



ΕΘΝΙΚΟ ΚΑΙ  
ΚΑΠΟΔΙΣΤΡΙΑΚΟ  
ΠΑΝΕΠΙΣΤΗΜΙΟ  
ΑΘΗΝΩΝ



**PhD Dissertation Thesis**

**EVALUATION AND MANAGEMENT OF THE TOTAL HEALTH  
INCENTIVES FOR ACCIDENTS IN THE COMMUNITY**

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# INTRODUCTION

- According to [World Health Organization](#), "an accident is any disaster that occurs violently in the tissues, internally or externally, regardless its cause."
- Also, injury is defined as "all damage to tissues caused instantaneously at the time of the accident by various forms of mechanical factors, when they exceed the physical strength of tissues and organs."

# INTRODUCTION

- Classification of injuries is determined by specific criteria. The most important criterion of discrimination are the external factors causing injuries, which are namely: ([Gkouvas, 2000](#))
  - use of toxic substances (poisoning)
  - lack of oxygen (asphyxia)
  - electric shock
  - drop from height
  - water (drowning)
  - chemical substances (poisoning, chemical burn)
  - thermal energy (burn)
  - radiation (radiation sickness)
  - violence (assault)
  - mechanical-kinetic violence (traffic accidents)

# EPIDEMIOLOGY

- **Road accidents** are thought to be one of the most important causes of mortality, injuries and damage of property. Apart from the loss of human lives and damage to property, the impacts on the injured are various, e.g. many of them are driven to disability, and their quality of life is deteriorating.
- It is estimated that **1,800** deaths are inflicted worldwide per year for children up to **15** years old, while **11,000** deaths are caused in the countries of the European Union among young people and adolescents aged **15-24**. Moreover, Greece is the third country in the EU, in terms of the loss of human lives from road accidents to children, adolescents and young people up to 25 years old ([Kteniadaki, 2016](#)).
- In 2016, in Greece there were reported **56** deaths, **55** severely wounded and **1,008** lightly injured by road accidents. In contrast, in the year 2015, there were recorded **76** deaths, **73** seriously injured and **1,275** light wounded ([Kteniadaki, 2016](#)).

# AIM OF THE STUDY

Evaluation of the overall state of health (physical and psychological) of the injured by road accidents.

## **Side goals:**

- Comparison of demographic characteristics of patients with depression and QL (at **0**, **3** and **6** months).
- Comparison between depression levels at different times (at **0**, **3** and **6** months).
- Comparison between QL levels at different times (at **0**, **3** and **6** months).

# MATERIALS AND METHODS

**Research Design:** Observation study with a comparison of results between 3 and 6 months after the initial measurements.

**Patients:** A sample of convenience consisting of **474** people who arrived at the **TEΠ** of four general hospitals in Attica after a road accident.

**Investigation period:** November 2016-March 2018.

# MATERIALS AND METHODS

## *Entry criteria in the study:*

- Age  $\geq 18$  years old
- Sufficient knowledge of writing and reading of the Greek language.
- Ensure written consent.

## *Exclusion criteria from study:*

- Existence of pain during data collection, analgesic treatment required.
- Taking repressive treatment before or during data collection
- Individual history of psychiatric disorders.

# MATERIALS AND METHODS

## Research Tools

- ❖ **Greek version of the scale “Beck Depression Inventory-II” (BDI-II)**
  - It consists of a total of **21** questions that assess specific manifestations of clinical depression.
  - Each question is followed by **4** possible answers (self-assessment suggestions). Proposals are ranked to express the severity of the symptom, from its absence to the maximum severity.
  - Each sentence is rated from **0** to **3**, where 0 corresponds to the proposal describing the absence of the symptom and 3 to the sentence describing the most severe form of the symptom.
  - The total score on the scale corresponds to specific levels of depression: **0-13** (absence of depression), **14-19** (mild depression), **20-28** (moderate depression), and **29-63** (severe depression).



