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# The impact of a liberalisation law on legally induced abortion hospitalisations



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#### ABSTRACT

Objectives: Legal abortion based purely in maternal option without fetal/maternal pathology was liberalised in Portugal in 2007 and since then abortion rates have increased substantially. The aim of this paper was to study the impact of the liberalisation of abortion by maternal request on total legal abortion related hospitalisation trends.

Study design: We considered hospitalisations of legal abortion (ICD-9-CM codes 635.x) with discharges from 2000 to 2014. Data was obtained from a Portuguese administrative database, which contains all registered public hospitalisations in mainland Portugal. Performed legal abortions during the same period were obtained from INE (National Statistics Institute). Hospitalisations per abortion were calculated by dividing the number of legal abortions hospitalisations per the number of legal abortions, mean ages, number of hospitalisations per age group, complications, admission type and length of stay were also analysed, throughout the study period.

Results: Hospitalisations rose during the study period, (from 618 episodes in 2000 to 1,259 in 2014, with a peak of 1,603 in 2010). Since the liberalisation law was passed there was a significant decrease in the number of hospitalisations per abortion: from 1.07 in 2000 to 0.11 in 2014 (p < 0.001). Furthermore, the mean age maintained stable since liberalisation (30.8 years before 2007 and 31.0 after). Abortion related hospitalisations are more frequent in women aged 25–39. A significant decrease from the emergent to the scheduled type of admission occurred from 2000 to 2014 (from 83.5% to 56.7% of emergent admissions) (p < 0.001). Complications remained stable between 2000 and 2014 and delayed or excessive haemorrhage was the most frequent (4.6%).

Conclusions: Since the liberalisation, hospitalisations per abortion have decreased, reflecting the major impact that the liberalisation of legal abortion by maternal request had on abortion trends nationwide. Before the liberalisation, each abortion led to approximately one hospitalisation while after the liberalisation this trend shifted to approximately 10% of the number of abortions. Legal abortion related hospitalisations are more frequent in women aged between 25 and 39 years old, an older age group when compared to the one registered in all cases of legal abortions, reflecting the differences between those hospitalised and those who are not. Our study shows the impact that legal abortion by maternal request liberalisation law can bring to abortion and to hospitalisation trends.

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#### Introduction

Abortion trends are important indicators of maternal health-care and help to understand the accessibility to reproductive health [1,2]. Considering a worldwide perspective, abortion numbers are increasing. However, this does not occur in Europe, where from 2003 to 2008 a decrease was noticed [3].

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Legal abortion rates in Eastern Europe, Western and Central Asia remain among the highest in the world [4,5]. In opposition, abortion levels in Northern Europe and in some Western European countries are among the lowest [4,5]. Globally, since 1996, more countries have experienced a decline rather than an increase in abortion rates [6,7].

In Portugal, abortion liberalisation until the full 9th week of gestation occurred in April 2007 (Law no. 16/2007 17 April). This gave women freedom of choice to perform a legal abortion by maternal request until the 10th week of gestation without maternal/fetal pathology indications or excluding maternal rape. Prior to this, in 1984 and 1997, two laws were passed in Portugal which allowed induced abortion in three different specific situations: (1) in case of rape, (2) to save the mother's life (pregnant women could decide until the full 12th week), and (3) in case of fetal indications (when there was strong evidence that the future new-born would have severe health conditions or a congenital malformation), until the full 24th week since 1997.

Before liberalisation, underrated illegal abortions caused several fatalities, though the exact number remains unknown. Women opted between undergo illegal procedures at domestic places or health clinics or undergo medical abortion in neighbouring countries, Spain and France, where abortion had already been liberalised since 1985 and 1975, respectively [8]. If an abortion was performed out of the legal grounds defined by national law, the women and the health professional who performed the procedure would face a maximum sentence of three years (Law no. 6/84 11 May). After 2007, due to liberalisation, legal abortion greatly increased in Portugal and maternal mortality due to clandestine abortion fell [9,10].

Women may also choose between private clinics or public hospitals to carry out their abortion. In Portugal the private sector is responsible for about 30% of all the abortions since liberalisation, a percentage that remained stable from 2007 to 2014 [11].

The number of cases associated to maternal/fetal indications (i.e. strong evidence that the future new-born would have severe health conditions or a congenital malformation or life danger to women) has been stable during the study period – as presented by a Portuguese governmental health report [11].

