Socioeconomic inequalities in sexual and reproductive health in Spain

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Cover illustration

Ain Sakhri lovers figurine

Probably from the cave of Ain Sakhri, Wadi Khareitoun, Judea, Natufian, it is considered to be 11,000 years old and the oldest known representation of two people engaged in sexual intercourse.

A mis padres,
por su amor incondicional y porque esta tesis es fruto de
sus innumerables esfuerzos

A Nahuel,
por regalarme su amor cada día y estar siempre a mi lado
en cada nuevo viaje que decido emprender

"Over the pass of by-and-by you go to the valley of never"
The slogan on a banner carried in a demonstration for
women's suffrage, 21st June 1908

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Abstract

The general objective of this dissertation was to study the state of sexual and reproductive health of the Spanish population in reproductive age, especially focusing on individual and contextual socioeconomic inequalities.

Five different studies were designed to achieve this objective, one especially focused on the state of sexual health, three on the use of contraception and one on the practice of induced abortion, studying in each case the influence of socioeconomic factors.

Using sources of information such as the Fecundity Interview of 2006, the first National Sexual Health Survey of 2009 and the annual Register of Voluntary Interruption of Pregnancy, we were able to conduct multivariate regression studies, and when possible with a multilevel approach, to study socioeconomic inequalities in the different aspects related to sexual and reproductive health detailed.

The studies of this dissertation suggest that the general state of sexual and reproductive health of the Spanish population in reproductive age is quite good; nevertheless, individual and contextual socioeconomic inequalities are detected in almost all the aspects studied.

Resumen

El objetivo general de esta tesis fue estudiar el estado de salud sexual y reproductiva de la población española en edad reproductiva, centrándonos especialmente en las desigualdades socioeconómicas individuales y contextuales.

Para alcanzar este objetivo se diseñaron cinco estudios diferentes, uno dedicado al estado de salud sexual, tres al uso de anticoncepción y el último a la práctica de aborto inducido, estudiando en cada caso la influencia de los factores socioeconómicos.

Mediante el uso de fuentes de información como la Encuesta de Fecundidad de 2006, la primera Encuesta Nacional de Salud Sexual de 2009 y el Registro anual de Interrupciones Voluntarias del Embarazo, se realizaron estudios de regresión multivariados, con un enfoque multinivel cuando fue posible, para estudiar las desigualdades socioeconómicas en los diferentes aspectos relacionados con la salud sexual y reproductiva detallados.

Los estudios de esta tesis sugieren que el estado general de salud sexual y reproductiva de la población española en edad reproductiva es bastante bueno; sin embargo, se detectan desigualdades socioeconómicas individuales y contextuales en la mayoría de los aspectos estudiados.

Resum

L'objectiu general d'aquesta tesi va ser estudiar l'estat de salut sexual i reproductiva de la població espanyola en edat reproductiva, centrant-nos especialment en les desigualtats socioeconòmiques individuals i contextuals.

Per aconseguir aquest objectiu es van dissenyar cinc estudis diferents, un dedicat a l'estat de salut sexual, tres a l'ús d'anticoncepció i l'últim a la pràctica d'avortament induït, estudiant en cada cas la influència dels factors socioeconòmics.

Mitjançant l'ús de fonts d'informació com l'Enquesta de Fecunditat de 2006, la primera Enquesta Nacional de Salut Sexual i Reproductiva de 2009 i el Registre anual d'Interrupcions Voluntàries de l'Embaràs, es van realitzar estudis de regressió multivariats, amb un enfocament multinivell quan va ser possible, per estudiar les desigualtats socioeconòmiques en els diferents aspectes relacionats amb la salut sexual i reproductiva detallats.

Els estudis d'aquesta tesi suggereixen que l'estat de salut sexual i reproductiva de la població espanyola en edat reproductiva és bastant bo; tanmateix, es detecten desigualtats socioeconòmiques individuals i contextuals en la majoria dels aspectes estudiats.

Preface

Sexual and reproductive health is an important aspect of the global health of a person, and the guarantee of a good status of sexual and reproductive health has been recognized as an inseparable part of human rights.

In a context of lack of studies in our country regarding this issue, the general objective of this dissertation is to study the state of sexual and reproductive health of the Spanish population in reproductive age, especially focusing on individual and contextual socioeconomic inequalities.

As a result, five different studies were designed: three of them with a purely multivariate regression methodology, and the other two incorporating moreover a multilevel regression analysis. Multilevel techniques facilitate taking account of the hierarchical structure of the data and estimating the contribution of individual and contextual factors.

This dissertation has been elaborated in the Health Information Systems Service of the Barcelona Public Health Agency, under the direction of Glòria Pérez, PhD. The first study forms part of the project "Management of the National Sexual Health Survey of 2009 (TI-EXT005)", and the other studies form part of the projects "Social and economic inequalities in pregnancy planning in provinces and Autonomous Communities (PI07/90050)" and "Analysis of social and economic inequalities of pregnancy

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This dissertation is structured as follows: a summary in English, in Spanish and in Catalan, an introduction, a chapter with the objectives and the hypotheses, the methodology and the results of the dissertation structured in 5 papers, a chapter with a general discussion, the conclusions of the dissertation, the bibliography, and an appendix.

I have been involved in the design and execution of the different studies. Especially, I performed the data management and analysis of all the studies, was responsible for writing four of the five articles that form the content of this dissertation, and I contributed significantly to the preparation of the fifth one.