# MATERIALS AND METHODS

## Research Tools

### ❖ Questionnaire QoL

-It consists of **19** closed-ended questions, and an initial question that examines the patient's general **ΠΖ** and how it would have been if the patient had not been injured.

-Each of the QoL questions is a pair of questions, from which the first question examines the views of patients on how different the aspects of their lives would be (eg. work, travel, holidays, social and personal life, etc.) if there was no trauma and the second question examines how important is the existence of the trauma for the patient.

# MATERIALS AND METHODS

## Research Tools

- ❖ Questionnaire on demographic and social characteristics, formulated by the researcher
- ❖ Questionnaire designed by the researcher to collect data on the driving habits of the participants in the study and the prevailing conditions on the day of the accident

# MATERIALS AND METHODS

## Statistical analysis

- Data was processed using the Statistical Package for Social Sciences (SPSS v. 20.0).
- Descriptive statistical analysis was performed
- Also, a bimodal statistical analysis was performed using the following methods:
  - Pearson  $\chi^2$
  - Paired t-test
  - Mann Whitney non-parametric comparison test
  - Kruskal Wallis non-parametric comparison test
- The Cronbach-alpha reliability factor was used to test the questionnaire's reliability

# RESULTS

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	<b>Variable</b>	<b>N</b>	<b>%</b>
<b>Gendre</b>	Male	201	<b>42,4</b>
	Female	<b>273</b>	<b>57,6</b>
<b>Age</b>	18-28 years old	<b>142</b>	<b>30,0</b>
	29-39 years old	123	25,9
	40-50 years old	140	29,5
	51-61 years old	60	12,7
	> 62 years old	9	1,9
	<b>Occupation</b>	Private employee	<b>248</b>
Civil servant		57	12,0
Freelance professional		46	9,7
Student		78	16,5
Housework		5	1,1
Unemployed		25	5,3
Other		15	3,2

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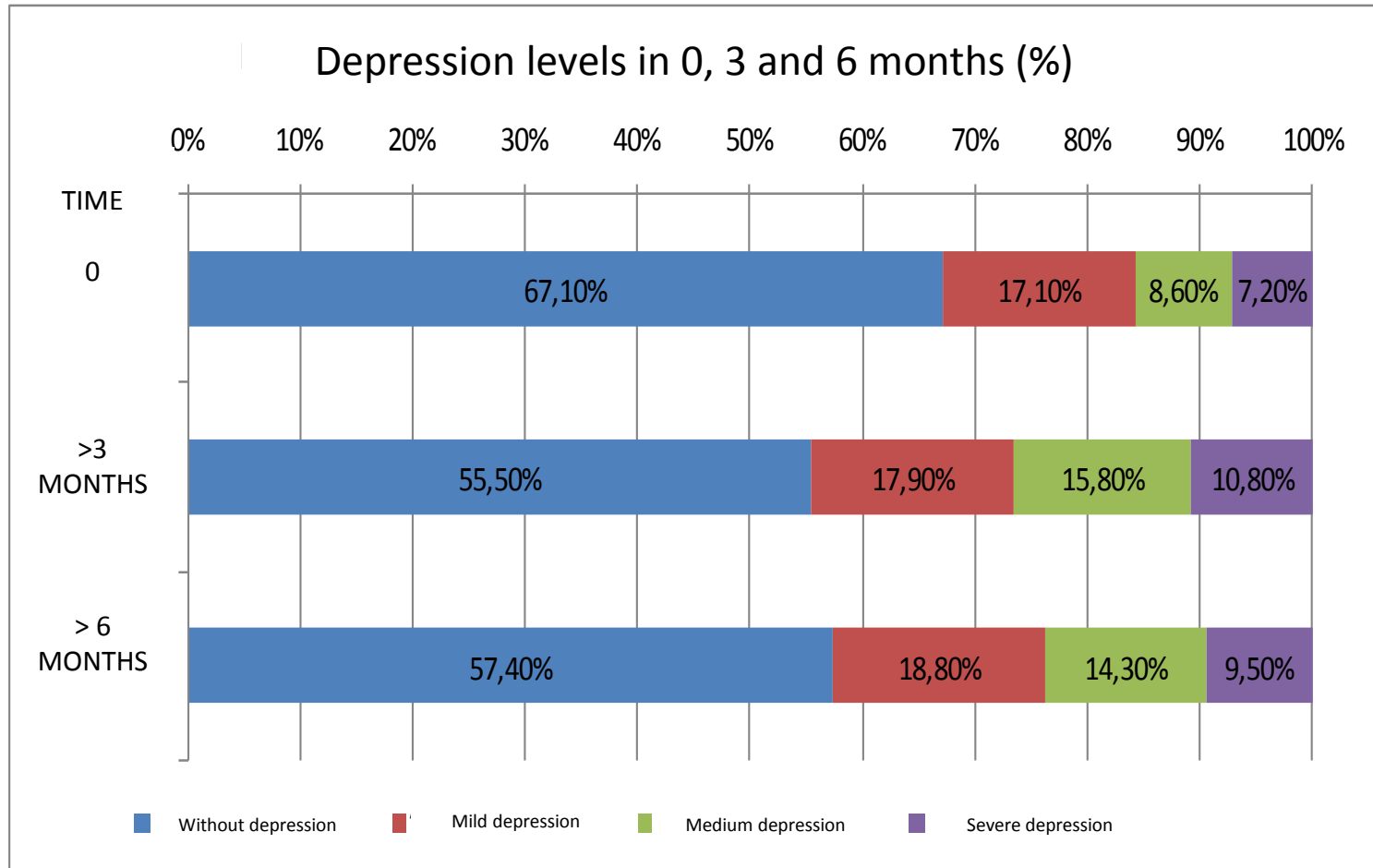
# RESULTS