The increase in legal abortions performed in public facilities may be explained by the fact that all the costs associated are supported by the National Health Service and that abortion, when uncomplicated, is a fairly rapid procedure. In Portugal there are two types of available procedures to perform legal abortions, the surgical and the pharmaceutical one. Both are performed in most cases at an ambulatory level. As medical abortion represents a lighter economic burden to public hospitals and has similar success and complication rates it is usually the first choice [12,13]. It is important to mention that, since 2007, induced abortions have to be registered online and are monitored by the National Health Service [14]. In Portugal, since the liberalisation of legal abortion by maternal request, abortion is more frequent in women aged between 20 and 29 years old [15].

To the best of our knowledge, there is no study related to hospitalisations associated with legal abortion in Southern Europe, reaffirming the importance of this study.

The aim of this paper was to describe hospitalisations among cases of legal abortion in public hospitals in Portugal, to analyse trends from 2000 to 2014 and look at the impact of legal abortion by maternal request liberalisation.

#### Materials and methods

All inpatient cases with one or more days of length of stay with the International Classification of Diseases, 9th version, Clinical Modification (ICD-9-CM) code 635.x (legally induced abortion), as either principal or secondary diagnosis, were selected from a database with all hospitalisations from 2000 to 2014 in Portuguese mainland public hospitals.

The ICD-9-CM codes 635.0 to 635.9 assemble all the cases related to legal abortions and include all the cases corresponding to elective, legal and therapeutic abortion [16]. By using these codes we guaranteed that all hospitalisations associated to legal abortion, those affected by changes in the law, were included in this study. Our database did not differentiate legal abortions from those by maternal request.

The database provided by ACSS (Administração Central do Sistema de Saúde – Central Administration of the Health System) collects administrative and clinical data regarding hospitalisation (inpatient and outpatient) episodes in Portuguese mainland hospitals. More specifically, the database gathers information on diagnoses and procedures performed during a hospital stay, which are coded using ICD-9-CM and were already used in previous studies regarding hospitalisation data [17].

Additionally, other variables such as patients' age, discharge date, type of admission and length of stay were assessed.

The mean age was calculated either previous to 2007 or after 2007, to compare the periods before and after the liberalisation of abortion for maternal option. Hospitalisations by women's age group were analysed by comparing the number of hospitalisations of a specific age group with the Portuguese female population of that same age group. The age groups considered were 15–19, 20–24, 25–29, 30–34, 35–39, 40–44 and 45–49, ranging from 15 to 49 years (i.e. fertile age of women). We also compared differences between age groups in a period before and after legal abortion liberalisation, 2004 versus 2012 respectively.

The estimate of the total legal abortions performed in Portugal in public facilities for the same period was obtained from INE – *Instituto Nacional de Estatística* (National Statistics Institute). INE is a public institution that is responsible for ensuring the production and dissemination of official governmental statistical information. This data was also used to determine the ratio between the total number of legal abortion related hospitalisations and the number of performed legal abortions (i.e. hospitalisation per abortion).

Furthermore, this ratio allowed to determine the burden of legal abortion related hospitalisations in Portugal by indicating on average how many hospitalisations are associated to a single abortion.

The complications associated with legal abortion related hospitalisations were obtained by evaluating the relative frequency of episodes with the codes 635.1x to 635.8x (these codes gather all the complications associated to legal abortion); other codes, specifically 635.9x – legally induced abortion without mention of complication, were excluded from this definition [16].

Type of admission is divided in two categories: planned (elective) or unplanned (emergent). This information attests if a particular hospitalisation was scheduled by a healthcare professional and the patient (planned admission) or if it was an emergent situation

Descriptive statistics were performed using IBM SPSS Statistics  $22^{TM}$ . Mann–Whitney tests (mean rank scores) were used to analyse possible differences between the length of stay of hospitalisations with and without complications. Independent sample t-tests were used to analyse possible differences in women age before and after the liberalisation of legal abortion by maternal request. Chi-square tests were performed to assess differences in complications between planned and emergent admissions. Moreover, linear regression models with 95% confidence intervals (CI) were performed to assess trends from 2000 to 2014 in the number of legal abortions, hospitalisations,

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