

Sharp increase in traffic fatalities in first quarter of 2022 in Malta

Tonio Piscopo, Jeremy Borg Myatt, Victor Grech

INTRODUCTION

Road traffic accidents (RTAs) are a leading cause of death and disease burden worldwide. Malta experienced a declining trend in RTA mortality over the past years albeit with a surge at the time of writing. This study was carried out to analyse trends in RTAs in Malta.

METHODS

RTA statistics by quarter were obtained from the website of the National Statistics Office for 2013-2021. Records for Quarter1 (Q1) 2022 were compiled from media publications. Regression was used to estimate expected values for RTA fatalities for Q1 2022 and 2022 totals, particularly in relation to the targets laid out in the Road Safety Strategy Malta 2014-2024. The type of accident was also analysed from 2017.

RESULTS

From 2013, a transient dip in annual fatalities occurred in 2014, with a steep incline to 2016, followed by a highly significant decline which was reversed sharply in Q1 of 2022. For Q1 2022, expected fatalities were <1 but there were actually 10 fatalities (13 by April 2022), when expected fatalities for all of 2022 were <8. The highest fatalities were aged 18-40 years ($n=47$), followed by age >59 years ($n=38$). In some years, up to 75% of all fatalities were motorcycle/e-bicycle riders.

CONCLUSION

Road safety should be a national priority until Vision Zero is reached. Better data collection and analysis should shed light on causes and solutions to prevent RTAs. The current National Road Safety Strategy, with emphasis on education, engineering and enforcement remains relevant, but there is little evidence that its targets are being achieved. More must be done to guarantee road safety to users in Malta.

Tonio Piscopo* MD, FRCP(Lond.),
DTM&H(Lond)
Consultant Physician,
Mater Dei Hospital,
Msida, Malta
Project Coordinator Doctors for Road
Safety
tonio.piscopo@gov.mt

Jeremy Borg Myatt MD
Foundation Doctor,
Mater Dei Hospital,
Msida, Malta

Victor Grech PhD (UCL), PhD (Melit.),
MD, FRCPCH, FRCP, DCH
Consultant Paediatrician,
Mater Dei Hospital,
Msida, Malta
Member Doctors for Road Safety

*Corresponding author

INTRODUCTION

Road traffic accidents (RTAs) are a significant cause of mortality, with over a million annual fatalities worldwide, a leading cause of death and disease burden.¹ Malta experienced a declining trend in RTA mortality over the past few years although there has been a surge in deaths at the time of writing.² This study was carried out to analyse trends in RTAs in Malta, particularly in relation to the targets as laid out in the *Road Safety Strategy Malta 2014-2024* published by the Ministry for Transport and Infrastructure. These targets aimed to decrease fatalities by 50% and grievous injuries by 30% over the 10-year period.³

MATERIALS AND METHODS

RTA statistics by quarter were obtained from the website of the National Statistics Office (NSO) over the period 2013-2021⁴ and records for Q1 2022 were compiled from media publications. Visual inspection revealed a declining trend in RTA fatalities from 2016. For this reason, annual totals and first quarter fatalities and grievous injuries from 2016 to 2021 were analysed using linear regression

in a bespoke Excel sheet.⁵ The equations derived were used to estimate expected values for RTA fatalities for Quarter 1 (Q1) 2022 and 2022 totals. The type of accident was also analysed from 2017, the year they started to be recorded.

RESULTS

From 2013, a transient dip in fatalities occurred in 2014 ($n=10$) following which a steep upward incline in annual fatalities was registered with a total of 22 fatalities in 2016 (Figure 1). Thereafter, there was a highly significant decline in RTA fatalities by year and an almost significant decline in first quarter RTA fatalities (table 1). The linear regression equations for RTA fatalities by year and by Q1 were: $\text{fatalities}=5091.09 + -2.51 \times \text{Year}$, and $\text{fatalities}=1733.14 + -0.86 \times \text{Q1}$ respectively. This trend was reversed sharply in the first quarter of 2022. For Q1 2022, the expected number of fatalities was <1 . However, by the end of Q1 of 2022 there were already 10 fatalities resulting from RTAs, and up to the time of this writing (April 2022), this has gone up to 13. This already greatly exceeds the expected value for all of 2022 which is 7.2 total deaths based on previous annual trends.