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	<b>Variable</b>	<b>N</b>	<b>%</b>
<b>Family status</b>	Unmarried	<b>202</b>	<b>42,6</b>
	Married	<b>200</b>	<b>42,2</b>
	Widow(er)	20	4,2
	Living with my partner	34	7,2
	Divorced	18	3,8
<b>Financial status</b>	0-500 €/ month	88	18,6
	501-1000 €/ month	<b>127</b>	<b>26,8</b>
	1001-1500 €/ month	<b>126</b>	<b>26,6</b>
	1501-2000 €/ month	64	13,5
	>2000 €/ month	69	14,6

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# RESULTS



# RESULTS

## Correlation between sex and depression levels

- Immediately after the accident there was a statistically significant relationship ( $p = 0.001$ ) between sex and depression: men had significantly higher absence of depression (**75.1%**) than women (**61.2%**) and women had higher rate of severe depression (**8.8%**) than men (**5%**).
- In contrast, **3** and **6** months after the accident, there was no statistically significant differences in sex and depression ( $p > 0.05$ ), which means that the men and women of the study showed similar levels of depression .

# RESULTS

## Correlation between age and depression levels

- Υψηλά ποσοστά με σοβαρή κατάθλιψη αμέσως μετά το ατύχημα (**16,7%**) και **3** μήνες μετά (**18,3%**) παρουσιάζουν οι ασθενείς ηλικίας **51-61** ετών, ενώ σημαντικό ποσοστό με σοβαρή κατάθλιψη **6** μήνες μετά το ατύχημα παρουσιάζουν οι ασθενείς ηλικίας **40-50** ετών (**14,3%**).
- Depression levels were statistically significant ( $p < 0.001$ ), depending on age, for all the studied time periods (**0**, **3** and **6** months after the accident).
- A remarkable finding is that all patients **> 62** years old (**9** participants) expressed their lack of depression at all times through their responses to the BDI-II scale.
- The age group of **29-39** year old had higher of depression levels.
- In the age group of **51-61** years old were recorded high rates of severe depression immediately after the accident (**16.7%**) and **3** months after (**18.3%**), while after **6** months from the accident, a significant amount of patients of the group **40 -50** years old had severe depression (**14.3%**).



