



ASOCIACIÓN NACIONAL
DE
MÉDICOS FORENSES

Spanish Journal of Legal Medicine

Revista Española de Medicina Legal

www.elsevier.es/mlegal



ORIGINAL ARTICLE

Evaluation of extrajudicial expert advice in Catalonia (Spain) in 2016–2017^{☆,☆☆}



Judith Prió-Silvestre^{a,*}, Eneko Barbería^{b,c}, Amadeo Pujol-Robinat^{d,e},
Lluïsa Puig Bausili^d, Ana Soler Villa^{b,c}

^a *Àrea de Medicina Legal de Andorra, Escalles-Engordany, Andorra*

^b *Instituto de Medicina Legal y Ciencias Forenses de Cataluña, Tarragona, Spain*

^c *Facultat de Medicina i Ciències de la Salut, Universitat Rovira i Virgili, Tarragona, Reus, Spain*

^d *Instituto de Medicina Legal y Ciencias Forenses de Cataluña, Barcelona, Spain*

^e *Facultat de Medicina i Ciències de la Salut, Universitat de Barcelona, Barcelona, Spain*

Received 5 March 2019; accepted 26 March 2019

Available online 14 April 2020

KEYWORDS

Bodily damage
assessment;
Whiplash injury;
Insurance claim
review;
Legal medicine;
Traffic accidents

Abstract

Introduction: Since the application of Law 35/2015, the Legal and Forensic Medicine Institutes provide extrajudicial expert advice at the request of individuals for the resolution of traffic accident claims. The objective is to analyze the most relevant medical-legal aspects of this expert advice.

Material and method: This is a retrospective descriptive study of the extrajudicial expert advice in the divisions of Barcelona and l'Hospitalet, and Tarragona of the Catalan Legal and Forensic Medicine Institute from 2016–2017. The data was obtained from the extrajudicial expert records of both divisions.

Results: 547 medical-forensic reports were made. The accidents were mainly caused by a rear collision between cars on urban routes. The injuries were mostly minor, with cervical involvement being the most frequent. A high percentage were resolved with conservative treatment in an average of 69 days, there were mild sequelae in almost half of the cases. Aesthetic damage was reported in 14%. There were no differences between the two divisions.

DOI of original article: <https://doi.org/10.1016/j.reml.2019.03.006>

[☆] Please cite this article as: Prió-Silvestre J, Barbería E, Pujol-Robinat A, Puig Bausili L, Soler Villa A. Evaluación de las periciales extrajudiciales en Cataluña (España) en 2016-2017. Rev Esp Med Legal. 2020;46:49–55.

^{☆☆} Part of this study was presented in the 14th Catalan Seminar on Forensic Medicine Updating, celebrated on 11th, 12th and 13th December 2017 in Barcelona.

* Corresponding author.

E-mail address: judsprío25@hotmail.com (J. Prió-Silvestre).

PALABRAS CLAVE

Valoración del daño corporal;
Síndrome del latigazo cervical;
Revisión de reclamación de seguros;
Medicina legal;
Accidentes de circulación

Conclusion: Extrajudicial expert advice is a valuable source of information for assessing the damage caused to traffic accident victims. As in other studies, most injuries are mild and are associated with collisions between cars, causing sequelae in half of the cases. It seems that the extrajudicial route is effective in helping resolve traffic accident claims, but more studies are needed to obtain a more complete vision.

© 2019 Asociación Nacional de Médicos Forenses. Published by Elsevier España, S.L.U. All rights reserved.

Evaluación de las periciales extrajudiciales en Cataluña (España) en 2016-2017**Resumen**

Introducción: Desde la entrada en vigor de la Ley 35/2015, los Institutos de Medicina Legal y Ciencias Forenses realizan periciales extrajudiciales a petición de particulares para la resolución de las reclamaciones por accidentes de circulación. El objetivo es analizar los aspectos médico-legales más relevantes de estas periciales.

Material y método: Se trata de un estudio descriptivo retrospectivo de las periciales extrajudiciales en las divisiones de Barcelona y l'Hospitalet y Tarragona del Instituto de Medicina Legal y Ciencias Forenses de Cataluña durante los años 2016-2017. Los datos se obtuvieron de los registros de periciales extrajudiciales de ambas divisiones.