Figure 1 Annual RTA fatalities over period 2014-2021 (includes also Q1 2022 data)

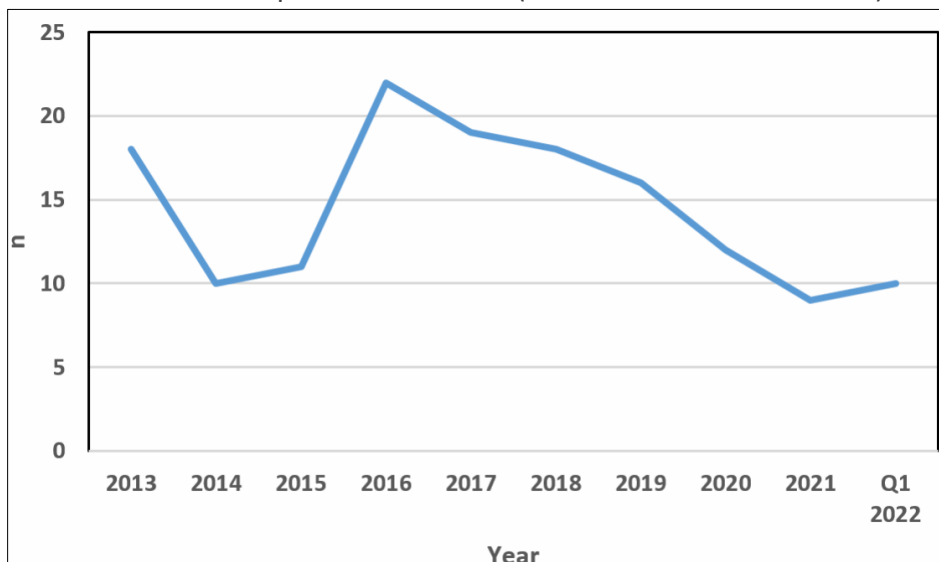


Table 1 Road traffic accident fatalities by year and for quarter 1, 2016-2021

Year	Annual	Q1
2016	22	4
2017	19	6
2018	18	4
2019	16	1
2020	12	2
2021	9	1
df	4	4
r ²	0.97	0.64
Adjusted r ²	0.96	0.55
Intercept	5091.1	1733.1
Slope	-2.51	-0.86
SE	0.92	1.34
2-tailed p	0.0003	0.055

Age-group fatalities were recorded over the period 2015-2021. The highest fatalities were registered in the age group 18-40 years ($n=47$), followed by age above 59 years ($n=38$) (Figure 2). In this same period, the type of road user fatalities ($n=117$) was recorded and a high percentage of these fatalities, 36.7% (43), were motorcycle riders. In some years, up to 75% of all fatalities were motorcycle or e-bicycle riders (Table 2).

Data by type of RTA, started to be collected by the NSO from Q4 of 2017. Analysis of this information reveals that there may be an increasing trend towards vehicle-related pedestrian accidents as the year progresses, with the highest numbers in the last quarter of each year (Figure 3). A high number of fatalities (22%) involved pedestrians from 2018-2021 (12 $n=55$). Cyclists were also regularly registered in the statistics, mostly with grievous injuries, with one fatality registered in the same period.

Analysis of data collected from 2018 regarding fatalities in the whole vulnerable cohort, namely pedestrians, cyclists and motorcyclists, revealed that these constituted 69% of the total fatalities (38/55), peaking in 2020 at 83.3% of the total fatalities (Table 2).