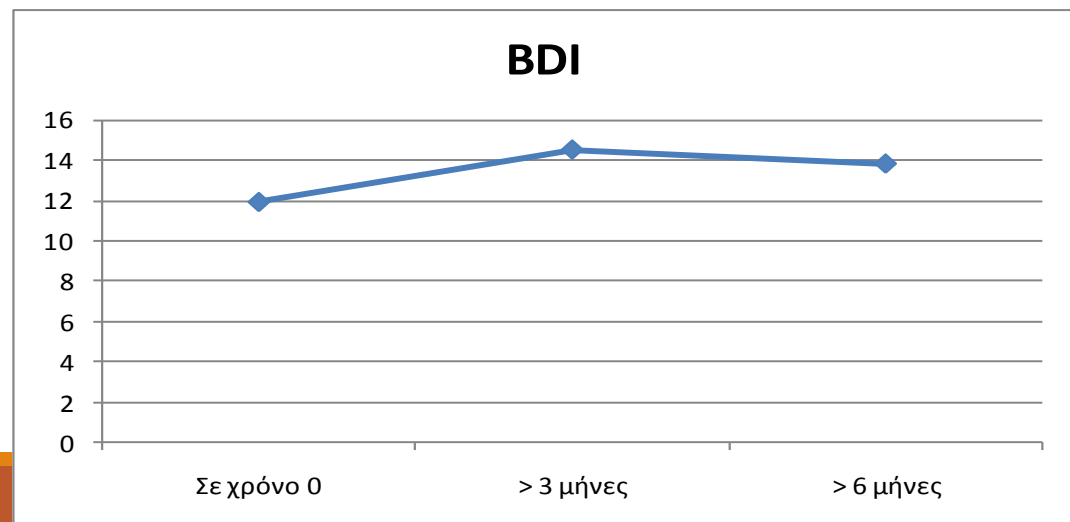
# RESULTS

## Correlation between Family status and levels of depression

- Family status had statistically significant relation with depression levels ( $p < 0.001$ ), both at the time of the event (time **0**) and **3** and **6** months later.
- In particular, widow(ers) had higher rate of severe depression (**50%**) at the time of the accident, which was reduced to **25%** at **3** and **6** months. High rates of severe depression were also present at **3** and **6** months after the accident (**27.8%** at both 2 time periods), while at time **0** there were no divorced reported with severe depression.

# RESULTS

TIME	BDI-II (AVERAGE)	p
TIME 0	11,93	<b>&lt;0,001</b>
3 MONTHS	14,51	
TIME 0	11,93	<b>0,005</b>
6 MONTHS	13,82	
3 MONTHS	14,51	0,105
6 MONTHS	13,82	



# RESULTS

	<b>Time 0</b>	<b>3 months</b>	<b>6 months</b>	
<b>Quality of Life</b>	Minimum value	1	0	0
	Maximum value	7	7	7
	Average value	<b>2,96</b>	<b>2,15</b>	<b>2,12</b>
	Standard deviation	1,25	1,93	1,92
<b>Weighted quality of life if there was no accident</b>	Minimum value	18	19	19
	Maximum value	380	312	314
	Average value	<b>117,23</b>	<b>117,39</b>	<b>113,97</b>
	Standard deviation	58,57	64,409	61,88
	Average value/ question	1,54	1,54	1,50
	Standard deviation/ question	0,771	0,847	0,814

# RESULTS

## Correlation between gender and quality of life

- In terms of QL, there was statistically significant differentiation between men and women in all time periods (time **0**,  $p = \mathbf{0.018}$  / **3** months,  $p = \mathbf{0.010}$  / **6** months,  $p = \mathbf{0.005}$ ).
- Differences in QL were mainly found in terms of "excellent to very good" QL (1st level), with men being higher than women at all three time periods, indicating that in this study men express over time better QL levels than women.
- Regarding QL, if there was no accident, the differences between males and females were statistically significant at the time of the event ( $p < \mathbf{0.001}$ ) and **3** months after ( $p = \mathbf{0.020}$ ), with men reporting better QL.

