REHABIL-AID

REducing the **HA**rm and the **B**urden of **I**njuries and human **L**oss caused by road traffic crashes and **a**ddressing **I**njury **D**emands through effective interventions

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INTRODUCTION

A large number of road users involved in road traffic crashes recover from their injuries, but some of them never recover fully and suffer from some kind of permanent disability. In addition to loss of life or reduced quality of life, road accidents carry many and diverse consequences to the survivors such as legal implications, economic burden, job absences, need of care from a third person, home and vehicle adaptations as well as psychological consequences[1]. Although the European Commission has stated that several thousands of lives could be saved in the EU by improving the response times of the emergency services and other elements of post- impact care, the attention paid by health policymakers, by the medical community and by the road safety field to trauma-related care and research has been disproportionately small so far[2].

Most importantly, the number of injured in RTCs is under-reported and misclassified in all countries[3-4]. The true number of traffic injury survivors in Europe is at least twice the number stated in official statistics. Misreporting and underreporting are largely due to the fact that in most EU countries, the national road traffic injury databases are only based on police reports[1]. However, the police are not alerted to every traffic accident and the police cannot be expected to perform a medical assessment; their diagnosis is only a rough on-the-spot estimate[5].

In light of the aforementioned circumstances, the attention has been refocused on the plight of victims of road crashes while action has been urged in conducting more national studies on road crashes as well as in addressing the problems of under-reporting and misclassification of injuries through improvements in injury recording at hospitals and other medical institutions[1].

The current empirical work produces up-to-date evidence on the profile of injured, by using common and widely recommended classification and measurements for injury severity. The study involves countries of Southern and Western Europe, where the prevalence of injuries is above the EU average and the costs for national health budgets are very high such as in Italy and Germany.[6]

References

1. *Social and Economic consequences of road traffic crashes in Europe, European Transport Safety Council 2007, Available at: http://etsc.eu/wp-content/uploads/Social-and-economic-consequences-of-road-traffic-injury-in-Europe.pdf, Accessed 10 August 2015.*
2. *Post Impact Care, SafetyNet 2009, Available at: http://ec.europa.eu/transport/road_safety/specialist/knowledge/pdf/postimpactcare.pdf, Accessed 10 August 2015.*
3. *Buylaert W. ed. Reducing injuries from post-impact care, European Transport Safety Council, Working Party on Post Impact Care, 1999, Brussels. Available at: http://archive.etsc.eu/documents/care.pdf, Assessed 10 August 2015.*
4. *Future Research Directions in Injury Biomechanics and Passive Safety Research, International Research Council on the Biomechanics of Impact, IRCOBI 2006, Available at: http://www.ircobi.org/, Accessed 10 August, 2015.*
5. *Commission Staff Working Document on the implementation of objective 6 of the European Commission's policy orientations on road safety 2011-2020 – First milestone towards an injury strategy. Available at: http://ec.europa.eu/archives/commission_2010-2014/kallas/headlines/news/2013/03/doc/swd(2013)94.pdf, Accessed 10 August 2015.*
6. *WHO Regional Office for Europe and United Nations Economic Commission for Europe, Ten years' work towards sustainable and healthy transport in Europe: key achievements and the way forward, Copenhagen, WHO Regional Office for Europe and Geneva, United Nations Economic Commission for Europe, 2009 http://www.euro.who.int/__data/assets/pdf_file/0015/43314/E92789.pdf, Accessed 10 August, 2015.*

METHODS

Research strategy

A total of seven public hospitals were involved in all the study sites; five in Greece (Region of Crete), one in Italy (Pavia) and one in Germany (Hannover). The study participants were enrolled during a 12-month period starting from April 2013. Eligibility for participation in the study was based on the following list of inclusion criteria: (a) injury sustained at RTC independently of the type of vehicle, (b) hospitalization ≥1day in the intensive or sub-intensive care unit of the selected hospitals, (c) age ≥18 years. Patients who accepted the invitation to participate in the study were monitored for one year after the date of admission to the intensive or sub-intensive care unit and were interviewed at three different time-points as follows: (a) at one month (baseline data), (b) at six months (1st follow up), and (c) at twelve months (2nd follow up). In addition to the self-reported information, all the eligible participants provided information drawn from their medical records.

Procedures

Research collaborators One or two interviewers were recruited in each study site with the task of collecting the baseline and follow up data from all the new patients. Selected health care professionals (medical doctors and nurses) were appointed in each collaborating hospital upon the consent of the hospital administration to assist the principal investigators in conducting the study. More particularly, the nurses were assigned with the task of regularly controlling for new patient admissions that fulfilled the inclusion criteria of the study and notifying the principal researchers as well as the appointed interviewers in each study site. They were also in charge of establishing the first contact with the patients and their carers and introducing the interviewer to them upon their approval. The medical doctors were assigned with the task of assisting the interviewers with recording injury-related and other medical information from patients' records. Interviewers' training The interviewers recruited in the three study sites (Greece, Italy, Germany) received training at two different time points; the first training session had a total duration of 6 hours and was delivered by the principal investigators at the beginning of the baseline data collection. The second training session had a total duration of 5 hours and was delivered at the beginning of the first follow up. A manual was also developed for the training of the interviewers aiming to guide them during the data collection phase. The manual contained brief explanations of each item as well as instructions on the interview procedures and the questionnaire administration.

Data collection

All patients that were admitted in the intensive or sub-intensive care units of the selected hospitals within the 12-month enrollment period and met the inclusion criteria were invited to participate in the study. Written consent was requested by all the eligible patients prior to participation in the study upon receiving information about the study objectives and procedures. All patients were informed that the completion of the questionnaire was optional, all information provided would be handled with confidentiality, and that the questionnaires would become available to the principal investigators only and would be strictly used for research purposes. The interviewers were notified by the appointed nurses in each hospital about new admissions and arranged a meeting at a convenient time for the patients and their carers, so that the interviewers could come and collect the baseline data. The baseline data collection was carried out either at a hospital unit (usually orthopaedics or neurological clinic), where the patient was transferred after discharge from the intensive or sub-intensive care unit or at their house if no further hospitalization was needed. The first and second follow up were carried out at the patients' house upon telephone arrangement. The mean duration of the data collection was 1 hour and 15' for the baseline data and 1 hour and 30' for the follow up.

Research instruments

For the needs of the data collection process, three different research instruments were developed; two semi-structured questionnaires to solicit self-reported information on the participants' personal characteristics and their physical, psychosocial, emotional and financial condition, and one data extraction form to extract injury-related information from the participants' medical records. The research instruments were developed in English language, upon reviewing existing instruments demonstrating high validity and reliability within the international literature (reference provided below). They were then translated in the local languages (Greek, Italian, German) using standard forward-backward translation procedures and adapted in terms of content, when necessary, to serve the study purposes.

Questionnaire#1

Questionnaire 1 included nine sections, which are presented in detail below. Sections (a), (b), (c), (d) were administered only once (Month 1). Sections (e), (f), (g), (h) and (i) were administered three times (Months 1, 6, 12). Sections (e), (f) and (i) referred to the time prior to the injury during the first administration (Month 1) as compared to the second and third administration (Months 6, 12) which referred to the time following the injury.

(a)**Socio-demographic information** (e.g. gender, age, education, occupation, marital status).
(b)**Driving characteristics** (e.g. possession of driver's license, annual mileage, reasons for travel, seatbelt/helmet use).
(c)**Lifestyle characteristics** (e.g. the number of cigarettes consumed per day, number of cigars consumed per week, type of drinks consumed, number of glasses consumed per day, type of physical activity, total hours spent on each physical activity per week).
(d)**Accident-related information** (e.g. road-user category, type of road, accident location).

Research instruments (cont.)

(e) **Quality of life** was measured using the "Medical Outcomes Study 36-Item ShortForm Health Survey (SF-36)" a 36-item survey that assesses health-related quality of life in 8 health domains; Physical functioning (10 items), role limitations caused by physical problems (4 items), bodily pain (2 items), general health perceptions (5 items), vitality (4 items), social functioning (2 items), role limitations caused by emotional problems (3 items), and mental health (5 items). The last item measures health transition but does not contribute to any of the scale scores. Items on each scale were coded, summed, and given final percentage values, ranging from 0 (worst health) to 100 (best health). Numbers were transformed to give a mean of 50. The following scoring rules were applied: (1) The items were recoded; (2) The scale scores were computed by summing across the recoded items under each scale; (3) The scale scores were transformed (to make them out of 0 to 100); (4) An algorithm was applied to make the scores relational to some aspect of the population (e.g. Males) whereby a score of 50 is the mean and 10 is the standard deviation. The original version of SF-36 [Ware & Sherborne, 1992] was used in this study. Besides the 8 scales, two summary scores reflecting physical and mental health derived from the SF-36.

(f) **Disability** was examined using the interviewer-administered 12-item version of WHODAS II "Disability Assessment Schedule II", developed by the World Health Organization (WHO) to better understand the difficulties people may have due to their health conditions (WHO, 2010). This instrument measured general health and disability levels, including mental and neurological disorders, based on the International Classification of Functioning, Disability and Health (ICF). Respondents were asked to report the level of difficulty they experience while engaging in certain activities as compared with how they usually experienced these activities before their injury (e.g. in the last 30 days, how much difficulty did you have in: (a) standing for long periods such as 30 minutes; (b) concentrating on doing something for ten minutes; (c) getting dressed, etc.). In each item, individuals had to estimate the magnitude of the disability during the previous 30 days using a five-point scale (none = 1, mild = 2, moderate = 3, severe = 4, extreme/cannot do = 5). The total score was calculated with an SPSS syntax (released by WHO), which anchored from 0 to 100 with higher scores reflecting greater disability.

(g) **Post-traumatic Stress Disorder** (PTSD) was assessed using the "Impact of Event Scale" (Horowitz et al. 1979), which involved two subscales; the "Intrusion Scale" (7 items) and the "Avoidance Scale" (8 items). Each question was responded using a likert scale as follows: "0" for "not at all", 1 for "rarely", 3 for "sometimes" and 5 for "often". The "intrusion total" came from adding the scores for the 7 items, while the "avoidance total" came from adding the scores for the 8 items. The intrusion and avoidance totals were added for the full total. PTSD was regarded as high if the score on either subscale was >19, medium for scores of 8.5 to 19, and low-level for scores of 1 to 8.5.

(h) **Depression** was measured using the "Center for Epidemiologic Studies Depression Scale (CES-D Scale), a 20-item self-report measure designed to assess depressive symptoms over the previous week, including depressed affect, lack of hope, feelings of guilt and shame, and somatic symptoms (e.g., disrupted sleep or appetite) (Radloff, 1977). Respondents were asked to report the frequency of experiencing certain feelings and behaviours during the past week using a frequency scale anchoring from 0 to 3 (0 = Rarely or None of the Time, 1 = Some or a Little of the Time, 2 = Occasionally or moderate amount of time, 3 = Most or all of the time). Four items were worded positively and reverse coded. Scores ranged from 0 to 60, with high scores indicating greater depressive symptoms.

Research instruments (cont.)

(i) **Social Support** was assessed using the "MOS Social Support Scale". The survey consists of four separate social support subscales and an overall functional social support index. A higher score for an individual scale or for the overall support index indicated more support. The average of the scores for each item in the subscale was calculated to obtain a score for each subscale. The average of the scores for all the 18 items included in the four subscales, and the average of the score for the one additional item were calculated to obtain an overall support index. Scale scores were transformed to a 0 - 100 scale using the following formula: 100 X [(observed score – minimum possible score) / (maximum possible score – minimum possible score)].

Questionnaire#2

Questionnaire 2 was administered two times (Months 6, 12) and included two sections referring to the post-injury time period as follows:

(a) **Health Care Expenditure** was assessed using the MUARC's framework for estimating the cost of injury (Watson & Ozanne-Smith, 1997) including the following measures:

Direct Costs: Costs relating to the treatment of injury such as inpatient and outpatient hospital costs (e.g. number of admissions/visits, length of staying, reason of admission/visit, means of transport and approximate mileage, transport fare, insurance coverage, etc) as well as paid carers' costs (e.g. weekly hours of in-hospital care by paid carers, cost of paid carers, etc), ambulance transport, prescribed and nonprescribed medication (generic name, course and cost of medication, insurance coverage, etc), equipment (e.g. cost of wheelchair), medical tests (e.g. cost of x-rays or blood tests), and treatment by health professionals other than medical doctors (number and cost per visit to physicians of various specialties, nursing services, social services, etc).

Indirect Costs: Costs relating to the loss, or partial loss, to society of the productive efforts (both paid and unpaid) of injury victims and care-givers in the case of children (e.g. changes in employment status of the injured person or a family member such as loss of employment or changes in position and salary, childcare arrangements such as change of school or need for paid child-caregiver, in-house 12 adaptations such as ramp or stair lift or moving to a different house, etc.). In addition to the above, the questionnaire explored the participants governmental benefits and allowances due to disability.

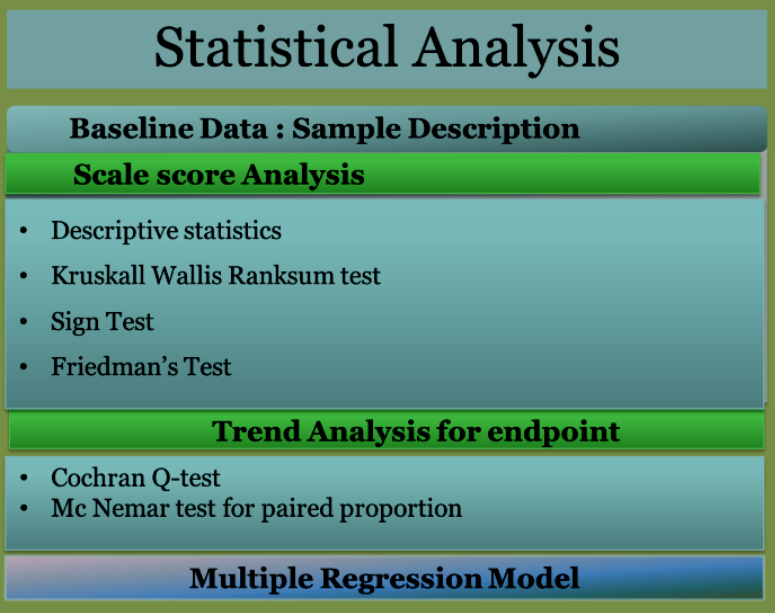
(b) **Satisfaction from Medical Care** was measured using the "Short-Form Patient Satisfaction Questionnaire (PSQ-18)" (Marshall & Hays, 1993). The PSQ-18 comprises 18 items, tapping seven dimensions of satisfaction with medical care and yields separate scores for each of the dimension/subscales as follows: General Satisfaction (Items 3 and 17); Technical Quality (Items 2, 4, 6, and 14); Interpersonal Manner (Items 10 and 11); Communication (Items 1 and 13); Financial Aspects (Items 5 and 7); Time Spent with Doctor (Items 12 and 15); Accessibility and Convenience (Items 8, 9, 16, and 18). All negatively-worded items were reverse coded. All items were scored so that high scores reflected satisfaction with medical care. Items within the same subscale were averaged together to create the 7 subscale scores. Items left blank by the participants (missing data) were ignored when calculating scale scores in order for scale scores to represent the average for all items in the scale that were answered.

Data Extraction Form

The Data Extraction Form replicated the structure and content of the national accident and injury database in Germany (German In-Depth Accident Study, GIDAS). It extracted information on the body area of the injury (head, face, neck, thorax, abdomen, spine, upper extremities, lower extremities, and external), the type and the extent of the injury as well as information on the physical condition of the patient. The Abbreviated Injury Scale (AIS) was calculated for each participant based on AIS-2005 (Update 2008). Each injury was assigned an AIS score on an ordinal scale ranging from 1 (minor injury) to 6 (maximum injury, possibly lethal). The Maximum Abbreviated Injury Scale (MAIS) was calculated for multiple injured participants. The abbreviated injury scale (AIS) was selected in the current study as the most widely reported severity scale, used throughout North America, Europe, Japan, Australia, and New Zealand as a consensus derived anatomically based scale for rating the severity of injuries.

Statistical analysis

A database was developed by the coordinating team using the statistical package SPSS v. 21.0 and was delivered to all the participating countries for the data storage. The data were analyzed using STATA ® v. 12 by the Italian team and using SPSS19.0 by the Greek team. The study sample was analyzed in terms of socio-demographic and clinical variables in order to define the profile of subjects involved in a road traffic incident. All the variables were summarized by the appropriate descriptive statistics. Country comparisons were also carried out using suitable statistical tests: chi square, or Fisher's test, one way Anova or Kruskall-Wallis rank test when appropriate. Logistic regression analysis was performed to identify risk factors associated with functional status after the accident. These consist on one hand of non-medical risk factors (gender, age at accident, socio-professional group, educational level, type of road user…) and on the other hand of medical variables (location, type and extent of injury, discharge home, post-injury complications, hospitalization duration …). Odds-ratios and their 95% confidence interval were calculated out of the logistic regression analysis.



Subject confidentiality

Information on the identity of all subjects involved was considered as confidential for all effects and purposes. The identity of subjects will under no circumstances be revealed nor published. Subject data recorded in the database during the study has been documented anonymously, coded with a subject number in such a way that only the investigator may associate particular data with an identified or identifiable individual or his/her medical record. All other parties involved in data management and analysis received and subsequently analyzed non-identifiable patient data. The provisions of the European Directive 95/46/CE, governing the protection of data of a personal nature was fully respected.

Informed Consent

This study was strictly observational. No obvious ethical problems occurred for subject participation in this study. However, a written informed consent in local language, was obtained from all the study participants, according to the national/local regulations in force in each partner country. The investigator informed the subjects that participation in the study is voluntary and that refusal will not lead to loss of any benefit or prejudicein terms of the relationship with the physician in any way.

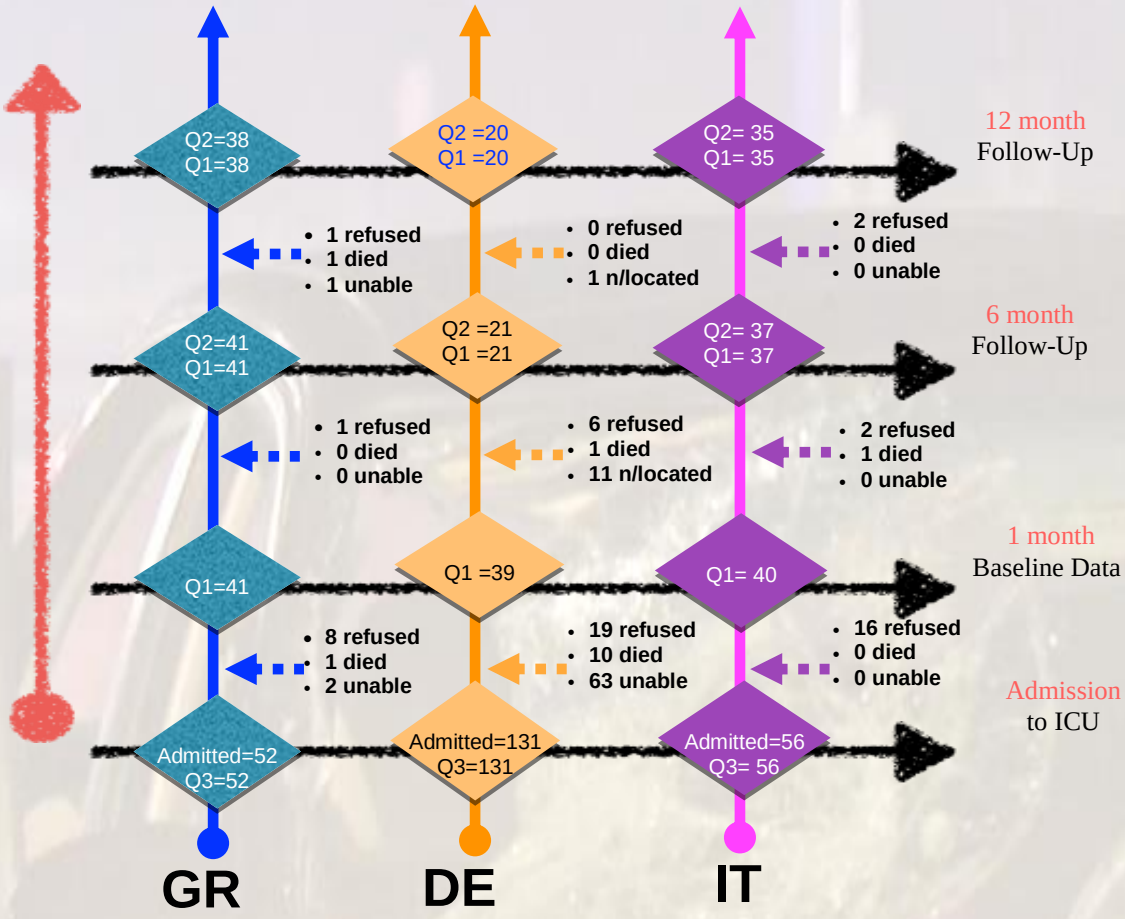
Before enrolment into the study, each subject received a full explanation of the nature and purpose of the study by the investigator. A clear Information Sheet covering all important aspects in writing was given to the subjects who would read it and have the opportunity to ask questions whatsoever. The subjects were given adequate time for consideration before they were requested to sign the consent form in duplicate.

One of the original copies of the signed consent form was kept by the investigatosr in the study file. The subjects received the other one for future reference.

Ethics Approval

Bioethical approval for the study was granted by the following Health Authorities/Bioethical Committees of the partner countries: Greece: Bioethical Committee of “PAGNI University Hospital”, Heraklion, Crete (Ref. No 2284/8-3-13); Bioethical Committee of “Venizeleio - Pananeio General Hospital”, Heraklion Crete (Ref. No 4/21-3-2013); Bioethical Committee of “General Hospital of Agios Georgios”, Chania, Crete (Ref. No 3/21-2-2013); Bioethical Committee of “General Hospital of Rethymnon” Rethymno, Crete (Ref. No 2498/14-3-2013); Bioethical Committee of “General Hospital of Agios Nikolaos”, Agios Nikolaos, Crete (Ref. No ES15/16-4-2013). Italy: Comitato Etico in Pavia, Italy (Ref. No 1/2013). Germany: MHH Ethikkommission OE 9515 (Ref. No 1568-2012).

PARTICIPANTS



Flow of participants in the study

In Greece, a total of 52 patients admitted in the ICU due to injuries caused in a road traffic accident during the 12 months enrollment period (1st April 2013-31st March 2014). Out of the total patients admitted in ICU, 42 enrolled in the study and 10 dropped out before baseline. Out of the 42 patients that enrolled in the study, 4 patients dropped out at various stages (9.7% drop-out). Medical data have been obtained for all the patients admitted in ICU upon official permission. A total of 38 patients completed all follow up questionnaires and provided full data.

In Germany, a total of 131 patients admitted in the ICU during the 12 months enrollment period (1st August 2013-31st July 2014). Out of the total patients admitted in ICU, 39 enrolled in the study and 92 dropped out before baseline (died, refused, in coma, foreigners unable to communicate, etc.). Out of the 39 patients that enrolled in the study, 19 patients dropped out at various stages (48.7% drop-out). Medical data have been obtained for all the patients admitted in ICU upon official permission. A total of 20 patients completed all follow up questionnaires and provided full data.

In Italy, a total of 56 patients admitted in the ICU due to injury caused in a road accident during the 12 months enrollment period (1st April 2013-31st March 2014). Out of the total patients admitted in ICU, 40 enrolled in the study and 16 dropped out before baseline. Out of the 40 patients that enrolled in the study, 5 patients dropped out at various stages (12.5% drop-out). Medical data have been obtained for all the patients admitted in ICU upon official permission. A total of 35 patients completed all follow up questionnaires and provided full data. The following graphical presentation indicates the flow of participants in the REHABILAID study.

RESULTS (i)

Descriptive Statistics

Socio-demographic and driving profile

Table 1 *Respondents' sociodemographic profile*

	Greece		Germany		Italy		Total	
Gender	**n**	**%**	**N**	**%**	**n**	**%**	**n**	**%**
Men	36	87.8	27	69.2	30	75.0	93	77.5
Women	5	12.2	12	30.8	10	25.0	27	22.5
Age*	35.9 (SD15.9)		42.7 (SD16.4)		47.0 (SD16.4)		41.8 (SD16.7)	
Marital status								
Single	21	51.2	9	23.1	11	27.5	41	34.2
Married/cohabitating	15	36.6	27	69.2	23	57.5	65	54.2
Divorced	4	9.8	1	2.6	4	10.0	9	7.5
Widow	1	2.4	2	5.1	2	5.0	5	4.1
Education								
Low	33	80.5	2	5.1	12	30.0	47	39.2
High	8	19.5	30	76.9	21	52.5	59	49.2
Higher	0	0.0	7	18.0	7	17.5	14	11.8
Profession								
Unemployed	8	19.5	1	2.6	2	5.0	11	9.2
Employed	17	41.5	29	74.4	19	47.5	65	54.2
Self-employed	8	19.5	1	2.6	5	12.5	14	11.7
Retired	3	7.3	5	12.8	9	22.5	17	14.1
Other	5	12.2	3	7.7	5	12.5	13	10.8
Income								
Up to 15000	33	86.8	2	5.1	10	30.3	45	40.9
15.001-28.000	5	13.2	20	51.3	14	42.4	39	35.5
28.001-55.000	0	0.0	16	41.0	3	9.1	19	17.3
55.001-75.000	0	0.0	0	0.0	4	12.1	4	3.6
More than 75.000	0	0.0	1	2.6	2	6.1	3	2.7

Socio-demographic characteristics

A total of 120 patients enrolled in the study in all the partner countries (GR=41, DE=39, IT=40). The majority of the respondents in all three countries were men. The Greek respondents were younger than the German and Italian. Most of the respondents in all the three countries were employed, with Germany having the highest percentage of employed respondents among the partner countries. A high percentage of unemployed (19.5%) was only recorded among the Greek respondents and a high percentage of retired (22.5%) was only recorded among the Italian respondents. The socio-demographic characteristics of the respondents are presented in detail in Table 1.

Driving characteristics

Among the three countries, all the German respondents (100.0%) reported having a car license (and the vast majority of the Greek and Italian). The percentage of German and Italian respondents who were found to "always" use a motorcycle helmet (DE=89.5%, IT=88.9%) and seatbelt (DE=84.6%, IT=82.9%) was far more high as compared with the percentage of the Greek respondents (27.8%, 53.1% respectively) and these differences were statistically significant (helmet use $p<0.01$; seatbelt use $p=0.04$). The highest average number of km driven per year was recorded in the German respondents ($p=0.03$), while the highest percentage of road traffic crash involvement was recorded among the Greek and the Italian respondents (GR=41.5%, IT=37.5%) without this difference being statistically significant. The driving characteristics of the respondents are presented in detail in Tables 2 and 3.

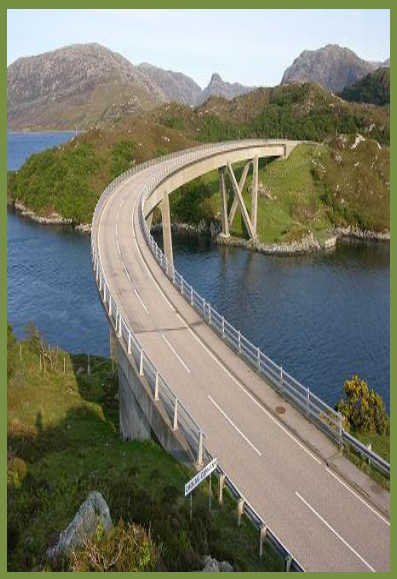
Table 2. *Respondents' driving characteristics*

	Greece		Germany		Italy		Total	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Driver's license	33	80.5	39	100.0	35	87.5	107	89.2
Car license	30	73.2	39	100.0	35	87.5	104	86.7
Truck license	7	17.1	9	23.1	2	5.0	18	15.0
Motorcycle	18	43.9	19	48.7	9	22.5	46	38.3
Other	4	9.8	0	0.0	1	2.5	5	4.2
Helmet use								
Never	2	11.1	2	10.5	1	11.1	5	10.9
Rarely	3	16.7	0	0.0	0	0.0	3	6.5
Sometimes	4	22.2	0	0.0	0	0.0	4	8.7
Often	4	22.2	0	0.0	0	0.0	4	8.7
Always	5	27.8	17	89.5	8	88.9	30	65.2
Seatbelt use								
Never	4	12.5	1	2.6	1	2.9	6	5.8
Rarely	2	6.3	0	0.0	2	5.7	4	3.9
Sometimes	1	3.1	1	2.6	0	0.0	2	1.9
Often	8	25.0	4	10.3	3	8.6	15	14.4
Always	17	53.1	33	84.6	29	82.9	77	74.0
Km/ year*	*17,106.8 (SD21,084.3)*		*27,415.4 (SD31,584.9)*		*21,914.3 (SD22,116.5)*		*22,109.4 (SD25586.5)*	

**Mean, Standard deviation*

Table 3. *Respondents' driving characteristics*

	Greece		Germany		Italy		Total	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Road crash involvement	17	41.5	11	28.2	15	37.5	43	35.8
N° of crashes								
1	13	81.3	7	63.6	10	71.4	30	73.2
>1	3	18.7	4	36.4	4	28.6	11	26.8
Hospitalization due to crashes	7	43.8	5	45.5	6	40.0	18	24.3
N° of hospitalizations								
1	7	100.0	5	100.0	5	83.3	17	94.4
2	0	0.0	0	0.0	1	16.7	1	5.6



Lifestyle characteristics

Among the three countries, the highest percentage of smokers and the highest average of cigarettes consumed per day were reported by the Greek with one in every two respondents reporting smoking (one in every three in German and Italian) and with the average number of cigarettes being 17 per day for the Greek (while being 15 for the German and 11 for the Italian). As regards to alcohol consumption, although the highest percentage of consumers was recorded among the Greek respondents, when it comes to high concentrated alcohol and alcoholic spirits, the Italian respondents were over-represented among alcohol consumers as compared with the rest of the partner countries with 83.3% reporting consumption of HAC and 44.4 reporting consumption of alcoholic spirits. On the other hand, the German respondents reported the highest consumption of low concentrated alcohol with 84.2% reporting consumption of LAC (while 66.7 for the Italian and 31.0 for the Greek). However, when it comes to the quantity of alcohol consumed per day, the Greek respondents reported a higher average number of glasses consumed per day both in terms of HAC and LAC while the Italian respondents reported a higher average number of glasses of alcoholic spirits consumed on a daily basis as compared with the rest of the partner countries. As regards to the use of drugs and stimulants, the Italian respondents were overrepresented among the users as compared with the Greek and German respondents. Finally, when it comes to physical activity, the percentage of German and Italian respondents was double than the percentage of Greek respondents who reported engagement in physical activity. The lifestyle characteristics of the respondents are presented in detail in Table 4.

Table 4. *Participants' lifestyle characteristics*

	Greece		Germany		Italy	
	n	**%**	**n**	**%**	**n**	**%**
Smoking	22	52.4	12	30.8	13	32.5
N° cigarettes*	17.68	10.94	15.18	7.24	11.31	5.59
Alcohol consumption	29	69.0	19	48.7	18	45.0
High alcohol concentration	17	58.6	4	21.1	15	83.3
N° classes/day (HAC)*	5.32	4.70	0.70	0.89	2.08	1.84
Low alcohol concentration	9	31.0	16	84.2	12	66.7
N° of LAC glasses/day (HAC)*	1.28	0.75	0.78	1.49	1.19	1.59
Alcoholic spirits	10	34.5	2	10.5	8	44.4
N° of spirits glasses/day (HAC)*	1.57	1.09	0.57	0.61	2.13	1.73
Use of drugs, medicines, stimulants	8	19.5	7	17.9	23	57.5
Physical activity	15	35.7	29	74.4	29	72.5
During leisure time	12	80.0	27	93.1	27	93.1
Hours per week (leisure)*	7.50	5.33	3.93	2.22	7.31	4.89
During occupation	1	6.7	1	3.4	4	13.8
Hours per week (occupation)*	3.00	.	10.00	.	26.75	17.95
Other circumstances	4	26.7	2	6.9	0	0.0
Hours per week (other)*	5.75	4.86	22.00	25.46	.	.

**Mean, Standard deviation*

RESULTS (i)

Descriptive Statistics

Road incident characteristics

Table 5. *Information on the road accident*

	Greece		Germany		Italy		Total	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Crash location								
Intersection	3	7.3	5	12.8	6	15.0	14	11.7
Straight road	24	58.5	28	71.8	24	60.0	76	63.3
On beds	13	31.7	0	0.0	8	20.0	21	17.5
Parking	0	0.0	4	10.3	2	5.0	6	5.0
Other	1	2.4	2	5.1	0	0.0	3	2.5
Road traffic congestion								
Light traffic	38	92.7	31	79.5	36	92.3	105	88.2
Heavy traffic	3	7.3	6	15.4	3	7.7	12	10.1
Traffic jam	0	0.0	2	5.1	0	0.0	2	1.7
Type of collision								
Front	9	22.0	22	56.4	6	15.0	37	30.8
Front-lateral	8	19.5	5	12.8	8	20.0	21	17.5
Lateral	0	0.0	5	12.8	5	12.5	10	8.3
Rear back	2	4.9	0	0.0	0	0.0	2	1.7
Single	7	17.1	2	5.1	14	35.0	23	19.2
Pedestrian	0	0.0	1	2.6	7	17.5	8	6.7
Other	15	36.6	4	10.3	0	0.0	19	15.8
Partner of collision								
Motorcyclist	1	2.5	1	2.6	0	0.0	2	1.7
Car	15	37.5	16	41.0	20	50.0	51	42.9
Truck-bus	3	7.5	9	23.1	6	15.0	15	15.1
Fixed object	3	7.5	7	17.9	3	7.5	13	10.9
Other	11	27.5	4	10.3	11	27.5	26	21.9
Unknown	7	17.5	2	5.1	0	0.0	9	7.6

Road incident characteristics

In Greece the majority of the respondents were motorcyclists (47.6%), while in Germany most of the respondents were four-wheel drivers (41.0%). In Italy a large percentage of the respondents were cyclists (25.0%), four-wheel drivers (25.0%), and motorcyclists (20.0%). In all the partner countries most of the respondents reported a collision involving a car. Half of the Greek and Italian respondents were travelling in a semi-urban area (GR=52.4%, IT=50.0%), while the majority of the German respondents were travelling on a rural area (64.1%) when the incident occurred. More than half of the German and the Italian respondents were travelling on a rural road when the incident occurred (DE=51.3%, IT=50.0%) while half of the Greek respondents were travelling on a city road (50.0%). Approximately half of the German and Italian respondents were involved in the road incident during leisure time (DE=56.4%, IT=47.5%), while many of the Greek respondents were on their return home in the evening (28.6%). The road incident characteristics are presented in detail in Tables 5, 6 and 7.

