

## Assessing the psychological distress and the physical disability in two-wheel vehicular patients sustaining severe injuries in road traffic crashes: Results from a one-year cohort study

**Maria Papadakaki<sup>1</sup>, Ottavia Eleonora Ferraro<sup>2</sup>, Chiara Orsi<sup>2</sup>, Dietmar Otte<sup>3</sup>, Georgia Tzamalouka<sup>1</sup>, Marco von derGeest<sup>3</sup>, Timo Lajunen<sup>4</sup>, Özkan Türker<sup>4</sup>, Markos Sarris<sup>5</sup>, George Pierrakos<sup>5</sup>, Charalambos Gnardellis<sup>6</sup>, Anna Morandi<sup>2</sup>, and Joannes Chliaoutakis<sup>1</sup>**

<sup>1</sup>Laboratory of Health and Road Safety, Department of Social Work, School of Health and Social Welfare, Technological Educational Institute of Crete, Estavromenos, P.C. 71004, Heraklion, Greece (mpapadakaki@yahoo.gr, gtzamalouka@gmail.com, jchlia@staff.teicrete.gr)

<sup>3</sup>Accident Research Unit, Hannover Medical University, Carl-Neuberg-Str. 1, 30625 Hannover, Germany. (Otte.Dietmar@mh-hannover.de, vongeest.marco@mh-hannover.de)

<sup>5</sup>Department of Health Care & Social Units Administration, Technological Educational Institute of Athens, Greece (msaris@gmail.com gpier@otenet.gr)

<sup>2</sup>Centre of Study and Research on Road Safety, Medical School, University of Pavia, Via Forlanini 2, 27100 Pavia, Italy. (anna.morandi@unipv.it, ottavia.ferraro@unipv.it, chiaraorsi@gmail.com)

<sup>4</sup>Suomalainen liikenneturkimuskeskus, Traffic Research Centre of Finland, Helsinki, Finland. (timo@metu.edu.tr, ozturker@metu.edu.tr)

<sup>6</sup>Technological Educational Institute of Western Greece, hgnardellis@yahoo.gr

**Keywords:** Depression, Post-traumatic stress disorder, Disability, Injury severity, two-wheel vehicles users.

According to the World Health Organization, over one million people die annually from traffic crashes, over half of which are pedestrians and two-wheel vehicle riders<sup>1</sup>. For example in Greece, during 2015, from a total number of 14,889 road incidents, 793 were fatal, 999 were severe injuries and 13,097 were slight injuries. The involvement of the two-wheel riders (bicyclists and motorcyclists) was 39.8% in fatal outcomes, 57.3% in severe injuries and 51.6% in slight injuries<sup>2</sup>. Comparing these incidents to these of the years prior to the financial crisis, the toll of deaths and injuries from traffic crashes has decreased. Experts attribute this decrease to a lower traffic load, due to the impoverishment of the nation, while no credit is given to Traffic Law Enforcement, improved infrastructures and roads or behavioral improvement among road users.

The current study aimed to follow-up a group of road crash survivors (both drivers as well as two-wheel riders), for one year and to assess the impact of injury on their psychological and physical condition, involving three European countries. All crash survivors that were admitted to the intensive or sub-intensive care units of selected hospitals in Greece, Germany and Italy over one year period (2013–2014), were invited to participate in the study and were interviewed at three different time-points as follows: (a) at one month (baseline data), (b) at six months, and (c) at twelve months. The study used widely recommended classifications for injury severity (AIS, MAIS) and standardized health outcome measures such as the Disability Assessment Schedule II (WHODAS 2.0) to measure disability, “Impact of Event Scale”(IES-R) to measure Post-Traumatic Stress Disorder (PTSD), Center for Epidemiological Studies Depression Scale (CES-D Scale) to measure depression.

A total of 120 (54 two-wheel) patients were enrolled in the study in all the partner countries and 93 (32 two-wheel) patients, completed all follow up questionnaires.

More precisely, analyzing some of these scales, concerning two-wheel users, the most important findings were: DA15 (number of days totally unable to carry out usual activities or work due to health condition) did not change over the time for two-wheels users. Instead DA13 ( level of difficulties' interference with life), DA14 and DA16 score, the results evidence differences statistically significant in the comparison over the time among baseline and second follow up and baseline and third follow-up. For post- traumatic stress disorder the intrusion subset was statistically significant in the two comparisons with second follow-up. The two wheels users reveal differences in the depression scale between baseline and the first follow-up.

Furthermore, the comparison of some principle variables between two-wheels users and other road users showed that some statistically significant differences emerged for education ( $p=0.006$ ), type of road ( $p=0.01$ ), reason for travelling ( $p=0.01$ ) and cervical trauma ( $p=0.003$ ) and lower extremities trauma ( $p=0.04$ ), while no statistically-significant differences emerged for the other variables considered (e.g. gender, marital status etc.).

The presentation highlights the importance of a comprehensive and holistic understanding of the impact of injury on an individual and further underlines the importance of screening and treating psychological comorbidities in injury in a timely manner.

## Funding

Matching funds 2014-2016 – REHABIL-AID - REducing the HArm and the Burden of Injuries and human Loss caused by road traffic crashes and Addressing Injury Demands through effective interventions.

## References

1. World Health Organization. Global Status Report on Road Safety. 2013. Available at: [http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2013/en/](http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/). Accessed March 5, 2014.
2. National Statistic Department of Greece. Road Traffic Accidents, January 2015. Available at: <http://www.statistics.gr/el/statistics/-/publication/SDT03/2015-M01> Accessed February 22, 2017