Resultados: Se realizaron 547 informes médico-forenses. Los accidentes fueron mayoritariamente causados por colisión por alcance entre turismos en trayectos urbanos. Las lesiones fueron en su mayoría de carácter leve, siendo la afectación cervical la más frecuente. En un alto porcentaje, se resolvió con tratamiento conservador en una media de 69 días, asociándose la aparición de secuelas leves en casi la mitad de los casos. El perjuicio estético se informó en el 14%. No hubo diferencias entre ambas divisiones.

Conclusión: Las periciales extrajudiciales resultan una fuente de información valiosa para la valoración de los perjuicios causados a las víctimas de accidentes de circulación. Como en otros estudios, la mayoría de lesiones son de carácter leve y se asocian a colisiones entre turismos, causando secuelas en la mitad de los casos. Parece que la vía extrajudicial es eficaz en las reclamaciones por accidentes de circulación, pero son necesarios más estudios para obtener una visión más completa.

© 2019 Asociación Nacional de Médicos Forenses. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

Introduction

In 1995 the evaluation system for damages to people involved in traffic accidents (commonly called "scale of assessment")¹ came into force as an addendum of the revised text of the *Spanish Law on Civil Liability and Insurance for Motor Vehicles*, approved and revised by Royal Legislative Decree 8/2004.² A number of reforms have taken place since then to increase the protection of victims, with the guarantee of a fitting and fair indemnity.

In 2015 the legal framework was modified by Law 35/2015, of 22nd September, governing the reform of the system for the assessment of damages caused to individuals in traffic accidents, which came into force on 1st January 2016, together with the new table of scale for sequelae.³ The new scale respects the basic principle of compensation for bodily harm, with its purpose being to achieve total repair of damages suffered and its intention being to return the victim to a situation similar to the one they would be

in had the accident not occurred. New injured parties and new compensatory concepts were identified and compensation was increased with emphasis on those corresponding to cases of death and severe injury, with the approval of a victims' associations.⁴ In turn, the Organic Law 1/2015, of 30th March, was approved, which modified the Penal Code, allowing for decriminalization of cases,⁵ and Organic Law 7/2015, of 21st July was approved which modified the Organic Law of Judicial Power (LOPG), permitting forensic doctors attached to Legal and Forensic Medicine Institutes (IMLCF for its initials in Spanish) to write reports on the request of individuals under certain conditions.⁶ This possibility of extrajudicial intervention was specified in article 3 of Law 35/2015 (which modified article 7 of RD 8/2004) and was provided for in Royal Decree 1148/2015, of 18th December.⁷

This change is hugely significant because it introduces the possibility of the IMLCF to act, as official bodies, outside the framework provided by court proceedings and responds to a direct demand from those injured in traffic accidents.⁸

Since the enactment of extrajudicial activity in the IMLCF, no studies in our area have been published to describe the trend and characteristics of this medical forensic action. A descriptive study would divulge socio-demographic data and the most common types of collision relating to traffic accidents, diagnostics, treatments and sequelae. It would also provide information on some of the concepts likely to be compensated for, such as basic and individual personal damage, aesthetic and moral damage, compensations for sequelae and damages for loss of quality of life. Finally, it would contribute information on the development of these expert reports, on the difference of the results compared with the reasoned offers by the insurance companies and on the subsequent need to go to court.

The main aim of this study was to undertake a description of the most relevant clinical and medical legal aspects in the first 2 years of application, in Catalonia, of the extrajudicial expert advice (EJEA) of traffic accident cases. Secondly, the data were compared between 2 territorial divisions of the same autonomous community to find out if any differences existed between them.

Material and method

A descriptive retrospective study was conducted of the EJEA recorded from 1st January 2016 until 31st December 2017 in 2 of the 7 divisions in which the IMLCF of Catalonia is territorially organized. The Barcelona city and l'Hospitalet division includes the judicial districts of the city of Barcelona and de l'Hospitalet del Llobregat, although the cases studied only correspond to the city of Barcelona. The Tarragona division includes the judicial districts of Tarragona, Reus, El Vendrell, Valls and Falset.