***Table 6**. Information on the road accident (cont.)*

	Greece		Germany		Italy		Total	
	n	%	n	%	n	%	n	%
Area								
Urban	12	29.3	5	12.8	15	37.5	32	26.7
Semi-urban	22	53.7	7	17.9	20	50.0	49	40.8
Rural	4	9.8	25	64.1	5	12.5	34	28.3
Other	3	7.3	2	5.1	0	0.0	5	4.17
Type of road								
City road	21	51.2	11	28.2	16	40.0	48	40.0
Rural road	1	2.4	20	51.3	20	50.0	41	34.2
Highway	14	34.1	7	17.9	1	2.5	22	18.3
other	5	12.2	1	2.6	3	7.5	9	7.5

***Table 7**. Information on the road accident (cont.)*

	Greece		Germany		Italy		Total	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Type of road user								
Pedestrian	2	4.9	5	12.8	7	17.5	14	11.7
Cyclist	1	2.4	3	7.7	10	25.0	14	11.7
Motorcyclist	20	48.8	12	30.8	8	20.0	40	33.3
Driver four-wheel	14	34.1	16	41.0	10	25.0	40	33.3
Passenger four-wheel	4	9.8	3	7.7	5	12.5	12	10.0
Reason to travel								
Commuting	1	2.4	6	15.4	5	12.5	12	10.0
Holiday	9	22.0	1	2.6	2	5.0	12	10.0
Leisure	6	14.6	22	56.4	22	55.0	50	41.7
Occupational	9	22.0	7	17.9	3	7.5	19	15.8
Shopping	2	4.9	0	0.0	5	12.5	7	5.8
Return evening	12	29.3	1	2.6	3	7.5	16	13.3
Other	2	4.9	2	5.1	0	0.0	4	3.3

Substance use prior to the road incident

A large percentage of the Greek participants had consumed alcohol before their involvement in the road incident (35.29%) and some of them had consumed drugs (5.88%). The vast majority of the German participants did not consume any substances prior to the road incident while these parameters remain unknown for all the Italian respondents. A police report seems to be available for a small percentage of Greek and German respondents (29.41% and 25.64% respectively) and for the vast majority of the Italian respondents (95.0%).

RESULTS (i)

Descriptive Statistics

Pre-hospital & Initial hospital treatment

Characteristics of treatment and hospitalization

The majority of the Greek and Italian respondents were transferred to the hospital with an ambulance either with or without a doctor. Half of the German respondents were transferred with a helicopter and the other half with an ambulance with a doctor. Respondents in all the partner countries were most often transferred to the hospital directly from the site of the road incident (GR=60.78%, DE=82.05%, IT=82.50%), while a large percentage of the Greek respondents were transferred from another hospital (37.25%). The majority of the German and Italian respondents received first care both by an emergency doctor and a paramedic, while a large percentage of the Italian respondents were also treated by a nurse (37.5%). Many of the Greek respondents received first care by an emergency doctor (25.49%) but for a large percentage of them, this information was not known (27.45%). The duration of stay in the intensive care unit was higher for the Greek and German respondents as compared with the Italian (GR=12.9, DE=11.6, IT=4.6, $p<0.01$). As regards to the Glasgow Coma Score, the German and Greek respondents suffered greater brain injury than the Italian respondents ($p<0.01$) with their GCS score being between 9-12 (moderate brain injury) while the Italian presented a GCS score above 13 (Minor brain injury). The respondents' distribution based on the characteristics of treatment and hospitalization are shown in Table 8.

***Table 8**. Characteristics of treatment – hospitalization*

	Greece	Germany	Italy	Total
Mode of transport to hospital	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Ambulance with doctor	20 (50.0)	17 (43.6)	26 (65.0)	63(52.9)
Ambulance without doctor	16 (40.0)	0 (0.0)	14 (35.0)	30(25.2)
Helicopter	4(10.0)	21 (53.8)	0 (0.0)	25(21.0)
Other	0 (0.0)	0 (0.0)	0 (0.0)	0(0.0)
Unknown	0 (0.0)	1 (2.6)	0 (0.0)	1(0.8)
Transport from				
Site of road incident	30 (75.0)	32 (82.1)	33 (82.5)	95(79.8)
Other hospital	10 (25.0)	7 (17.9)	7 (17.50)	24(20.2)
First care delivered				
Emergency doctor	21 (51.2)	38 (97.4)	25 (62.5)	84(70.6)
None	3 (7.3)	0 (0.0)	0 (0.0)	3(2.5)
Nurse	3 (7.3)	0 (0.0)	15 (37.5)	18(15.1)
Paramedic	22(53.7)	38 (97.4)	40 (100.0)	19(16.0)
Other	1 (2.4)	0 (0.0)	0 (0.0)	1(0.84)
Unknown	0 (0.0)	1 (2.6)	0 (0.0)	1(0.83)
Duration of stay in intensive care (days)*	12.9 (14.9) Min/Max 1-81	11.6 (17.5) Min/Max 1-90	4.6 (7.5) Min/Max 1-30	9.6(14.2) Min/Max 1-90
Glasgow Coma Score*	11.2 (SD3.9)	10.2 (SD5.6)	14.7 (SD1.2)	12.0 (SD 4.4)

Table 9. *Initial diagnostic tests – assessment*

	Greece	Germany	Italy
x-ray			
Yes	49 (96.08)	39 (100)	36 (90.0)
No	1 (1.96)	0 (0.0)	3 (7.50)
Unknown	1 (1.96)	0 (0.0)	1 (2.50)
MRT (Magnetresonance Tomography)			
Yes	2 (3.92)	4 (10.26)	1 (2.50)
No	48 (94.12)	33 (84.62)	38 (95.0)
Unknown	1 (1.96)	2 (5.13)	1 (2.50)
CT (computed tomography)			
Yes	49 (96.08)	39 (100)	37 (92.5)
No	2 (3.92)	0 (0.0)	2 (5.0)
Unknown	0 (0.0)	0 (0.0)	1 (2.5)
CCT (Cardiac Computed Tomography)			
Yes	27 (52.94)	9 (23.08)	28 (70.0)
No	13 (25.49)	30 (76.92)	11 (27.5)
Unknown	11 (21.57)	0 (0.0)	1 (2.5)
Blood pressure when arrived			
Systolic*	110.0 (40.9)	128.83 (32.81)	120.60 (34.71)
Diastolic*	64.3 (18.3)	74.55 (22.86)	78.13 (18.26)
Heart rate when arrived*	99.3 (19.7)	90.52 (19.89)	90.56 (17.35)
Glasgow Coma Score*	11.41 (3.99)	10.20 (5.58)	14.70 (1.15)

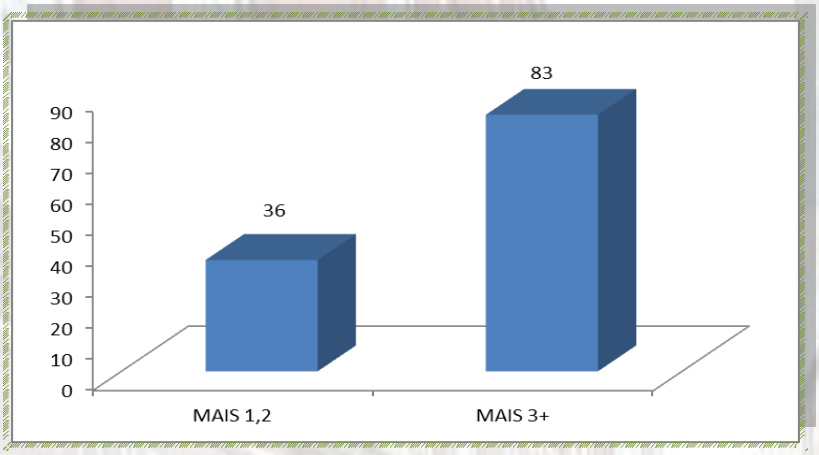
**Mean, Standard deviation*

Diagnostic tests and assessment

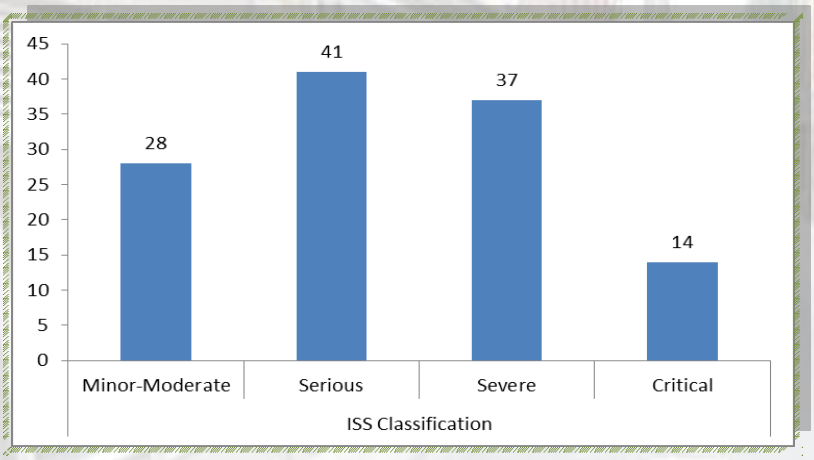
All the German respondents and the vast majority of the Greek and Italian respondents were shown to have undergone x-ray and Computed Tomography assessment (CT). A low number of respondents was found to have undergone Magnetresonance Tomography (MRT), most of them German (10.26%). A large number of Italian respondents were shown to have undergone a Cardiac Computed Tomography (CCT) (70.0%) while for the Greek respondents it was 50% and for the German 23.08%. The German respondents demonstrated the highest systolic pressure (128.83) and the Greek respondents presented the highest heart rate (99.3) at the time of arrival to the intensive care unit. As regards to the Glasgow Coma Score, the German and Greek respondents suffered greater brain injury than the Italian respondents with their GCS score being between 9-12 (moderate brain injury) while the Italian presented a GCS score above 13 (Minor brain injury). The respondents' distribution based on the diagnostic tests and assessment is shown in Table 9.

RESULTS (ii)

Injury profile



***Graph 1**. Distribution of study participants based on MAIS score*



***Graph 2**. Distribution of study participants based on ISS score*

Injury severity

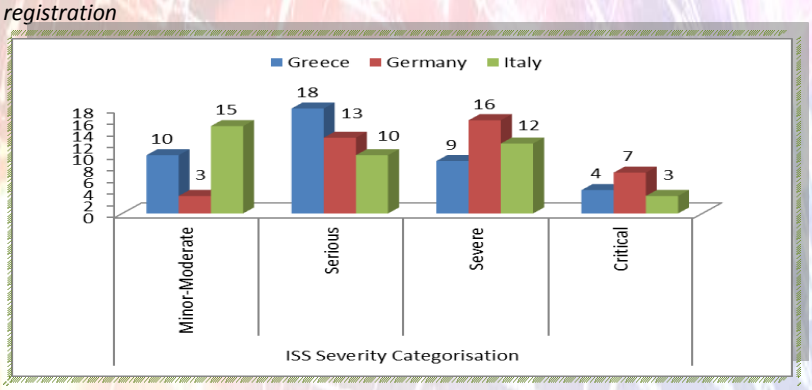
Based on the analysis of the 120 cases recorded in the three partner countries, a total of 83 cases (69.1%) were classified as "MAIS 3+" (Graph 1) and a total of 51 cases were classified as "severe" or "critical" (42.5%) based on the ISS classification (Graph 2). MAIS scores are presented in Table 10.

***Table 10.** Abbreviated Injury Severity Score*

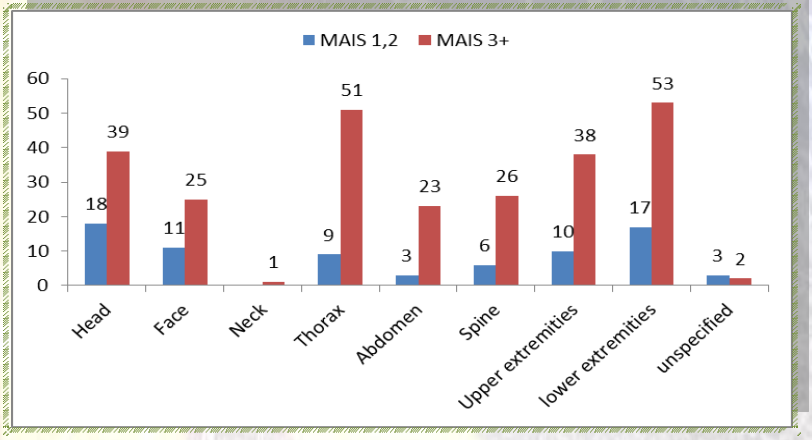
	Greece		Germany		Italy		Total	
Max AIS score	n	%	n	%	n	%	n	%
1 (Minor)	2	4.9	0	0.0	0	0.0	2	1.7
2 (Moderate)	11	26.8	6	15.4	17	42.5	34	28.3
3 (Serious)	25	61.0	22	56.4	13	32.5	60	50.0
4 (Severe)	0	0.0	5	12.8	10	25.0	15	12.5
5 (Critical)	1	2.4	6	15.4	0	0.0	7	5.8
6 (Maximum)	1	2.4	0	0.0	0	0.0	1	0.8
9 (Not specified)	1	2.4	0	0.0	0	0.0	1	0.8

**Mean, Standard Deviation*

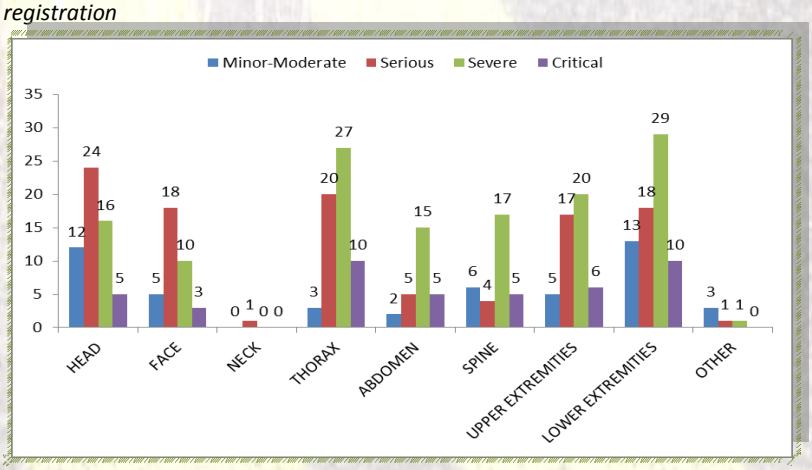
***Graph 3**. Distribution of study participants based on MAIS score and country of registration*



***Graph 4**. Distribution of study participants based on ISS score and country of registration*



***Graph 5**. Distribution of study participants based on MAIS score and country of registration*



***Graph 6**. Distribution of study participants based on MAIS score and country of registration*

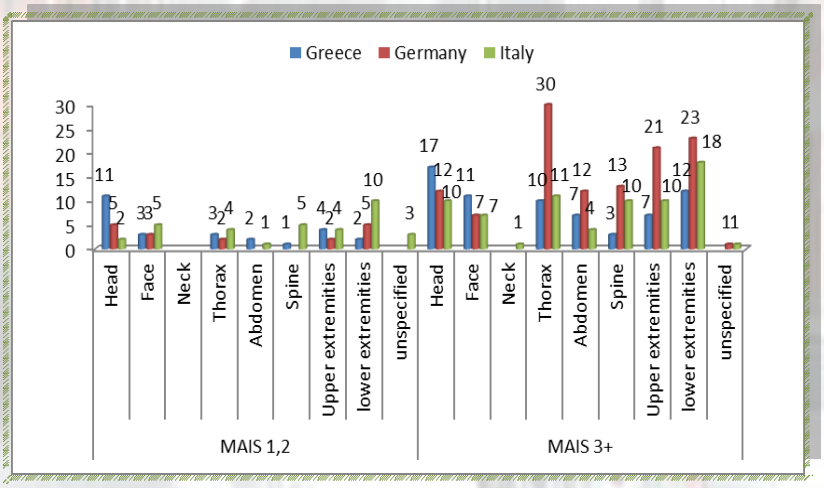
Injury Severity (cont.)

Looking at differences among the three countries, it is evident that Germany recorded more cases classified as "MAIS 3+" (n=33) as compared with Greece and Italy (Graph 3). Likewise, based on the ISS classification, Germany recorded more cases classified as "critical" (n=7) and "severe" (n=16) as compared with Greece and Italy. On the contrary, Greece recorded the highest number of cases classified as "serious" (n=18) and Italy recorded the highest number of cases classified as "minor/moderate" (n=15) (Graph 4).

Injury location

Most of the cases classified as "MAIS 3+" were located at the lower extremities (n=53) and thorax (n=51) while many of them were at the head (n=39) and the upper extremities (n=38) (Graph 5).

Based on the ISS classification, most of the cases classified as "critical" were located at thorax (n=10) and lower extremities (n=10). Similarly, most of the cases classified as "severe" were located at lower extremities (n=29) and thorax (n=27) while many of them were also located at the upper extremities (n=20) (Graph 6).

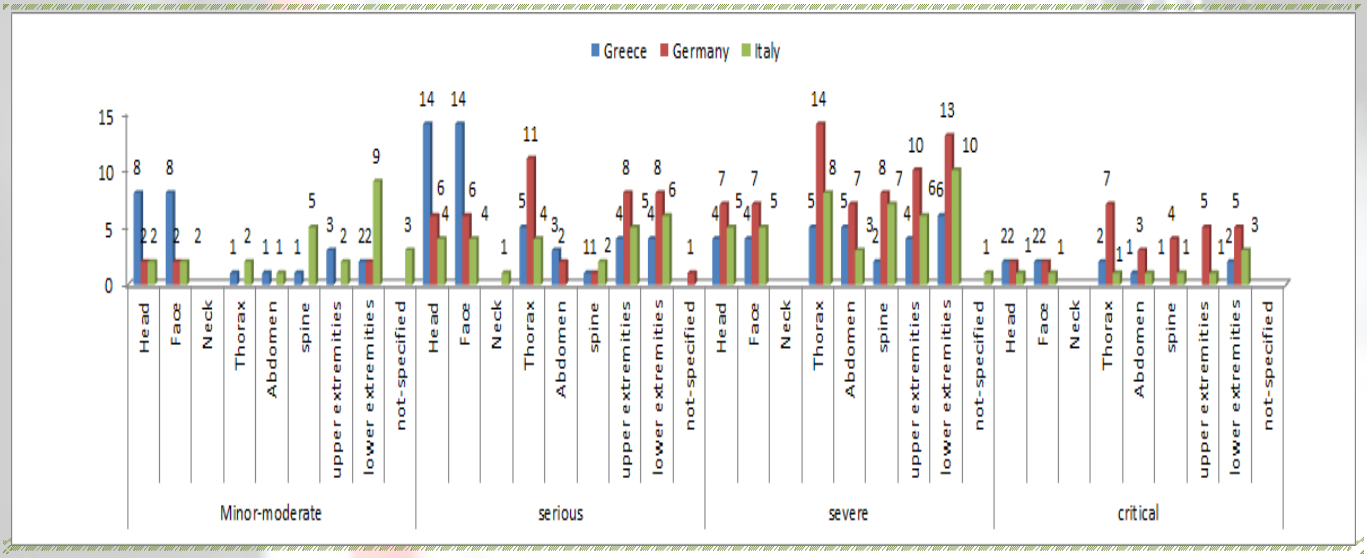


***Graph 7**. Distribution of study participants based on MAIS score and country of registration*

Injury location (cont.)

Looking at country differences, it is evident that in Germany those classified as "MAIS 3+" primarily suffered an "thoracic injury" (n=30), in Italy most of them had a "lower extremities injury" (n=18), while in Greece most of them had a "head injury" (n=17) (Graph 7).

According to the ISS classification, cases classified as "critical" in Germany primarily suffered "thoracic injury" (n=7), most cases in Italy suffered "lower extremities injury" (n=3) and equal number of cases in Greece suffered "head injury" (n=2), "face injury" (n=2), "thoracic injury" (n=2) and "lower extremities injury" (n=2). As for the "severe" injuries, it seems that in all three countries they are primarily located at "thorax" and "lower extremities", while in Greece many of them are also located in the "abdomen" (Graph 8).

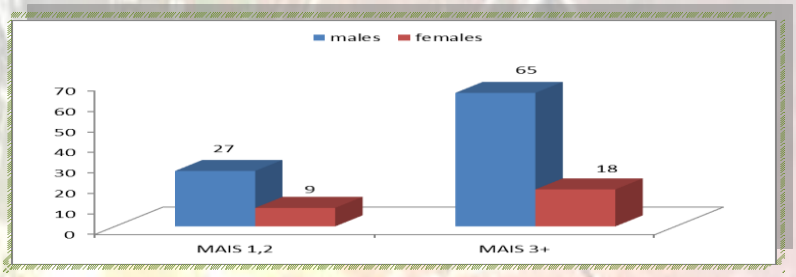


***Graph 8**. Distribution of study participants based on MAIS score and country of registration*

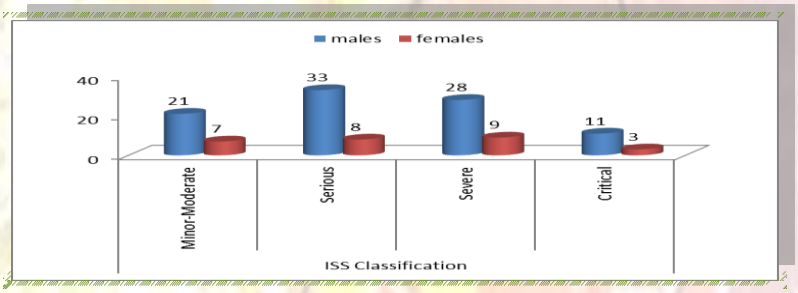
RESULTS (ii)

Injury profile

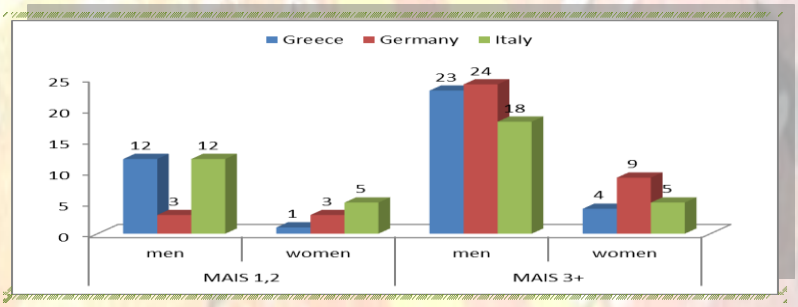
Socio-demographic differences in injury severity



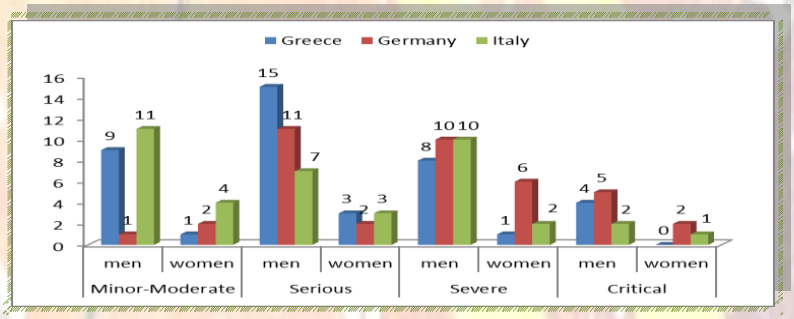
***Graph 9**. Distribution of study participants based on MAIS score and gender*



***Graph 10**. Distribution of study participants based on ISS score and gender*



***Graph 11**. Distribution of study participants based on MAIS score, gender and country of registration*



***Graph 12**. Distribution of study participants based on ISS score, gender and country of registration*

Injury severity and gender

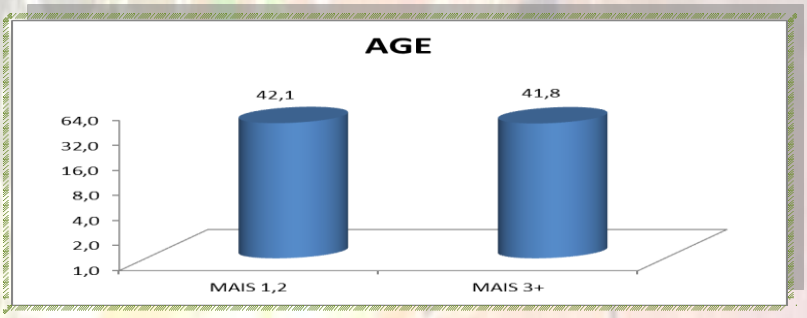
Looking at gender differences, it is evident that men were affected more than women in terms of injury severity, with 65 men (78.3%) sustaining an injury classified as "MAIS 3+" as compared with 18 women (21.6%) (Graph 9).

Likewise, men were overrepresented in all the ISS categories. It is noteworthy that in the categories of "severe" and "critical" injuries, men were triple than women (Graph 10).

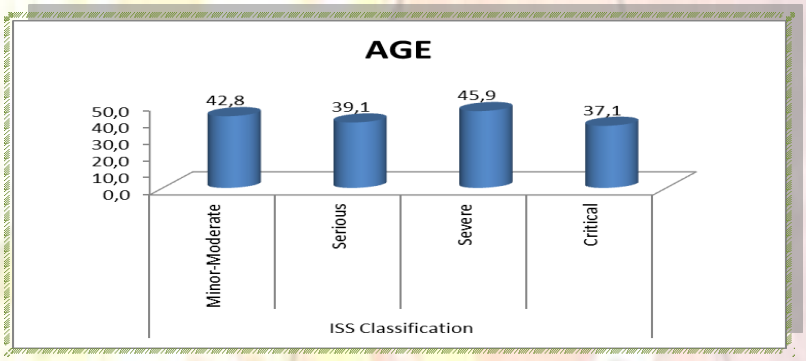
Greece presented the greatest gender difference in terms of the "MAIS 3+" cases with men accounting for 85.2% of all the "MAIS 3+" cases identified in Greece (Graph 11).

Likewise, Greece had the greatest difference between men and women in "severe" and "critical" cases based on the ISS classification, with 88.9% and 100.0% of the cases identified in Greece, being men (Graph 12).

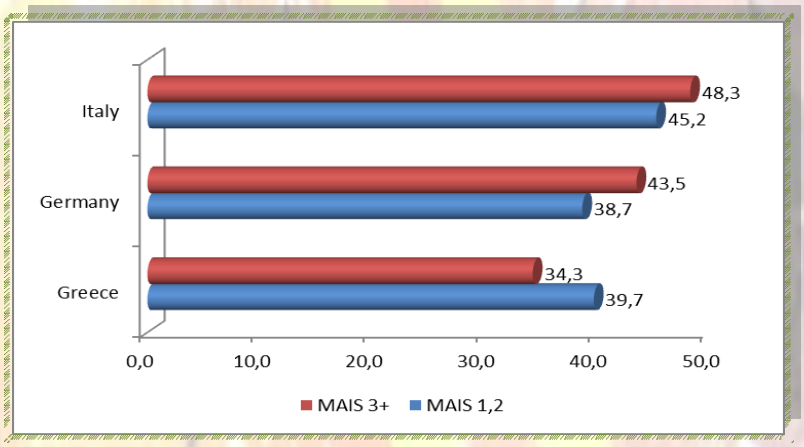
Rehabilaid



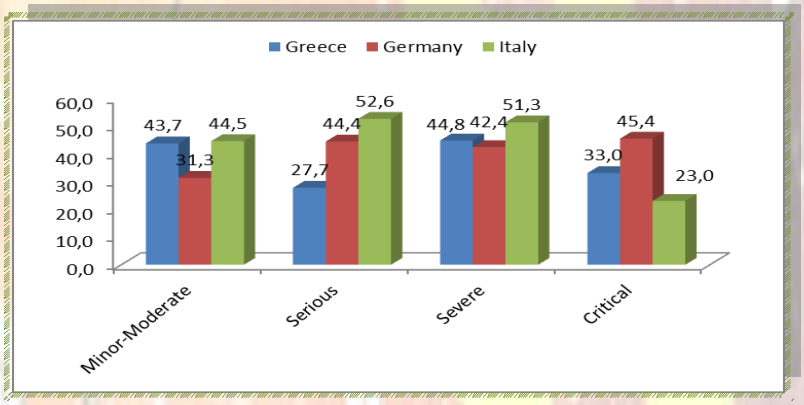
***Graph 13**. Distribution of study participants based on MAIS score and mean age*



***Graph 14**. Distribution of study participants based on ISS score and mean age*



***Graph 15**. Distribution of study participants based on MAIS score, mean age and country of registration*



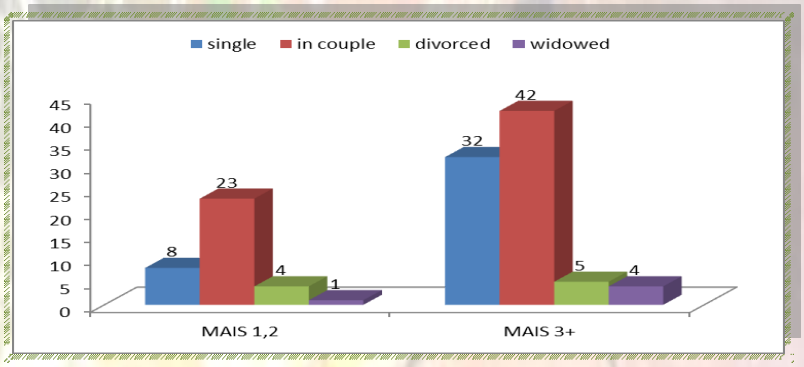
***Graph 16**. Distribution of study participants based on ISS score, mean age and country of registration*

Injury severity and age

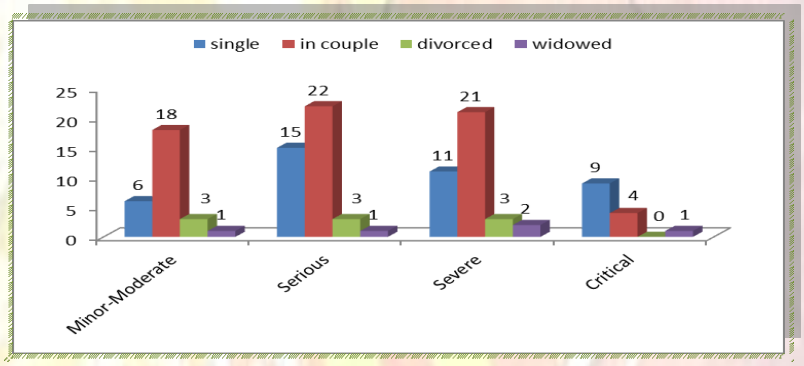
As regards to age differences, it is evident that the mean age of injured patients is similar for those in "MAIS 1,2" and the ones in "MAIS 3+" anchoring from 41 to 42 years (Graph 13). Looking at the ISS classification it seems that the ones classified as "severe" were the oldest (45.9 years) as compared to the other ISS categories (Graph 14).

Italy recorded the oldest participants in terms of the "MAIS 3+" cases with injured participants demonstrating a mean age of 48.3 years (Graph 15).

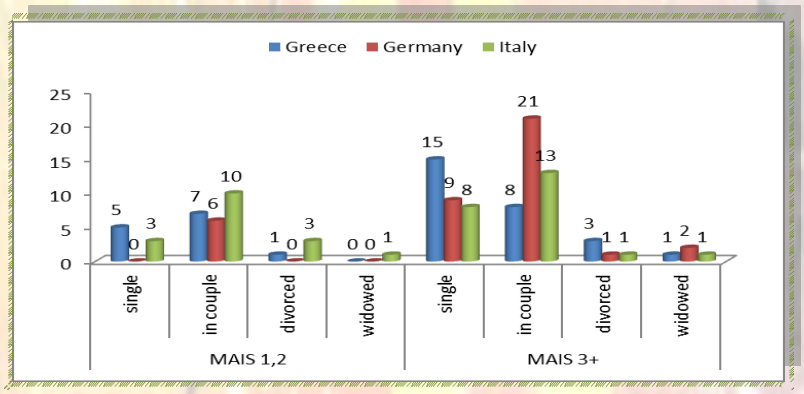
Looking at the age differences based on the ISS classification, Italy had the oldest participants among those classified as "severe" (51.3 years) but Germany had the oldest participants among the ones classified as "critical" (45.4 years) (Graph 16).



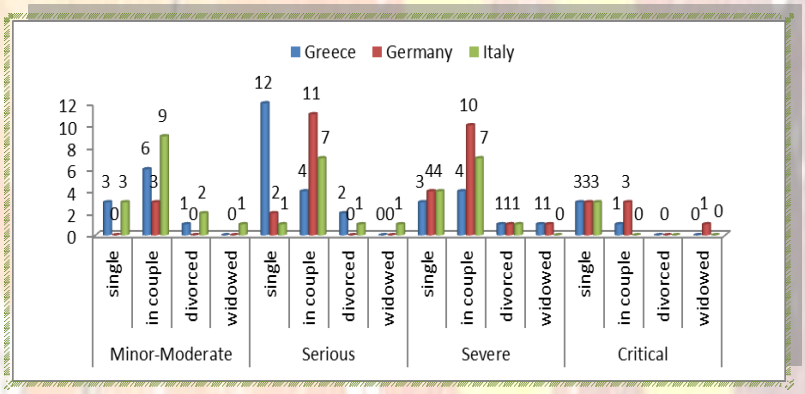
***Graph 17**. Distribution of study participants based on MAIS score and marital status*



***Graph 18**. Distribution of study participants based on ISS score and marital status*



***Graph 19**. Distribution of study participants based on MAIS score, marital status and country of registration*



***Graph 20.**Distribution of study participants based on ISS score, marital status and country of registration*

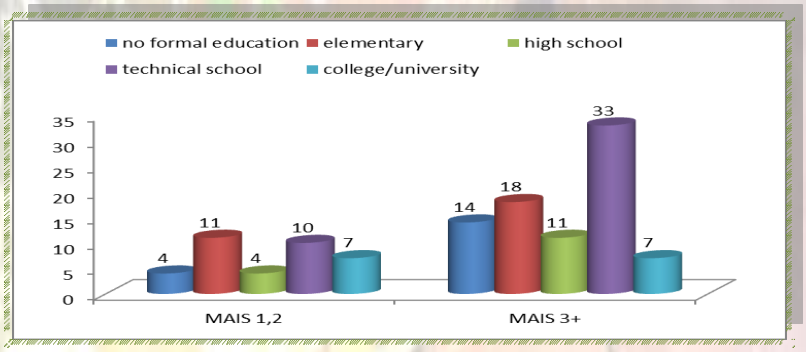
Injury severity and marital status

As for the differences in the marital status, participants who were in couple were overrepresented in "MAIS 3+" category (n=42) with single participants following those in couple (n=32) (Graph 17).

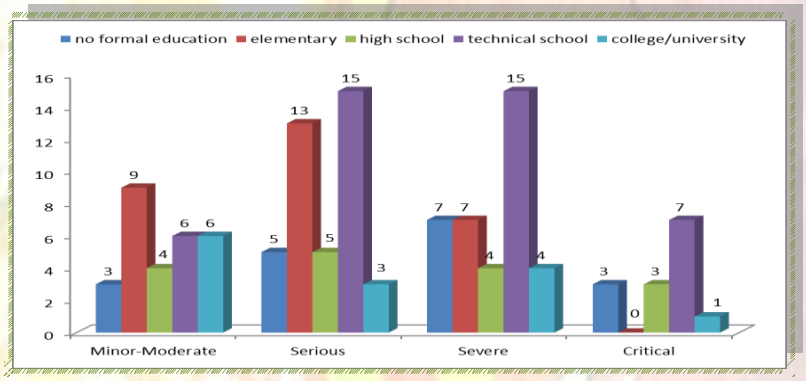
Based on the ISS classification, participants who were in couple were overrepresented among those classified as "severe" (n=21) while the single were the majority among the ones classified as "critical" (n=9) (Graph 18).

