

Monography

Disability related to road traffic crashes among adults in Spain

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ABSTRACT

Background: Road traffic accidents cause substantial morbidity and disease burden; few studies have examined their impact on disability.**Objective:** To estimate the magnitude and distribution of disability due to road traffic accidents according to socio-demographic variables, and its main socioeconomic and health determinants.**Methods:** A cross-sectional study was conducted in community-dwelling participants in the "2008 Spanish National Disability Survey", a representative sample of 91,846 households with 20,425 disabled persons older than 15 years; 443 had disability due to road traffic accidents.**Results:** The prevalence was 2.1 per 1000 inhabitants (95% CI: 1.8–2.3), with no differences by sex. Risk was highest among persons aged 31 to 64 years, and onset of disability showed a sharp inflection point at age 16 years in both sexes. Odds ratios (ORs) were higher (OR = 1.3; 95% CI: 1.1–1.7) for participants with secondary education than for those with the lowest educational levels and were lower (OR: 0.5; 95% CI: 0.3–0.8) for participants with the highest household income levels than for those with lowest. Only 24% of disabled participants were gainfully employed. As compared to other sources of disability, traffic crashes caused greater disability in terms of mobility (OR = 3.1; $p < 0.001$), a greater need for health/social services (OR = 1.5; $p = 0.003$), and more problems with private transportation (OR = 1.6; $p < 0.001$), moving around outside the home (OR = 1.6; $p < 0.001$) and changes in economic activity (OR = 2.4; $p < 0.001$).**Conclusions:** The prevalence of disability due to road traffic accidents in Spain is lower than in other developed countries, with middle-aged and socio-economically underprivileged persons being the most affected. Disability due to road traffic accidents is related to a greater demand for social/health care support, problems of accessibility/commuting, and major changes in economic activity.

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Discapacidad por accidentes de tráfico en la población adulta española

RESUMEN

Palabras clave:

Evaluación de la Discapacidad

Accidentes de tráfico

Lesiones externas

Inequidades

Factores socio-económicos

Antecedentes: Los accidentes de tráfico causan importante morbilidad y carga de enfermedad; su impacto sobre la discapacidad ha sido poco estudiado.**Objetivo:** Estimar la magnitud y distribución de la discapacidad por accidentes de tráfico según variables socio-demográficas, y sus principales condicionantes socio-sanitarios y económicos.**Métodos:** Estudio transversal en participantes de la Encuesta Nacional de Discapacidad, Autonomía Personal y Situaciones de Dependencia 2008; muestra representativa de 91.846 hogares con 20,425 discapacitados mayores de 15 años, 443 causados por accidentes de tráfico.**Resultados:** La prevalencia fue de 2,1 por 1000 (IC 95%: 1,8–2,3), sin diferencias por sexo y mayor riesgo entre 31–64 años. La discapacidad tuvo inicio abrupto a los 16 años (ambos sexos). Aquellos con educación secundaria tuvieron un mayor odds ratio OR (OR = 1,3; IC 95%: 1,1–1,7) que aquellos con menor nivel educativo; los discapacitados con mayores ingresos tuvieron menor OR (OR = 0,5; IC 95%: 0,3–0,8) que aquellos con ingresos más bajos. Sólo un 24% tenían empleo remunerado. Comparado con otras causas de discapacidad, los accidente de tráfico generaron mayor discapacidad en movilidad (OR = 3,1; $p < 0,001$)

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y necesidad de asistencia socio-sanitaria (OR = 1,5; p = 0,003); mayores problemas con el transporte privado (OR = 1,6; p < 0,001), los desplazamientos fuera de casa (OR = 1,6; p < 0,001) y cambios en la actividad económica (OR = 2,4; p < 0,001).

Conclusiones: La prevalencia en España es baja comparada con otros países desarrollados. La población de mediana edad y con desventajas socio-económicas fue la más afectada. La discapacidad por tráfico se relaciona con mayor demanda de servicios socio-sanitarios, problemas de accesibilidad y movilidad e importantes cambios en la actividad económica.