Information was obtained from the EJEA register of the IMLCF of Barcelona and Tarragona, respectively. The single criteria of inclusion was requests from the EJEA from 2016–2017 corresponding to traffic accidents which had occurred after the enactment of Law 35/2015 and which resulted in a medical-forensic report.

Exclusion criteria were requests from the EJEA which did not result in a medical-forensic expert report. This was due to one of the following reasons: absence of a reasoned offer or the necessary documentation; badly completed forms of request; withdrawal from one or several of the parties; territorial incompetence or being accidents which occurred prior to 1st January 2016.

The variables analyzed were those which were reported in the different sections of the report template approved by RD 1148/2015.⁷ The traffic accidents and diagnostics were coded using the International Classification of Diseases in its tenth review (ICD-10), the sequelae were coded in accordance with the new scale and the severity of surgical interventions were coded according to the John Hopkins Surgical Risk Classification.⁹

Descriptive statistical analysis was performed comparing the data of the 2 territorial divisions, collecting data and later applying the χ^2 test through the Excel® for Windows programme.

Table 1 Extrajudicial expert advice in Catalonia (2016–2017): general variables.

Variables	Barcelona	Tarragona	Total
<i>Mean age; years</i>	41	40.9	41
<i>Sex; % women</i>	49.9	59.9	53.8
<i>Interval between accident and 1st medical assistance</i>			
<24 h; %	78.5	84.9	80.8
24–48 h; %	15.2	15.1	15.4
48–72 h; %	.9	0	.6
Unknown; %	5.4	0	3.3

Results

During the period studied a total of 679 requests were made of the EJEA (420 in Barcelona and 259 in Tarragona), with a major increase occurring in 2017 (495) compared with 2016 (184). Of these requests, 19.4% (132) were rejected for 2 essential reasons: withdrawal of claims in 74% of cases and non admission of requests in 26%, either due to lack of competence of the IMLCF or because the traffic accident occurred prior to 2016. Rejected requests were reduced to half in 2017 compared with 2016 in both divisions.

Five hundred and forty seven medical-forensic reports were made by the EJEA (80.6%): 335 corresponded to the Barcelona and l'Hospitalet division and 212 to the Tarragona division. In 2016 there were 129 reports (96 in Barcelona and 33 in Tarragona) and in 2017 there were 418 reports (239 and 179, respectively), which accounts for an increase of 224.03% (148.96 and 442.42%, respectively).

In both divisions, the mean age of the injured parties was 41 years (SD: ± 15), with the most common age interval being 25–50 years, at 62.3%. A slight predominance of female victims was observed (53.8%) (Table 1).

The mean days passing between the date of the accident to the day of the forensic doctor visit was 268 days, and this was slightly higher in 2017 compared with 2016. However, a mean of only 33 days passed from receipt of the request in the IMLCF to the forensic doctor visit.

The most frequent types of accidents in traffic accidents are shown in Table 2. Accidents between passenger cars predominated, at 60% followed by motorcycle accidents at 23%.

Table 3 contains a list of the different types of victims, both overall and comparing the two divisions. Drivers are the most frequent victims (62.3%), with passenger car drivers predominating in Tarragona (57.5%) and in Barcelona this figure drops (32.6%) at the expense of the increase in motorcyclist victims (29.9%).

The most common type of collision was a rear collision, at 42.6%, followed by lateral collision (18.7%) and mixed (13.4%). Most accidents occur in the city (67.8%).

The most frequent diagnoses (Table 4) were minor trauma of the spine (whiplash or cervical acceleration/deceleration syndrome), the most commonly used term in the international literature [S13.4] 57.8% and neck pain [M54.2] 14.1% and contusions (55.2%). Of the latter, polycontusions (T00.8, T00.9, T14.0) accounted for 18.1% and contusions specific to the region (37.1%), which mostly affected the knee (S80.0) and shoulder (S40.0). For sprains and tendinitis (16.5%), the

Table 2 Comparative table of most common type of accident according to the codes of chapter XX of the ICD-10.