Grievous injuries averaged marginally less than 300 per year and remained somewhat stable over the period studied (Figure 4). A minimal decrease was registered in the COVID-19-year 2020, thereafter rising again to the highest ever ($n=339$) in 2021. Several hit-and-run accidents were also recorded since 2017. These amounted to 47 involving pedestrians and 3 involving cyclists over the 5-year period. Other important data was limited to generic accident types. Recommended important and useful information such as the dynamics of each accident or geotagging (which is more specific than RTAs just tagged to districts or localities) was not available.⁶

Figure 2 RTA fatalities by age group over period 2015-2021

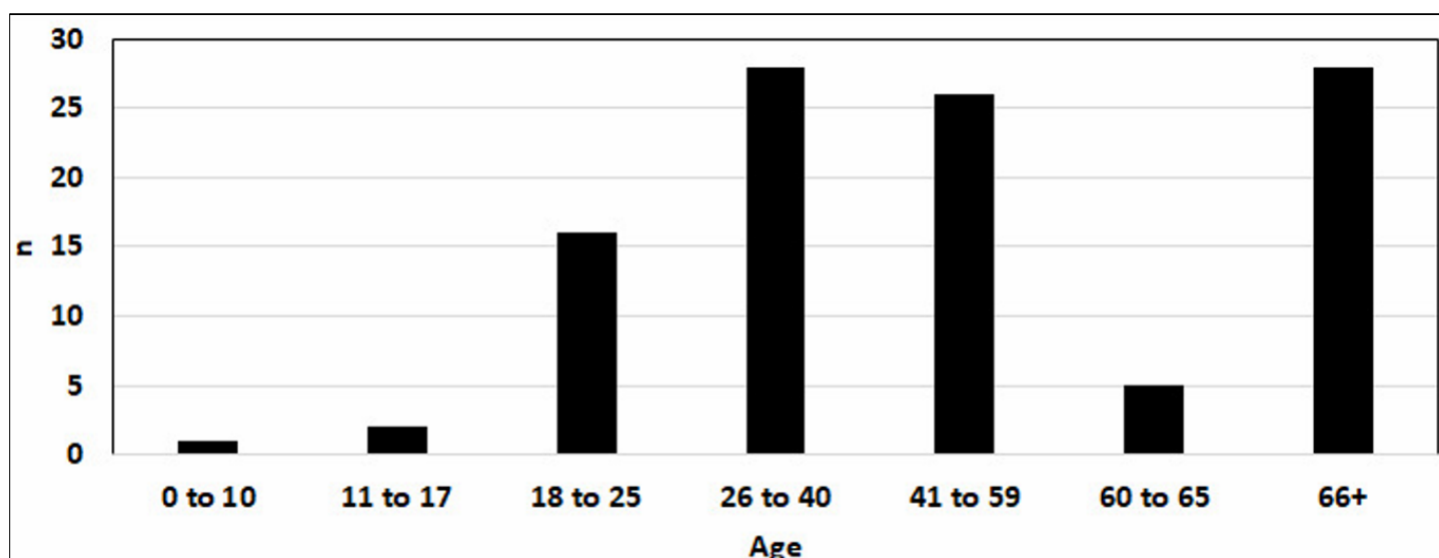


Table 2 Motorcycle and e-bicycle deaths, Annual deaths. 2015-2021 (also with Q1 2022)

FATAL	2015	2016	2017	2018	2019	2020	2021	Q1 2022
Annual Total Fatalities	11	22	19	18	16	12	9	10
Motorcycle (E- and PA-bicycles from Q2 2021) deaths	2	9	3	8	5	9	3	4
Motorcycle deaths as % of total	18.2	40.9	15.8	44.4	31.3	75.0	33.3	40.0
Pedestrian deaths				2	5	1	4	
Pedestrian deaths as % of total				11.1	31.3	8.3	44.4	
Cyclist deaths				1	0	0	0	
Cyclists deaths as % of total				5.6	0.0	0.0	0.0	
Total vulnerable users deaths				11	10	10	7	
Total vulnerable users deaths as % of total				61.1	62.5	83.3	77.8	