Most of the Greek participants classified as "MAIS 3+" were single (n=15), while most of the German and Italian participants were in couple (n=21 and n=13, respectively) (Graph 19).

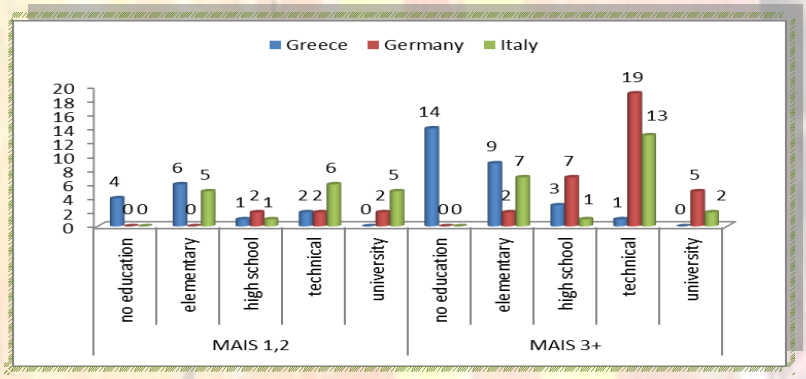
Based on the ISS classification, single and in couple participants were almost equally represented among the Greek participants classified as "severe" (n=3 and n=4, respectively), while most of the German and Italian participants classified as "severe" were in couple (n=10 and n=7, respectively). As for those classified as "critical" most of the Greek and Italian participants were single (n=3 respectively) while an equal number of single and in couple participants were evident among the German participants (n=3 respectively) (Graph 20).



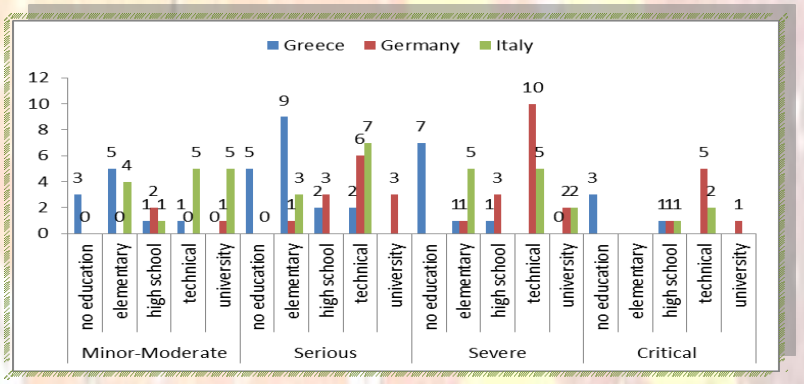
***Graph 21**. Distribution of study participants based on MAIS score and education*



***Graph 22**. Distribution of study participants based on ISS score and education*



***Graph 23**. Distribution of study participants based on MAIS score, education and country of registration*



***Graph 24**. Distribution of study participants based on ISS score, education and country of registration*

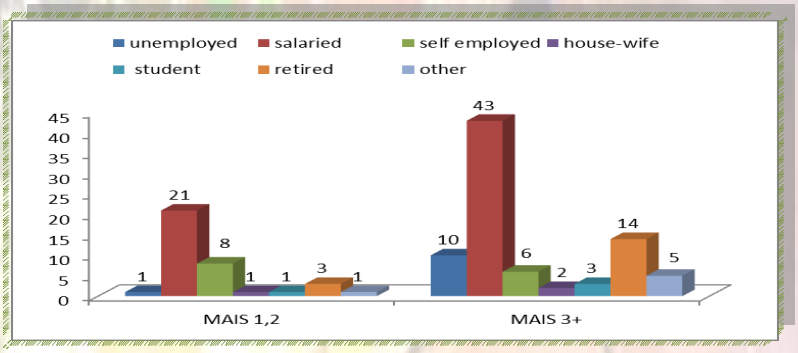
Injury severity and education

As for the differences in the education, participants who were graduates of technical school were overrepresented in “MAIS 3+” injury severity category (n=33) (Graph 21).

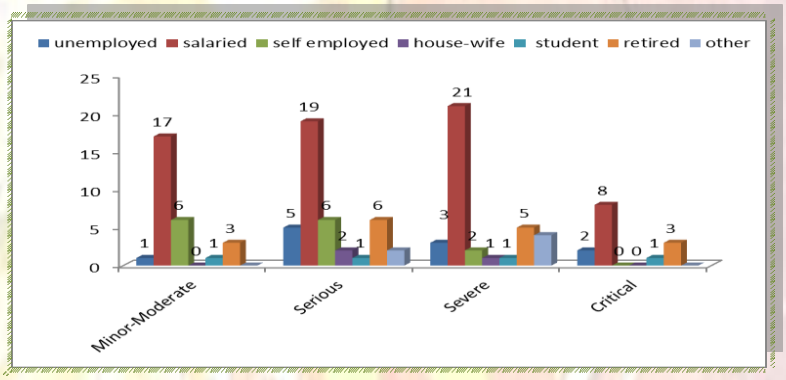
Based on the ISS classification, graduates of technical school were also overrepresented among those sustaining injuries classified as “severe” (n=15) and the ones classified as “critical” (n=7). A large number of low educated participants were recorded among those sustaining injuries classified as “minor-moderate” as well as among the ones classified as “serious” (Graph 22).

Looking at country differences, most of the Greek participants with injuries classified as “MAIS 3+” were illiterate (n=14), while most of the German and Italian participants within the same injury severity category were graduates of technical school (n=19 and n=13, respectively) (Graph 23).

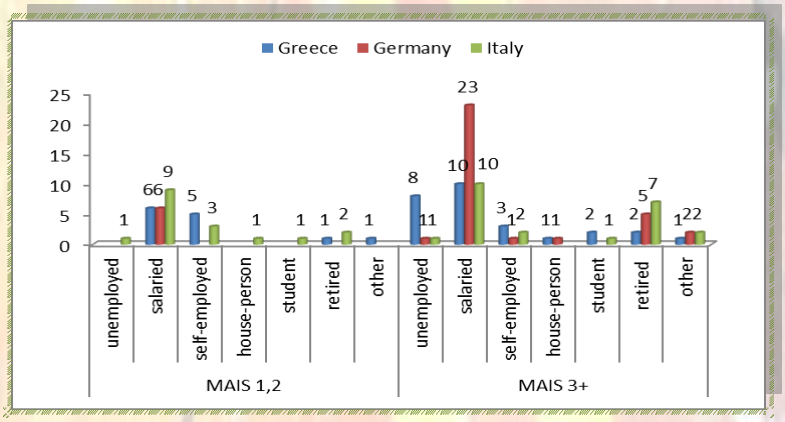
Taking into acount the ISS classification, it is evident that most of the German participants with injuries classified either as “severe” or as “critical” were graduates of technical school (n=10 and n=5, respectively). On the contrary, most of the Greek participants with injuries classified either as “severe” or as “critical” were illiterate (n=7 and n=3, respectively). The Italian participants were highly represented by graduates of elementary and graduates of technical school (Graph 24).



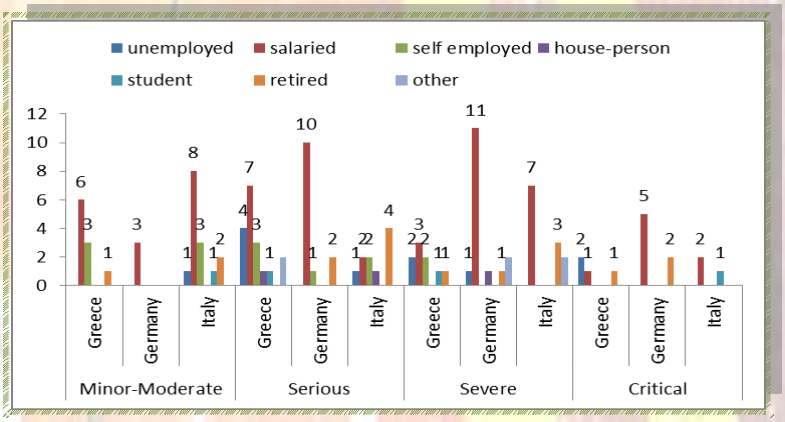
***Graph 25**. Distribution of study participants based on MAIS score and occupation*



***Graph 26**. Distribution of study participants based on ISS score and occupation*



***Graph 27**. Distribution of study participants based on MAIS score, occupation and country of registration*



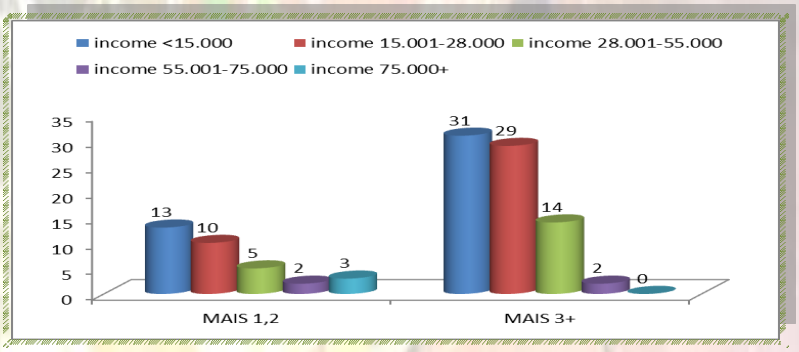
***Graph 28**. Distribution of study participants based on ISS score, occupation and country of registration*

Injury severity and occupation

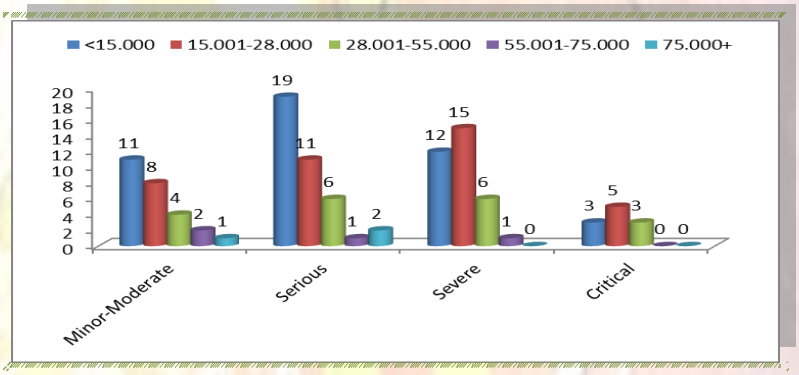
As for the occupation, it is evident from the results that salaried participants were overrepresented in both "MAIS 3+" injury severity category (n=43) and all the ISS categories (Graphs 25; Graph 26).

Exploring the differences among countries, it can be seen that the vast majority of the German participants with injuries classified as "MAIS 3+" were salaried (n=23). On the contrary, Greek participants within the same injury severity category were both salaried and unemployed (n=10 and n=8, respectively) and Italian participants were salaried and retired (n=10 and n=7, respectively) (Graph 27).

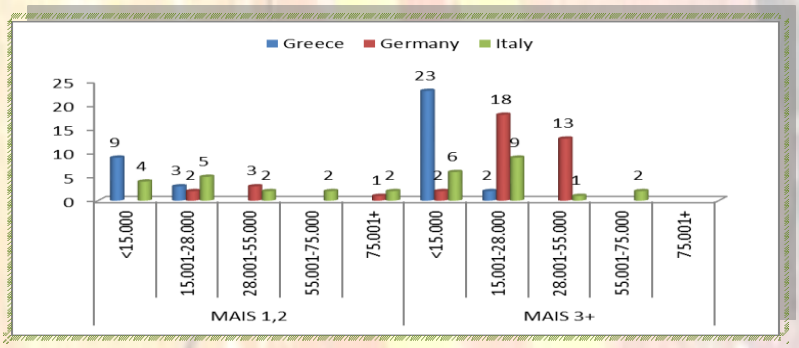
Likewise, in the ISS classification, salaried participants seem to be overrepresented in both "severe" and "critical" injury severity categories, in both Germany (n=11 and n=5, respectively) and Italy (n=7 and n=2, respectively). In Greece, most of the participants with injuries classified as "critical" and many of those classified as "severe" were unemployed (Graph 28).



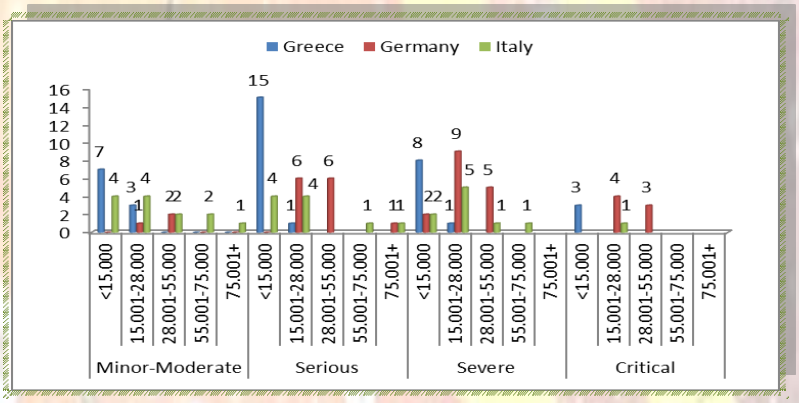
Graph 29. *Distribution of study participants based on MAIS score and income*



Graph 30*. Distribution of study participants based on ISS score and income*



Graph 31. *Distribution of study participants based on MAIS score, income and country of registration*



Graph 32*. Distribution of study participants based on ISS score, income and country of registration*

Injury severity and income

Looking at differences in terms of income, it is evident that most of the participants with injuries classified as "MAIS 3+" represented the two lowest income groups (<15.000 and 15.000 – 28.000, respectively) (Graph 29).

When using the ISS classification, it seems that participants with an income of 15.000 – 28.000 euro were overrepresented among the injuries classified as "severe" (n=15) and "critical" (n=5), while participants with an income of <15.000 were overrepresented among the injuries classified as "minor-moderate" (n=11) and "serious" (n=19) (Graph 30).

Most of the German (n=18) and Italian participants (n=9) with injuries classified as "MAIS 3+" represented the income category of 15.001-28.000 while most of the Greek participants (n=23) in "MAIS 3+" injury severity category represented the <15.000 income category (Graph 31).

According to the ISS classification, most of the Greek participants with injuries classified as "severe" and "critical" belonged to the income category of <15.000 (n=8 and n=3, respectively), most of the Italian participants belonged to the category of 15.001-28.000 while the German participants represented both the categories of 15.001-28.000 and 28.001-55.000 (Graph 32).

Rehabilaid

RESULTS (iii)

Physical functioning & well-being

Performance in SF-36

Looking at the performance of the overall sample, it is evident that the aspects of well-being mostly affected at 6 months after the injury were "Role limitations due to physical health" and "Pain" followed by the aspect of "Energy/fatigue". The aspect of well-being less affected by the injury at 6 months was "Role limitations due to emotional problems".

At 12 months after the injury, the aspects that were still highly affected due to the injury were "Pain", followed by "Energy/fatigue" and "General health". The aspect of well-being less affected by the injury at 12 months was again "Role limitations due to emotional problems".

With the "exemption of ""Role limitations due to emotional problems", which remained unaffected and the "health change" which seemed to become more favorable through time, none of the aspects of well-being reached the levels recorded before the injury. The aspects most highly recovered were "Emotional well-being" and "Energy-fatigue". Details on the performance of the overall sample in the differentSF-36 scales at different times are presented in Table 11.

Table 11. *SF-36 scores - Descriptive Statistics for all countries*

	Baseline				1-ST Follow-up				2-ND Follow-up			
All countries	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Physical functioning	**118**	100.0	100.0	100.0	**96**	65.0	27.5	95.0	**93**	80.0	40.0	95.0
Role limitations due to physical health	**117**	100.0	100.0	100.0	**96**	50.0	0.0	100.0	**93**	75.0	0.0	100.0
Role limitations due to emotional problems	**117**	100.0	100.0	100.0	**93**	100.0	33.3	100.0	**90**	100.0	33.3	100.0
Energy/fatigue	**112**	80.0	70.0	90.0	**91**	60.0	45.0	80.0	**90**	70.0	50.0	85.0
Emotional well-being	**112**	84.0	76.0	92.0	**91**	76.0	48.0	88.0	**90**	76.0	60.0	88.0
Social functioning	**117**	100.0	75.0	100.0	**93**	75.0	50.0	100.0	**92**	75.0	56.3	100.0
Pain	**118**	100.0	100.0	100.0	**93**	55.0	42.5	90.0	**92**	67.5	48.8	100.0
General Health	**112**	90.0	85.0	100.0	**91**	65.0	50.0	85.0	**90**	70.0	50.0	85.0
Health Change	**120**	50.0	50.0	50.0	**96**	75.0	25.0	100.0	**93**	75.0	50.0	100.0

**Each item is scored on a 0 to 100 range. A higher score indicates a more favorable health status*

Country-specific performance in SF-36 Greece

Looking at the performance of the different countries, it is evident that the aspects of well-being mostly affected in the Greek participants at 6 months after the injury were "Role limitations due to physical health" followed by the aspect of "General health". The aspects of well-being less affected by the injury at 6 months were "Role limitations due to emotional problems", "Health change" and "Social functioning". At 12 months after the injury, the aspects that were still highly affected due to the injury were "Role limitations due to physical health", followed by "General health". With the "exemption of ""Role limitations due to emotional problems" and "Health change", which remained unaffected through time, none of the aspects of well-being reached the levels recorded before the injury. However, most of the aspects highly improved at 12 months. The aspects most highly recovered were "Physical functioning" and "Energy-fatigue". Details on the overall performance of the Greek participants in the different SF-36 scales at different times are presented in Table 12 and Figures 33-40.

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Country-specific performance in SF-36 Italy

With the exemption of "Health change", all the aspects of well-being were affected at 6 months in the Italian participants.

Those most highly affected were "Role limitations due to physical health", "Physical functioning", "Pain" and "General health". "Health change" was partly recovered at 6 months.

At 12 months after the injury, all the aspects remained highly affected due to the injury with some improvements in "emotional well-being" and "Pain". Besides the improvement noted in these aspects, they were still highly affected at 12 months.

None of the aspects of well-being reached the levels recorded before the injury. "Health change" maintained the improved level already gained at 6 months.

Details on the overall performance of the Italian participants in the different SF-36 scales at different times are presented in Table 13 and Figures 33-40.

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Country-specific performance in SF-36 Germany

The aspects of well-being mostly affected in the German participants at 6 months after the injury were "Physical functioning" and "Pain" followed by the aspect of "General health". The aspects of well-being not at all affected by the injury at 6 months were "Role limitations due to emotional problems" and Social functioning". "Health change" was fully recovered at 6 months. At 12 months after the injury, the aspects that were still highly affected due to the injury were "Pain", "General health" and "Physical functioning". "Health change" deteriorated at 12 months after being fully recovered at 6 months. With the exemption of "Role limitations due to emotional problems" and "Social functioning", which remained unaffected through time, the aspect of well-being that reached the levels recorded before the injury was "Role limitations due to physical health". The aspects most highly recovered were "Physical functioning" and "Energy-fatigue". Details on the overall performance of the German participants in the different SF-36 scales at different times are presented in Table 14 and Figures 33-40

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Table 12. *SF-36 scores - Descriptive Statistics for Greece*

	Baseline				1-ST Follow-up				2-ND Follow-up			
Greece	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Physical functioning	**39**	100.0	90.0	100.0	**38**	90.0	30.0	100.0	**38**	95.0	50.0	100.0
Role limitations due to physical health	**38**	100.0	25.0	100.0	**38**	50.0	0.0	100.0	**38**	75.0	0.0	100.0
Role limitations due to emotional problems	**38**	100.0	66.7	100.0	**35**	100.0	0.0	100.0	**35**	100.0	0.0	100.0
Energy/fatigue	**33**	90.0	65.0	100.0	**33**	80.0	55.0	90.0	**35**	85.0	60.0	90.0
Emotional well-being	**33**	88.0	72.0	92.0	**33**	76.0	56.0	88.0	**35**	80.0	64.0	88.0
Social functioning	**38**	81.3	75.0	100.0	**35**	75.0	50.0	100.0	**37**	75.0	50.0	100.0
Pain	**39**	100.0	75.0	100.0	**35**	77.5	55.0	100.0	**37**	90.0	57.5	100.0
General Health	**33**	95.0	70.0	100.0	**33**	65.0	55.0	90.0	**35**	75.0	50.0	90.0
Health Change	**41**	50.0	50.0	50.0	**38**	50.0	25.0	50.0	**38**	50.0	50.0	100.0

**Each item is scored on a 0 to 100 range. A higher score indicates a more favorable health status*

Table 13. *SF-36 scores - Descriptive Statistics for Germany*

	Baseline				1-ST Follow-up				2-ND Follow-up			
Germany	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Physical functioning	**39**	100.0	95.0	100.0	**21**	55.0	5.0	90.0	**20**	82.5	42.5	92.5
Role limitations due to physical health	**39**	100.0	100.0	100.0	**21**	75.0	25.0	100.0	**20**	100.0	50.0	100.0
Role limitations due to emotional problems	**39**	100.0	100.0	100.0	**21**	100.0	100.0	100.0	**20**	100.0	66.7	100.0
Energy/fatigue	**39**	85.0	75.0	90.0	**21**	70.0	50.0	75.0	**20**	75.0	52.5	90.0
Emotional well-being	**39**	84.0	80.0	92.0	**21**	76.0	72.0	88.0	**20**	78.0	72.0	88.0
Social functioning	**39**	100.0	100.0	100.0	**21**	100.0	75.0	100.0	**20**	100.0	75.0	100.0
Pain	**39**	100.0	100.0	100.0	**21**	55.0	45.0	67.5	**20**	67.5	50.0	77.5
General Health	**39**	95.0	85.0	100.0	**21**	65.0	60.0	80.0	**20**	77.5	60.0	85.0
Health Change	**39**	50.0	50.0	50.0	**21**	100.0	75.0	100.0	**20**	75.0	75.0	100.0

**Each item is scored on a 0 to 100 range. A higher score indicates a more favorable health status*

Table 14. *SF-36 scores - Descriptive Statistics for Italy*

	Baseline				1-ST Follow-up				2-ND Follow-up			
Italy	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Physical functioning	**40**	100.0	100.0	100.0	**37**	40.0	30.0	85.0	**35**	60.0	30.0	85.0
Role limitations due to physical health	**40**	100.0	100.0	100.0	**37**	0.0	0.0	50.0	**35**	25.0	0.0	75.0
Role limitations due to emotional problems	**40**	100.0	83.3	100.0	**37**	66.7	0.0	100.0	**35**	66.7	0.0	100.0
Energy/fatigue	**40**	75.0	70.0	85.0	**37**	50.0	40.0	65.0	**35**	55.0	40.0	70.0
Emotional well-being	**40**	80.0	72.0	94.0	**37**	60.0	44.0	84.0	**35**	68.0	52.0	84.0
Social functioning	**40**	100.0	75.0	100.0	**37**	62.5	37.5	87.5	**35**	62.5	50.0	87.5
Pain	**40**	100.0	100.0	100.0	**37**	45.0	32.5	57.5	**35**	57.5	45.0	80.0
General Health	**40**	90.0	85.0	95.0	**37**	55.0	45.0	75.0	**35**	55.0	50.0	80.0
Health Change	**40**	50.0	50.0	75.0	**37**	75.0	50.0	100.0	**35**	75.0	50.0	100.0

**Each item is scored on a 0 to 100 range. A higher score indicates a more favorable health status*

***Figure 33**: Physical functioning*

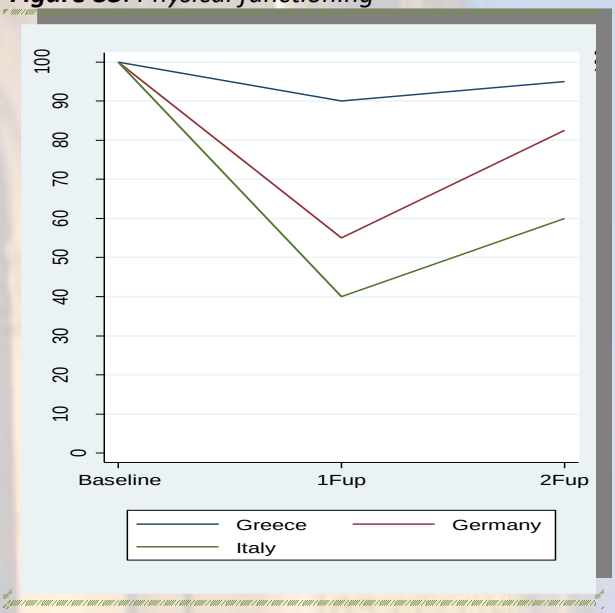

***Figure 34**: Role limitations due to physical health*

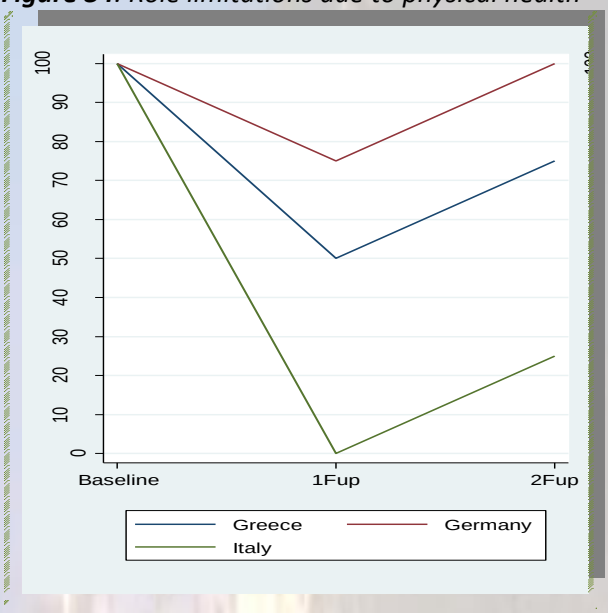

***Figure 35**: Role limitations due to emotional problems*

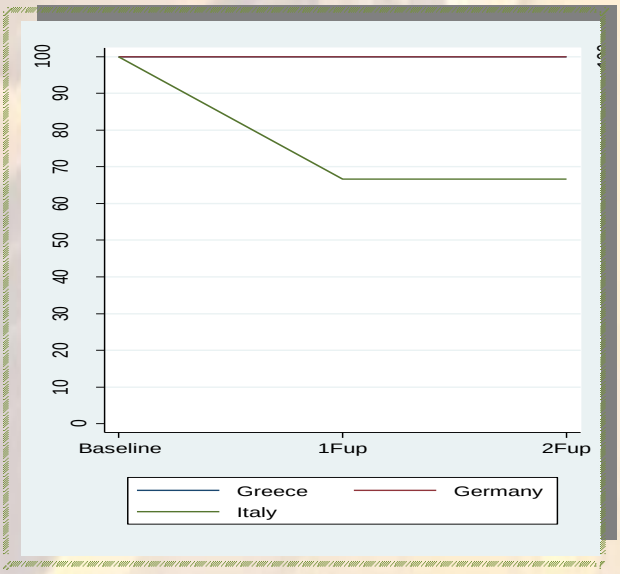

***Figure 36**: Energy/fatigue*

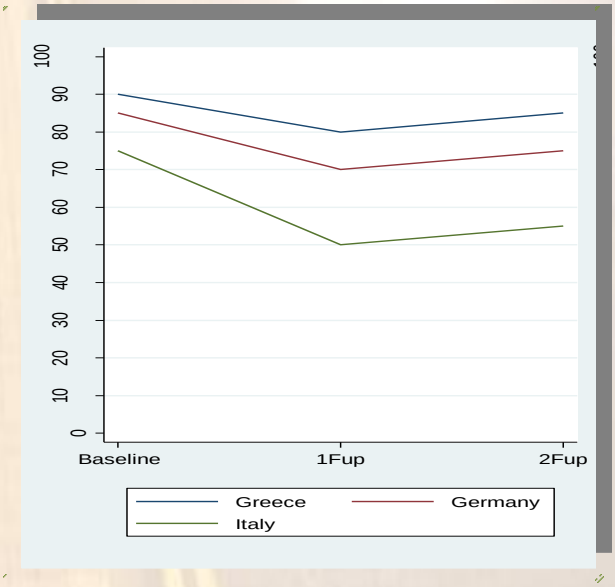

***Figure 37**: Emotional well-being*

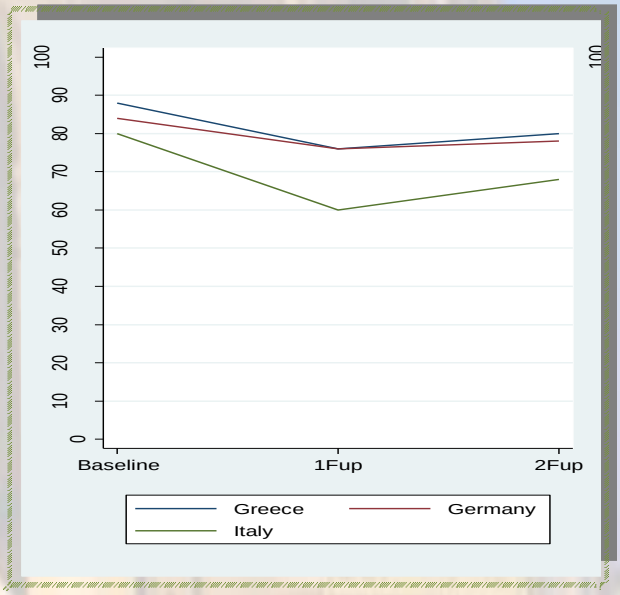

***Figure 38**: Social functioning*

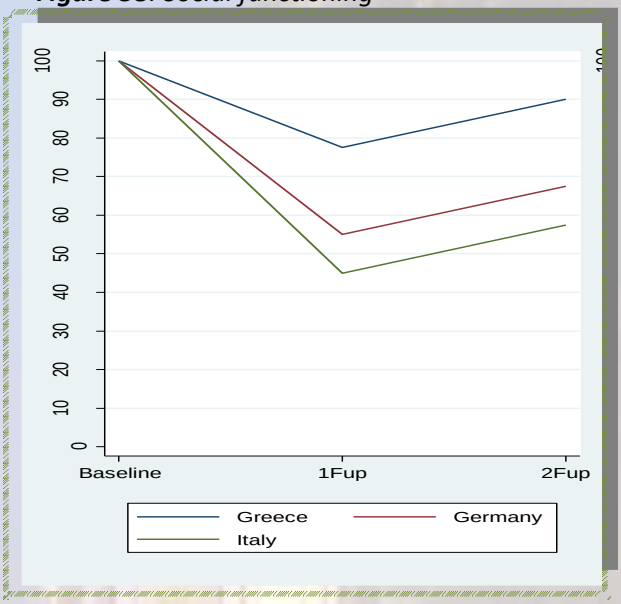

***Figure 39**: Pain*

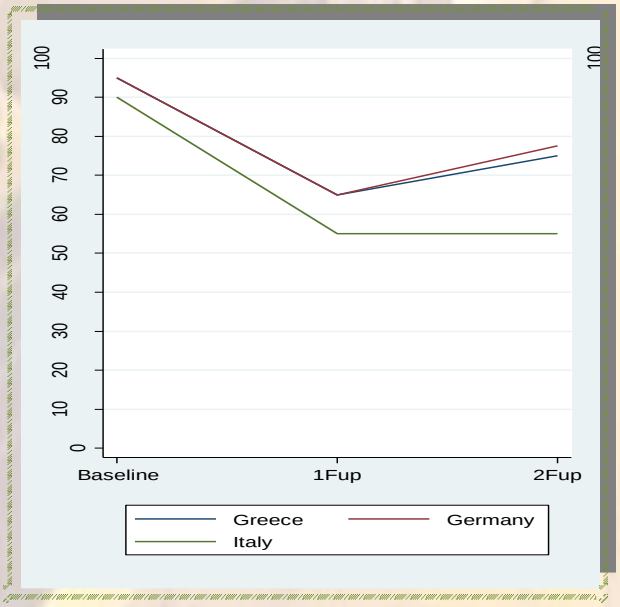

***Figure 40**: General Health*

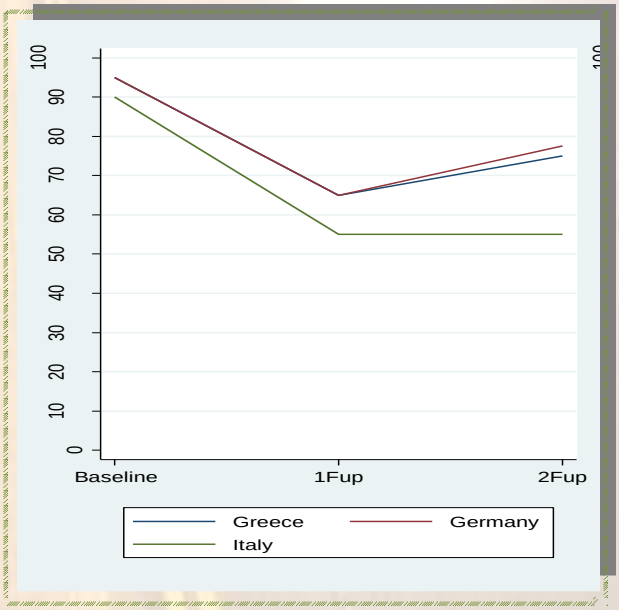

***Table 15**. Characteristics of subjects with pain at 6 months (n=59)*

Pain at 6 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	43	72.9	0.083
Females	16	27.1	
Center			
Greece	13	22.0	<0.001
Germany	16	27.1	
Italy	30	50.9	
Marital Status			
Single	16	27.1	0.055
In couple	36	61.0	
Divorced\Widow	7	11.9	
Education			
Low	20	33.9	0.336
High	33	55.9	
Higher	6	10.2	
Medical characteristics			
Max_ais_Head			
Yes	18	30.5	0.186
No	41	69.5	
Max_ais_Low Extremities			
Yes	23	39.0	0.523
No	36	61.0	
Fractures		18	
Single	6	10.2	1.000
Multiple	53	89.8	
Max_ais		0	
1-2	19	32.2	0.084
3	26	44.1	
≥4	14	23.7	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	16	27.1	0.763
Two-wheels motorize	18	30.5	
Four-wheels motorize	25	63.4	
Crash Location			
Intersection	11	19.0	0.019
Straight road	34	58.6	
On bends	8	13.8	
Parking	5	8.6	

Participants sustaining pain 6 months after the injury

The Italian participants were more affected by pain as compared with the Greek and the German counterparts, with 1 in every 2 participants reporting this symptom 6 months after the injury.

The majority of the participants suffering pain 12 months after the injury were men, in couple, with high education.

Most of them sustained the injury as users of motorized four-wheel vehicles and many of them sustained the injury at a “straight road” incident.

Many of them sustained serious injuries. The most severe injuries were at body regions other than the head and other than the low extremities for many of the participants affected by pain at 6 months after the injury. The vast majority sustained multiple fractures. Detailes are presented in Table 15.