Type of accident (chapter XX of the ICD-10)	Barcelona	Tarragona	Total
V43.5 Driver of a car injured through collision with another car, truck or van; %	29.3	54.3	38.9
V43.6 passenger in a car injured through collision with another car, truck or van; %	16.4	25.9	20.1
V23.4 Driver of a motorcycle injured through collision with a car, truck or van; %	24.5	4.7	16.8
Other type of accidents; %	18.4	4.7	13.4
V02.0-V13.4 Accidents with pedestrians and cyclist; %	6	6.6	6.2
V73 Occupants of a bus; %	3.3	1.4	2.6
Unknown; %	2.1	2.4	2
Totals; %	100	100	100

ICD-10: International classification of diseases- tenth edition.

Table 3 Comparative table of the most common types of injuries.

Injured parties	Barcelona	Tarragona	Total
<i>Drivers; %</i>	62.5	62.2	62.3
Passenger car/van; %	32.6	57.5	42.2
Motorcycle; %	29.9	4.7	20.1
<i>Passengers; %</i>	27.2	28.8	27.9
Passenger car/van; %	20	26.9	22.7
Motorcycle; %	3.9	.5	2.6
Public transport; %	3.3	1.4	2.6
<i>Pedestrians; %</i>	4.5	3.8	4.2
<i>Cyclists; %</i>	1.5	2.8	2
<i>Not specified; %</i>	4.5	2.4	3.7
<i>Totals; %</i>	100	100	100

Table 4 Most frequent diagnoses and treatment.

Variables	Barcelona	Tarragona	Total
<i>Most frequent diagnoses; %</i>			
Minor trauma of the spine	66.3	80.7	71.9
Contusions	68.1	35.9	55.2
Sprains/tendinitis	17.3	15	16.5
Fractures	10.8	7	9.3
<i>Treatment prescribed; %</i>			
Rehabilitation	88	85.9	87.2
Surgery	2.7	1.9	2.4

most common diagnosis was the dorsolumbar spine sprain (S23.3, S33.5) at 6.8%. Fractures represented 9.3% of accidents, with the most common being rib fractures, either simple (S22.3) or multiple (S22.4) (2,4%). In 41.30% of cases multiple injuries occurred in the same injured party.

Whiplash, dorsolumbar sprains and contusion of the shoulder are most commonly associated with collisions between cars. In motorcycles the most common injuries are contusion of the elbow, rib fractures, hallux fractures and angle sprains. All fractures evaluated were caused by motorcycle accidents or by being run over.

In most cases, victims received physiotherapy treatment as well as pharmacological treatment. Only in 13 cases was surgery required, with all of them being considered minor risk (categories 1–2 according to the John Hopkins Hospital

Classification), except one which was considered severe risk (category 4–5).

The most relevant medico-legal aspects are summarized in [Table 5](#).

Almost half of the victims suffered from sequelae (47.7%). In 85.4% of cases a single sequela was assessed, but in 14.6% of cases multiple sequelae were assessed. The most commonly diagnosed sequelae are listed in [Table 6](#).

The most frequently affected body areas were: spinal column at 77%, shoulder at 14.5%, knee at 8%, foot/ankle at 6.5% and hand at 3%.

In 18.8% of cases sequelae occurred due to aggravation of a previous condition, but in the majority of cases (76.6%) there were only concurrent sequelae. Finally, scores for the most common sequelae were: one point (60.9%), 2 points

Table 5 Medico-legal variables.

Medico-legal variables	Barcelona	Tarragona	Total
<i>Sequelae; %</i>			
Yes	45.7	50.9	47.7
A sequela/multiple sequelae	83.7/16.3	88/12	85.4/14.6
<i>Damage of loss of quality of life due to sequelae; %/grade</i>	.9/minor	.5/minor	.7/minor
<i>Personal injury</i>			
Basic; mean of days/% cases	69.4/100	68.2/100	68.9/100
Moderate; mean of days/% cases	33/81	30.8/77.8	32.1/79.5
Severe; mean of days/% cases	<1/4	<1/4.3	.2/4.2
Extremely severe; mean of days/% cases	<1/1	0/0	<1/<1
<i>Aesthetic damage; %</i>	19.1	7.1	14.4
Seriousness: minor; %	98.4	80	95
<i>Report clarifications; %</i>	5.4	5.2	5.3

Table 6 Most common sequelae (by codes of Table 2A1 of Law 35/1995).