Figure 3 RTAs involving vehicles with pedestrians by quarter 2017-2021

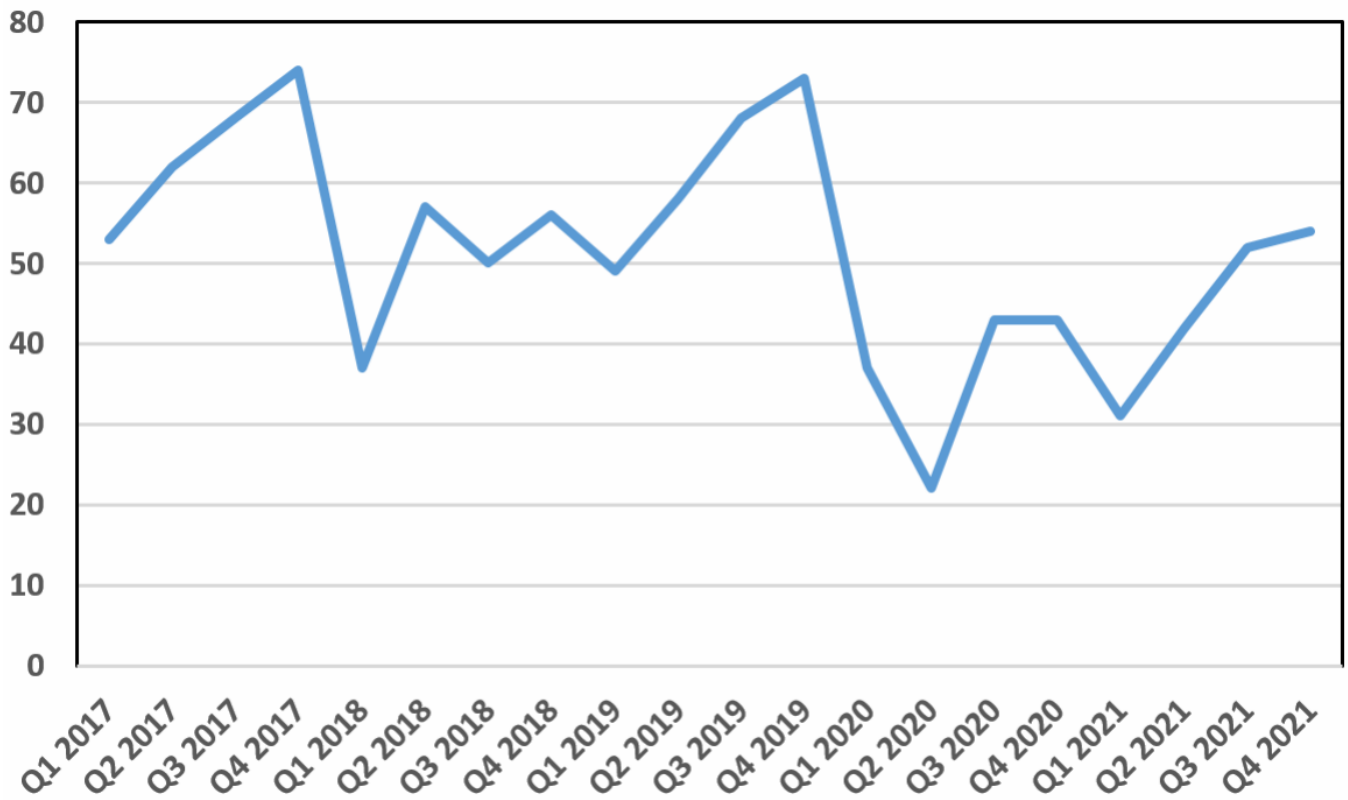
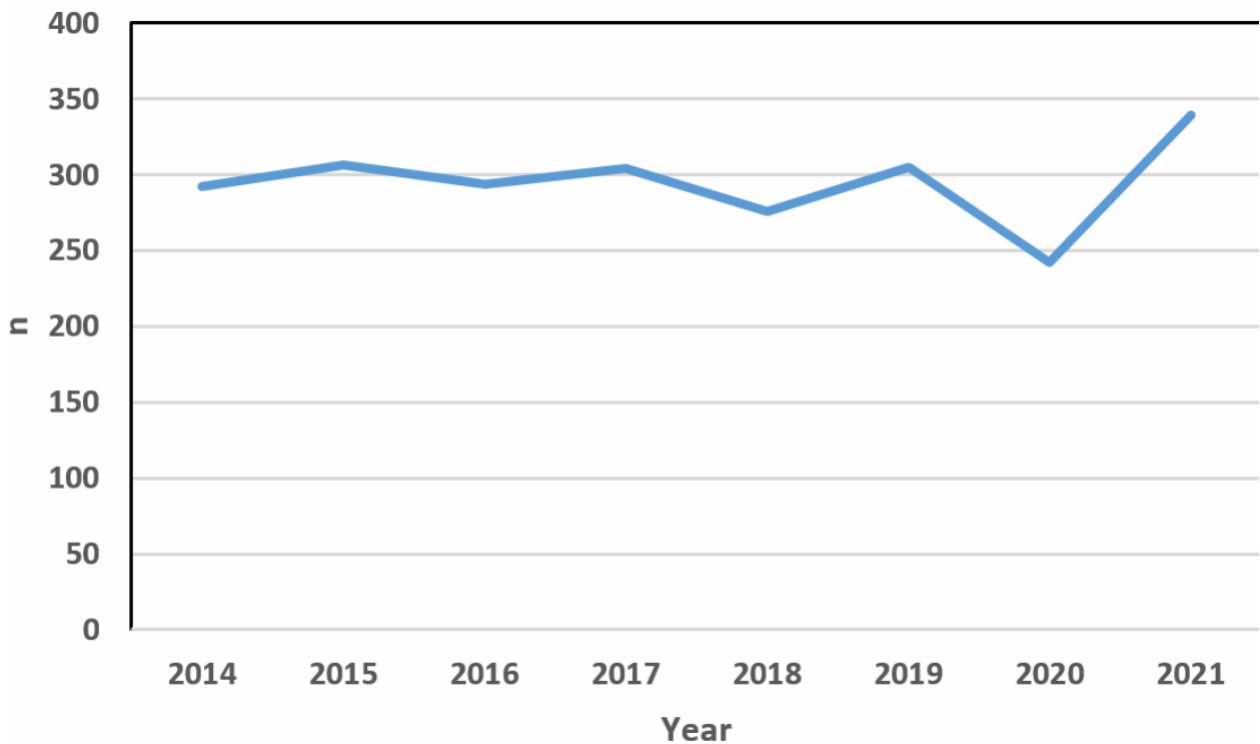