Table 1. *Characteristics of subjects with pain at 12 months (n=44)*

Pain at 12 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	33	75.0	0.371
Females	11	25.0	
Center			
Greece	12	27.3	0.007
Germany	9	20.4	
Italy	23	52.3	
Marital Status			
Single	10	22.7	0.023
In couple	26	59.1	
Divorced\Widow	8	18.2	
Education			
Low	18	40.9	0.595
High	23	52.3	
Higher	3	6.8	
Medical characteristics			
Max_ais_Head			
Yes	13	29.6	0.110
No	31	70.4	
Max_ais_Low Extremities			
Yes	21	47.7	0.047
No	23	52.3	
Fractures			
Single	5	11.4	0.715
Multiple	39	88.6	
Max_ais			
1-2	15	34.1	0.135
3	19	43.2	
≥4	10	22.7	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	12	27.3	0.203
Two-wheels motorize	17	38.6	
Four-wheels motorize	15	34.1	
Crash Location			
Intersection	11	25.0	0.015
Straight road	23	52.3	
On bends	8	18.2	
Parking	2	4.5	

Participants sustaining pain 12 months after the injury

The Italian participants were more affected by pain as compared with the Greek and the German counterparts, with 1 in every 2 participants reporting this symptom 12 months after the injury.

The majority of the participants suffering pain 12 months after the injury were men, in couple, with high education.

Many of them sustained the injury as users of motorized two-wheel and as users of motorized four-wheel vehicles. Half of them sustained the injury at a “straight road” incident.

The majority sustained serious and minor or moderate injuries . The most severe injuries were at body regions other than the head for the majority of the participants suffering pain. Half of them sustained the most severe injuries at the low extremities and the vast majority sustained multiple fracture. Detailes are presented in Table 16.

RESULTS (iii)

Physical functioning & well-being

Country differences

Baseline performance in SF-36

Comparing the baseline performance of the different countries in the individual SF-36 scales, we can see that the German participants differed at a statistically significant level from the Greek and the Italian participants in terms of "Social functioning" with German participants manifesting more favorable levels of social functioning at baseline as compared with the rest. Furthermore, the Greek participants differed from the Italian participants in terms of "Pain" with Italian demonstrating more favorable performance in terms of pain at baseline as compared with the Greek counterparts. Details on the baseline performance are presented in Table 17.

6-month performance in SF-36

The German participants differed at a statistically significant level from the Greek counterparts in terms of "Health change" at 6 months, with the German demonstrating a more favorable score in all these aspects as compared with the Italian. The German also differed at a statistically significant level from the Italian counterparts in terms of "Role limitations due to physical health" and "Social functioning", with the German participants demonstrating more favorable scores as compared with the Italian. Finally, the Greek participants differed at a statistically significant level from the Italian counterparts in terms of "Energy/fatigue", "Pain" and "Health change" with the Greek performing more favorably in "Energy/fatigue" and "Pain" and the Italian performing better in "Health change". Details on the 6month performance are presented in Table 18.

12-month performance in SF-36

The German participants differed at a statistically significant level from the Italian counterparts in terms of "Role limitations due to physical health", "Energy / fatigue", "Social functioning" and "General health change" at 12 months, with the German demonstrating a more favorable health change score as compared with the Greek. The Greek participants differed at a statistically significant level from the Italian counterparts in terms of "Physical functioning", "Energy/fatigue" and "Pain" with the Greek participants performing more favorably in all these aspects as compared with the Italian. Details on the 12month performance are presented in Table 19.

Table 17. *Kruskal Wallis differences at baseline by country*

Baseline: Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
Physical functioning	4.6	0.103		n.s.		n.s.		n.s.
Role limitations due to physical health	4.0	0.133						
Role limitations due to emotional problems	3.0	0.220						
Energy/fatigue	3.9	0.144						
Emotional well-being	0.7	0.720						
Social functioning	25.0	<0.001	25.4	<0.001	8.1	0.005		
Pain	6.8	0.033		n.s.		n.s.	5.4	0.020
General Health	1.4	0.494						n.s.
Health Change	2.2	0.341						

n.s.=not significant

Table 18. *Kruskal Wallis differences at 1st follow up by country*

1ST Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
Physical functioning	4.7	0.100		n.s.		n.s.		n.s.
Role limitations due to physical health	8.9	0.012			9.1	0.003		
Role limitations due to emotional problems	5.6	0.061				n.s.		
Energy/fatigue	13.5	0.001					12.8	<0.001
Emotional well-being	2.7	0.262						n.s.
Social functioning	8.7	0.013			8.4	0.004		
Pain	14.3	0.001				n.s.	13.1	<0.001
General Health	4.6	0.101						n.s.
Health Change	21.9	<0.001	19.2	<0.001			10.7	0.001

n.s.=not significant

Table 19. *Kruskal Wallis differences at 2nd follow up by country*

2ND Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
Physical functioning	7.7	0.02		n.s.		n.s	7.3	0.007
Role limitations due to physical health	9.6	0.008			9.6	0.002		n.s.
Role limitations due to emotional problems	5.9	0.053				n.s.		
Energy/fatigue	15.6	<0.001			5.7	0.017	14.8	<0.001
Emotional well-being	2.7	0.251				n.s.		n.s.
Social functioning	7.2	0.027			8.3	0.004		
Pain	7.9	0.019				n.s.	7.0	0.008
General Health	6.5	0.040			5.5	0.019**		n.s.
Health Change	5.8	0.060				n.s.		

***Borderline p-value respect to 0.017; n.s.=not significant*

RESULTS (iii)

Physical functioning & well-being

Differences in performance between Baseline-FUs

Baseline-6month-12month performance in SF-36 (all countries)

Comparing the baseline with the 6month and the 12month performance of the overall sample of participants, we can see that difference in performance between baseline and 6months was statistically significant for most of the SF-36 scales, except from "Role limitations due to emotional problems" and "Health change". As for the performance between baseline and 12months, the differences were statistically significant for most of the SF-36 scales, except from the "Role limitations due to emotional problems". As regards to the comparison between the 6month and the 12month performance, only "Physical functioning" and "General health" were different at a statistically significant level. Details on the differences between baseline, 6month and 12month performance of the overall sample are presented in Table 20. It is evident from the results that one year after the injury participants have not fully recovered in none of the SF-36 scales, except from the "Health change", which shows a slight improvement through time. Furthermore, improvements between 6 and 12month are not as high to be statistically significant, meaning that participants' well-being is not significantly improved between 6-12 months after the injury. It is further evident that participants perform more favorably in scales relevant to emotional health and well-being as compared with physical functioning and health. It is further evident that although participants perform less favorably in various health scales they tend to perceive and report favorable changes in their overall health.

Table 20. *Friedman test differences by time for all sample*

Differences by time-	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
All	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Physical functioning	48.4	<0.001	<0.001	<0.001	<0.001
Role limitations due to physical health	32.4	<0.001	<0.001	<0.001	n.s.
Role limitations due to emotional problems	4.6	0.102	n.s.	n.s.	
Energy/fatigue	17.5	<0.001	<0.001	0.002	
Emotional well-being	11.9	0.003	0.002	0.014	
Social functioning	12.8	0.002	<0.001	<0.001	
Pain	43.7	<0.001	<0.001	<0.001	<0.001
General Health	47.3	<0.001	<0.001	<0.001	n.s.
Health Change	14.3	<0.001	n.s.	<0.001	

n.s.=not significant

Baseline – 6month performance in SF-36 (By country)

Comparing the baseline with the 6-month performance of the participants in the individual SF-36 scales, we can see that the only differences that were statistically significant in the Greek sample were the performance in the "Physical functioning" and the "Health change", which were less favorable at 6months as compared with the baseline.

In the German sample, difference in performance between baseline and 6months was statistically significant for most of the scales with the exemption of "Role limitations due to emotional problems" and "Emotional well-being". With the exemption of "Health change", which was more favorable at 6 months as compared with baseline, performance in all the other scales was less favorable at 6months as compared with baseline.

In the Italian sample, difference in performance between baseline and 6months was statistically significant for all the SF-36 scales. With the exemption of "Health change", which was more favorable at 6 months as compared with baseline, performance in all the other scales was less favorable at 6months as compared with baseline. Details on the differences between baseline and 6month performance are presented in Table 21.

Table 21. *Sign test differences between baseline and 1st Follow-up (by country and total)*

Baseline- 1ST Follow-up Differences by country	Greece	Germany	Italy	All
	p-value	**p-value**	**p-value**	**p-value**
Physical functioning	0.029	<0.001	<0.001	<0.001
Role limitations due to physical health	0.189	0.007	<0.001	<0.001
Role limitations due to emotional problems	1.000	0.727	0.011	0.032
Energy/fatigue	1.000	0.041	<0.001	<0.001
Emotional well-being	0.541	0.263	0.003	0.002
Social functioning	0.629	0.039	<0.001	<0.001
Pain	0.210	<0.001	<0.001	<0.001
General Health	0.064	<0.001	<0.001	<0.001
Health Change	<0.001	<0.001	0.043	0.068

6month - 12month performance in SF-36 (By country)

Comparing the 6month with the 12month performance of the participants in the individual SF-36 scales, it is evident that the only differences that were statistically significant in the Greek sample were the performance in the "Physical functioning", "Pain" and "Health change", which were more favorable at 12months as compared with 6months.

In the German sample, difference in performance between baseline and 6months was statistically significant for "Physical functioning" and "General health", which were more favorable at 12 months as compared with 6-months.

In the Italian sample, difference in performance between baseline and 6months was statistically significant only for "Pain", which was more favorable at 12months as compared with 6months. Details on the differences between 6month and 12month performance are presented in Table 22.

Baseline - 12month performance in SF-36 (By country)

Comparing the Baseline with the 12month performance of the participants in the individual SF-36 scales, it is evident that the only differences that were statistically significant in the Greek sample were the performance in the "Health change", which was more favorable at 12months as compared with baseline.

In the German sample, difference in performance between baseline and 12months was statistically significant for "Physical functioning", "Social functioning, "Pain", "General health", and "Health change", which were less favorable at 12 months as compared with baseline, with the exemption of "Health change" which was more favorable at 12months.

In the Italian sample, difference in performance between baseline and 12months was statistically significant for all the SF-36 scales. With the exemption of "Health change", which was more favorable at 12months as compared with baseline, performance in all the other scales was less favorable at 12months as compared with baseline. Details on the differences between baseline and 12month performance are presented in Table 23.

Table 22. *Sign test differences between 1st Follow-up and 2nd Follow-up (by country and total)*

1ST Follow –up 2ND Follow-up Differences by country	Greece	Germany	Italy	All
	p-value	**p-value**	**p-value**	**p-value**
Physical functioning	<0.001	0.004	0.585	<0.001
Role limitations due to physical health	1.00	0.180	0.077	0.016
Role limitations due to emotional problems	1.00	1.00	0.814	0.839
Energy/fatigue	1.00	0.060	0.845	0.161
Emotional well-being	0.302	0.424	0.585	0.118
Social functioning	1.00	1.00	1.00	0.875
Pain	0.039	0.144	0.016	<0.001
General Health	0.557	0.004	0.711	0.154
Health Change	<0.001	0.727	1.000	0.029

Table 23. *Sign test differences between Baseline and 2nd Follow-up (by country and total)*

Baseline-2ND Follow-up Differences by country	Greece	Germany	Italy	All
	p-value	**p-value**	**p-value**	**p-value**
Physical functioning	0.108	<0.001	<0.001	<0.001
Role limitations due to physical health	0.189	0.289	<0.001	<0.001
Role limitations due to emotional problems	1.000	0.508	<0.001	0.004
Energy/fatigue	1.000	0.481	<0.001	0.002
Emotional well-being	0.122	1.000	0.016	0.011
Social functioning	0.824	0.022	<0.001	<0.001
Pain	0.383	0.013	<0.001	<0.001
General Health	0.201	<0.001	<0.001	<0.001
Health Change	0.023	<0.001	0.052	<0.001

RESULTS (iv)

Disability

Performance in Disability Scales (WHODAS 2.0)

Looking at the performance of the overall sample, it is evident that participants scored higher in the DA score (DA Items 1-12) meaning that emotional difficulties, difficulties in personal and household care, as well as difficulties in communication and socializing, increased 6 months after the injury. Other disability aspects that presented minor to moderate increase at 6 months as compared with baseline, were "the level of difficulties' interference with life" (DA13), "the number of days these difficulties were present"(DA14) and "the number of days they cut back or reduced usual activities or work" (DA16). Between 6months and 12 months, differences were evident at the DA score and "the level of difficulties' interference with life". At 12 months, worse performance was still evident in almost all the DA scales, with the exemption of "the number of days they cut back or reduced usual activities or work". Details on the performance of the overall sample in the Disability Scales (WHODAS 2.0) at different times are presented in Table 24.

Table 24. *WHODAS 2.0 score - Descriptive Statistics for all countries*

All	Baseline				1-ST Follow-up				2-ND Follow-up			
	n	Median	IQR		n	Median	IQR		n	Median	IQR	
DA1-DA12	113	12	12	13	93	20	13	31	92	18	12	28
DA13	114	1	1	1	94	2	1	4	91	2	1	3
DA14	114	0	0	0	93	8	0	30	91	5	0	20
DA15	114	0	0	0	93	0	0	15	91	0	0	4
DA16	114	0	0	0	93	2	0	15	91	0	0	10

Range 0 (no disability) 60 (complete disability)

Table 252. *WHODAS 2.0 - Descriptive Statistics for Greece*

	Baseline				1-ST Follow-up				2-ND Follow-up			
Greece	n	Median	IQR		n	Median	IQR		n	Median	IQR	
DA1-DA12	35	12	12	21	36	14	12	28.5	37	13	12	22
DA13	35	1	1	3	36	1	1	4	37	1	1	2
DA14	35	0	0	1	35	0	0	30	36	0	0	22.5
DA15	35	0	0	1	35	0	0	20	36	0	0	0.5
DA16	35	0	0	4	35	0	0	0	36	0	0	0

Range 0 (no disability) 60 (complete disability)

Country-specific performance in Disability Scales (Greece)

The Greek participants did not present any major differences in terms of their performance in the Disability Scales between baseline and 6months after the injury.

At 12months after the injury, a less favorable performance was evident in "the level of difficulties' interference with life" and the "number of days totally unable to carry out usual activities or work" as compared with performance at 6months after the injury.

Details on the overall performance of the Greek participants in the different Disability Scales at different times are presented in Table 25 and Figures 41-45.

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Country-specific performance in Disability Scales (Italy)

The Italian participants presented major differences in terms of their performance in all the Disability Scales between baseline and 6months after the injury. In particular, participants performed worse at 6 months as compared with baseline. No major differences were evident between 6month and 12month performance in any of the Disability Scales. At 12months after the injury, performance in almost all the Disability Scales was less favorable as compared with baseline, with the exemption of the "number of days totally unable to carry out usual activities or work", which was fully recovered. Details on the overall performance of the Italian participants in the different Disability Scales at different times are presented in Table 26 and Figures 41-45.

Country-specific performance in Disability Scales (Germany)

As with the Italian, the German participants presented major differences in terms of performance in all the Disability Scales between baseline and 6months after the injury. In particular, participants performed worse at 6 months as compared with baseline. No major differences were evident between 6month and 12 month performance in most of the Disability Scales, with the exemption of the DA score, which was less favorable as compared with performance at 6months. At 12months after the injury, performance in almost all the Disability Scales was less favorable as compared with baseline, with the exemption of the "number of days totally unable to carry out usual activities or work", which was nearly recovered at 12 months. Details on the overall performance of the German participants in the different Disability Scales at different times are presented in Table 27 and Figures 41-45.

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Table 26. *WHODAS 2.0 - Descriptive Statistics for Germany*

	Baseline			1-ST Follow-up			2-ND Follow-up		
Germany	**n**	**Median**	**IQR**	**n**	**Median**	**IQR**	**n**	**Median**	**IQR**
DA1-DA12	38	12	12 12	21	21	15 34	20	18	15 26
DA13	39	1	1 1	21	3	2 4	19	2	2 3
DA14	39	0	0 0	21	30	4 30	20	30	1 30
DA15	39	0	0 0	21	10	0 30	20	9	0 30
DA16	39	0	0 0	21	4	0 30	20	0	0 30

Range 0 (no disability) 60 (complete disability)

Table 273. *WHODAS 2.0 - Descriptive Statistics for Italy*

	Baseline			1-ST Follow-up			2-ND Follow-up		
Italy	**n**	**Median**	**IQR**	**n**	**Median**	**IQR**	**n**	**Median**	**IQR**
DA1-DA12	40	12	12 13	37	22	16 31	35	20	17 30
DA13	40	1	1 1	37	3	1 3	35	2	1 3
DA14	40	0	0 0	37	8	0 20	35	6	0 15
DA15	40	0	0 0	37	0	0 1	35	0	0 0
DA16	40	0	0 0	37	10	0 25	35	5	0 15

Range 0 (no disability) 60 (complete disability)

Figure 41. *Da Score*

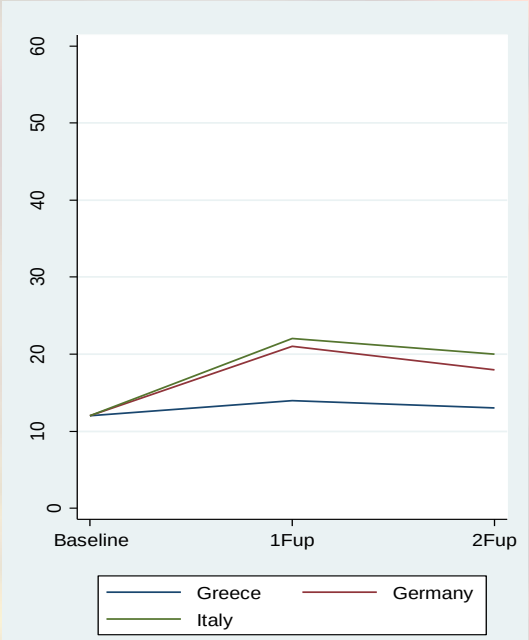
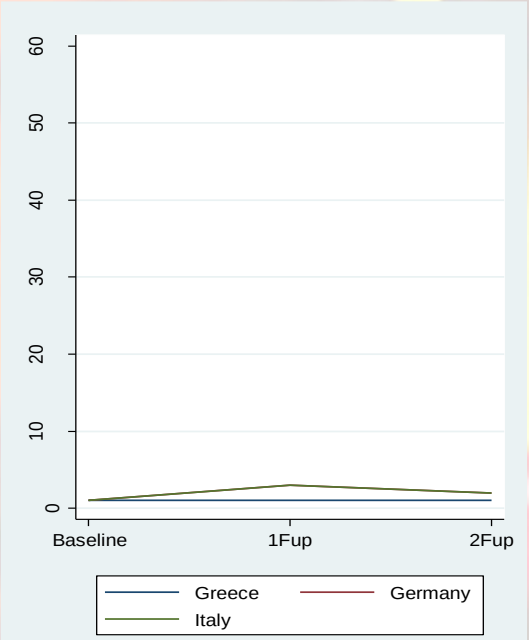


Figure 42. *Difficulties interfere with life*



F-12 (DA Score): Difficulties in the past 30 days in the following: ***DA1****. Standing for long periods such as 30 minutes?* ***DA2****. Taking care of your household responsibilities?* ***DA3****. Learning a new task, for example, learning how to get to a new place?* ***DA4****. How much of a problem did you have joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?* ***DA5****. How much have you been emotionally affected by your health problems?* ***DA6****. Concentrating on doing something for ten minutes?* ***DA7****. Walking a long distance such as a kilometre [or equivalent]?* ***DA8****. Washing your whole body?* ***DA9****. Getting dressed?* ***DA10****. Dealing with people you do not know?* ***DA11****. Maintaining a friendship?* ***DA12****. Your day to day work?*

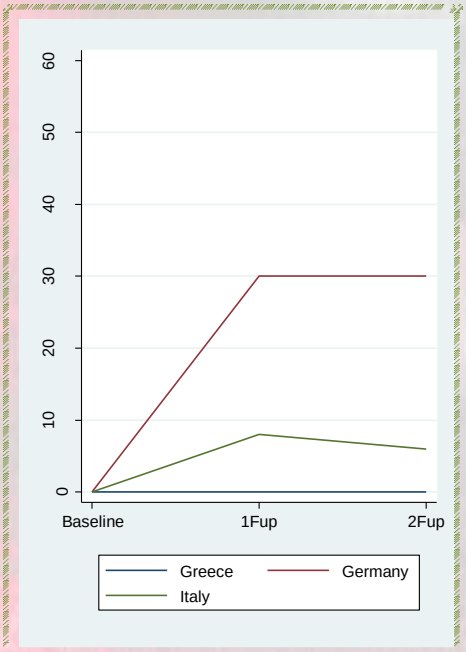


Figure 43. *Number of days with difficulties*

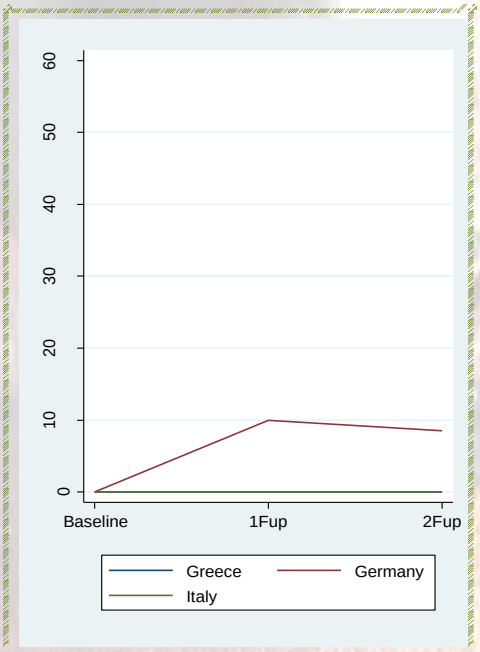


Figure 44. *Number of days totally unable*

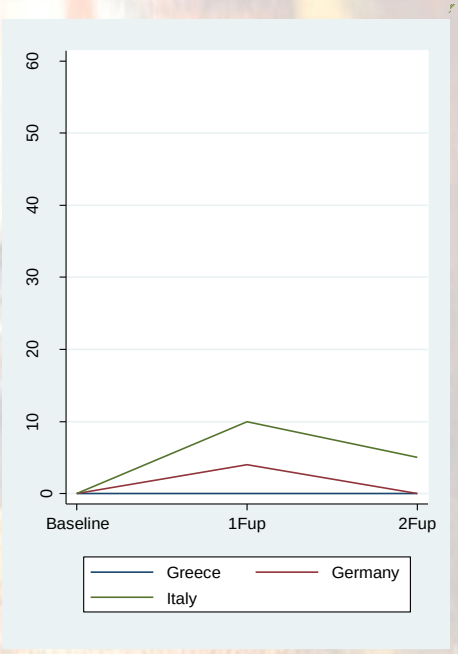


Figure 45. *Number of days with a reduction in usual activities or work*

*F-13 (**DA13**) Overall, how much did these difficulties interfere with your life? (1=none, 5=cannot do)*

*F-14 (**DA14**) Overall, in the past 30 days, how many days were these difficulties present?*

*F-15 (**DA15**) In the past 30 days, for how many days were you totally unable to carry out your usual activities or work because of any health condition?*

*F-16 (**DA16**) In the past 30 days, not counting the days that you were totally unable, for how many days did you cut back or reduce your usual activities or work because of any health condition?*

Table 4 *Characteristics of subjects with physical disability at 6 months (n=38)*

Physical disability at 6 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	29	76.3	0.638
Females	9	23.7	
Center			
Greece	12	31.6	0.516
Germany	10	26.3	
Italy	16	42.1	
Marital Status			
Single	11	28.9	0.069
In couple	18	47.4	
Divorced\Widow	9	23.7	
Education			
Low	16	42.1	0.909
High	18	47.4	
Higher	4	10.5	
Medical characteristics			
Max_ais_Head			
Yes	10	26.3	0.101
No	28	73.7	
Max_ais_Low Extremities			
Yes	19	50.0	0.022
No	19	50.0	
Fractures			
Single	2	5.3	0.301
Multiple	36	94.7	
Max_ais			
1-2	8	21.1	0.039
3	19	50.0	
≥4	11	28.9	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	10	26.3	0.648
Two-wheels motorize	14	36.8	
Four-wheels motorize	14	36.8	
Crash Location			
Intersection	8	21.1	0.226
Straight road	21	55.3	
On bends	6	15.8	
Parking	3	7.8	

Participants sustaining physical disability 6 months after the injury

A total of 2/5 of the Italian participants, 1/3 of the Greek and 1/4 of the German reported physical disability 6 months after the injury.

The majority of the participants sustaining physical disability 6 months after the injury were men, in couple, with high education.

Most of them sustained the injury as users of motorized two-wheel and motorized four-wheel vehicles. Half of them sustained the injury at a “straight road” incident.

As regards to their injury description, half of of them sustained serious injuries. The most severe injuries were at body regions other than the head for the majority of the participants sustaining physical disability. Half of them sustained injuries at body regions other than the low extremities. The vast majority sustained multiple fractures. Details are presented in Table 28.

Table 5. *Characteristics of subjects with "physical disability" at 12 months (n=27)*

Physical disability at 12 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	20	74.1	0.465
Females	7	25.9	
Center			
Greece	8	29.6	0.212
Germany	5	18.5	
Italy	14	51.9	
Marital Status			
Single	5	18.5	0.006
In couple	14	51.9	
Divorced\Widow	8	29.6	
Education			
Low	11	40.7	0.548
High	13	48.2	
Higher	3	11.1	
Medical characteristics			
Max_ais_Head			
Yes	8	29.6	0.298
No	19	70.4	
Max_ais_Low Extremities			
Yes	15	55.6	0.020
No	12	44.4	
Fractures			
Single	1	3.7	0.427
Multiple	26	96.3	
Max_ais			
1-2	7	25.9	0.012
3	11	40.7	
≥4	9	33.3	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	8	29.6	0.350
Two-wheels motorize	10	37.1	
Four-wheels motorize	9	33.3	
Crash Location			
Intersection	6	22.2	0.504
Straight road	13	48.2	
On bends	6	22.2	
Parking	2	7.4	

Participants sustaining physical disability 12 months after the injury

The Italian participants were more affected by physical disability as compared with the Greek and the German counterparts, with 1 in every 2 participants reporting this condition 12 months after the injury.

The majority of the participants sustaining physical disability 6 months after the injury were men, in couple, with high education.

Many of them sustained the injury as users of motorized two-wheel and motorized four-wheel vehicles. Nearly half of them sustained the injury at a "straight road" incident.

As regards to their injury description, many of them sustained serious injuries. The most severe injuries were at body regions other than the head for more than 2/3 of the participants and more than half of them sustained injuries at body the low extremities. The vast majority sustained multiple fractures. Detailes are presented in Table 29.

RESULTS (iv)

Disability

Country differences

Baseline performance in Disability Scales

Comparing the baseline performance of the different countries in the Disability Scales, we can see that the Greek participants differed at a statistically significant level from the German and the Italian participants in "the number of days the difficulties were present"(DA14), "the number of days totally unable to carry out usual activities or work" (DA15) and "the number of days they cut back or reduced usual activities or work" (DA16), with the Greek participants performing worse than their counterparts. Additionally, the Greek participants differed from the Italian participants in terms of "the level of difficulties' interference with life" (DA13), with the Greek demonstrating less favorable performance in terms of this aspect as compared with the Italian. No statistically significant differences were evident between the German and the Italian participants in terms of baseline performance in the Disability Scales. Details on the baseline performance are presented in Table 30.

6month performance in Disability Scales

The Greek participants differed at a statistically significant level from the German counterparts in terms of "the number of days the difficulties were present"(DA14) and "the number of days they cut back or reduced usual activities or work" (DA16), with the German participants performing worse than their Greek counterparts. The Greek also differed at a statistically significant level from the Italian counterparts in terms of the DA score (DA1-12), "the number of days totally unable to carry out usual activities or work" (DA15) and "the number of days they cut back or reduced usual activities or work" (DA16), with the Greek participants demonstrating more favorable performance as compared with the Italian. Finally, the German participants differed at a statistically significant level from the Italian counterparts in terms of "the number of days the difficulties were present"(DA14) and "the number of days totally unable to carry out usual activities or work"(DA15), with the German performing worse than the Italian counterparts. Details on the 6month performance in the Disability Scales are presented in Table 31.

12month performance in Disability Scales

At 12 months, the Greek participants differed at a statistically significant level from the German counterparts in terms of "the level of difficulties' interference with life" (DA13), "the number of days the difficulties were present"(DA14) and "the number of days totally unable to carry out usual activities or work" (DA15), with the German participants performing worse than their Greek counterparts. The Greek also differed at a statistically significant level from the Italian counterparts in terms of the DA score (DA1-12), "the level of difficulties' interference with life" (DA13) and "the number of days they cut back or reduced usual activities or work" (DA16), with the Italian participants performing worse than their Greek counterparts. Finally, the German participants differed at a statistically significant level from the Italian counterparts in terms of "the number of days totally unable to carry out usual activities or work"(DA15), with the German performing worse than the Italian counterparts. Details on the 12month performance in the Disability Scales are presented in Table 32.

Table 30. *Kruskal Wallis differences at baseline by country*

Baseline Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
DA1-DA12	1.5	0.464	n.s.		n.s.			
DA13	6.3	0.043					5.3	0.022**
DA14	11.2	0.004	8.1	0.005			5.9	0.016
DA15	14.5	<0.001	7.9	0.005			8.6	0.003
DA16	11.4	0.003	6.9	0.009			6.9	0.009

**Borderline p-value respect to 0.017; n.s.=not significant

Table 31. *Kruskal Wallis differences at 1st Follow-up by country*

1ST Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
DA1-DA12	6.4	0.042	n.s.		n.s.		5.6	0.018
DA13	2.3	0.309					n.s.	
DA14	11.8	0.003	10.5	0.001	5.7	0.017		
DA15	9.7	0.008	n.s.		9.6	0.002	2.1	0.148
DA16	21.0	<0.001	10.6	0.001	n.s.		20.5	<0.001

n.s.=not significant

Table 32. *Kruskal Wallis differences at 2nd Follow-up by country*

2ND Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
DA1-DA12	9.2	0.010	n.s.		n.s.		8.0	0.005
DA13	9.5	0.009	6.8	0.009			7.2	0.007
DA14	10.2	0.006	8.4	0.004			n.s.	
DA15	14.8	<0.001	7.5	0.006	13.6	<0.001		
DA16	11.7	0.003	n.s.		n.s.		12.4	<0.001

n.s.=not significant

Baseline- 6month- 12month performance in Disability Scales (all countries)

Comparing the baseline with the 6month and the 12month performance of the overall sample of participants, we can see that difference in performance between baseline and 6months was statistically significant for most of the Disability Scales, except from "the number of days totally unable to carry out usual activities or work" (DA15). In particular, performance in these scales at 6 months was less favorable than at baseline. Difference between 6month and 12month performance was statistically significant only for the DA score (DA1-12), which was more favorable at 12months and in "the level of difficulties' interference with life" (DA13), which was less favorable at 12 months as compared with 6 months. As for the comparison between baseline and 12month performance, the differences were statistically significant for most of the Disability scales, except from "the number of days totally unable to carry out usual activities or work" (DA15). Details on the differences between baseline, 6month and 12month performance of the overall sample in the Disability Scales are presented in Table 33. It is evident from the results that one year after the injury participants have not fully recovered in terms of the difficulties caused by the injury and still seem to face a number of difficulties in daily activities (DA1-12). Most importantly, these difficulties still seem to interfere with their life (DA13), even one year after the injury. It is important that participants did not score highly in "the number of days totally unable to carry out usual activities or work" (DA15) which means that cases of complete disability are fully recovered 12 months after the injury.

Table 33. *Friedman test differences for all the sample*

Differences by time	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
All	**test**	**p-value**	**p-value**	**p-value**	**p-value**
DA1-DA12	42.7	<0.001	<0.001	<0.001	0.030
DA13	27.2	<0.001	<0.001	<0.001	<0.001
DA14	24.3	<0.001	<0.001	<0.001	n.s.
DA15	5.6	0.061	n.s.	n.s.	
DA16	13.3	0.001	<0.001	0.003	

n.s.=not significant

RESULTS (iv)

Disability

Differences in performance between Baseline-FUs

Baseline – 6month performance in Disability Scales (By country)

Comparing the baseline with the 6-month performance of the participants in the individual Disability Scales, we can see that there were no statistically significant differences in any of the Disability Scales between baseline and 6month performance in the Greek sample.

In both the German and the Italian samples, there were statistically significant differences in their performance in all the Disability Scales. In particular, both the German and the Italian participants performed worse at 6months as compared to baseline in all the Disability Scales.

Details on the differences between baseline and 6month performance in the Disability Scales are presented in Table 34.

6month - 12month performance in Disability Scales (By country)

In the Greek sample, a less favorable performance was evident in "the level of difficulties' interference with life" (DA13) and the "number of days totally unable to carry out usual activities or work" (DA15) 12months after the injury as compared with 6months. These differences between 6month and 12month performance were statistically significant.

In the German sample, difference in performance between 6months and 12months was statistically significant only for the DA score (DA1-12), which was more favorable at 12months as compared with 6months.

In the Italian sample, there were no statistically significant differences in any of the Disability Scales between 6month and 12month performance. Details on the differences between 6month and 12month performance are presented in Table 35.

Baseline - 12month performance in Disability Scales (By country)

In the Greek sample, there were no statistically significant differences in any of the Disability Scales between baseline and 12month performance.

In both the German and the Italian samples, there were statistically significant differences in their performance in all the Disability Scales, with the exemption of the "number of days totally unable to carry out usual activities or work" (DA15). In particular, both the German and the Italian participants performed worse at 12months in all the aforementioned scales as compared to baseline.

Details on the differences between baseline and 12month performance in the Disability Scales are presented in Table 36.

Table 34. *Sign test differences between baseline and 1st Follow-up (by country and all)*

Baseline- 1ST Follow-up Differences by country	Greece	Germany	Italy	All
	p-value	p-value	p-value	p-value
DA1-DA12	0.383	<0.001	<0.001	<0.001
DA13	0.648	<0.001	<0.001	<0.001
DA14	1.00	<0.001	<0.001	<0.001
DA15	1.00	0.002	0.022	<0.001
DA16	0.549	0.013	<0.001	<0.001

Table 65. *Sign test differences between 1st and 2ND Follow-up (by country and all)*

1ST -2ND Follow-up Differences by country	Greece	Germany	Italy	All
	p-value	p-value	p-value	p-value
DA1-DA12	0.238	0.004	0.720	0.013
DA13	0.006	0.070	0.077	<0.001
DA14	0.125	0.289	0.845	0.117
DA15	0.008	1.000	0.549	0.029
DA16	0.508	0.508	0.327	0.096

Table 36. *Sign test differences between baseline and 2nd Follow-up (by country and all)*

Baseline- 2ND Follow-up Differences by country	Greece	Germany	Italy	All
	p-value	p-value	p-value	p-value
DA1-DA12	0.405	0.001	<0.001	<0.001
DA13	1.000	0.004	<0.001	<0.001
DA14	1.000	0.004	<0.001	<0.001
DA15	0.791	0.003	0.219	0.035
DA16	0.804	0.109	<0.001	0.001

RESULTS (v)

Post-traumatic stress

Performance in Original Impact of Event Scale (IES-R)

Looking at the performance of the overall sample, it is evident that participants scored lower in both the" Intrusion" and the "Avoidance" subsets of the IES-R scale, 6 months and 12 months after the injury, meaning that traumatic experiences in the form of intrusive thoughts and feelings as well as avoidance strategies were significantly reduced in all the overall sample through time. Details on the performance of the overall sample in theImpact of Event Scale (IES-R) at different times are presented in Table 37 and the performance of the participants of the different countries are shown in Tables 38-40 and Figures 46-48.