Sequelae (by codes of Table 2A1 of Law 35/1995)	Barcelona	Tarragona	Total
03005: posttraumatic algias, syndrome, cervical or aggravation of previous osteoarthritis due to minor neck trauma; %	49	60.2	53.6
03013: posttraumatic algias without any radicular involvement and/or syndrome, cervical of spinal column; %	11.8	20.4	15.3
03075: posttraumatic osteoarthritis and/or painful shoulder; %	7.2	1.9	5
03008: aggravation of previous osteoarthritis of the spinal column; %	5.2	4.6	5
03194: non specific posttraumatic knee pain; %	3	4.6	3.8
03232: non specific posttraumatic talalgia/metatarsalgia; %	3	1.9	2.7
03195: aggravation of previous osteoarthritis of the knee; %	3	.9	2.3
03003: rib or sternum fractures with sporadic neuralgias; %	4	0	2.3
Others; %	13.8	5.5	10

(18.4%) and 3 points (9.2%). The sequelae which obtained the maximum score were diaphragmatic paralysis with 20 points and herniated disc with 7 points. The maximum score obtained by the concurrence of sequelae was 18 points. Finally, only in 4 cases (0.7%) was a loss in the quality of life from sequelae considered, all of them minor.

In 85.6% of injured parties no aesthetic damage occurred. When it was assessed, which was more frequently in Barcelona (14.4%), it was considered to be minor in 95% of cases.

There were no cases of moral damage from aesthetic sequelae or aesthetic damage. There were no claims for death derived from traffic accidents.

The request for clarifications of the forensic medical report by the insurer or injured parties occurred in 5.3% of the cases in both divisions.

Statistical analysis comparing the results obtained in the Tarragona and Barcelona divisions did not come up with any statistically significant differences in any of the variables of this study.

In addition to this, in the Tarragona division it was possible to analyze the difference between the evaluation made by the insurer and that made by the forensic doctors. In 91.51% of cases, the evaluations by the forensic doctors were

higher than those of the insurer and in 5.66% of cases evaluations were the same. In 2.83% of cases, the forensic medical assessment was lower than that of the insurer.

Finally, in Tarragona only in 4.25% (9 cases) of the EJEAs were the forensic doctors responsible for the reports called upon to appear at an oral hearing in the civil court.

Discussion

As far as we know this study is the first scientifically published study in Spain since the legal reforms in 2015. The intervention of forensic doctors and of the IMLCF in out of court resolutions of traffic accident claims is a novelty, in comparison with the traditional exclusive expert task of aiding the administration of justice. Although social projection of the IMLCF¹⁰ has been defended, the intervention of IMLCF with public prices at the expense of the of insurers, constitutes a before and after, and as a result there are no scientifically published studies yet in existence to enable us to compare our results.

During the first 2 years since Law 35/2015 came into effect, medical-forensic reports by the EJEAs were made in 80.6% of the cases requested by the EJEAs, leading to

an exponential increase of said reports, and specifically of 224.04% (higher in Tarragona). This result forms a major bias, since the regulation came into effect and was applied to traffic accidents which occurred from 1st January 2016, and therefore until practically the middle of that year no requests were made from the EJE. These increased in particular from September onwards. As a result, we must wait for development in upcoming years to assess whether this action has been consolidated, with percentages of increase which are logically expected to be more moderate.

Although the forensic doctor visit takes place after approximately one month, once the request in the IMLCF has been received, the time from the accident until the visit is 268 days, 100 days more than the whiplash study in Huelva¹¹ and 143 days more than another study conducted in Barcelona in 1998.¹² This substantial increase in time may be due to several causes: to the legally established times in art. 7 of Law 35/2015³ (reasoned response) or to the fact that when the MLCF is involved the injuries should have already stabilized (in contrast to when these forensic medical actions occur as trials for lesser offences in the penal procedure).