Figure 4 Annual RTA grievous injuries over period 2014-2021



DISCUSSION

Road safety in Malta is an important topic which is increasingly coming to national attention. This is mainly the result of a combination of factors which include the immediate reporting of traffic accidents (mostly fatalities) by the media, the horrendous nature of some of these accidents, the blatant disregard for the law by some road users, as well as the establishment of institutions and organisations advocating for road safety such as the National Road Safety Council and non-governmental organisations (NGOs) like Doctors for Road Safety.

The *Road Safety Strategy 2014-2024* was an important document published in 2014 which established the Road Safety Council as an advisory body to the Ministry for Transport and Infrastructure.³ The pillars of good road safety as outlined in the same document are education, engineering and enforcement, and the targets in the document (decrease fatalities by 50% and grievous injuries by 30% over a 10-year period) were based on improving all three.³

In terms of fatalities, an improvement was registered after the figures deteriorated drastically in 2016. The current status however is the same as the one observed in 2014, and in fact, is already worse at this early stage in 2022, with an alarming rise in fatal accidents in Q1 of this year.

In terms of grievous injuries, there has not even been a dent in annual statistics at all. One can argue that in terms of the actual numbers of such accidents (around 300 compared to fatalities, which usually amount to below 20 annually), these types of severe injuries produce a greater number of life-changing events for a greater number of people. Grievous injuries often necessitate frequent visits and admissions to hospital, time lost from work leading to loss of income (the effects of which

snowball to include the whole family when the injured party is a breadwinner), and loss of bodily function with restriction in quality of life.

Data regarding vulnerable road users are worrying, especially for pedestrians, who are the most vulnerable. Unfortunately, available data provide no further clues as to the possible causes of accidents involving vulnerable subgroups. For example, it is difficult to compare pedestrian injury and fatality statistics with those pertaining to cyclists as no denominator data is provided on pedestrian and cyclist usage density. One possible explanation is that cyclists are usually more wary of dangers on the road and might therefore be more cautious. Furthermore, pedestrian road usage density probably exceeds that of cyclists at any given time. One also hopes that with increasing awareness, vehicle users show more respect to cyclists on the road. A local cycling NGO, Rota, is very proactive in promoting this awareness.⁷

Motorcycle riders are another worrying vulnerable group, comprising more than a third of all fatalities. In Q1 of 2022, motorcycle rider fatalities had already reached 40% of all fatalities. Little else is offered in the data however to explain these numbers.

The limitations imposed by the lack of detail of available data is of note. For example, knowing the number of pedestrians who were killed on our roads does little to point to the actual problem, as all road users, pedestrians included, have their responsibility towards safe road use, and all have the potential to use roads hazardously. It is thus of major importance that the dynamics of each accident along with the specific location are recorded in more detail so that patterns in recurrent similar accidents may be highlighted, allowing the necessary actions to be taken accordingly to then

improve accordingly on engineering, education or enforcement in each particular situation.

A potential limitation of this study is that there was less circulating traffic in 2020 and early to mid-2021 due to COVID-19 related restrictions at public gatherings, closure of social venues and a shift to work from home.⁸⁻⁹ However, a review of the raw data (table 1) shows that the declining trend in these years is consonant with that of previous years. Furthermore, the hazards of extrapolation from data beyond the extant range are well known, with the possibility of significantly biased estimates if the assumed relationship does not extend into the region of extrapolation.¹⁰ However, this study only extrapolated for one year, a very short period.

The data analysis in our study offers an insight into the current situation regarding road accidents in Malta and opens the door to potential solutions. There has been visible progress in the condition of Malta's major roads, with improvements in road engineering that have raised local standards. However, much remains to be done. Efforts to educate the public by the Road Safety Council and miscellaneous NGOs have also been registered, although a publicly funded, consistent, and professionally orchestrated educational campaign is lacking.

Enforcement is a harder nut to crack and more difficult to analyse. As a surrogate marker, one might use the behaviour of road users in relation to what they expect whilst using our roads. From random observation and common experience locally, it is evident that the average road user does not expect to be stopped by an enforcement officer whilst infringing the law. Examples of these commonly experienced infringements are the flagrant touting of laws such as altering direction without signalling, contravening carriageway markings, driving while using distractive devices

such as mobile phones, contravening traffic lights, over-speeding, and careless driving in general. This observation and experience, although subjective, still says a lot.

The economic impact of road accidents is calculated by the World Health Organisation to be in the region of 1.5% of the Gross Domestic Product (GDP) in middle income countries. For Malta this would translate to a cost of just under 200 million Euro per annum.¹¹⁻¹²

Several global communities and institutions, such as the United Nations, have adopted a Vision Zero approach to road safety.¹³⁻¹⁴ This safe systems approach is based on some basic principles such as collection of reliable data, acknowledgment of the limits of the human body in relation to speed management, and acceptance of human error such that the requisite redundancy is built into systems. No death or serious injury is acceptable with this approach and the aim is to eventually achieve zero deaths on our roads.

One hopes that the Maltese authorities take up this challenge, as the health and economic benefits of improving our road safety culture are huge, while the human cost of the status quo unacceptable.