Table 37. *IES-R score - Descriptive Statistics for all countries*

	Baseline				1ST Follow-up				2ND Follow-up			
All	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Total	108	22	10.5	37.5	91	21	7	36	90	12	5	23
Intrusion subset	108	11	5	20.5	91	7	2	18	90	5	0	11
Avoidance subset	108	10	4	18	91	10	3	17	90	6	0	14

Table 38. *IES-R score - Descriptive Statistics for Greece*

	Baseline				1ST Follow-up				2ND Follow-up			
Greece	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Total	**32**	34	14	46	**33**	27	12	33	**35**	12	8	23
Intrusion subset	**32**	14	7	25	**33**	6	2	17	**35**	1	0	7
Avoidance subset	**32**	16	7	23	**33**	16	8	20	**35**	11	5	15

Table 39. *IES-R score - Descriptive Statistics for Germany*

	Baseline				1ST Follow-up				2ND Follow-up			
Germany	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Total	**36**	12	4	23	**21**	5	0	23	**20**	3	0	18
Intrusion subset	**36**	7	3	13	**21**	4	0	16	**20**	3	0	11
Avoidance subset	**36**	3	0	12	**21**	1	0	7	**20**	0	0	6

Table 40. *IES-R score - Descriptive Statistics for Italy*

	Baseline				1ST Follow-up				2ND Follow-up			
Italy	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Total	40	26	18	34	37	16	9	39	35	14	9	23
Intrusion subset	40	14	10	20	37	9	4	18	35	7	4	13
Avoidance subset	40	12	5	17	37	9	4	17	35	6	3	14

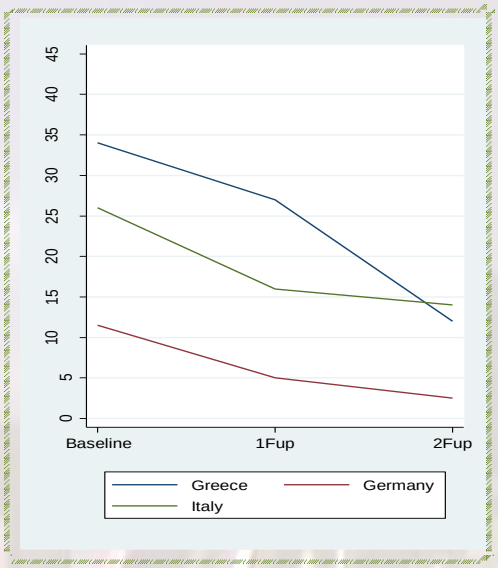


Figure 46. *Total score for IES-R*

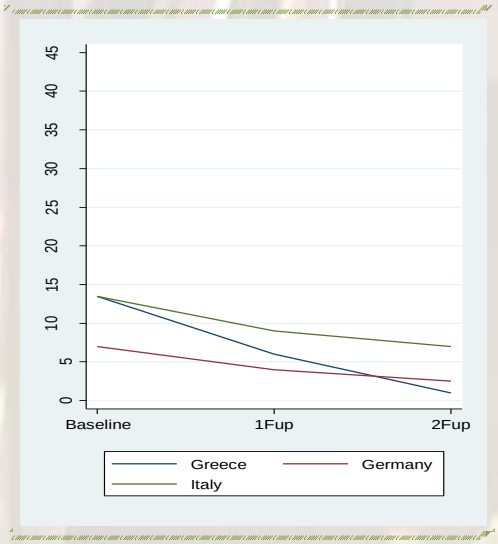


Figure 47. 1 *Score for Intrusion*

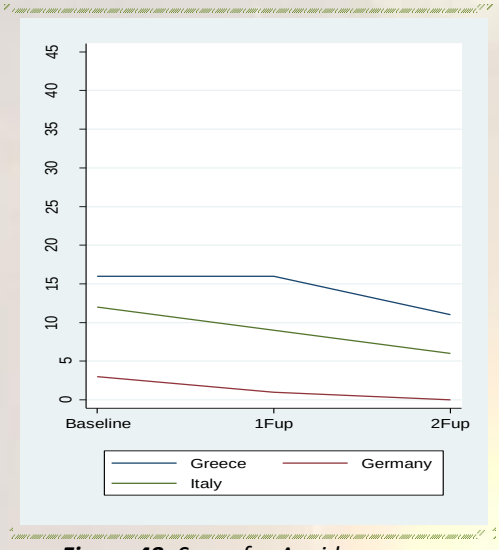


Figure 48. *Score for Avoidance*

Avoidance Items

PTSD2. I avoided letting myself get upset when I thought about it or was reminded of it. PTSD3. I tried to remove it from memory. PTSD7. I stayed away from reminders of it. PTSD8. I felt as if it hadn't happened or it wasn't real. PTSD9. I tried not to talk about it. PTSD12. I was aware that I still had a lot of feeling about it, but I didn't deal with them. PTSD13. I tried not to think about it. PTSD15. My feelings about it were kind of numb.

Intrusion Items

PTSD1. I thought about it when I didn't mean to. PTSD4. I had trouble falling asleep or staying asleep, because pictures or thoughts about it came into my mind. PTSD5. I had waves of strong feelings about it. PTSD6. I had dreams about it. PTSD10. Pictures about it popped into my mind. PTSD11. Other things kept making me think about it. PTSD14. Any reminder brought back feelings about it. PTSD15. My feelings about it were kind of numb.

Table 41. *Characteristics of subjects with subjective stress at 6 months (n=36)*

Subjective Stress at 6 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	27	75.0	0.573
Females	9	25.0	
Center			
Greece	17	47.2	0.123
Germany	5	13.9	
Italy	14	38.8	
Marital Status			
Single	12	33.3	0.956
In couple	19	52.8	
Divorced\Widow	5	13.9	
Education			
Low	17	47.2	0.378
High	16	44.4	
Higher	3	8.4	
Medical characteristics			
Max_ais_Head			
Yes	12	66.7	0.905
No	24	33.3	
Max_ais_Low Extremities			
Yes	18	50.0	0.044
No	18	50.0	
Fractures		18	
Single	3	8.3	0.736
Multiple	33	91.7	
Max_ais			
1-2	11	30.6	0.667
3	17	47.2	
≥4	8	22.2	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	10	27.8	0.732
Two-wheels motorize	12	33.3	
Four-wheels motorize	14	38.9	
Crash Location			
Intersection	4	11.1	0.531
Straight road	20	55.6	
On bends	10	27.8	
Parking	2	5.5	

Participants sustaining subjective stress 6 months after the injury

The Greek participants were shown to be more affected by subjective stress 6 months after the injury, as compared with the German and the Italian counterparts.

The majority of the participants affected by stress 6 months after the injury were men, in couple, with low education.

Many of them sustained the injury as users of motorized four-wheel vehicles and more than half of them sustained the injury at a "straight road" incident.

As regards to their injury description, nearly half of them sustained serious injuries. The most severe injuries were at the head for most of the stressed participants and half of them sustained injuries at the low extremities. The vast majority sustained multiple fractures. Details are presented in Table 41.

Table 72. *Characteristics of subjects with subjective stress at 12 months (n=18)*

Subjective Stress at 12 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	14	77.8	1.000
Females	4	22.2	
Center			
Greece	7	38.9	1.000
Germany	3	16.7	
Italy	8	44.4	
Marital Status			
Single	5	27.8	0.277
In couple	12	66.7	
Divorced\Widow	1	5.6	
Education			
Low	9	50.0	0.915
High	8	44.4	
Higher	1	5.6	
Medical characteristics			
Max_ais_Head			
Yes	5	27.8	0.404
No	13	72.2	
Max_ais_Low Extremities			
Yes	12	66.7	0.006
No	6	33.3	
Fractures			
Single	1	5.6	0.678
Multiple	17	94.4	
Max_ais			
1-2	5	27.8	0.105
3	7	38.9	
≥4	6	33.3	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	5	27.8	0.313
Two-wheels motorize	8	44.4	
Four-wheels motorize	5	27.8	
Crash Location			
Intersection	4	22.2	0.571
Straight road	8	44.4	
On bends	5	27.8	
Parking	1	5.6	

Participants sustaining subjective stress 12 months after the injury

The Italian participants were shown to be more affected by subjective stress 12 months after the injury, followed by the Greek counterparts.

The vast majority of the participants affected by stress 12 months after the injury were men, in couple and half of them with low education.

Many of them sustained the injury as users of motorized two-wheel vehicles and most of them sustained the injury at a "straight road" incident.

As regards to their injury description, nearly half of them sustained serious injuries. The most severe injuries were at body regions other than the head for the majority of the stressed participants and most of them sustained injuries at the low extremities. The vast majority sustained multiple fractures. Details are presented in Table 42.

RESULTS (v)

Post-traumatic stress

Country differences

Baseline – 6month – 12month differences in IES-R between countries

It is evident from the results that the German participants differed at a statistically significant level from their Greek and Italian counterparts in both the "Intrusion" and the "Avoidance" thoughts and feelings at baseline assessment, as they were less affected by stress. The Greek and the Italian did not differ significantly in terms of stress sustained at baseline. Six months after the injury, the German participants differed at a statistically significant level from their Greek and Italian counterparts only in the "Avoidance" subset, being less affected as compared with the rest. The Greek and the Italian did not differ significantly in terms of stress sustained 6 months after the injury. Twelve months after the injury, the German participants still differed at a statistically significant level from their Greek and Italian counterparts only in the "Avoidance" subset, being less affected as compared with the rest. The Greek participants differed significantly from the Italian counterparts with the former being less affected by stress 12 months after the injury. Details on the performance of the overall sample in the IES-R at different times are presented in Tables 43-45.

Table 43. *Kruskal Wallis differences at Baseline (by country)*

Baseline: Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	p-value	test	p-value	test	p-value	test	p-value
Avoidance subset	20.1	<0.001	17.7	<0.001	9.6	0.002	n.s.	
Intrusion subset	12.3	0.002	7.9	0.005	10.4	0.001		
Total	17.8	<0.001	13.2	<0.001	12.5	<0.001		

n.s.=not significant

Table 44. *Kruskal Wallis differences at 1st Follow-up (by country)*

1ST Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	p-value	test	p-value	test	p-value	test	p-value
Avoidance subset	14.2	<0.001	13.4	<0.001	6.3	0.012	n.s.	
Intrusion subset	2.9	0.230	n.s.		n.s.			
Total	7.0	0.031	6.1	0.013				

n.s.=not significant

Table 45. *Kruskal Wallis differences at 2nd Follow-up (by country)*

2ND Follow-up: Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	p-value	test	p-value	test	p-value	test	p-value
Avoidance subset	11.1	0.004	10.0	0.002	5.6	0.018**	n.s.	
Intrusion subset	9.4	0.009	n.s.		n.s.		9.4	0.002
Total	6.4	0.041			5.5	0.019**	n.s.	

**Borderline p-value respect to 0.017; n.s.=not significant

RESULTS (v)

Post-traumatic stress

Differences between Baseline and Follow Ups

Baseline – 6month

Comparing the baseline with the 6month performance of the participants in the individual subsets of the IES-R, we can see that in Germany and Italy no statistically significant differences were found, while in Greece, there was a significant difference in terms of the intrusion subset, with improved performance at 6 months as compared with baseline. Details are presented in Table 46.

6month - 12month

Comparing the 6month with the 12month performance of the participants in the individual subsets of the IES-R, it is evident that in Germany and Italy no statistically significant differences were found, while in Greece, there was a significant difference in terms of the "intrusion" subset, with improved performance at 12 months as compared with 6months after the injury. Details are presented in Table 46.

Baseline - 12month

Comparing the Baseline with the 12month performance of the participants in the individual subsets of the IES-R, it was shown that in Germany no statistically significant differences were found in any of the two subsets, while in Greece and Italy, there was a significant difference in terms of the "intrusion" subset, with improved performance at 12 months as compared with baseline. Details are presented in Table 46.

Table 46. *Friedman test differences by time and for each country*

Differences by time	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
Greece	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Avoidance subset	5.4	0.067	n.s.	n.s.	n.s.
Intrusion subset	29.0	<0.001	0.006	<0.001	<0.001
Total	24.7	<0.001	0.004	<0.001	<0.001
	Friedman		**Baseline-1Fup**	**Baseline-2Fup**	**1Fup-2Fup**
Germany	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Avoidance subset	4.5	0.104	n.s.	n.s.	n.s.
Intrusion subset	5.4	0.066			
Total	4.8	0.092			
	Friedman		**Baseline-1Fup**	**Baseline-2Fup**	**1Fup-2Fup**
Italy	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Avoidance subset	2.10	0.350	n.s.	n.s.	n.s.
Intrusion subset	9.8	0.007		0.017	
Total	6.7	0.035*		n.s.	

n.s.=not significant

**The difference only regards trend over time, post hoc tests no statistical significant*

RESULTS (vi)

Depression

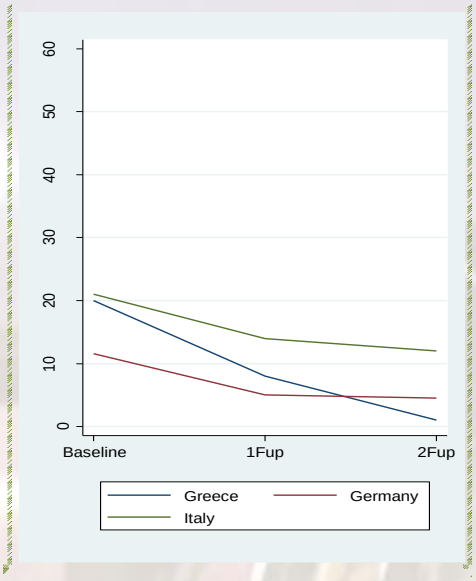


Figure 49. *Total score for CESD*

Performance in Depression Scale (CES-D)

Looking at the performance of the overall sample, it is evident that participants were less affected by depression, 6 and 12 months after the injury. The Italian and the Greek participants were shown to be more affected than the German couterparts both at baseline and 6 months after the injury. However, the Greek participants were shown to heal faster than their counterparts, as they performed better 12 months after the injury as compared with the German and the Italian participants. Details on the performance of the overall sample in the Depression Scale (CES-D) at different times are presented in Table 47 and the performance of the participants of the different countries are shown in Table 48 and Figure 49.

Table 47. *Descriptive Statistics for all the sample*

All	Baseline				1ST Follow-up				2ND Follow-up			
	n	Median	IQR		n	Median	IQR		n	Median	IQR	
CESD	105	16	10	28	91	9	2	22	90	5	1	15

Table 48. *Descriptive Statistics by country*

	Baseline				1ST Follow-up				2ND Follow-up			
Greece	n	Median	IQR		n	Median	IQR		n	Median	IQR	
CESD	33	20	10	29	33	8	2	22	35	1	0	12
	Baseline				1ST Follow-up				2ND Follow-up			
Germany	n	Median	IQR		n	Median	IQR		n	Median	IQR	
CESD	33	11.6	5.6	19	21	5	1	11	20	5	2	9
	Baseline				1ST Follow-up				2ND Follow-up			
Italy	n	Median	IQR		n	Median	IQR		n	Median	IQR	
CESD	39	21	15	33	37	14	8	24	35	12	5	22

Table 49. *Characteristics of subjects with depression at 6 months (n=30)*

Depression at 6 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	22	73.3	0.591
Females	8	26.7	
Center			
Greece	11	36.7	0.079
Germany	3	10.0	
Italy	16	53.3	
Marital Status			
Single	7	23.3	0.024
In couple	15	50.0	
Divorced\Widow	8	26.7	
Education			
Low	16	53.3	0.010
High	9	30.0	
Higher	5	16.7	
Medical characteristics			
Max_ais_Head			
Yes	10	33.3	0.918
No	20	66.7	
Max_ais_Low Extremities			
Yes	13	43.3	0.409
No	17	56.7	
Fractures			
Single	2	6.7	0.712
Multiple	28	93.3	
Max_ais			
1-2	11	36.7	0.670
3	13	43.3	
≥4	6	20.0	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	10	33.3	0.162
Two-wheels motorize	11	36.7	
Four-wheels motorize	9	30.0	
Crash Location			
Intersection	5	16.7	0.930
Straight road	17	56.7	
On bends	6	20.0	
Parking	2	6.6	

Participants sustaining depression 6 months after the injury

The Italian participants were shown to be more affected by depression 6 months after the injury, as compared with the German and the Greek counterparts.

The majority of the participants affected by depression 6 months after the injury were men, half of them were in couple and with low education.

Many of them sustained the injury as users of motorized two-wheel vehicles and more than half of them sustained the injury at a “straight road” incident.

As regards to the injury description, most of them sustained serious injuries but there were many that sustained minor or moderate injuries. The most severe injuries were at body regions other than the head for most of the participants affected by depression at 6 months and nearly half of them sustained injuries at the low extremities. The vast majority also sustained multiple fractures. Details are presented in Table 49.

***Table 50**. Characteristics of subjects with "depression" at 12 months (n=21)*

Depression at 12 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	15	71.4	0.375
Females	6	28.6	
Center			
Greece	6	28.6	0.029
Germany	1	4.8	
Italy	14	66.6	
Marital Status			
Single	4	19.0	0.132
In couple	13	61.9	
Divorced\Widow	4	19.1	
Education			
Low	10	47.6	0.035
High	7	33.3	
Higher	4	19.1	
Medical characteristics			
Max_ais_Head			
Yes	7	33.3	0.756
No	14	66.7	
Max_ais_Low Extremities			
Yes	11	52.4	0.132
No	10	47.6	
Fractures			
Single	2	9.5	1.000
Multiple	19	90.5	
Max_ais			
1-2	8	38.1	0.356
3	8	38.1	
≥4	5	23.8	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	9	42.9	0.009
Two-wheels motorize	8	38.1	
Four-wheels motorize	4	19.0	
Crash Location			
Intersection	5	23.8	0.398
Straight road	11	52.4	
On bends	5	23.8	
Parking	0	0.0	

Participants sustaining depression 12 months after the injury

The Italian participants were shown to be more affected by depression 12 months after the injury, as compared with the German and the Greek counterparts.

The majority of the participants affected by depression 12 months after the injury were men, half of them were men, in couple and nearly half of them with low education.

Most of them sustained the injury as pedestrians or cyclists and more than half of them sustained the injury at a "straight road" incident.

As regards to the injury description, most of them sustained serious, moderate or minor injuries. The most severe injuries were at body regions other than the head for most of the participants affected by depression at 12 months and more than half of them sustained injuries at the low extremities. The vast majority also sustained multiple fractures. Details are presented in Table 50.

RESULTS (vi)

Depression

Country differences

Baseline – 6month – 12month differences in CES-D between countries

It is evident from the results that the German participants differed at a statistically significant level from their Italian counterparts in the depression score both at the baseline and the 6 month and 12 month assessment. In particular, they were less affected by depression as compared with the Italian. The Greek and the German participants did not differ significantly in terms of depression sustained at baseline, 6 months and 12 months after the injury. Finally, the Greek participants differed significantly from the Italian counterparts only at the 12 month assessment, with the former being less affected by depression. Details on the performance of the overall sample in the CES-D at different times are presented in Tables 51-53.

Table 51. *Kruskal Wallis differences at Baseline Follow-up by country*

Baseline: Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	p-value	test	p-value	test	p-value	test	p-value
CESD	12.9	0.002		n.s.	12.5	<0.001		n.s.

Table 52. *Kruskal Wallis differences at 1st Follow-up by country*

1ST Follow-up: Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	p-value	test	p-value	test	p-value	test	p-value
CESD	8.2	0.017		n.s.	8.4	0.004		n.s.

Table 53. *Kruskal Wallis differences at 2nd Follow-up by country*

2ND Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	p-value	test	p-value	test	p-value	test	p-value
CESD	17.0	<0.001		n.s.	8.7	0.003	13.2	<0.001

RESULTS (vi)

Depression

Differences between Baseline and Follow Ups

Baseline – 6month

We can see from the results that there was a statistically significant difference between the baseline and the 6 month performance in the CES-D in both the Greek and the Italian participants, with improved scores demonstrated at 6 months as compared with baseline. No significant changes were evident in the German performance. Details are presented in Table 54.

6month - 12month

There was a statistically significant difference between the 6 month and the 12 month performance in the CES-D in the Greek participants, with improved scores demonstrated 12 months after the injury as compared with 6 months. No significant changes were evident in both the Italian and the German performance. Details are presented in Table 54.

Baseline - 12month

It is evident from the results that that there was a statistically significant difference between the baseline and the 12 month performance in the CES-D in both the Greek and the Italian participants, with improved scores demonstrated 12 months after the injury as compared with baseline. No significant changes were evident in the German performance. Details are presented in Table 54.

Table 54. *Friedman test differences by time by country*

Differences by time	**Friedman**		**Baseline-1Fup**	**Baseline-2Fup**	**1Fup-2Fup**
Greece	**test**	**p-value**	**p-value**	**p-value**	**p-value**
CESD	28.1	<0.001	<0.001	<0.001	0.009
	Friedman		**Baseline-1Fup**	**Baseline-2Fup**	**1Fup-2Fup**
Germany	**test**	**p-value**	**p-value**	**p-value**	**p-value**
CESD	6.4	0.040	n.s.	n.s.	n.s.
	Friedman		**Baseline-1Fup**	**Baseline-2Fup**	**1Fup-2Fup**
Italy	**test**	**p-value**	**p-value**	**p-value**	**p-value**
CESD	16.2	<0.001	<0.001	0.006	n.s.

n.s.=not significant

RESULTS (vii)

Social Support

Performance in Social Support Scale (MOS)

Looking at the performance of the overall sample, it is evident that participants reported high levels of social support both at baseline and 6 and 12 months after the injury. The German participants reported the highest levels of social support and the Italian participants reported the lowest levels 6 months and 12 months after the injury. "Emotional support" and "positive interaction" were the two aspects of social support remaining at lower levels 6 months and 12 months after the injury. Details on the performance of the overall sample in the Social Support Scale (MOS) at different times are presented in Table 55 and the performance of the participants of the different countries are shown in Tables 56-58 and Figures 50-54.

***Table 55**. Descriptive Statistics for all the sample*

	Baseline				1ST Follow-up				2ND Follow-up			
All	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Emotional support	**106**	78.1	62.5	100.0	**91**	84.4	68.8	100.0	**90**	85.9	68.75	100.0
Tangible support	**106**	100.0	93.8	100.0	**91**	100.0	100.0	100.0	**90**	100.0	87.5	100.0
Affection	**106**	100.0	75.0	100.0	**91**	100.0	75.0	100.0	**90**	100.0	83.3	100.0
Positive Interaction	**106**	87.5	66.7	100.0	**91**	100.0	66.7	100.0	**90**	100.0	75.0	100.0
Overall support index	**106**	85.5	72.4	98.7	**91**	88.2	75.0	100.0	**90**	89.5	77.6	100.0

Table 56. *Descriptive Statistics by country (Greece)*

	Baseline				1ST Follow-up				2ND Follow-up			
Greece	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Emotional support	**34**	89.1	68.8	100.0	**33**	90.6	75.0	100.0	**35**	84.4	75.0	100.0
Tangible support	**34**	100.0	93.8	100.0	**33**	100.0	93.8	100.0	**35**	100.0	81.3	100.0
Affection	**34**	100.0	83.3	100.0	**33**	100.0	75.0	100.0	**35**	91.7	83.3	100.0
Positive Interaction	**34**	83.3	66.7	100.0	**33**	83.3	75.0	100.0	**35**	83.3	75.0	100.0
Overall support index	**34**	87.5	72.4	97.4	**33**	88.2	75.0	97.4	**35**	86.8	79.0	97.4

Table 57. *Descriptive Statistics by country (Germany)*

	Baseline				1ST Follow-up				2ND Follow-up			
Germany	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Emotional support	**32**	75.0	64.1	100.0	**21**	100.0	100.0	100.0	**20**	100	100	100
Tangible support	**32**	100.0	96.9	100.0	**21**	100.0	100.0	100.0	**20**	100	100	100
Affection	**32**	100.0	66.7	100.0	**21**	100.0	100.0	100.0	**20**	100	100	100
PositiveInteraction	**32**	75.0	50.0	100.0	**21**	100.0	100.0	100.0	**20**	100	100	100
Overall support index	**32**	83.6	65.8	100.0	**21**	100.0	100.0	100.0	**20**	100	100	100

Table 58*. Descriptive Statistics by country (Italy)*

	Baseline				1ST Follow-up				2ND Follow-up			
Italy	**n**	**Median**	**IQR**		**n**	**Median**	**IQR**		**n**	**Median**	**IQR**	
Emotional support	**40**	73.4	62.5	93.8	**37**	68.8	53.1	75.0	**35**	65.6	37.5	96.9
Tangible support	**40**	100.0	75.0	100.0	**37**	100.0	75.0	100.0	**35**	100.0	75.0	100.0
Affection	**40**	100.0	75.0	100.0	**37**	100.0	75.0	100.0	**35**	100.0	75.0	100.0
Positive Interaction	**40**	100.0	75.0	100.0	**37**	100.0	50.0	100.0	**35**	91.7	66.7	100.0
Overall support index	**40**	84.9	68.4	96.1	**37**	84.2	63.2	89.5	**35**	79.0	56.6	93.4

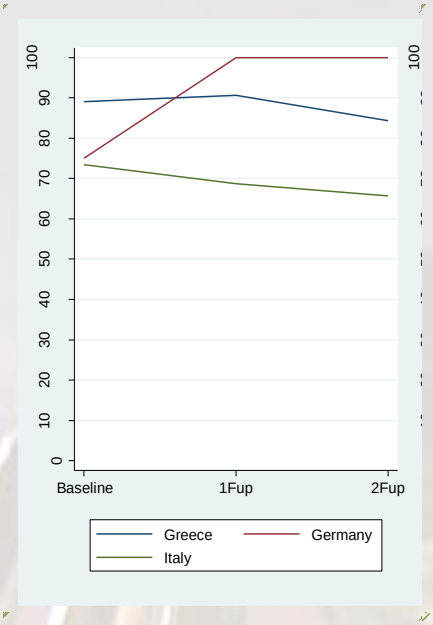


Figure 50.2 *Emotional Support*

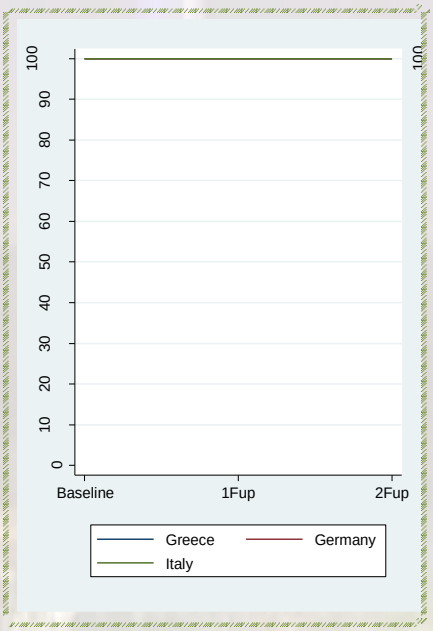


Figure 51*. Tangible Support*

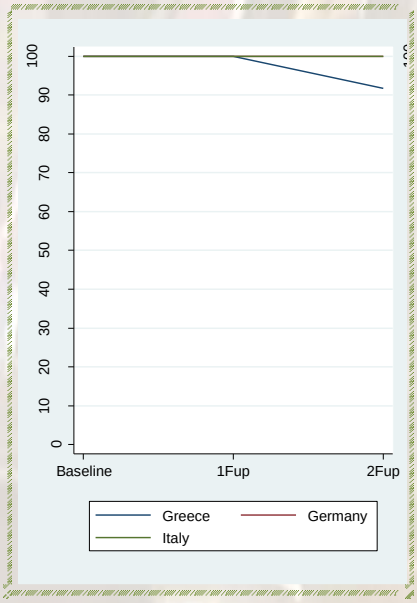


Figure 52. *Affection*

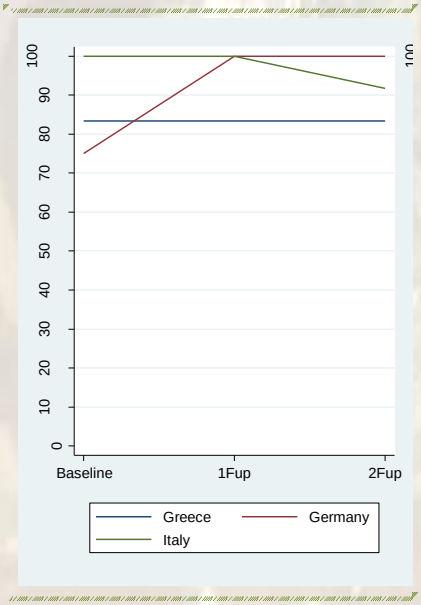


Figure 53. *Positive Interaction*

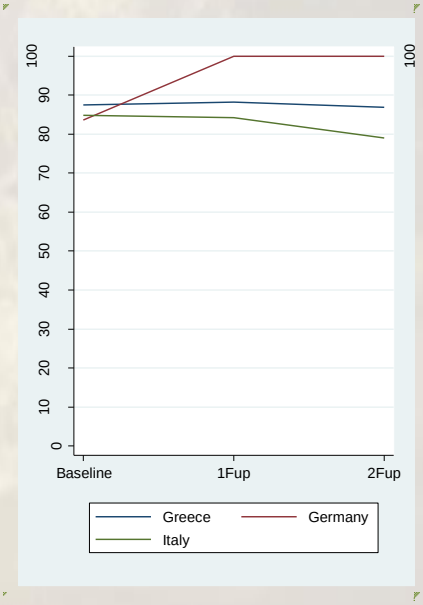


Figure 54. *Overall support Index*

Table 59. *Characteristics of subjects with low social support at 6 months (n=11)*

Low Social Support at 6 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	10	90.9	0.445
Females	1	9.1	
Center			
Greece	2	18.2	0.012
Germany	0	0.0	
Italy	9	81.8	
Marital Status			
Single	2	18.2	0.012
In couple	4	36.4	
Divorced\Widow	5	45.4	
Education			
Low	5	45.4	0.355
High	4	36.4	
Higher	2	18.2	
Medical characteristics			
Max_ais_Head			
Yes	4	36.4	1.000
No	7	63.6	
Max_ais_Low Extremities			
Yes	3	27.3	0.528
No	8	72.7	
Fractures		18	
Single	0	0	0.594
Multiple	11	100.0	
Max_ais		0	
1-2	6	54.6	0.055
3	2	18.2	
≥4	3	27.3	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	4	36.4	0.710
Two-wheels motorize	3	27.3	
Four-wheels motorize	4	36.4	
Crash Location			
Intersection	1	9.1	0.195
Straight road	5	45.5	
On bends	5	45.4	
Parking	0	0.0	

Participants reporting low social support 6 months after the injury

The Italian participants reported the lowest levels of social support 6 months after the injury, as compared with the German and the Greek counterparts.

The vast majority of the participants reporting low social support 6 months after the injury were men, nearly half of them were divorced or widow and with low education.

Many of them sustained the injury as users of motorized four-wheel vehicles and similar percentage of them sustained the injury as pedestrians or cyclists. Nearly half of them sustained the injury at a "straight road" incident and equal percentage reported sustaining their injury at a road incident "on bends".

As regards to their injury description, more than half of them sustained minor or moderate injuries. The most severe injuries were at body regions other than the head and other than the low extremities for most of the participants reporting low social support 6 months after the injury. All of them sustained multiple fractures. Details are presented in Table 59.

***Table 60**. Characteristics of subjects with low social support at 12 months (n=11)*

Low social support at 12 months	n	%	p-value
Socio-demographic characteristics			
Gender			
Males	9	81.8	1.000
Females	2	18.2	
Center			
Greece	1	9.1	0.003
Germany	0	0.0	
Italy	10	90.9	
Marital Status			
Single	1	9.0	0.021
In couple	6	54.6	
Divorced\Widow	4	36.4	
Education			
Low	5	45.4	0.028
High	3	27.3	
Higher	3	27.3	
Medical characteristics			
Max_ais_Head			
Yes	3	27.3	0.738
No	8	72.7	
Max_ais_Low Extremities			
Yes	4	36.4	1.000
No	7	63.6	
Fractures			
Single	0	0	0.590
Multiple	11	100.0	
Max_ais			
1-2	4	36.4	1.000
3	5	45.4	
≥4	2	18.2	
Accident Information			
Type of road users in the accident			
Pedestrian and Cyclists -	6	54.6	0.006
Two-wheels motorize	4	36.4	
Four-wheels motorize	1	9.0	
Crash Location			
Intersection	2	18.2	0.716
Straight road	5	45.5	
On bends	3	27.3	
Parking	1	9.0	

Participants reporting low social support 12 months after the injury

The Italian participants reported the lowest levels of social support 12 months after the injury, as compared with the German and the Greek counterparts.

The majority of the participants reporting low social support 12 months after the injury were men, more than half of them were in couple and nearly half of them with low education.

More than half of them sustained the injury as pedestrians or cyclists and nearly half of them sustained the injury at a “straight road” incident.

As regards to their injury description, nearly half of them sustained serious injuries. The most severe injuries were at body regions other than the head and other than the low extremities for most of the participants reporting low social support 12 months after the injury. All of them sustained multiple fractures. Details are presented in Table 60.

RESULTS (vii)

Social Support

Country differences

Baseline – 6month – 12month differences in MOS between countries

It is evident from the results that the German participants differed at a statistically significant level from their Greek and the Italian counterparts in the social support score both at the 6 month and the 12 month assessment, reporting higher levels of support as compared with the Greek and the Italian participants. The Greek participants differed from the Italian participants in the aspect of "emotional support", both 6 months and 12 months after the injury, reporting higher levels of support as compared with the Italian. No significant differences were evident between the different countries at the baseline assessment. Details are presented in Tables 61-63.

***Table 61**. Kruskal Wallis differences at Baseline Follow-up (by country)*

Baseline: Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
Emotional support	2.9	0.240	n.s.		n.s.		n.s.	
Tangible support	1.4	0.509						
Affection	0.5	0.786						
Positive Interaction	3.5	0.177						
Overall support index	0.4	0.838						

n.s.=not significant

***Table 62**. Kruskal Wallis differences at 1st Follow-up (by country)*

1ST Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
Emotional support	36.5	<0.001	10.7	0.001	32.3	<0.001	12.8	<0.001
Tangible support	8.9	0.012	7.6	0.006	8.3	0.004	n.s.	
Affection	10.3	0.006	10.6	0.001	6.4	0.012		
Positive Interaction	14.0	<0.001	13.8	<0.001	11.5	<0.001		
Overall support index	34.0	<0.001	20.4	<0.001	30.6	<0.001		

n.s.=not significant

***Table 63**. Kruskal Wallis differences at 2nd Follow-up (by country)*

2ND Follow-up Differences by country	Kruskal-Wallis		Greece-Germany		Germany-Italy		Greece-Italy	
	test	**p-value**	**test**	**p-value**	**test**	**p-value**	**test**	**p-value**
Emotional support	28.4	<0.001	11.6	<0.001	21.6	<0.001	11.6	<0.001
Tangible support	11.5	0.003	12.2	<0.001	9.3	0.002	n.s.	
Affection	14.1	<0.001	15.4	<0.001	9.3	0.002		
Positive Interaction	17.1	<0.001	15.4	<0.001	15.4	<0.001		
Overall support index	30.9	<0.001	24.4	<0.001	25.6	<0.001		

n.s.=not significant

RESULTS (vii)

Social Support

Differences between Baseline and Follow Ups

Baseline – 6month

We can see from the results that there was a statistically significant difference between the baseline and the 6 month performance in the aspect of "emotional support" for the the German participants, with improved scores demonstrated at 6 months as compared with baseline. No significant changes were evident in the Greek and the Italian performance. Details are presented in Tables 64-67.

