, 36% (12 out of 32). In single cyclist RTCs there was a fairly even spread across all contributory factors, however respondents were more likely to identify themselves as a cause, 24% (90 out of 376), and very unlikely to identify a bicycle mechanical issue as one, 1% (5 out of 376).

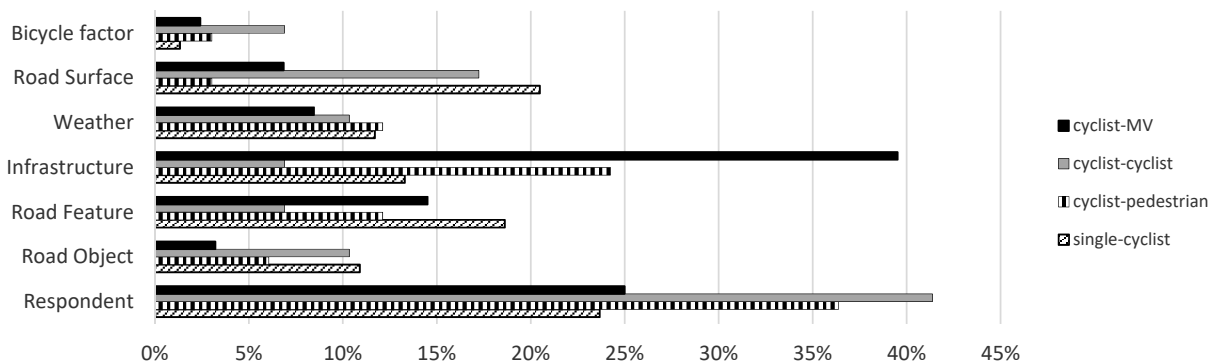


Fig. 2. Percentage of respondents' choices of various contributory factors for each collision type.

#### IV. DISCUSSION

There are minor issues with the representativeness of our cycling collision survey data in a national context, with current responses skewed toward the capital city (Dublin) and towards cyclists who commute to work/school. There are a number of distribution channels across the country we are planning to use to recruit more leisure/racing cyclists from outside of Dublin, these include local news media outlets and leisure cycling events. There are also challenges with the self-reported nature of the survey results, with inherent bias in the information provided by respondents.

Nonetheless, a key finding of this study so far is a measure of the extent of under-reporting in ROI national data: 21% of the RTCs with injuries of any severity collected in this study were reported to the police. A previously performed study has roughly estimated the true number of cyclist RTCs involving injuries in the ROI to be 17% [3], by applying a Lincoln–Petersen estimator to matched police-hospital data. In a recent study an international survey was distributed across 17 countries, the level of reporting of cyclists “most severe” RTC was shown to range from 0% (Israel) to a maximum of 35% (Germany) with an average of just 10% [1].

Another key finding of this study so far is a measure of underreporting for various collision types. Single-cyclist RTCs have been shown to be particularly underrepresented in national data, and RTC's involving MVs have been shown to be overrepresented.

Reported contributory factors vary between collision types. Single-cyclist RTCs have been shown to have a multitude of contributory factors. Respondents involved in cyclist-MV RTCs indicated inadequate infrastructure as a major contributory factor. Further study of the survey results will include an in-depth analysis of the contributory factors and injury outcomes for single-cyclist, cyclist-pedestrian and cyclist-cyclist collisions, which are less likely to be reported to the police.

#### V. ACKNOWLEDGEMENTS

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#### VI. REFERENCES

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