CONCLUSION

The issue of road safety will remain a major national concern until Vision Zero is reached. Improvements in data collection and analysis should shed more light on the causes and solutions to prevent RTAs. Significant groundwork has already been done especially with the Road Safety Strategy document with emphasis on education, engineering, and enforcement, but there is little evidence that the targets are being achieved. It seems that Malta still needs to get its act together to guarantee road safety to road users, especially the most vulnerable.

SUMMARY

What is known:

- Road traffic accidents (RTAs) are a significant cause of mortality, death and disease burden in Malta.
- Malta experienced a declining trend in RTA mortality over the past few years.
- There has been a significant surge in road traffic accident related deaths at the time of writing (beginning of 2022).

What are the new findings:

- The number of road traffic accident fatalities in Q1 2022 already greatly exceeds the expected value for all of 2022, based on previous annual trends.
- Motorcycle riders are another worrying vulnerable group, comprising more than a third of all fatalities.

- Several global communities have adopted a Vision Zero safe systems approach to road safety, with an aim to achieve zero deaths on our roads. It would be of benefit to the Maltese authorities to take up this challenge as the health and economic benefits would be significant.
- Improvements in the detail of data collection and analysis following road traffic accidents are required in order to shed more light on the causes of such accidents, so as to allow solutions to be found.

REFERENCES

1. Global status report on road safety 2018 n.d. <https://www.who.int/publications/i/item/9789241565684> (accessed April 17, 2022).
2. Malta records largest decline in fatal traffic accidents among EU states - TVM.mt n.d. <https://tvmnews.mt/en/news/malta-records-largest-decline-in-fatal-traffic-accidents-among-eu-states/> (accessed April 17, 2022).
3. Ministry for Transport and Infrastructure. Road Safety Strategy Malta 2014-2024 2014.
4. Road Traffic Accidents n.d. https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_B3/Environment_Energy_Transport_and_Agriculture_Statistics/Pages/Road-Traffic-Accidents.aspx (accessed April 17, 2022).
5. Grech V. WASP (Write a Scientific Paper) using Excel - 13: Correlation and Regression. *Early Hum Dev* 2018;122:60–3. <https://doi.org/10.1016/J.EARLHUMDEV.2018.04.009>.
6. Geneva: World Health Organization. Save Lives - A road safety technical package 2017.
7. Rota - Bicycle Advocacy in Malta - Sustainable Mobility on Two Wheels n.d. <https://www.rota.mt/> (accessed April 17, 2022).
8. Czypionka T, Iftekhhar EN, Prainsack B, Priesemann V, Bauer S, Calero Valdez A, et al. The benefits, costs and feasibility of a low incidence COVID-19 strategy. *Lancet Reg Heal Eur* 2022;13. <https://doi.org/10.1016/J.LANEPE.2021.100294>.
9. Cuschieri S. COVID-19: the transition towards a new normal—experiences from the European country of Malta. *J Public Heal* 2021:1–8. <https://doi.org/10.1007/S10389-021-01486-1/FIGURES/3>.

10. Hahn GJ. The Hazards of Extrapolation in Regression Analysis.
<https://doi.org/10.1080/00224065197711980791>
2018;9:159–65.
<https://doi.org/10.1080/00224065.1977.11980791>.
11. Road traffic injuries n.d. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries> (accessed April 17, 2022).
12. Malta GDP - 2021 Data - 2022 Forecast - 1970-2020 Historical - Chart - News n.d.
<https://tradingeconomics.com/malta/gdp> (accessed April 17, 2022).
13. What is Vision Zero? | Vision Zero Network n.d.
<https://visionzeronetwork.org/about/what-is-vision-zero/> (accessed April 17, 2022).
14. [Global Vision Zero: reaching a new era in road safety .. Sustainable Development Knowledge Platform n.d.
<https://sustainabledevelopment.un.org/index.php?page=view&type=20000&nr=842&menu=2993> (accessed April 17, 2022).