Once the accident has occurred, the majority of injured parties receive their first medical assistance within the initial 24h. This aspect is relevant due to the importance of the medico-legal chronological criterion to establish the nexus of causality, particularly in the case of minor neck trauma.^{3,12-14}

That the most common mechanism of injury is rear collision between two passenger cars in the city and therefore, at low speed, explains why the majority of injuries diagnosed are minor, with the most frequent diagnoses referring to whiplash and contusions. The over representation of minor neck traumas as the main injury (71.9%), especially in Tarragona where 4 out of every 5 victims had this, has allowed us to compare our results with three studies conducted in Spain on whiplash.¹¹⁻¹³

The mean age of those affected is 41 years, higher than the mean age of the Rodríguez-Díaz et al., Dorado et al. and Pujol et al. studies (32.25, 34 and 35.6 years, respectively).¹¹⁻¹³ We did not find any statistically significant differences between victims regarding sex, and only in Tarragona was a slight female predominance appreciated (10% more than in Barcelona), although the percentage of female victims in our study (53.8%) is lower than that of Huelva (61.9%)¹¹ and closer to that of Dorado et al. (57.25%)¹³ and Pujol et al. (51%).¹²

In Barcelona, a slight predominance was observed in contusions, which was surely due to the higher percentage of motorcycles involved, whilst in Tarragona whiplash and post-traumatic neck pain were most prevalent.

As previously stated, some injuries are more typical of a certain type of accident. Minor spinal injuries are mostly associated with collision between two cars, with motorcycle accidents leading to more contusion in the elbow, fractured ribs, fractured hallux and ankle sprains. All fractures assessed were caused by motorcycle accidents or from being run over.

Since the injuries were minor, the majority of injured parties only required conservative treatment and physiotherapy. This was for a much higher percentage than the study in Huelva (87.2% compared with 56.7%)¹¹ and could

be explained by territorial differences in the treatment of minor spine trauma. Cases which required surgical intervention, were considered low risk, save one case of high risk in Tarragona.

Regarding damage caused, it is of note that the mean of lesion stabilization in both divisions was 69 days (basic personal damage), with 80% of cases also having also moderate personal damage, representing almost half of the total days of stabilization. Very few required hospital admission or ICU care. The mean in days of basic personal damage of this study, comparable to total time of medico-legal health with previous scales is similar to that of other whiplash studies (60, 71.6 and 75–79.2 days).¹¹⁻¹³ A little over half of the victims were cured without sequelae, and this percentage was also similar to the previous study in Barcelona (48%)¹² and much higher than that of the study in Huelva (29%)¹¹ and Dorado et al. (35.7%).¹³ The percentage in our study, was in any event, very similar to that prior to the penal code reform, since the majority of the 250,000 annual trial records corresponding to personal damages for traffic accidents were related to minor or very minor injuries (46% of cases are injuries without sequelae and in the remaining 54%, 94% had minor sequelae, between 1 and 10 points).¹ There were hardly any victims with major injuries, we do not know if this was due to the weakness of the current regulation system or to the fact that in the case of severe injuries and deaths, the new scale generates greater acceptance by the victims of the reasoned offer, on consideration that the most serious damages are better compensated for than in the previous system. This aspect was attributed to the previous scale and in which calculations prior to its publication estimated that the reform would mean a 30% increase in severe injuries and up to 50% increase in deaths.¹⁵

With regard to sequelae, the most common are algias or aggravation of neck conditions, together with persistence of pain in the shoulder and knee. In Tarragona diagnosis of sequelae was slightly higher, but they were usually isolated and milder, compared with those diagnosed in Barcelona. The sequelae are compatible and consistent with more frequent diagnoses and the before-mentioned mechanisms of injury. As a result, meeting medico-legal criteria are corroborated by coincidence, since it is also important to establish the causal link between the sequelae and the injuries suffered as a result of the accident.

Aesthetical damage was only considered in 14% of cases, and was also considered minor. Here it was more commonly diagnosed in Barcelona, but aesthetic damage was assessed as milder than in Tarragona, since in this division 20% were regarded as medium and moderate grades.

Finally, thanks to the study conducted in the Tarragona division, the trend observed was that forensic medical assessment benefits the injured parties, since in 91.5% of cases they reported greater damage and higher scores were given. Despite these discrepancies, there were few occasions where extrajudicial claims were processed through civil jurisdiction (4.25%) and it may therefore be inferred that these out of court claims are being successfully resolved, that the work performed by the forensic doctors is effective and out of court processes are offering a faster resolution to traffic accident claims.