# RESULTS

## Correlation between age and quality of life

- There is statistically significant ( $p < 0.001$ ) differentiation in QL among the age groups in all time periods.
- The differences were mainly found in younger patients at the 1st and 2nd level of QL (excellent to very good QL and good QL, respectively), who had higher rates than older patients, with the exception of patients of  $> 62$  years old, which had excellent QL levels.
- Concerning the QL level, if there was no accident, the differences between the age groups are also statistically significant ( $p < 0.001$ ) at all times. It is noteworthy that a significant proportion of **51-61** years old were stating that their QL would be much better if there was no accident (**16.7%** at time **0** and **8.3%** at **3** and **6** months), while for patients in all other age categories this response was not given by anyone, at all studied periods of time.

# RESULTS

## Correlation between Family status and quality of life

- Correlation between Family status and quality of life
- There was statistically significant ( $p < 0.001$ ) differentiation in QL at all times, depending on the family status.
- Higher percentage of better QL (level 1) was reported by unmarried at time **0**, by the married ones at **3** months after the accident, and by the unmarried, married and divorced at **6** months after.
- In the absence of the accident, the responses differed significantly ( $p < 0.001$ ). At time **0** widows and unmarried partners reported better QL and the singles, unmarried and divorced and reported better levels if there had been no accident **6** months after the accident.