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Introduction

Injuries caused by road traffic crashes (RTCs) have a major impact on morbidity, mortality and premature disability. According to the World Health Organisation (WHO), every year there are over 1.2 million deaths due to this cause around the world, 20 to 50 million persons sustain injuries, and more than 5 million remain disabled for life.¹ RTCs cause disability in the short and long term, are the 9th leading cause in the world of disability-adjusted life years (DALYs) and generate 41.2 million years of healthy life lost, thus accounting for 2.7% of the total worldwide.^{2–5} It is estimated that there are 3.8 million disabled persons in Spain. Accidents are the 3rd leading cause of disability and account for 9% of all disability; within this category, RTCs rank second after occupational accidents.⁶

Despite the appreciable reduction in traffic accident figures observed in this country from 2000 onwards,⁷ the resulting injuries continue generating a substantial disease burden, with a great impact on the country's social and economic spheres. RTCs generate premature mortality,⁸ continue to be the leading specific cause of death in the 15–34 year age group, and are the leading (in men) and 2nd leading cause (in women) of years of potential life lost.⁹

On investigating the effects on RTC-injury victims, analysis of disability can provide a complementary view of this event and furnish the necessary information for the prevention and control of RTCs, and so minimise the risk of premature death, disability and *sequelae*. Road traffic disability (RTD) is an important indicator of the severity of such accidents, and allows for assessment of related temporary or permanent disability, loss of autonomy, individual development disorders, family involvement and the ensuing social burden.¹⁰

The aim of this study was thus to provide a first-ever estimate of the magnitude and distribution of disability caused by RTCs in Spain, and to describe the RTC-disabled population by reference to basic socio-demographic variables, as well as the types of RTC-related disability and their main socio-economic and health profiles.

Methods

Study design and population

A cross-sectional study was conducted among community-dwelling participants of the “2008 National survey of disability, personal autonomy and situations of dependency” (EDAD2008). The survey covered all regions of Spain from November 2007 to February 2008, targeting all persons residing in main family dwellings.¹¹

The EDAD2008 was based on a two-stage, stratified sampling design, with the first-stage units being census sections and the second-stage units being main family dwellings. A sample size of 96,075 households was established. Response was obtained from 91,846 households (overall response rate of 97%),¹² yielding data

on 213 626 subjects, including 20,425 disabled persons over the age of 15 years, 443 of whom had disability due to traffic crashes. The data-collection method used was the personal interview.¹¹

Study variables

The EDAD2008 partly follows the conceptual framework of the International Classification of Functioning, Disability and Health (ICF),¹³ according to which disability is defined as, “a set of limitations on activities of daily living and participation restrictions (handicaps), which have lasted or are envisaged to last for more than one year and have their origin in some impairment, even though they may have been overcome with the use of external technical aids or with the aid or supervision of another person.” For study purposes, RTD was defined as, “any type disability caused by a road traffic accident”, and analysed using the following independent variables: sex; age (four groups); educational level (no formal education/primary; secondary/intermediate; higher/university); marital status (single; married; widowed; divorced/separated); nationality (Spanish; foreign/dual); occupation (employed; unemployed; receiving any type of pension; unfit for work; other non-remunerated activity); net monthly household income (<€500; €500–<€1,500; €1,500–<€3,000; >=€3,000); type of disability (vision; hearing; communication; learning, application of knowledge and performance of tasks; mobility; self-care; domestic life; interpersonal interactions/relationships); age at disability onset (exact age); health and social conditions (health status; need of consultation/health/social services; type of help received; financial benefit or compensation; problems with transport and commuting); economic conditions (primary household earner; change in economic activity; reason for leaving work; expenditure in the preceding year; and main items of expenditure).

Statistical analysis

We calculated the crude prevalence and its 95% confidence interval (CI), using the total number of persons surveyed over the age of 15 years (n = 213 626) as the reference population. The distribution according to socio-demographic variables was summarised with odds ratios (ORs) obtained from logistic regression models, controlling for all socio-demographic variables simultaneously. We calculated the proportion of the respective types of disability and the main health, social and economic conditions in two groups, i.e., RTD and other causes of disability (OCD). Differences were adjusted for sex, age group and educational level using logistic regression, with statistical significance being set at $p < 0.05$. The complex sampling design was considered during analysis, which accounts for weighting, clustering, and stratification, by using the “Survey Data” module of the Stata v.12.0 for Windows computer software programme (StataCorp. 2011. *Stata Statistical Software: Release 12*. College Station, TX: StataCorp LP). Standard errors were computed by using the linearized variance estimator based on a first-order Taylor series. First-order interactions were evaluated between sex and others sociodemographic variables.

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