This study has several limitations. Firstly, it only refers to one area in Spain, specifically Catalonia, and may therefore

be considered non representative. However, because these are 2 areas which represent 40% of Catalonia and also one is an exclusively urban area and the other is mixed (urban and non urban) we believe this is a strength of the study and that it may be taken as benchmark for studies in other areas. Secondly, because these are the first 2 years under study, prudence must be used for data interpretation, particularly because reports on minor injuries have been made for the great majority of victims. We should also take into account that on including only the first 2 years of functioning of the out of courts procedure, those cases of victims with more serious injuries and who may be in a process of recovery may have been excluded. It is therefore important to continue conducting studies to determine whether any bias exists or whether the victims of traffic accidents really have generally only suffered from minor injuries.

Conflict of interests

The authors have no conflict of interests to declare.

Acknowledgements

Our thanks to all the forensic doctors of the Division of Tarragona and of Barcelona city of the IMLCFC who made expert reports on the assessment of bodily harm evaluated in this study.

References

1. Conde Díaz RG. La reforma del baremo de accidentes de circulación y su repercusión en la medicina legal. *Rev Esp Med Legal*. 2015;41:133–4.
2. Real Decreto Legislativo 8/2004, de 29 de octubre, por el que se aprueba el texto refundido de la Ley sobre responsabilidad civil y seguro en la circulación de vehículos a motor. «BOE» núm. 267, de 5 de noviembre de 2004, páginas 36662 a 36695.
3. Ley 35/2015, de 22 de septiembre, de reforma del sistema para la valoración de los daños y perjuicios causados a las personas en accidentes de circulación. «BOE» núm. 228, de 23 de septiembre de 2015, páginas 84473 a 84979.
4. Pérez-Tirado J. Nuevo sistema para la valoración de los daños y perjuicios causados a las personas en accidentes de circulación. *Opinión favorable de las asociaciones de víctimas*. *Rev Esp Med Legal*. 2015;41:140–1.
5. Ley Orgánica 1/2015, de 30 de marzo, por la que se modifica la Ley Orgánica 10/1995, de 23 de noviembre, del Código Penal. «BOE» núm. 77, de 31 de marzo de 2015, páginas 27061 a 27176.
6. Ley Orgánica 7/2015, de 21 de julio, por la que se modifica la Ley Orgánica 6/1985, de 1 de julio, del Poder Judicial. «BOE» núm. 174, de 22 de julio de 2015, páginas 61593 a 61660.
7. Real Decreto 1148/2015, de 18 de diciembre, por el que se regula la realización de pericias a solicitud de particulares por los Institutos de Medicina Legal y Ciencias Forenses, en las reclamaciones extrajudiciales por hechos relativos a la circulación de vehículos a motor. «BOE» núm. 303, de 19 de diciembre de 2015, páginas 119702 a 119716.
8. Bañón-González RM. El papel de los Institutos de Medicina Legal en la valoración de las lesiones por tráfico. *Rev Esp Med Legal*. 2015;41:135–7.
9. Pasternak LR. Preanesthesia Evaluation of the surgical patient. *ASA Refresher Courses*. 1996;24:205–19.
10. Barbería E, Xifró A, Suelves JM, Arimany-Manso J. La proyección social y sanitaria de los Institutos de Medicina Legal: más allá de la justicia. *Med Clin (Barc)*. 2014;142 Suppl. 2:5–11.
11. Rodríguez-Díaz J, Garamendi-González PM, López-Alcaraz M, Cordero-Hernández I. Características del síndrome de latigazo cervical y valoración médico-forense en la provincia de Huelva (España). *Rev Esp Med Legal*. 2011;37:7–16.
12. Pujol A, Puig L, Mansilla J, Idiaquez I. Síndrome del latigazo cervical: factores relevantes en el pronóstico médico-legal. *Med Clin (Barc)*. 2003;121:209–15.
13. Dorado E, Vega C, Santiago E, Serrulla F, Rodes F, Gómez MA, et al. Valoración médico forense del esguince cervical. *Cuad Med For*. 2005;11:203–19.
14. Pujol-Robinat A. Aspectos periciales en el síndrome de latigazo cervical. *Rev Esp Med Legal*. 2017;43:89–91.
15. Alonso Santos J. La reforma del baremo: un reto y un esfuerzo para las aseguradoras. *Rev Esp Med Legal*. 2015;41:138–9.