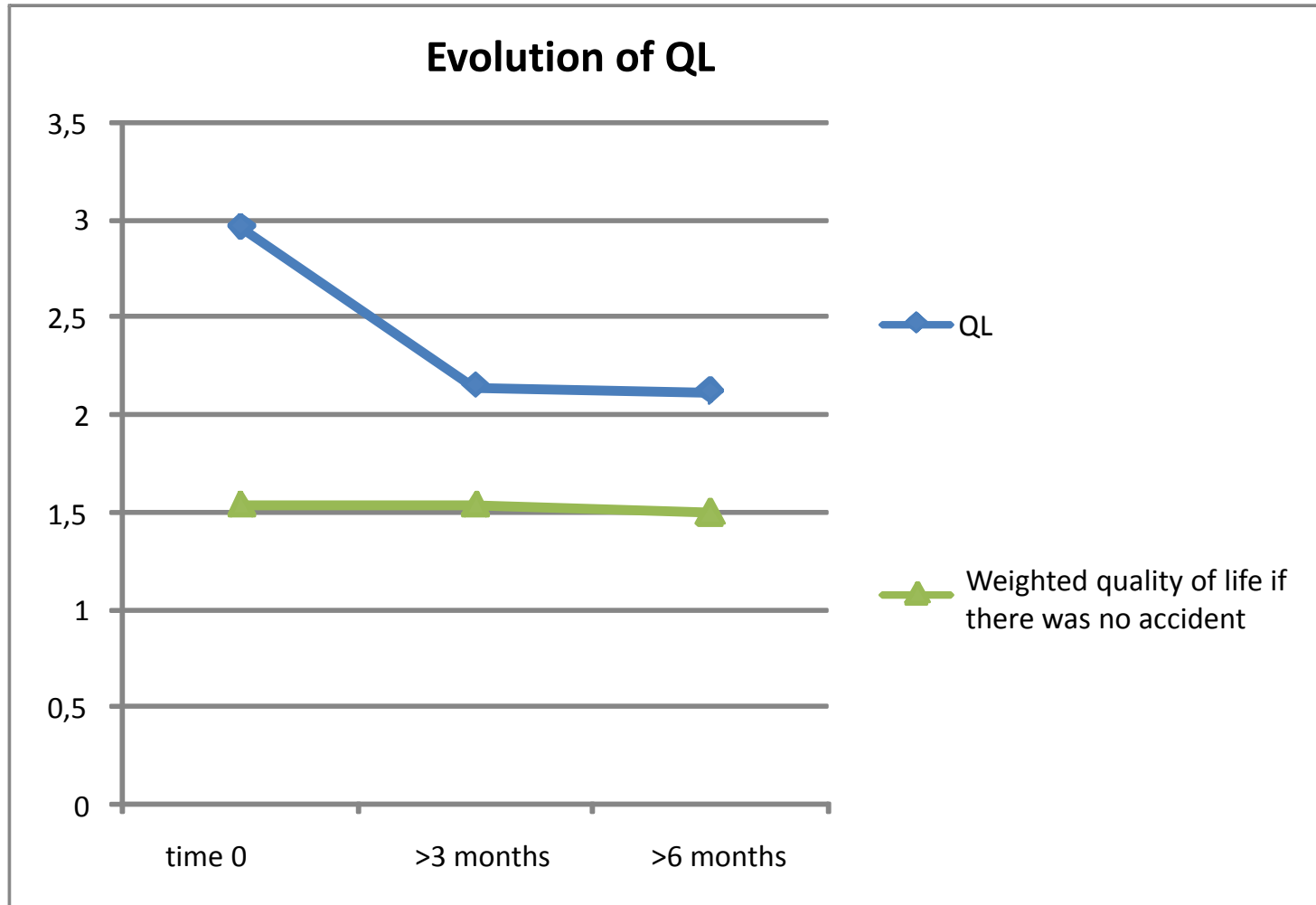
# RESULTS

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<b>TIME</b>	<b>QL (Average value)</b>	<b>p</b>	<b>Weighted quality of life if there was no accident (Average value)</b>	<b>p</b>
<b>TIME 0</b>	2,96		117,23	
<b>3 MONTHS</b>	2,15	<b>&lt;0,001</b>	117,39	0,969
<b>TIME 0</b>	2,96		117,23	
<b>6 MONTHS</b>	2,12	<b>&lt;0,001</b>	113,97	0,409
<b>3 MONTHS</b>	2,15		117,39	
<b>6 MONTHS</b>	2,12	<b>0,003</b>	113,97	0,291

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# RESULTS





# STUDY RESTRICTIONS

- Although, study sample was satisfactory in size, it can not be considered representative for the entire Greek territory, since the collection of data was made in general hospitals in Attica.
- Estimation of patients' depression and QL levels in the study was performed using self-completed questionnaires. Consequently, the considered parameters may be an underestimated, as the patients' responses to the study were affected by both random recall errors and the desire of individuals to "delight" the researchers by giving biased responses.

# CONCLUSIONS-SUGGESTIONS

- According to the results of this study, immediately after the car accident most of the injured patients did not show depression, while after 3 and 6 months the levels of depression were clearly higher, showing a burden on their psycho-emotional status over time.
- On the contrary, the QL of the injured has significantly improved over time as a result of the gradual adaptation of individuals to the consequences of the accident.
- After car accidents, patients; psychological support is recommended. Support should begin in the first days after the accident, as long as the state of health permits it, so that any psychological disorders can be identified and addressed in a timely manner.

# CONCLUSIONS-SUGGESTIONS

- Given that this study is the first and the only one conducted in Greece on the evaluation of the health status of injured people from road accidents, additional studies should be carried out with a larger number of patients and in other areas, in order to gain more representative results for the Greek population.
- The availability of more reliable data will allow the creation of support programs for injured people after road accidents, in which health professionals of various specialties (doctors, nurses, physiotherapists, psychologists, etc.) will provide holistic care to these people in order to smoothen their adaptation to the new post- accident circumstances.

**Thank you very much**

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