6month - 12month

No statistically significant changes were evident in any of the three partner countries in terms of the participants' performance in the aspects of the Social Support scale (MOS). Details are presented in Table 64-67.

Baseline - 12month

It is evident from the results that that there were no statistically significant changes in the performance of both the Greek and the Italian participants between baseline and 12 months after the injury.

As regards to the German participants, there has been a statistically significant difference between the baseline and the 12 month performance in the MOS scale and particularly in the "Emotional support", the "positive interaction" and the "overall support index". The German performance in these three aspects of social support was improved 12 months after the injury as compared with baseline. Details are presented in Tables 64-67.

***Table 64**. Friedman test differences by time for all the sample*

Differences by time	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
All	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Emotional support	0.4	0.825	n.s.	n.s.	n.s.
Tangible support	0.6	0.758			
Affection	0.6	0.744			
Positive Interaction	0.1	0.964			
Overall support index	0.7	0.692			

***Table 65**. Friedman test differences by time by country (Greece)*

Differences by time	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
Greece	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Emotional support	2.3	0.317	n.s.	n.s.	n.s.
Tangible support	1.0	0.621			
Affection	1.8	0.417			
Positive Interaction	0.8	0.687			
Overall support index	3.1	0.211			

***Table 66.** Friedman test differences by time by country (Germany)*

	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
Germany	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Emotional support	8.1	0.017	0.004	0.004	
Tangible support	1.6	0.449			
Affection	3.7	0.155			
Positive Interaction	6.5	0.038		0.004	
Overall support index	8.1	0.017	0.004	0.004	

***Table 67**. Friedman test differences by time by country (Italy)*

	Friedman		Baseline-1Fup	Baseline-2Fup	1Fup-2Fup
Italy	**test**	**p-value**	**p-value**	**p-value**	**p-value**
Emotional support	5.7	0.058			
Tangible support	0.3	0.861			
Affection	1.0	0.594			
Positive Interaction	5.2	0.074			
Overall support index	5.2	0.075			

RESULTS (viii)

Physical and emotional rehabilitation

Trends in health recovery

Table 68. *Proportion of subject with outcome for each scale and for each time of the study*

	Baseline		1st Follow-up		2nd Follow-up		Cochran'S Q
	n	%	n	%	n	%	test
Depression	57	54.3	30	33.0	21	25.3	<0.001
Physical Disability	9	8.0	38	40.4	27	31.8	<0.001
Subjective stress	47	43.5	36	39.6	18	21.7	<0.001
Low Social Support	12	11.3	11	12.09	11	13.3	0.558
Pain	6	5.1	59	63.4	44	51.8	<0.001

Table 69. *McNemar test for paired proportion for each outcome*

	BASELINE 6-MONTHS		BASELINE 12-MONTHS		6-MONTHS 12-MONTHS	
	test	p-value	test	p-value	test	p-value
Depression	15.11	<0.001	19.88	<0.001	5.33	0.021
Physical Disability	16.03	<0.001	8.53	0.004	4.57	0.033
Subjective stress	3.13	0.078	12.10	<0.001	13.24	<0.001
Low Social Support	0.67	0.688	1.00	0.508	0.11	1.000
Pain	53.0	<0.001	38.00	<0.001	7.14	0.008

Table 70. *Odds Ratio for paired proportion for each outcome*

	BASELINE 6-MONTHS		BASELINE 12-MONTHS		6-MONTHS 12-MONTHS	
	OR	CI 95%	OR	CI 95%	OR	CI 95%
Depression	0.21	[0.07-0.51]	0.13	[0.03-0.38]	0.20	[0.02-0.94]
Physical Disability	4.57	[1.98-12.27]	3.29	[1.36-9.07]	0.27	[0.05-1.03]
Subjective stress	//	//	0.29	[0.12-0.62]	0.06	[0.01-0.40]
Low Social Support	//	//	//	//	//	//
Pain	-*	-*	-*	-*	0.17	[0.02-0.75]

// Mc Nemar Test not significant; *No change from Pain status at baseline to 6 or 12 months

Physical and emotional rehabilitation through time (trends)

The percentage of depressed people decreased both 6 months and 12 months after the injury (p<0.001). The results showed the same evidence for subjective stress (p<0.001). The percentage of people who suffered physical disability and pain increased immediately after the injury and decreased at 6 months and 12 months after the injury; The difference in the percentage of people who suffered subjective stress between baseline and 6 months after the injury was not statistically significant (p=0.078). The percentage of people who reported low social support did not change significantly neither between baseline and 6 months, nor between 6 months and 12 months after the injury (p=0.558). Details in **Table xx.**

Risk of physical and emotional problems through time

The risk of being depressed at 6 months after the injury was 79.0% less than baseline time, when the crash occurred. The risk of having physical disability 6 months after the injury was 4.57 times higher than baseline time, before the accident occurred. The data provide evidence that the risk of being depressed 12 months after the injury was 80.0% less than at 6 months after the injury. The risk of having physical disability at 12 months after the injury was 73.0% lower than at 6months after the injury. The impact of the injury 12 months later was 94.0% less than at 6 months. The pain at 12 months is 83% less than at 6 months after the injury. Details are presented in **Table xx.**

RESULTS (viii)

Physical and emotional rehabilitation

Risk of depression

Table 71. *Logistic regression for the outcome "depression" (n=84)*

Depression at 6 months	OR	CI 95%	p-value
Marital Status			
In couple vs Single	1.24	[0.36-4.21]	0.733
Divorced/widow vs Single	7.49	[1.44-38.99]	0.017
Education			
High vs Low education	0.34	[0.11-1.08]	0.067
Higher vs Low education	3.44	[0.56-21.2]	0.183
Depression at baseline	4.77	[1.39-16.4]	0.013

Table 72. *Logistic Regression for the outcome of the "depression" at 12 months (n=75)*

Depression at 12 months	OR	CI 95%	p-value
Age	1.05	[1.00-1.10]	0.053
Education			
High vs Low education	0.53	[0.11-2.61]	0.432
Higher vs Low education	6.23	[0.67-57.78]	0.107
Depression at baseline	4.81	[0.96-24.0]	0.055
Type of road users			
Two-wheels motorize vs Pedestrian and Cyclists	0.64	[0.10-4.05]	0.632
Four-wheels motorize vs Pedestrian and Cyclists	0.15	[0.03-0.80]	0.026
MAIS Score			
3 vs 1or2 points	0.48	[0.10-2.39]	0.373
≥4 vs 1 or 2 point	5.31	[0.78-36.32]	0.088

Factors that influence the presence of depression 6 months after the injury

The results of logistic regression showed that the risk of sustaining depression 6 months after the injury was 4.77 times higher if the person was depressed at baseline (p=0.013). Furthermore, the risk of sustaining depression 6 months after the injury was 7.49 times higher for divorced or widow persons as compared with single (p=0.017). Details are presented in **Table xx.**

Factors that influence the presence of depression 12 months after the injury

The results of logistic regression showed that the risk of developing depression 12 months after the injury was 4.81 times higher if the person was depressed at baseline (p=0.055). Additionally, there was a significant decreased risk of sustaining depression, nearly 85.0%, for persons that sustained the injury as users of motorized 4-wheel vehicles as compared with those who sustained the injury as pedestrians or cyclists (p=0.026). The risk of having depression 12 months after the injury increased by 5.0% when the age increased by one year (p=0.053). Details are presented in **Table xx.**

RESULTS (viii)

Physical and emotional rehabilitation

Risk of physical disability

Table 73. *Logistic regression for the outcome "physical disability" (n=89)*

Physical disability at 6 months	OR	CI 95%	p-value
Physical disability at baseline	0.5	[0.08-2.94]	0.420
MAIS Score			
3 vs 1or2 points	2.06	[0.70-6.17]	0.195
≥4 vs 1 or 2 points	5.27	[1.33-20.77]	0.018
MAIS score in low extremities	3.09	[1.21-7.91]	0.019

Table 74. *Logistic regression for the outcome of the "physical disability" at 12 months (n=82)*

Physical disability at 12 months	OR	CI 95%	p-value
Physical disability at baseline	0.68	[0.11-4.11]	0.678
Marital Status			
In couple vs Single	1.70	[0.49-5.80]	0.407
Divorced/Widow vs Single	11.75	[2.07-66.56]	0.005
Max AIS score in low extremities	3.98	[1.33-11.92]	0.013

Factors that influence the presence of physical disability 6 months after the injury

The results of the logistic regression showed that the risk of sustaining physical disability 6 months after the injury was 5.27 times higher for persons that sustained severe or critical injuries (MAIS score ≥4), as compared with persons that sustained minor or moderate injuries (MAIS score 1,2)(p=0.018). Additionally, the risk of sustaining physical disability 6 months after the injury was 3.09 times higher for persons that sustained the most severe injuries (AIS score) at the low extremities as compared with persons who sustained the most severe injuries at other body regions (p=0.019). Details are presented in **Table xx.**

Factors that influence the presence of physical disability 12 months after the injury

The results of the logistic regression showed that the risk of sustaining physical disability 12 months after the injury was 3.98 times higher for persons that sustained the most severe injuries (AIS score) at the low extremities as compared with persons who sustained the most severe injuries at other body regions (p=0.013). Additionally, the risk of sustaining physical disability 12 months after the injury was 11.75 times higher for divorced or widow persons as compared with single (p=0.005). Details are presented in **Table xx.**

RESULTS (viii)

Physical and emotional rehabilitation

Risk of subjective stress

Table 8. *Logistic regression for the outcome "subjective stress" (n=86)*

Subjective stress at 6 months	OR	CI 95%	p-value
Max AIS score in Low Extremities	2.84	[1.09-7.41]	0.033
Subjective stress at baseline	3.23	[1.25-8.33]	0.015

Table 96. *Logistic regression for the outcome for the "subjective stress" at 12 months (n=77)*

Subjective stress at 12 months	OR	CI 95%	p-value
Max AIS score in Low Extremities	5.26	[1.59-17.4]	0.006
Subjective stress at baseline	0.75	[0.23-2.42]	0.630

Factors that influence the presence of stress 6 months after the injury

The results of the logistic regression showed that the risk of being affected by stress caused by the injury, 6 months after the injury, was 2.84 times higher for persons who sustained the most severe injuries (AIS score) at the low extremities as compared with persons who sustained the most severe injuries at other body regions (p=0.033). Moreover, the risk of being affected by stress 6 months after the injury, was 3.23 times higher if the person was affected by stress at baseline, immediately after the injury occurred (p=0.015). Details are presented in **Table xx.**

Factors that influence the presence of stress 12 months after the injury

The results of the logistic regression showed that the risk of being affected by stress caused by the injury, 12 months after the injury, was 5.26 times higher for persons who sustained the most severe injuries (AIS score) at the low extremities as compared with persons who sustained the most severe injuries at other body regions (p=0.006). Details are presented in **Table xx.**

RESULTS (viii)

Physical and emotional rehabilitation

Risk of suffering pain

Table 77. *Logistic Regression for the outcome of "pain"(n=90)*

Pain at 6 months	OR	CI 95%	p-value
Gender	2.96	[0.79-11.0]	0.106
Age	1.03	[1.00-1.06]	0.076
Location			
Straight road vs Intersection	0.14	[0.02-1.27]	0.080
On bends vs Intersection	0.04	[0.01-0.41]]	0.007
Parking vs Intersection	0.27	[0.01-6.81]	0.430
Max AIS Score			
3 vs 1or2 points	0.62	[0.20-1.86]	0.392
≥4 vs 1 or 2 point	6.39	[0.96-42.53]	0.055

Table 78. *Logistic Regression for the outcome of "pain"(n=90)*

Pain at 12 months	OR	CI 95%	p-value
Marital Status			
In couple vs Single	3.18	[1.12-9.08]	0.030
Divorced/Widow vs Single	3.96	[0.88-17.76]	0.073
Location			
Straight road vs Intersection	0.09	[0.01-0.78]	0.029
On bends vs Intersection	0.06	[0.01-0.56]	0.014
Parking vs Intersection	0.06	[0.01-1.04]	0.053

Note that for this outcome is not possible to adjust for pain at baseline because the IC at 95% is too large due to the low number of subject with pain at the initial time of the study

Factors that influence the presence of pain 6 months after the injury

The results of the logistic regression showed that there was a 3% increased risk of suffering pain 6 months after the injury when the age increased by one year (p=0.076. Additionally, the risk of suffering pain 6 months after the injury increased by 6.4 times for persons who sustained severe or critical injuries (MAIS score ≥4), as compared with persons that sustained minor or moderate injuries (MAIS score 1,2). On the contrary, the risk of suffering pain 6 months after the injury decreased by about 86% (p=0.080) for persons who sustained the injury at "straight road" incidents and the risk was decreased by about 96% (p=0.007) if the injury was sustained in "on bends" incidents as compared with "intersection" incidents. Details are presented in **Table xx.**

Factors that influence the presence of pain 12 months after the injury

The results of the logistic regression showed that there was an increased risk of 3.18 times of suffering pain 12 months after the injury if the persons were in couple as compared with persons who were single (p=0.030). Persons who sustained the injury at a road traffic incident at location other than an intersection, were shown to run a lower risk of suffering pain 12 months after the injury. More precisely, this risk decreased by 91%, 94% and 94% for road incidents located in straight roads, on bends, and parking spaces, respectively. Details are presented in **Table xx.**

RESULTS (viii)

Physical and emotional rehabilitation

Risk of low social support

Table 79. *Logistic regression for the outcome "low social support" (n=90)*

Low social support at 6 months	OR	CI 95%	p-value
Age	1.06	[1.01-1.12]	0.013
Max AIS Score			
3 vs 1or2 points	0.12	[0.02-0.75]	0.024
≥4 vs 1 or 2 point	1.08	[0.20-5.74]	0.930

Table 80.*Logistic regression for the outcome for the "low social support" (n=83)*

Low social support at 12 months	OR	CI 95%	p-value
Age	1.07	[1.01-1.12]	0.015
Type of road users			
Two-wheels motorize vs Pedestrian and Cyclists	0.68	[0.13-3.45]	0.641
Four-wheels motorize vs Pedestrian and Cyclists	0.07	[0.01-0.69]	0.023

Note that for this outcome it is not possible to adjust for low support at baseline because the CI at 95% is too large, due to the low number of subjects with low social support.

Factors that influence the presence of low social support 6 months after the injury

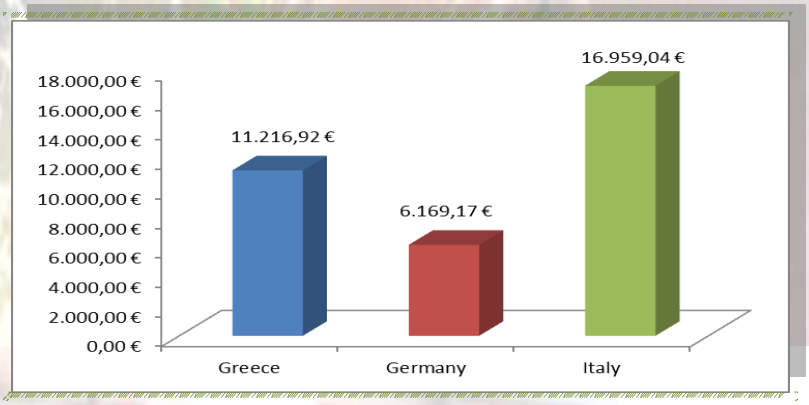
The results of the logistic regression showed that there was a 6% increased risk of having low social support 6 months after the injury when the age increased by one year (p=0.013). Furthermore, the risk of having low social support 6 months after the injury decreased by 88% for persons who sustained serious injuries (MAIS score=3) as compared with persons that sustained minor or moderate injuries (MAIS score 1,2). Details are presented in **Table xx.**

Factors that influence the maintenance of low social support 12 months after the injury

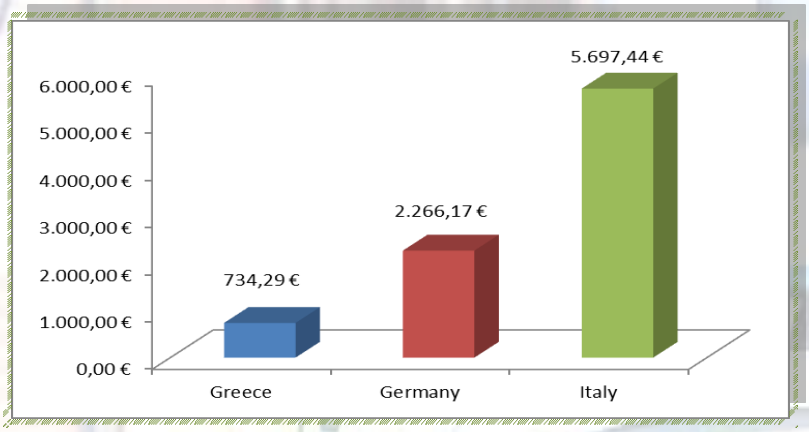
The results of the logistic regression showed that there was a 7% increased risk of having low social support 12 months after the injury when the age increased by one year (p=0.015). Moreover, the risk of having low social support 12 months after the injury decreased by 93% for persons who sustained the injury as drivers/passengers of four-wheel vehicles as compared to "vulnerable" road users. Details are presented in **Table xx.**

RESULTS (ix)

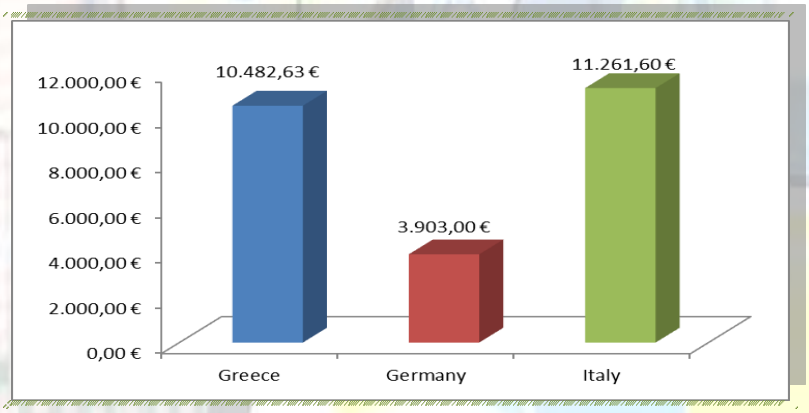
Health expenditure



***Graph 55**. Total direct & indirect health expenditure according to country of registration*



***Graph 56**. Total direct health expenditure according to country of registration*



***Graph 57**. Total indirect health expenditure according to country of registration*

Overall health expenditure (direct and indirect)

Italy recorded the highest total health expenditure (direct and indirect) (16.959,04€) as compared with Greece and Germany (**Graph xx**). This difference was shown to be statistically significant (Kruskal Wallis: x2=26.677; df=2; p=.0001).

Overall direct health expenditure

Italy recorded the highest total direct health expenditure (3.903,00 €) and Greece the lowest (**Graph xx**). This difference was shown to be statistically significant (Kruskal Wallis: x2=30.874; df=2; p=.0001).

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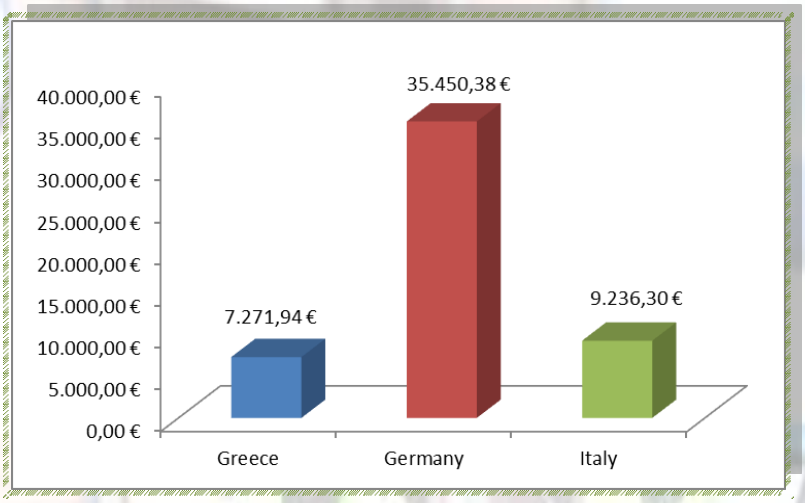
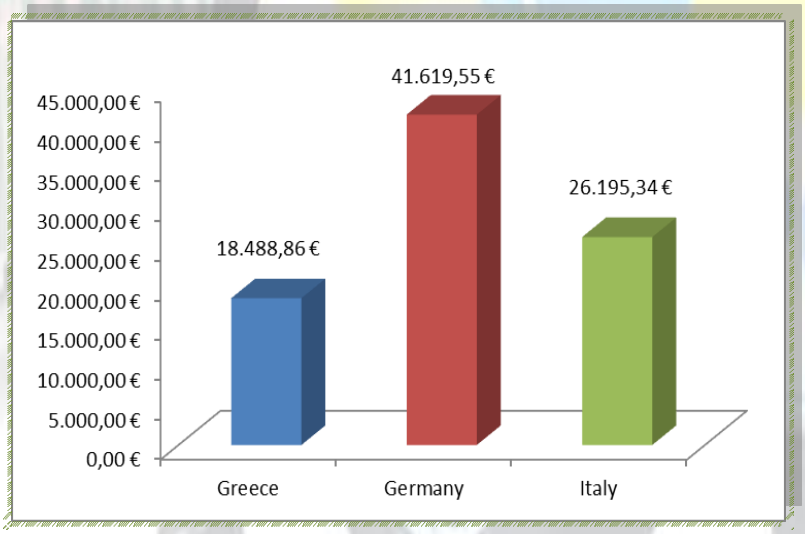
Overall indirect health expenditure

Germany recorded the lowest total indirect health expenditure (3.903,00 €) as compared with Greece and Italy (**Graph xx**). This difference was shown to be statistically significant (Kruskal Wallis: x2=28.182; df=2; p=.0001).



***Graph 58**. Total hospitalization costs according to country of registration*



***Graph 59**. Total direct, indirect and hospitalization costs according to country of registration*

Hospitalization cost (DRG payment)

Germany recorded the highest hospitalization costs (35.450,38 as compared with Greece and Italy (Graph 58). This difference was shown to be statistically significant (Kruskal Wallis: x2=37.413; df=2; p=.0001).

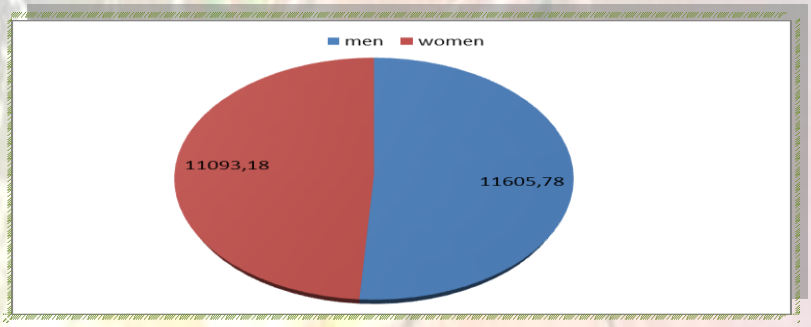
Overall health expenditure (direct and indirect) and hospitalization cost

When calculating the overall health expenditure with the hospitalization costs, it is evident that Germany demonstrates the highest total cost (41.619,55 €) as compared with Greece and Germany (Graph 59). This difference was shown to be statistically significant (Kruskal Wallis: x2=10.790; df=2; p=.005).

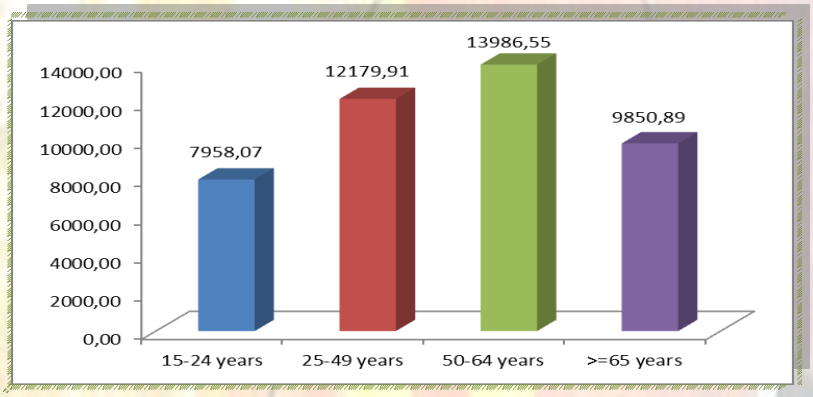
RESULTS (ix)

Health expenditure

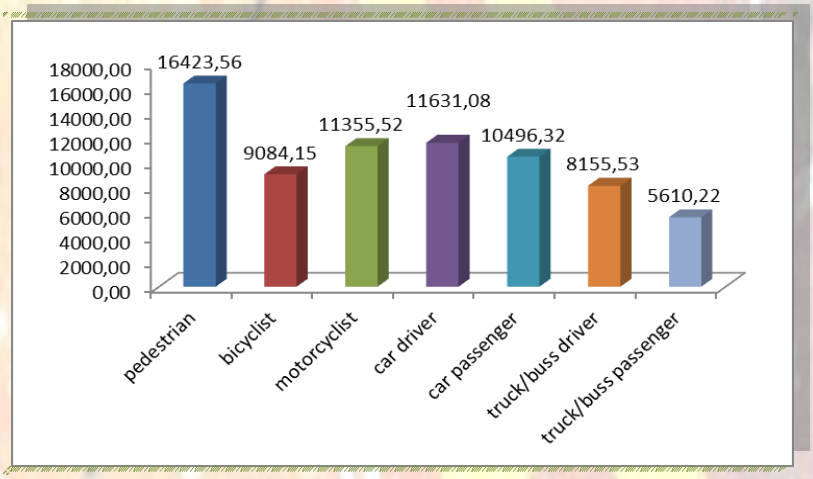
Socio-demographic and road user differences



***Graph 60**. Total direct, indirect and hospitalization costs according to gender*



***Graph 61**. Total direct, indirect and hospitalization costs according to age*



***Graph 62**. Total direct, indirect and hospitalization costs according to type of road user*

Total health expenditure and gender

Based on the results, there has been a gender difference in terms of total health expenditure due to road traffic injury, with men demonstrating a higher total expenditure than women (11.093,18 € and 11.605,78 €, respectively) (Graph 60). This difference was not statistically significant (Man Whitney U=1170.000; p=.58).

Total health expenditure and age

As regards to the age, it seems that the age group of 50-64 years presented the highest total expenditure (including direct, indirect and hospitalization payments) (13.986,55 €) followed by the age group of 25-49 years (12.179,91 €). This difference was shown not to be statistically significant (Kruskal Wallis: x2=3.645; df=3; p=.302) (Graph 61).

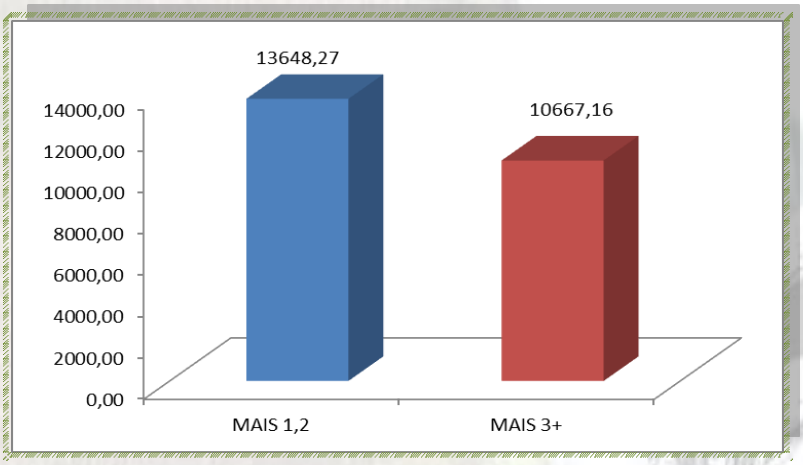
Total health expenditure and type of road user

As for the type of road user, it seems that those sustaining the injury as pedestrians had higher total expenditure (16.423,56 €) as compared with those sustaining an injury as drivers or passengers of other means of transport (Graph 62). This difference was not shown to be statistically significant (Kruskal Wallis: x2=1.821; df=6; p=.835).

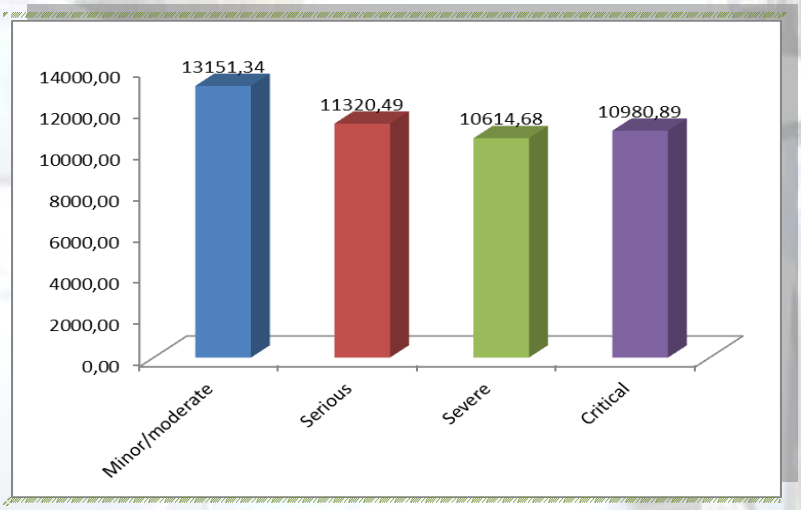
RESULTS (ix)

Health expenditure

Injury-related differences



***Graph 63**. Total direct, indirect and hospitalization costs according to MAIS classification*

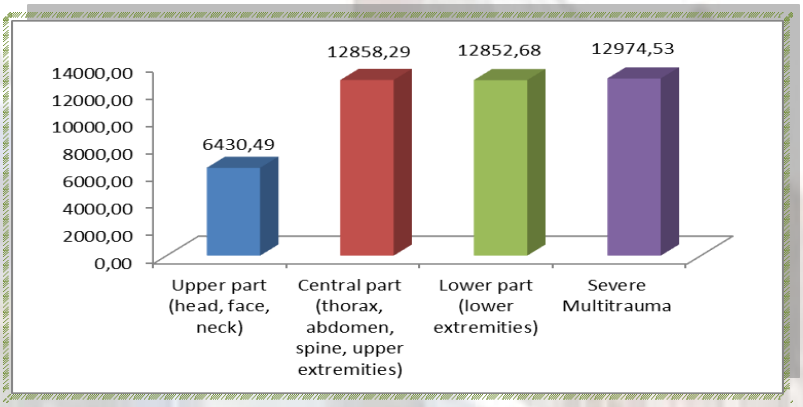


***Graph 64**. Total direct, indirect and hospitalization costs according to ISS classification*

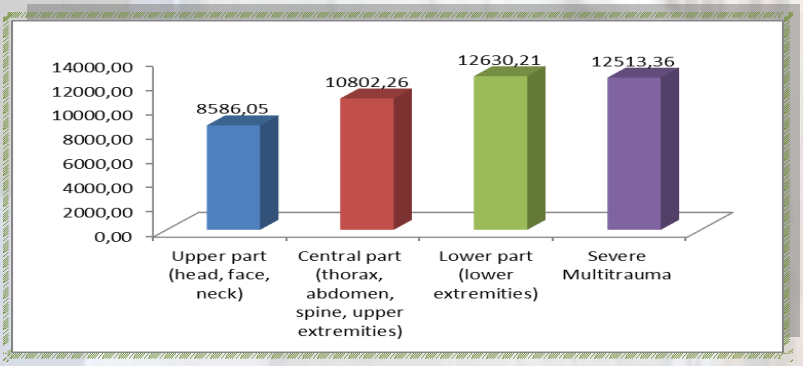
Total health expenditure and injury severity

Taking into account MAIS classification, it seems that people sustaining an injury classified as "MAIS 1,2" presented higher total health expenditure as compared with those whose injuries were classified as "MAIS 3+" (13.648,27 € and 10.667,16 €, respectively) (Graph 63). This difference was not found to be statistically significant (Man Whitney U=1192.000; p=.078).

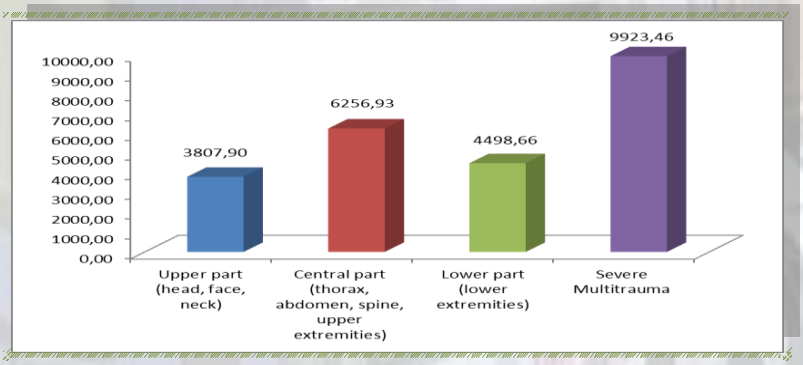
As regards to the ISS categories, there has been no statistically significant difference among the different ISS categories in terms of the total health expenditure (Kruskal Wallis: x2=2.578; df=3; p=.461). It seems from the results that those sustaining a "minor/moderate" injury demonstrated higher expenditure (13.151,34 €) as compared with the other ISS categories (Graph 64).



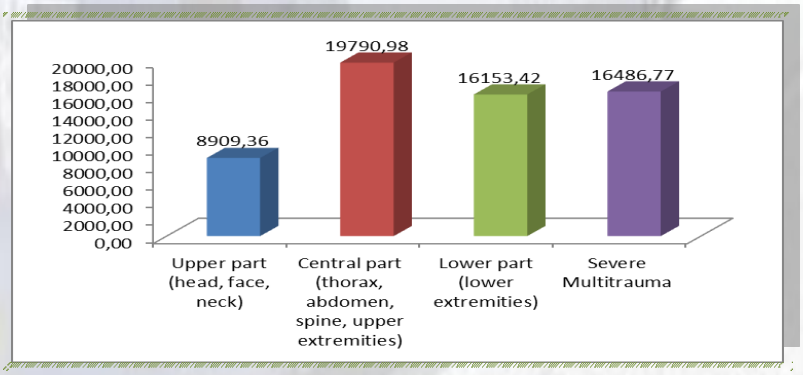
***Graph 65**. Total direct, indirect and hospitalization costs according to location of most severe injury*



***Graph 66**. Total direct, indirect and hospitalization costs according to location of most severe injury (Greece)*



***Graph 67**. Total direct, indirect and hospitalization costs according to location of most severe injury (Germany)*



***Graph 68**. Total direct, indirect and hospitalization costs according to location of most severe injury (Italy)*

Total health expenditure and injury location

Looking at the location of the most severe injury, it is evident that those sustaining the most severe injuries at the upper part of their body demonstrated a lower total expenditure (6.430,49€) as compared with those sustaining the most severe injuries at other body parts as well as those sustaining injuries of high severity at more than one parts of the body (Graph 65). This difference was not shown to be statistically significant (Kruskal Wallis: x2=3.812; df=3; p=.283).

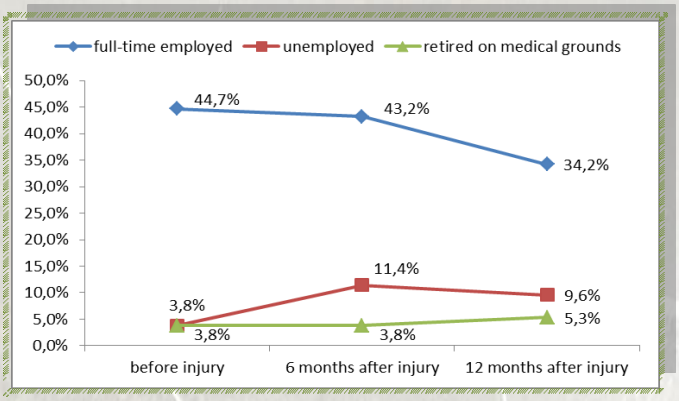
Looking at the health expenditure differences in terms of injury location within each country, it is evident that within Greece, those sustaining the most severe injuries at the upper part of their body demonstrated the lowest total expenditure (8.586,05€) and those sustaining the most severe injuries at the lower part of their body demonstrated the highest total expenditure (12.630,21€) (Kruskal Wallis: x2=.022; df=3; p=.999) (Graph 66).

A similar pattern was observed in Germany and Italy, with those sustaining the most severe injuries at the upper part of their body demonstrating the lowest total expenditure (3.807,90€ and 8.909,36€, respectively). In contrast with the Greek results, the highest total expenditure in Germany was reported by those sustaining injuries of high severity at more than one parts of the body (9923,46€) (Graph 67) and in Italy by those sustaining the most severe injuries at the central part of their body (19.790,98€) (Graph 68). This difference was not shown to be statistically significant neither in Germany (Kruskal Wallis: x2=.393; df=3; p=.942) nor in Italy (Kruskal Wallis: x2=2.847; df=3; p=.416).

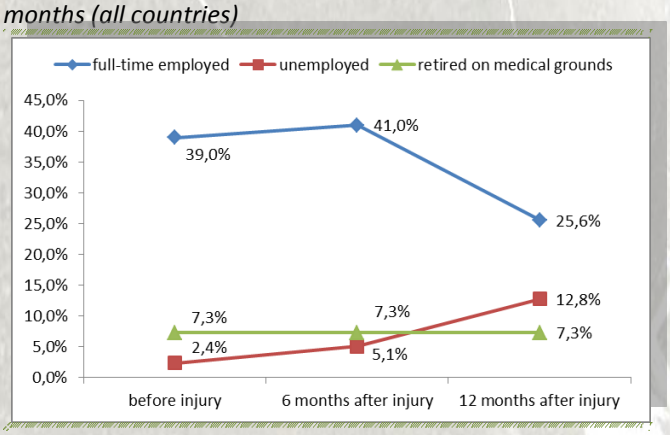
RESULTS (ix)

Health expenditure

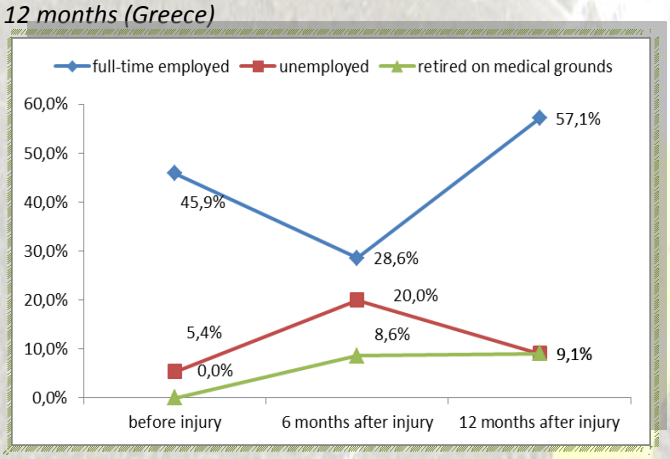
Working conditions in Indirect Health Expenditure



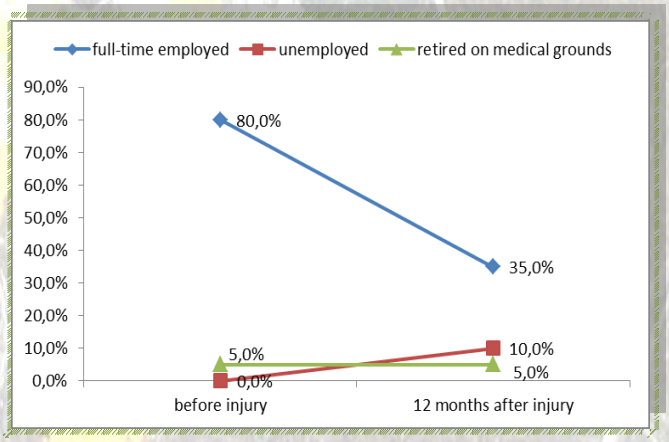
Graph 69. *Changes in working conditions from baseline to 12 months (all countries)*



Graph 70*. Changes in working conditions from baseline to 12 months (Greece)*



Graph 71*. Changes in working conditions from baseline to 12 months (Italy)*



Graph 72*. Changes in working conditions from baseline to 12 months (Germany)*

Change in working conditions

Looking at indirect cost of injuries, and particularly at work-related changes among the study participants, it is evident that the percentage of full-time employed participants was reduced by more than 10.0% within the year after the injury (44.7% to 34.2%). At the same time, there was an increase of nearly 8.0% at 6 months and 6.0% in 12 months in the unemployment among the participants. The number of those retired on medical grounds was stable at 6 months and increased by 1.5% at 12 months after the injury (Graph 69).

As for the country-specific situation, it is evident that within Greece, the number of fully-employed participants was reduced by more than 13.0%, the number of unemployed was increased by more than 10.0% and the number of retired on medical grounds remained the same at 12 months after the injury (Graph 70).

In Italy, the number of fully-employed participants was reduced by more than 17.0% at 6 and was finally increased by more than 11.0% at 12 months after the injury. Similarly, unemployed participants were increased by nearly 15.0% at 6 months but the increase was nearly 4.0% at 12 months after the injury (Graph 71). Participants who retired on medical grounds in Italy were increased by almost 9.0% at 12 months after the injury.

Change in working conditions (cont.)

In Germany, the number of fully-employed participants was reduced by 45.0% at 12 months after the injury, unemployed participants were increased by 10.0% and participants who retired on medical grounds remained stable (Graph 72).

Care from family members

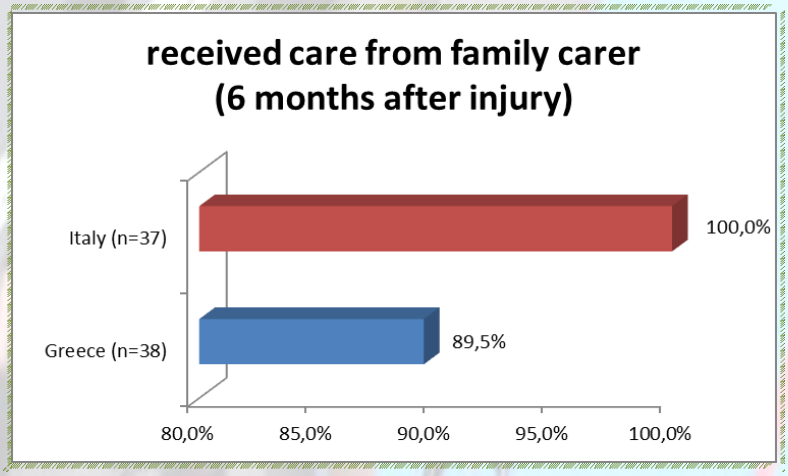
All the participants in Italy (10/10) and almost all in Greece (9/10) received care from a family member during the first 6 months after the injury. Looking at the period between 6 – 12 months after the injury, it is evident that 7/10 of participants in Italy, nearly 2/10 in Greece and more than 1/2 in Germany kept on receiving care from family members (Graph 73; Graph 74).

The aforementioned family carers were unpaid for the majority of participants in all Greece and Italy, both at 6 and 12 months after the injury (Graphs 75 and 76). The German participants presented the lower percentage of unpaid carers at 12 months after the injury (Graph 76).

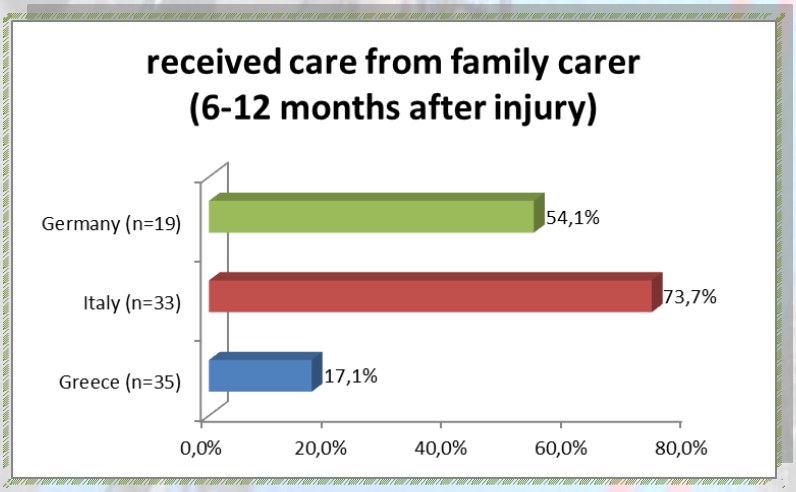
Change in working conditions of family carers

Nearly 1/2 of family carers in Italy and Greece had to take some time-off work during the 6 months after the injury, due to the care offered to the injured relative. In Greece, during the same 6 month period, 1/10 of family carers had to switch to part-time job or take a different job due to the care offered to the injured and 1/5 of family carers had to give up their job to care for the injured (Graph 77).

Further analysis of the period between 6-12 months after the injury indicated that approximately 1/2 of family carers in Italy and Germany and 1/5 in Greece had to take time-off work due to the care offered to the injured during that period. In Germany there was 1/10 of family carers that had to switch to part-time job or take a different job due to the care offered to the injured during the period 6-12 months (Graph 78).

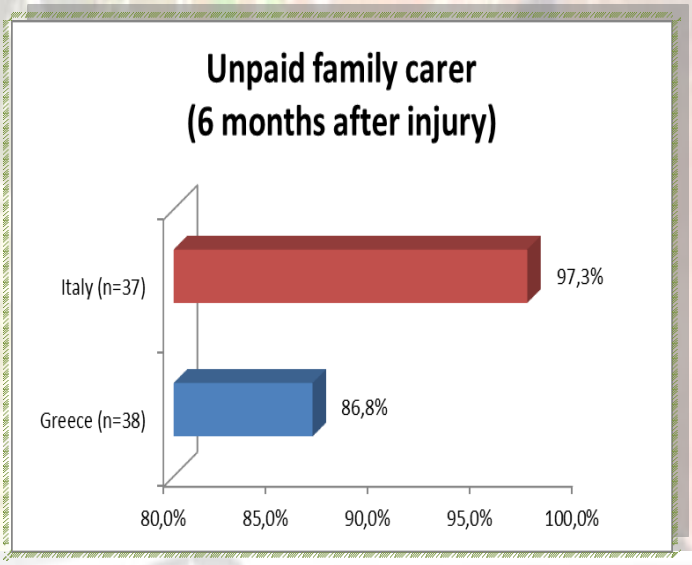


***Graph 73**. Participants who received care from family carers (0-6 months after injury / *Germany: NA)*

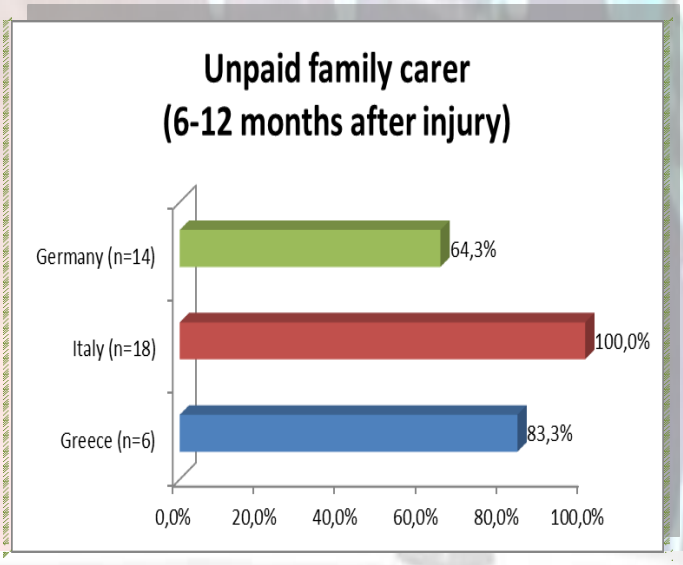


***Graph 74**. Participants who received care from family carers (6-12 months after injury / all countries)*

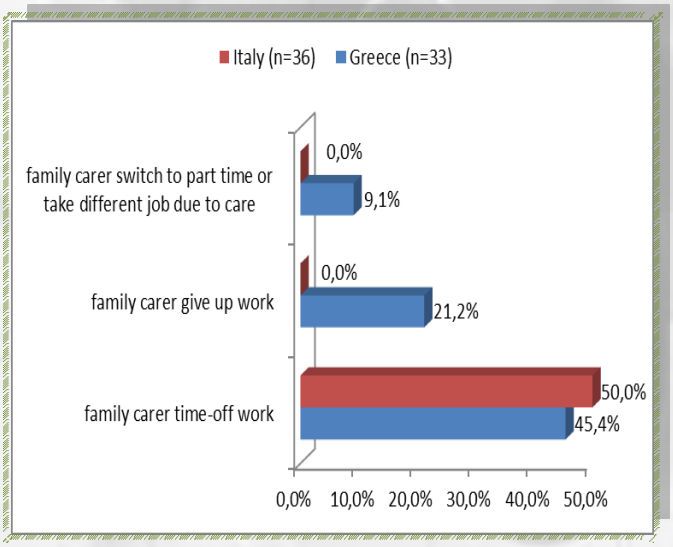
Rehabilaid



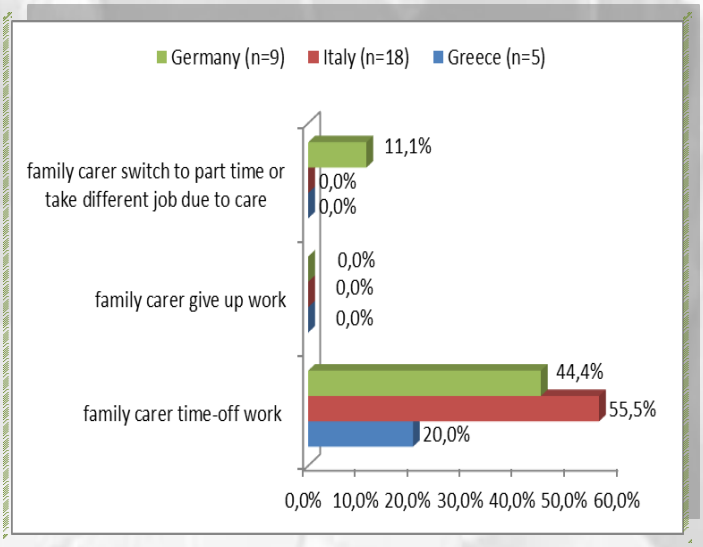
***Graph 75**. Use of unpaid family carers to care for the injury (0-6 months after injury / *Germany: NA)*



***Graph 76.** Use of unpaid family carers to care for the injury (6-12 months after injury / all countries)*



***Graph 77**. Changes in family carers' working conditions due to care for injury (0-6 months after injury / *Germany: NA)*

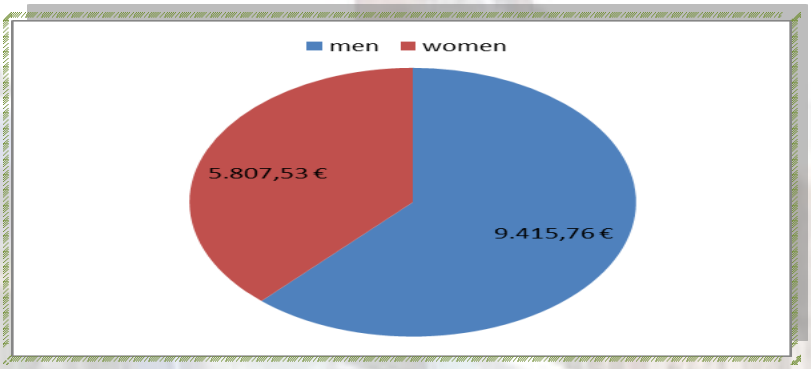


***Graph 78**. Changes in family carers' working conditions due to care for injury (6-12 months after injury / all countries)*

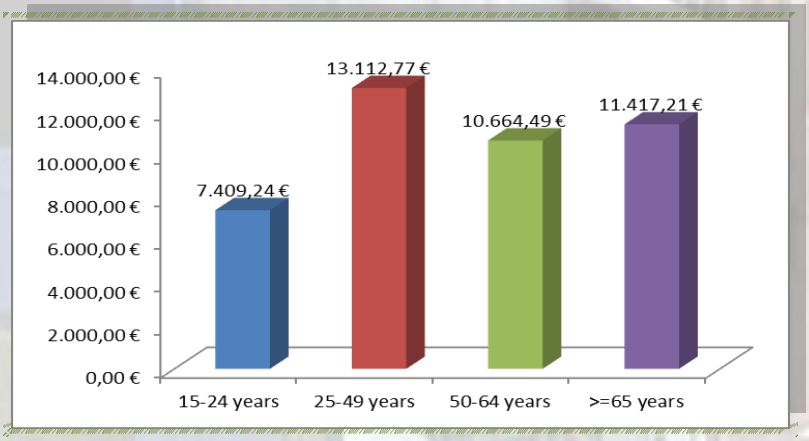
RESULTS (ix)

Health expenditure

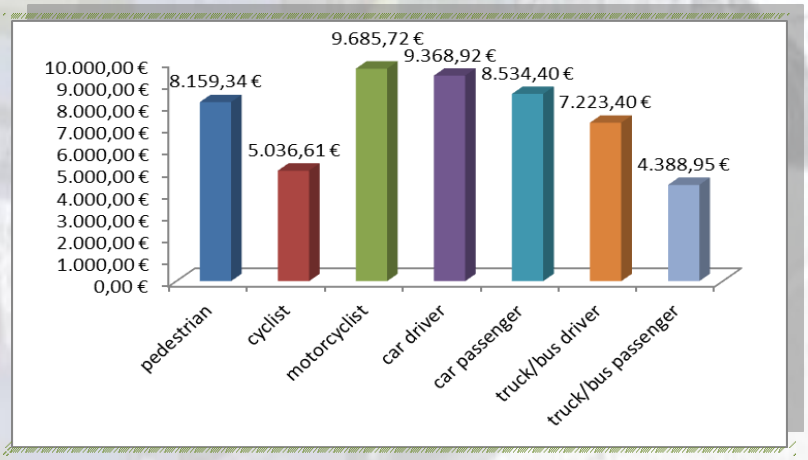
Socio-demographic and road user differences in Indirect Health Expenditure



Graph 79. *Total indirect health care expenditure according to gender*



Graph 80*. Total indirect health care expenditure according to age*



Graph 81*. Total indirect health expenditure according to type of road user*

Indirect health expenditure and gender

There has been a gender difference in terms of total indirect health expenditure due to road traffic injury, with men demonstrating a higher total indirect health expenditure than women (9.415,76 € and 5.807,53 €, respectively) (Graph 79). This difference was not statistically significant (Man Whitney U=1041.000; p=.173).

Indirect health expenditure and age

As regards to the age, it seems that the age group of 25-49 years presented the highest total indirect health expenditure (13.112,77€) followed by the age group of >65 years (11.417,21 €). This difference was shown not to be statistically significant (Kruskal Wallis: x2=3.529; df=3; p=.317) (Graph 80).

Health expenditure and type of road user

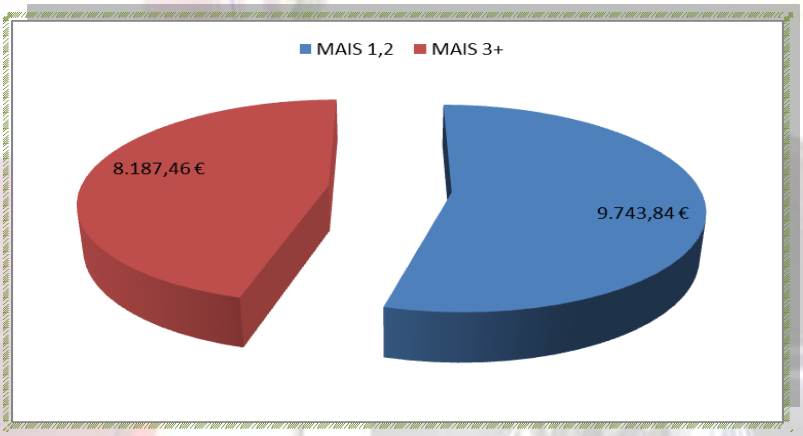
As for the type of road user, it seems that those sustaining the injury as motorcyclists had higher total indirect health expenditure (9.685,72 €) as compared with those sustaining an injury as drivers or passengers of other means of transport (Graph 81). This difference was not shown to be statistically significant (Kruskal Wallis: x2=1.482; df=6; p=.961).

Rehabilaid

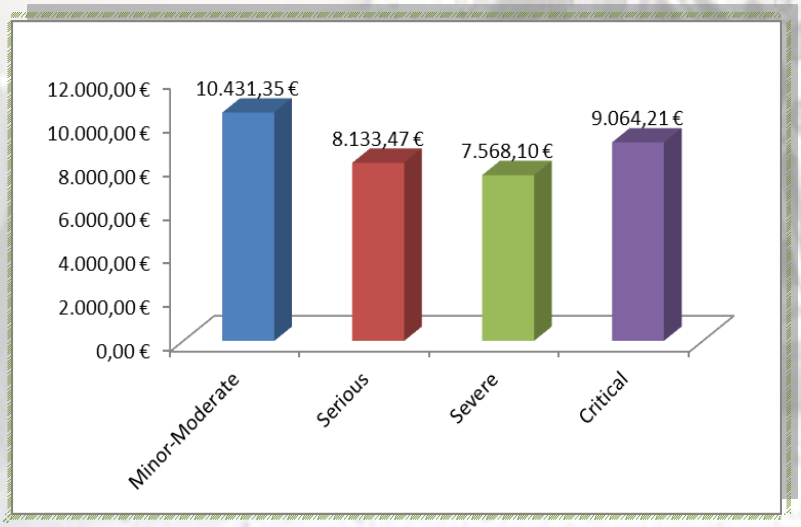
RESULTS (ix)

Health expenditure

Injury-related differences in Indirect Health Expenditure



***Graph 82**. Total indirect health expenditure according to MAIS classification*

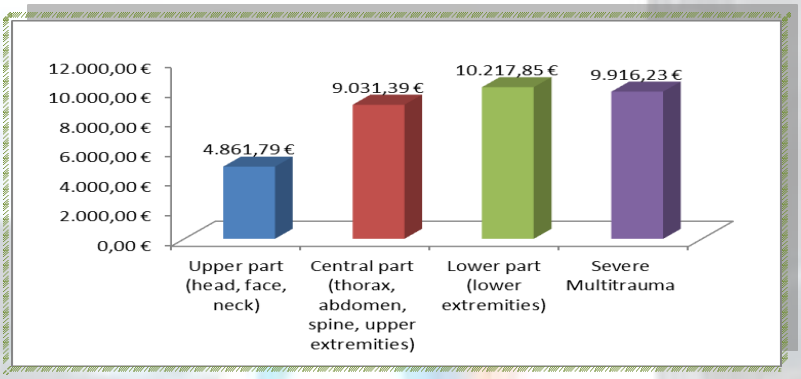


***Graph 83**. Total indirect health expenditure according to ISS classification*

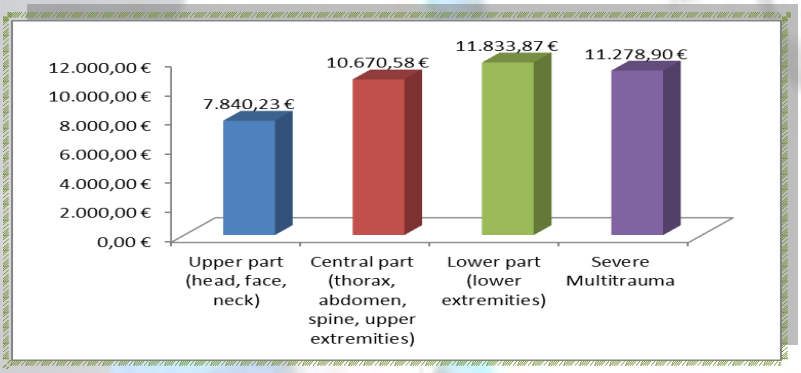
Indirect health expenditure and injury severity

People sustaining an injury classified as "MAIS 1,2" presented higher total indirect health expenditure as compared with those whose injuries were classified as "MAIS 3+" (9.743,84 € and 8.187,46 €, respectively) (Graph 82). This difference was found to be statistically significant (Man Whitney U=1107.500; p=.024).

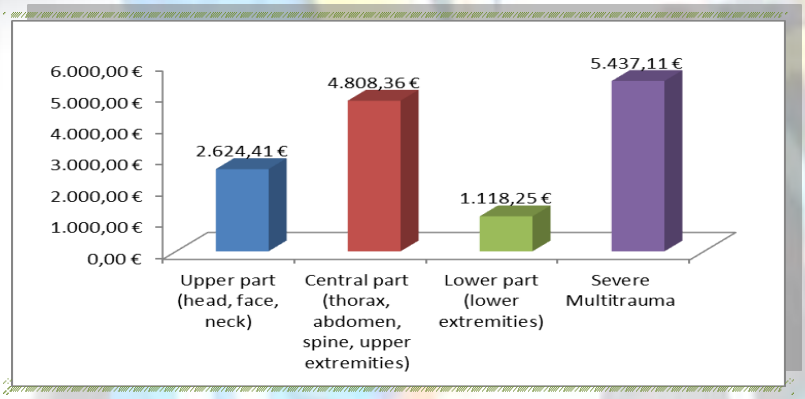
As regards to the ISS categories, there has been no statistically significant difference among the different ISS categories in terms of the total indirect health expenditure (Kruskal Wallis: x2=4.748; df=3; p=.191). It seems from the results that those sustaining a "minor/moderate" injury demonstrated the highest expenditure (10.431,35 €) followed by those sustaining an injury classified as "critical" (9.064,21 €) (Graph 83).



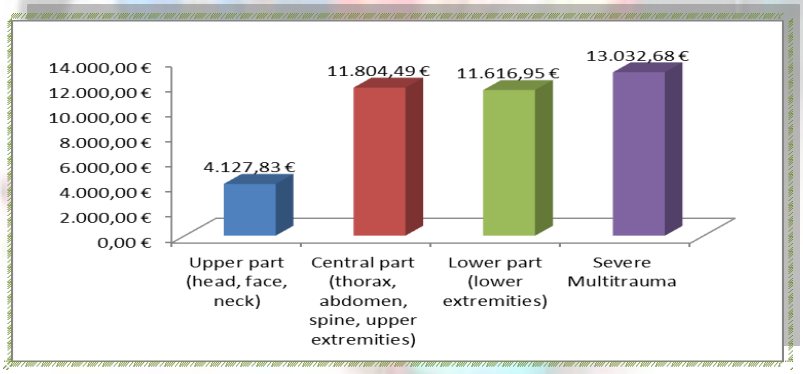
Graph 84.*Total indirect health expenditure according to location of most severe injury (all countries)*



Graph 85*. Total indirect health expenditure according to location of most severe injury (Greece)*



Graph 86*. Total indirect health expenditure according to location of most severe injury (Germany)*



Graph 87*. Total indirect health expenditure according to location of most severe injury (Italy)*

Indirect health expenditure and injury location

Participants who sustained the most severe injuries at the lower extremities reported the highest total indirect health expenditure (10.217,85€) and those who sustained the most severe injuries at the upper part of their body demonstrated the lowest total indirect expenditure (4.861,79€)(Graph 84). This difference was not shown to be statistically significant (Kruskal Wallis: x2=2.792; df=3; p=.425).

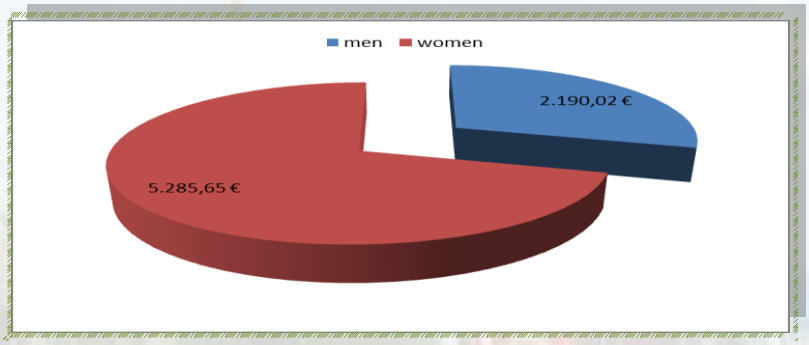
Looking at the indirect health expenditure differences in terms of injury location within each country, it is evident that within Greece, the pattern is similar to the one demonstrated by the overall sample. In particular, those sustaining the most severe injuries at the lower extremities demonstrated the highest total indirect health expenditure (11.833,87 €) and those sustaining the most severe injuries at the upper part of their body demonstrated the lowest total indirect health expenditure (7.840,23 €) (Kruskal Wallis: x2=.420; df=3; p=.936) (Graph 85).

A different pattern was observed in Germany and Italy, with those who sustained the most severe injuries at more than one regions of their body demonstrating the highest total indirect health expenditure (5.437,11€ and 11.616,95 € respectively) and those who sustained the most severe injuries at the upper part of their body demonstrating the lowest total indirect health expenditure (2.624,41€ and 4.127,83€, respectively). This difference was not shown to be statistically significant neither in Germany (Kruskal Wallis: x2=.5.380; df=3; p=.146) nor in Italy (Kruskal Wallis: x2=.474; df=3; p=.925 (Graphs 86; Graph 87).

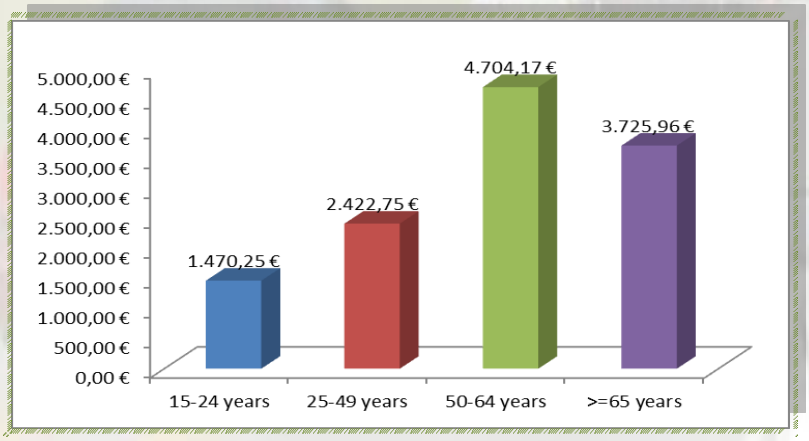
RESULTS (ix)

Health expenditure

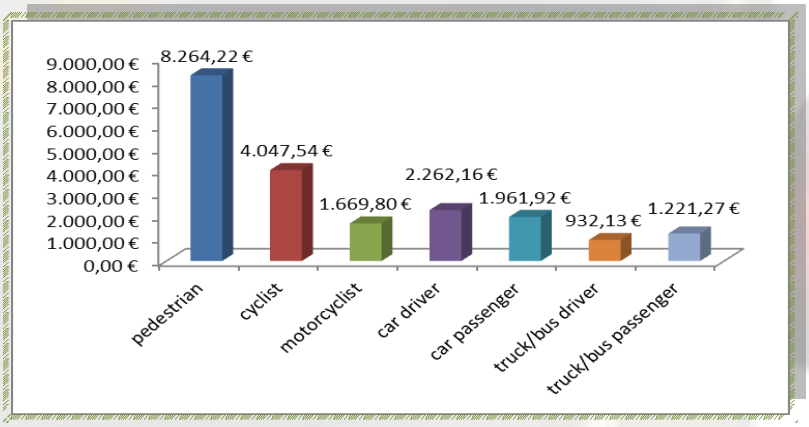
Socio-demographic and road user differences in Direct Health Expenditure



***Graph 88**. Total direct health care expenditure according to gender*



***Graph 89**. Total indirect health care expenditure according to age*



***Graph 90**. Total direct health expenditure according to type of road user*

Direct health expenditure and gender

There has been a gender difference in terms of total direct health expenditure due to road traffic injury, with women demonstrating a higher total direct health expenditure than men (5.285,65 € and 2.190,02 €, respectively) (Graph 88). This difference was not statistically significant (Man Whitney U=1250.000; p=.972).

Direct health expenditure and age

As regards to the age, it seems that the age group of 50-64 years presented the highest total direct health expenditure (4.704,17€) followed by the age group of >65 years (3.725,96 €). This difference was shown not to be statistically significant (Kruskal Wallis: x2=5.622; df=3; p=.132) (Graph 89).

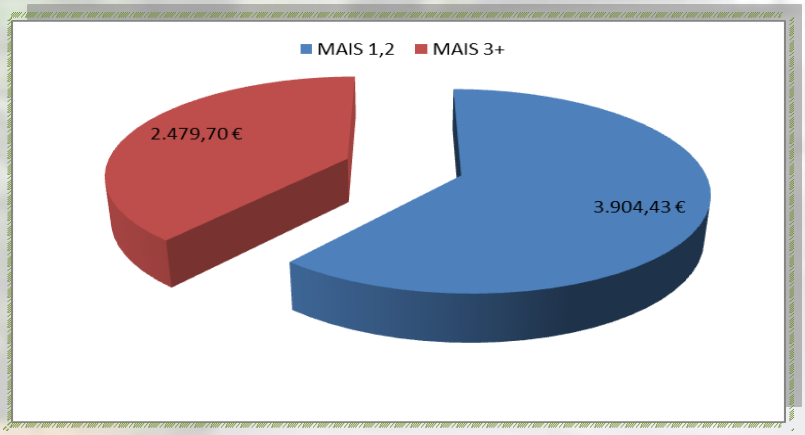
Health expenditure and type of road user

As for the type of road user, it seems that those sustaining the injury as pedestrians had higher total direct health expenditure (8.264,22€) as compared with those sustaining an injury as drivers or passengers of other means of transport (Graph 90). This difference was not shown to be statistically significant (Kruskal Wallis: x2=5.170; df=6; p=.522).

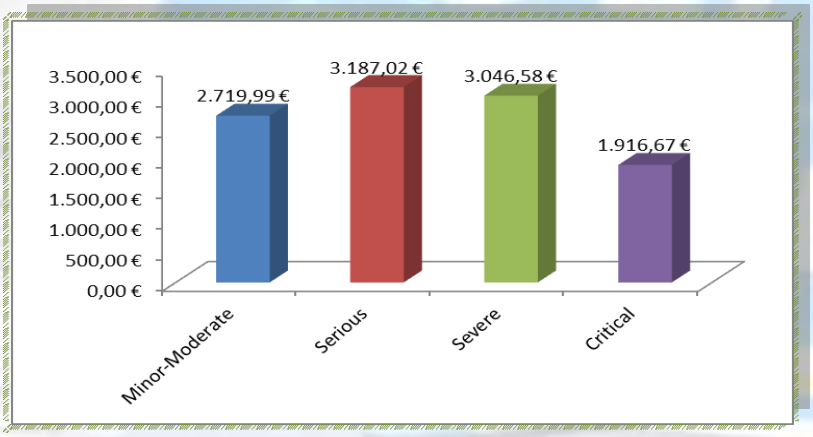
RESULTS (ix)

Health expenditure

Injury-related differences in Direct Health Expenditure



***Graph 91**. Total direct health expenditure according to MAIS classification*

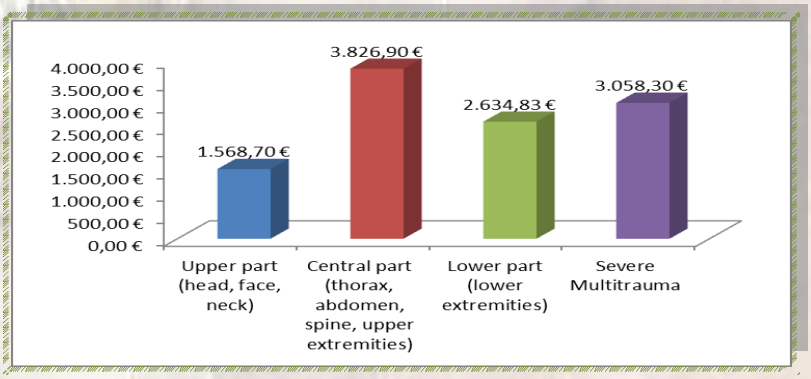


***Graph 92**. Total direct health expenditure according to ISS classification*

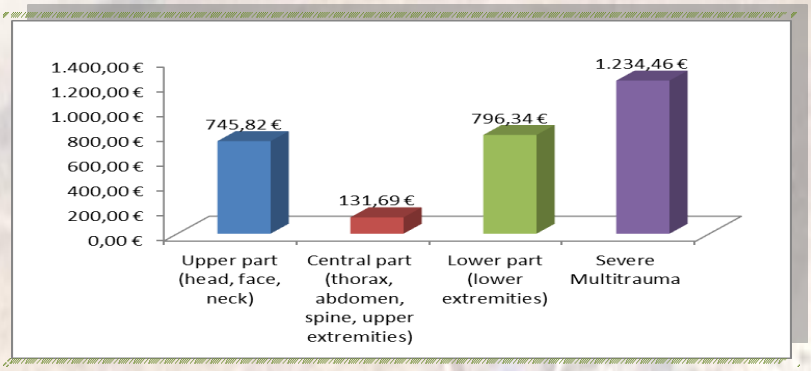
Direct health expenditure and injury severity

People sustaining an injury classified as "MAIS 1,2" presented higher total direct health expenditure as compared with those whose injuries were classified as "MAIS 3+" (3.904,43 € and 2.479,43 €, respectively) (Graph 91). This difference was found to be statistically significant (Man Whitney U=1304.000; p=.266).

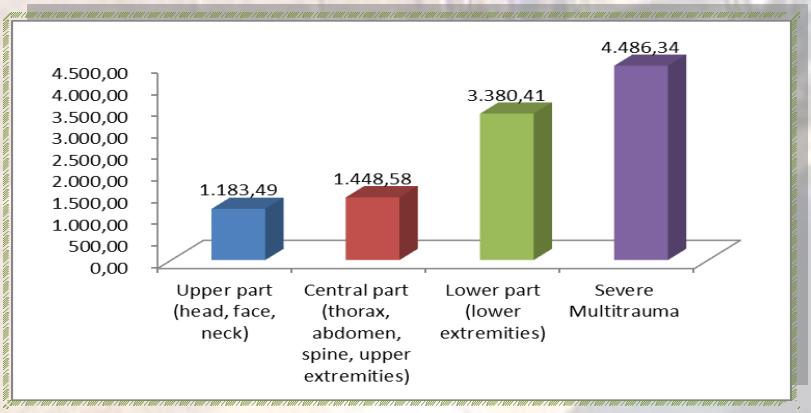
As regards to the ISS categories, there has been no statistically significant difference among the different ISS categories in terms of the total direct health expenditure (Kruskal Wallis: x2=4.508; df=3; p=.212). It seems from the results that those sustaining a "serious" injury demonstrated the highest direct health expenditure (3.187,02 €) followed by those sustaining an injury classified as "severe" (3.046,58 €) (Graph 92).



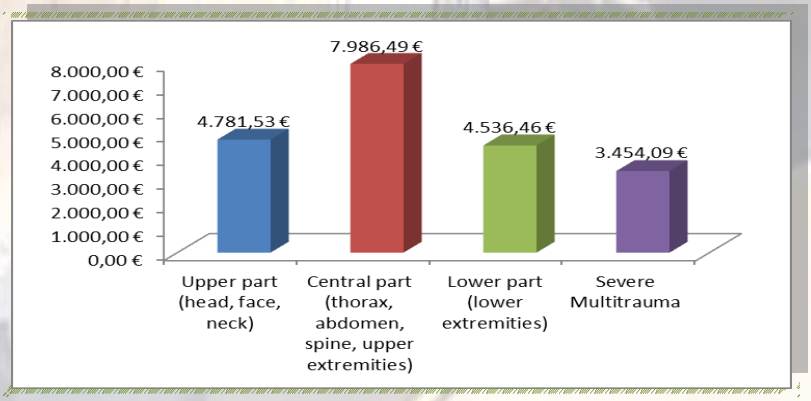
***Graph 93**. Total direct health expenditure according to location of most severe injury (all countries)*



***Graph 94.** Total direct health expenditure according to location of most severe injury (Greece)*



***Graph 95.** Total direct health expenditure according to location of most severe injury (Germany)*



***Graph 96**. Total direct health expenditure according to location of most severe injury (Italy)*

Direct health expenditure and injury location

Participants who sustained the most severe injuries at the central part of the body (thorax, abdomen, spine, upper extremities) reported the highest total direct health expenditure (3.826,90 €) and those who sustained the most severe injuries at the upper part of their body (head, face, neck) demonstrated the lowest total direct expenditure (1.568,70 €)(Graph 93). This difference was not shown to be statistically significant (Kruskal Wallis: x2=2.241; df=3; p=.524).

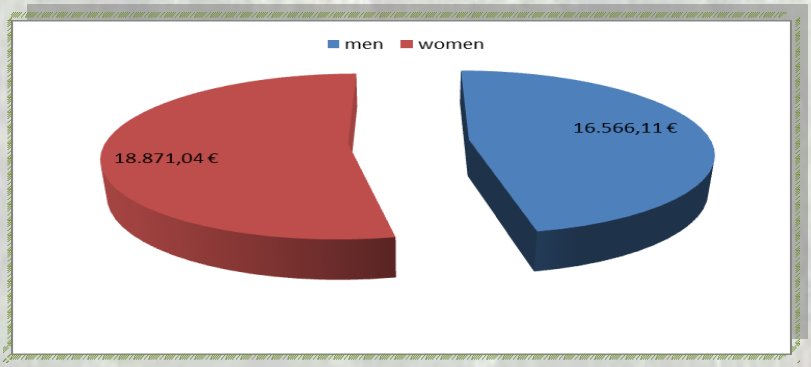
Looking at the direct health expenditure differences in terms of injury location within each country, it is evident that within Greece and Germany, the pattern is different to the one demonstrated by the overall sample. In particular, those sustaining the most severe injuries at more than one body regions demonstrated the highest total direct health expenditure (1.234,46€ and 4.486,34€, respectively) (Graphs 94; Graph 95). This difference was not shown to be statistically significant neither in Greece (Kruskal Wallis: x2=1.890; df=3; p=.595) nor in Germany (Kruskal Wallis: x2=..829; df=3; p=.843).

In Italy, those who sustained the most severe injuries at the central part of the body (thorax, abdomen, spine, upper extremities) reported the highest total direct health expenditure (7.986,49 €) as was the case with the overall sample (Graph 96). This difference was not shown to be statistically significant (Kruskal Wallis: x2=1.104; df=3; p=.776).

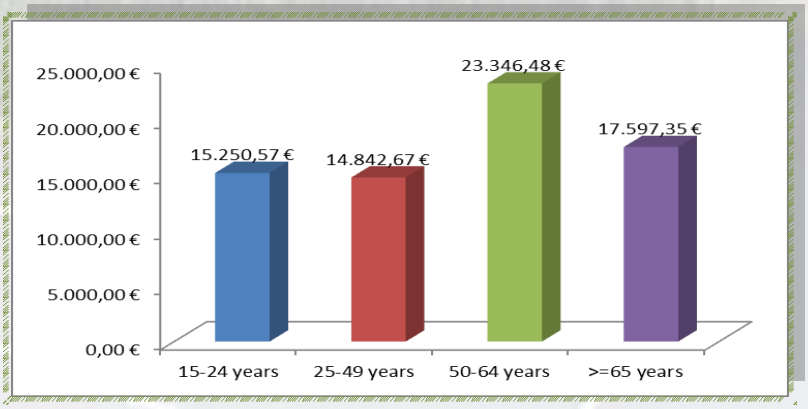
RESULTS (ix)

Health expenditure

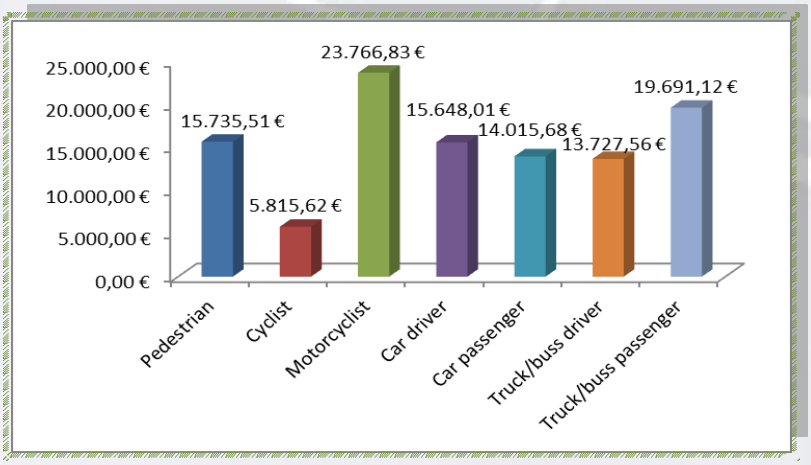
Socio-demographic and road user differences in Hospitalization Costs



***Graph 97**. Hospitalization costs according to gender*



***Graph 98**. Hospitalization costs according to age*



***Graph 99**. Hospitalization costs according to type of road user*

Hospitalization costs and gender

There has been a gender difference in terms hospitalization costs due to road traffic injury, with women demonstrating a higher total cost than men (18.871,04 € and 16.566,11 €, respectively) (Graph 97). This difference was not statistically significant (Man Whitney U=1201.000; p=.732).

Hospitalization costs and age

As regards to the age, it seems that the age group of 50-64 years presented the highest total hospitalization costs (23.346,48€) followed by the age group of >65 years (17.597,35 €). This difference was shown to be statistically significant (Kruskal Wallis: x2=8.002; df=3; p=.046) (Graph 98). Upon further analysis, statistically significant differences were demonstrated between the age groups “15-24 years” and “50-64 years” (Man Whitney U=220.000; p=.054) as well as between the age groups “25-49 years” and “50-64 years” (Man Whitney U=458.000; p=.005).

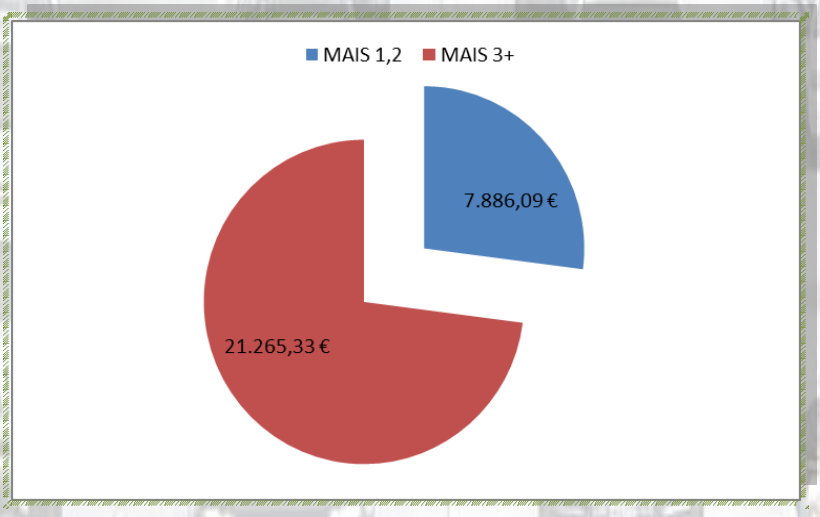
Hospitalization costs and type of road user

As for the type of road user, it seems that those sustaining the injury as motorcyclists demonstrated the highest total hospitalization costs (23.766,83 €) as compared with those sustaining an injury as drivers or passengers of other means of transport (Graph 99). This difference was not shown to be statistically significant (Kruskal Wallis: x2=7.000; df=6; p=.321).

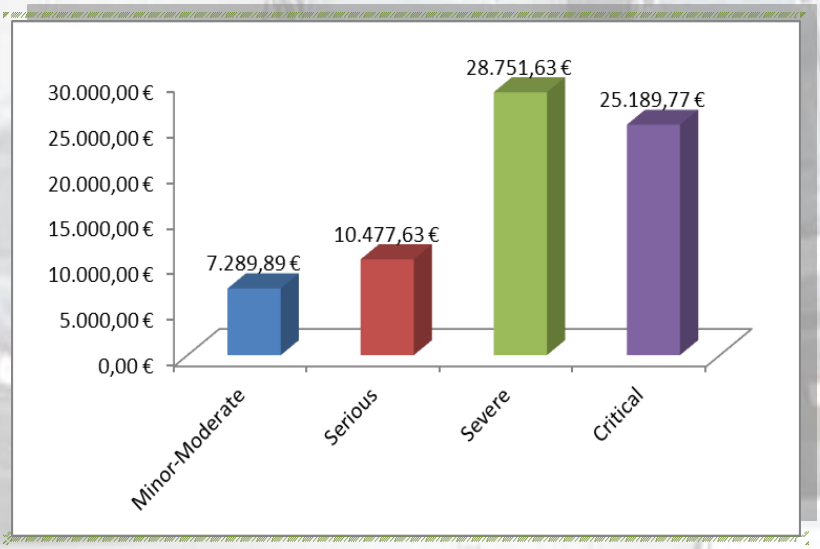
RESULTS (ix)

Health expenditure

Injury-related differences in Hospitalization Costs



Graph 100. *Hospitalization costs according to MAIS classification*

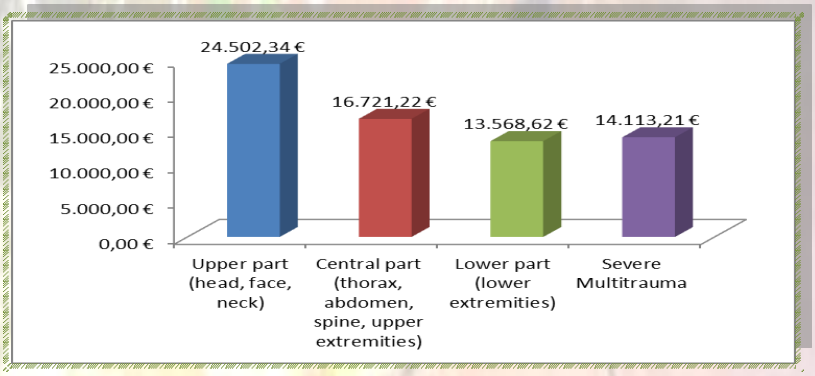


Graph 101.*. Hospitalization costs according to ISS classification*

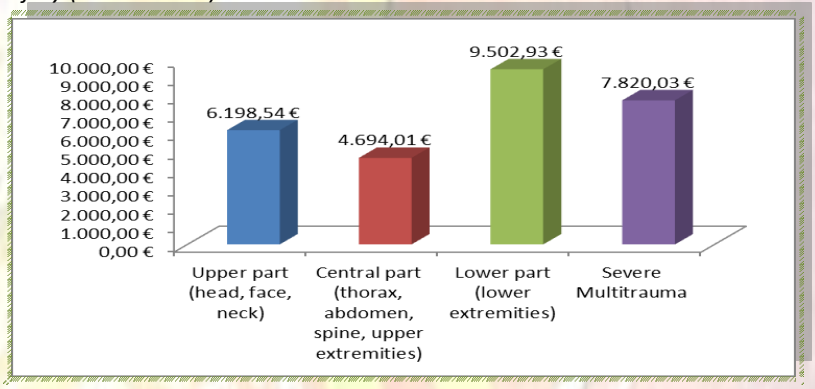
Hospitalization costs and injury severity

People sustaining an injury classified as "MAIS 3+" presented higher total hospitalization costs as compared with those whose injuries were classified as "MAIS 1,2" (21.265,33 € and 7.886,09 €, respectively) (Graph 100). This difference was found to be statistically significant (Man Whitney U=852.500; p=.0001).

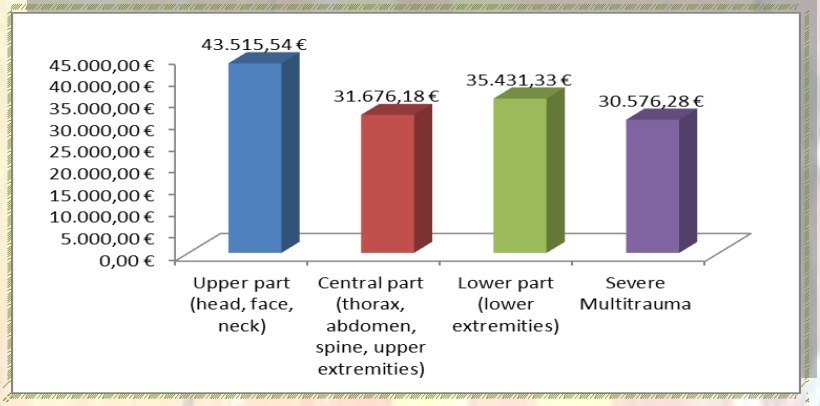
As regards to the ISS categories, there has been a statistically significant difference among the different ISS categories in terms of the hospitalization costs (Kruskal Wallis: x2=24.158; df=3; p=.0001). In particular, it seems from the results that those sustaining a "severe" injury demonstrated the highest hospitalization costs (3.187,0 €) followed by those sustaining an injury classified as "critical" (3.046,58€) (Graph 101). Upon further analysis, the differences were statistically significant between "minor/moderate" and "severe" injuries (Man Whitney U=229.500; p=.0001), between "minor/moderate" and "critical" injuries (Man Whitney U=61.000; p=.0001), between "serious" and "severe" injuries (Man Whitney U=479.000; p=.005) and between "serious" and "critical" injuries (Man Whitney U=130.000; p=.002).



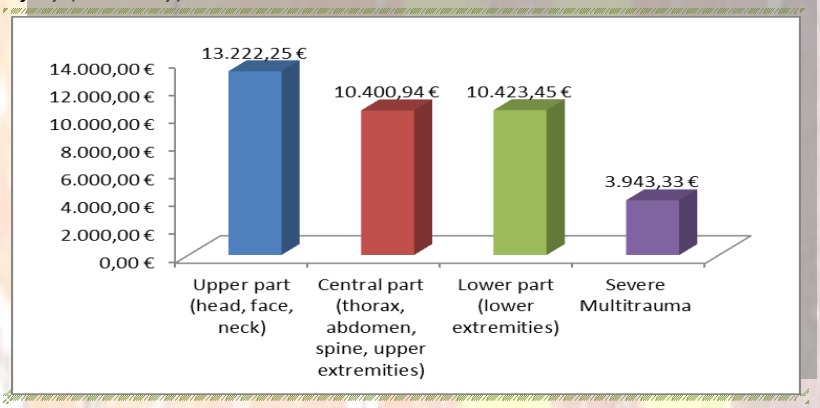
***Graph 102**. Hospitalization costs according to location of most severe injury (all countries)*



***Graph 103**. Hospitalization costs according to location of most severe injury (Greece)*



***Graph 104**. Hospitalization costs according to location of most severe injury (Germany)*



***Graph 105**. Hospitalization costs according to location of most severe injury (Italy)*

Hospitalization costs and injury location

Participants who sustained the most severe injuries at the upper part of their body demonstrated the highest hospitalization costs (1.568,70 €) as compared with those sustaining the most severe injuries at other parts of their body (Graph 102). This difference was not shown to be statistically significant (Kruskal Wallis: x2=1.751; df=3; p=.626).

Looking at the hospitalization costs differences in terms of injury location within each country, it is evident that within Germany and Italy, the pattern is similar to the one demonstrated by the overall sample. In particular, those sustaining the most severe injuries at the upper part of their body demonstrated the highest hospitalization costs (43.515,54€ and 13.222,25 €, respectively) (Graph 104; Graph 105). This difference was not shown to be statistically significant neither in Germany (Kruskal Wallis: x2=.483; df=3; p=.923) nor in Italy (Kruskal Wallis: x2=3.250; df=3; p=.355).

In Greece, those who sustained the most severe injuries at the lower extremities reported the highest hospitalization costs (9.502,93 €) as compared with those sustaining the most severe injuries at other body parts (Graph 103). This difference was not shown to be statistically significant (Kruskal Wallis: x2=.805; df=3; p=.848).

SUMMARY

of main findings

Profile of the injured and initial care

According to the results, men and low-salaried were over-represented among the severely injured in all the countries involved in the current study.

It is not surprising that motorcyclists were over-represented among the Greek respondents and also very dominant among the Italian counterparts. It has been noted that Mediterranean countries have high proportions of motorcycle crash involvement with Greece, Malta, Cyprus, Italy and France having the highest proportions of deaths of motorized two-wheeler users among victims of road crashes, exceeding 1 in 4 deaths[1-2]. This is partly because of the greater use of motorized two-wheelers in these countries, especially in urban areas, and because the licensing age for drivers is less than 18 years[3-4].

What stands out in the results is that the German respondents in the current study presented the longest annual distance driven/ridden with the lowest crash involvement as compared to the Greek and Italian counterparts. A similar pattern has been also shown in European statistics with Greece and Italy demonstrating higher crash involvement and higher road fatalities than Germany. In 1991 Greece presented 11 deaths per 100 road traffic crashes, whereas in the West Germany this was 2.5 and in Italy 4.5 per 100 road traffic crashes. Although a decrease of 24% in the rate of fatal RTC was observed from 1991 to 2003, more recent data from the European Union rank 7 out of 13 regions of Greece among the 10 most dangerous regions in Europe for RTCs[5]. In fact, the number of deaths and injuries due to road traffic crashes in Greece is significantly higher than in other EU member states[6]. During the last decade, Greece has shown the lowest level of road safety (highest fatality rate) among the 15 older European Union (EU) countries, and one of the lowest levels among the 27 EU countries, reflecting insufficient effort from both the authorities and the population[7].

What is also interesting among the results is that the Greek respondents demonstrated a more risky driving profile with the lowest motorcycle helmet and seatbelt use as compared to the German and the Italian respondents. Low seatbelt and helmet use was also evident in other Greek studies, implying that the legal code alone is unlikely to be effective in changing drivers' and motorcyclist behavior[8-11]. This finding has been replicated in various studies and has introduced certain concerns about culturally-specific characteristics that may interfere with increased crash risk among Greek drivers[12-17].

Another remarkable finding of this study is that the Italian respondents were less severely injured as compared with the Greek and the German respondents since the majority of them had a MAIS <3, a higher Glasgow Coma Score and a lower duration of stay in the intensive care unit than the Greek and German respondents. The characteristics of the road incident that caused the injury could explain this variation as many Italian respondents were pedestrians and cyclists and had a single collision, which was not very often the case for the Greek and German counterparts. Besides that, a 66% decrease in traumatic head injury admissions due to motorized two-wheelers and a 31% decrease in admissions to neurosurgical units has been noted in Italy as a result of changes in helmet use laws (to include all moped and motorcycle riders irrespective of the age) along with publicity campaigns and active police enforcement [18].

Most importantly, the current study revealed several variations in the initial injury assessment and first care offered to the injured, which could be attributed to differences in the organization of the trauma care, the levels of investments in the trauma care infrastructure, the level of maturation of trauma systems and the level of enhancement of care protocols. In Greece for example, a large number of respondents were transferred from another hospital, which was not the case for Germany and Italy. In addition, rural health centres in Greece are often used as the first point of care in non-urban settings, without having the capacity to treat trauma patients[19]. This implies that valuable time is lost from patient pre-hospital care and underlines the lack of appropriate units to treat trauma patients. Greece, in contrast with Germany and Italy, lacks an organized trauma system at the present moment and this is a serious shortcoming preventing optimized care and outcomes for trauma patients[19-20]. This is evident also from the fact that a variety of health care providers were involved in the initial assessment and care of the respondents in Greece, while in the case of German and Italy this task was almost always under the responsibility of an emergency doctor along with a nurse or a paramedic. It has been noted that the composition of the health care providers treating trauma patients differs from country to country and that the level of training and the degree of professionalism involved can show wide variation[21-22]. In Europe, the multi-specialist trauma team usually comprises anesthesiologists, surgeons, radiologists, emergency physicians etc. while trauma team leaders tend to be either emergency physicians, surgeons (orthopedic surgeons, neurosurgeons, general surgeons) or anesthesiologists and specialists in intensive care[23]. The emergency dispatch centre is considered to play a critical role in the efficient use of trauma systems especially in order not to lose time for adequate treatment of the severely injured patients[24]. Further to this, a two-tiered system with emergency medical technicians as the first tier and a MICU-team (mobile intensive care units) as the second tier has been set up in some countries in Europe (such as in Belgium, Germany, France, Italy) with promising outcomes[25].

What is most concerning is the fact that information on the initial care is missing from a large number of Greek cases, which implies on one hand that information on the initial assessment is not collected and recorded systematically and on the other hand that there is lack of coordination among the hospital clinics and the health care providers involved in trauma care as well as among the different hospitals that offer complimentary care to trauma patients. In Greece, this is well explained by the lack of an organized trauma system and most importantly the lack of a trauma registry[19-20]. Previous experience with the development of the Emergency Department Injury Surveillance System (EDISS) in Greece has proved to be effective but temporary[26]. In fact trauma registries exist in Germany and Italy and many other European countries but not in Greece, even though this has been included among the national strategic action plan for road safety of 2008-2012. It is likely that the crisis could entail the risk that road safety measures are abandoned due to lack of resources[7]. Besides that, it has been noted that while post impact care is often neglected in national road safety plans and programmes in European countries because it is outside the direct responsibility of the lead agency for road safety which is generally the Ministry of Transport[23].

Process of Recovery

DEPRESSION: There is a different risk, at 6 and 12 months after the injury, if the subject was already depressed before the injury and also having depression at 12 months increased by age. The risk of having depression at 12 months is lower for those who sustained the injury as users of motorized 4-wheel vehicles as compared with vulnerable users, such as pedestrian or cyclists adjusted for the same severity of the injury and age. In general the subjects seem to recover from the initial state of depression due to the injury.

PHYSICAL DISABILITY: There is a different risk of sustaining physical disability 6 and 12 months after the injury, if the subject suffered a trauma at the lower extremities as compared with those that sustained injuries at other location of the body. At 6 months, there is also a higher risk of having physical disability if the subject sustained an severe or critical injury (MAIS score ≥4) as compared with those who sustained an injury of minor or moderate severity (MAIS 1,2). At 12 months, the marital status of the injured is important with the divorced and widow having a slower rehabilitation than the single, adjusted for their physical condition before the injury.

SUBJECTIVE STRESS: The risk of sustaining “subjective stress” 6 months after the injury seems to be associated with the presence of subjective stress at baseline. Moreover, if the low extremities are involved in the injury the recovery from stress is slower.

SOCIAL SUPPORT: The risk of having a “low social support” 6 months and 12 months after the injury, increased with age. Six months after the injury, a low social support is more common for people with lminor or moderate injuries (MAIS 1,2) as compared with people whose injuries were more severe (MAIS >3). One year after the injury, the risk of having a low social support is more common for the vulnerable road users, such as pedestrians and cyclists.

PAIN: The risk of sustaining “pain” is reduced if the location of the crash is other than an intersection, probably due to the speed at the moment of the crash. Six months after the injury, subjects with severe or critical injuries (MAIS ≥4), have increased risk of sustaining pain. Singles are shown to run a lower risk of having pain at 12 months as compared with other subjects.

Finally, it seems that pain and physical disability have a slow recovery process while depression and subjective stress seem to have good recovery if not complete recovery one year after the injury. For low social support, we have a situation less stable, due to low proportion of cases reporting low levels of support.

References

1. WHO Regional Office for Europe and United Nations Economic Commission for Europe, Ten years' work towards sustainable and healthy transport in Europe: key achievements and the way forward, Copenhagen, WHO Regional Office for Europe and Geneva, United Nations Economic Commission for Europe, 2009 http://www.euro.who.int/__data/assets/pdf_file/0015/43314/E92789.pdf, Accessed 10 August, 2015.
2. Energy and transport in figures: statistical pocket book 2006. Brussels, European Commission http://www.ec.europa.eu/dgs/energy_transport/figures/pocketbook/2006_en.htm, Accessed 10 August 2015.
3. Sethi D et al. Progress in preventing injuries in the WHO European Region. Copenhagen, WHO Regional Office for Europe, 2008 http://www.euro.who.int/__data/assets/pdf_file/0008/98423/E91710.pdf, Accessed 10 August 2015.
4. Annual statistical report 2008, Brussels, European Road Safety Observatory, 2008 http://ec.europa.eu/transport/wcm/road_safety/erso/safetynet/fixed/WP1/2008/SafetyNet%20Annual%20Statistical%20Report%202008.pdf, Accessed 10 August 2015.
5. Statistics in Focus EU road safety 2004: Regional differences - Issue number 14/2007. Eurostat, Available at: http://ec.europa.eu/eurostat/documents/3433488/5290529/KS-SF-07-014-EN.PDF/687aac0e-32d0-453e-9308-0f0172e7ac43, Accessed 10 August 2015.
6. Economou C, Giorno C, Improving the performance of the public health care system in Greece, Economics Department Working Paper No. 722, OECD, 2009, Available at: www.oecd.org/Working Papers, Accessed 10 August 2015.
7. IRTAD Road Safety 2010 Annual Report, OECD 2011, International Traffic Safety Data and Analysis Group, Paris.
8. Chliaoutakis JE, Gnardellis C, Drakou I, et al. Modelling the factors related to the seatbelt use by the young drivers of Athens. *Accid Anal Prev* 2000; 32:815–825.
9. Germeni E, Lionis C, Davou B, et al. Understanding reasons for non-compliance in motorcycle helmet use among adolescents in Greece. *Inj Prev* 2009: 15:19–23.
10. Papadakaki M, Tzamalouka G, Orsi C, et al. Barriers and facilitators of helmet use in a Greek sample of motorcycle riders: Which evidence? *Transp Res Part F Traffic Psychol Behav* 2013; 18: 189–198.
11. Skalkidou A, Petridou E, Papadopoulos F, et al. Factors affecting motorcycle helmet use in the population of Greater Athens, Greece. *Inj Prev* 1999; 5(4):264–267.
12. Chliaoutakis JE, Darviri C, Demakakos PTh, The impact of young drivers' lifestyle on their road traffic accident risk in greater Athens area. *Accid Anal Prev* 1999; 31:771–780.
13. Chliaoutakis J, Demakakos P, Tzamalouka G, et al. Aggressive behaviour while driving as predictor of car crashes. *J Safety Res* 2002; 33:431–443.
14. Kontogiannis T, Kossiavelou Z, Marmaras N, Self reports of aberrant behaviour on the roads: Errors and violations in a sample of Greek drivers. *Accid Anal Prev* 2002; 34:381–399.
15. Tzamalouka G, Papadakaki M, Chliaoutakis J, Freight transport and non-driving work duties as predictors of falling asleep at the wheel in urban areas of Crete. *J Safety Res* 2005; 36:75–84.
16. Papadakaki M, Kontogiannis T, Tzamalouka G, et al. Exploring the effects of lifestyle, sleep factors and driving behaviors on sleep-related road risk: A study of Greek drivers. *Accid Anal Prev* 2008;40(6):2029-2036.
17. Gnardellis C, Tzamalouka G, Papadakaki M, et al. An investigation of the effect of sleepiness, drowsy driving and lifestyle on vehicle crashes. *Transp Res Part F Traffic Psychol Behav* 2008; 11:270–281.
18. Sethi D, Racioppi F, Mitis F, Youth and road safety in Europe, WHO Regional Office for Europe, WHO European Centre for Environment and Health, 2007, Copenhagen/ Rome. http://www.euro.who.int/__data/assets/pdf_file/0003/98454/E90142.pdf, Assessed 10 August 2015.
19. Katsaragakis S, Drimousis PG, Kleidi ES, et al. Interfacility transfers in a non-trauma system setting: an assessment of the Greek reality. *Scand J Trauma Resusc Emerg Med* 2010; 18:14.
20. Lossius HM, Kristiansen T, Ringdal KG, et al. Inter-hospital transfer: the crux of the trauma system, a curse for trauma registries. Scand J Trauma Resusc Emerg Med 2010; 18:15.
21. Chamberlain D, The pre-hospital management of acute heart attacks. *Eur Heart J* 1998; 19:1140-1164.

22. Huemer G, Pernerstorfer T, Mauritz W, Prehospital emergency medicine services in Europe: structure and equipment. *Eur J Emerg Med* 1994; 1:62-68.
23. Post Impact Care, SafetyNet 2009, Available at: http://ec.europa.eu/transport/road_safety/specialist/knowledge/pdf/postimpactcare.pdf, Accessed 10 August 2015.
24. Council of the European Society for Emergency Medicine, Manifesto for emergency medicine in Europe. *Eur J Emerg Med* 1998; 5:7-8.
25. Buylaert W. ed. Reducing injuries from post-impact care, European Transport Safety Council, Working Party on Post Impact Care, 1999, Brussels. Available at: http://archive.etsc.eu/documents/care.pdf, Assessed 10 August 2015.
26. Petridou E, Skalkidou A, Ioannou N, et al. Fatalities from non-use of seat belts and helmets in Greece: a nationwide appraisal. Hellenic Road Traffic Police. *Accid Anal Prev* 1998; 30(1):87–91.