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Contents

1. INTRODUCTION

1.1. Sexual and reproductive health and rights

Sexuality and reproduction are two aspects intimately linked in certain stages of life, the stages when we are capable of reproducing ourselves, those when the way we live our sexuality conditions our reproduction. This is why sexuality and reproduction are often considered as a whole, giving rise to terms such as sexual and reproductive health or sexual and reproductive rights.

On the other hand, we are sexual beings all our life, from birth until we die, and it is clear that our sexuality is not always linked to reproduction or has a reproductive goal. The majority of times we have sexual relations for pleasure and not for the purposes of reproduction. This leads to the consideration, becoming increasingly common, that sexual health and reproductive health are two different concepts, as well as that it is necessary to separately define sexual rights from reproductive rights.

These two views are not necessarily opposed. It is possible to work with both of them depending on what we want to highlight or the stage of life we are talking about. It is necessary to distinguish when sexuality and reproduction are linked and can be influenced by the same factors, and when it would be more convenient to deal with them as separate aspects. Historically they have been treated jointly more than separately. The problem is that when treated jointly,

sexual health and sexual rights have been considered part of reproductive health and reproductive rights, and generally this has involved treating sexual issues in the background, without their receiving proper attention.

It was at the 1994 International Conference on Population and Development (ICPD) in Cairo, that the process of defining reproductive health and reproductive rights started (this time sexual health and sexual rights were mentioned as a part of them): "Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so… It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases." "Bearing in mind the above definition, reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of

discrimination, coercion and violence, as expressed in human rights documents" (UNFPA, 1994). This process ended in 1995, at the Fourth World Conference on Women in Beijing, where the definitions approved in 1994 in Cairo were ratified and sexual and reproductive rights became an inseparable part of human rights (UN, 1995).

These definitions of reproductive health and reproductive rights incorporate a positive approach to reproductive health, and have been mainly maintained since 1994. The definition of health itself has become increasingly broader over time, nowadays being more focused on positive aspects rather than limited to the absence of illness.

Moreover, specific definitions for sexual health and sexual rights have been required since sexuality has been increasingly recognised as an important issue and a central aspect of human life, and these definitions have also become increasingly broader. One of them is the definition used by the World Health Organization (WHO): "Sexual health is a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled." "Sexual rights

embrace human rights that are already recognized in national laws, international human rights documents and other consensus statements. They include the right of all persons, free of coercion, discrimination and violence, to: the highest attainable standard of sexual health, including access to sexual and reproductive health care services; seek, receive and impart information related to sexuality; sexuality education; respect for bodily integrity; choose their partner; decide to be sexually active or not; consensual sexual relations; consensual marriage; decide whether or not, and when, to have children; and pursue a satisfying, safe and pleasurable sexual life" (WHO, 2006).

1.2. Socioeconomic inequalities in health

Socioeconomic inequalities in health refer to the different opportunities and resources related to health that people have depending on for instance, their social class, gender, ethnicity and/or territory. It is important to highlight that these inequalities in health are unnecessary, avoidable, unfair and unjust (Whitehead, 1992), and it is therefore our responsibility to address them.

It seems clear that different social groups are exposed to different risk factors for their health, not just personal factors, but also social and environmental ones, and that at the same time they have different degrees of access to certain services, such as health care services (Towsend et al., 1998). During the last few decades considerable evidence dealing with social inequalities has been

generated, showing that more socioeconomically deprived populations have poorer health indicators (inequalities at a regional level), and that within a given population those sectors and individuals with a lower socioeconomic position are the ones who present worse health (inequalities at an individual level or a group level).

Socioeconomic position refers to social and economic factors that influence the position of the person or the group in the structure of society (Galobardes et al., 2006a), and can be measured through different indicators, such as type of occupation, level of education, income, and other indicators mainly of wealth. Of these individual indicators, those which have been used most in the study of inequalities in health are the type of occupation and educational level.

Type of occupation is an indicator of the socioeconomic position of the person that indicates on one hand the level of knowledge acquired and certain material conditions associated to income, and on the other, labour conditions related to certain exposures. Different occupations are classified depending on the professional qualification, income and social prestige, among others, obtaining a hierarchical series of socioeconomic groups. Taking this idea as a starting point, different classifications have been developed, the most extensively used in the study of inequalities in health being that proposed by the British Registrar General, in which occupations are ranked based on the level of education or the

training period required, creating a hierarchical scale with the following social classes: I – professional-, II – managerial/technical-, III N –skilled (non-manual)-, III M – skilled (manual), IV –partly skilled, V – unskilled-, VI –other-. This classification is the base for the proposed classification developed for Spain by the Spanish Society of Epidemiology and the Spanish Society of Family and Community Medicine (Domingo-Salvany et al., 2000).

On the other hand, level of education is an indicator of the individual socioeconomic position that reflects a person's material and intellectual resources, while at the same time being a factor determining his/her occupation and income. Its relation with health is based on the assumption that knowledge and abilities acquired from studies can make people more receptive to educational messages on health, and that they have a greater capacity to access and communicate with appropriate health care systems. The use of level of education as an indicator of the socioeconomic position has the advantage that people who are not in the labour market are not excluded, giving us access to socioeconomically dependent people.

The concern for the study of social inequalities in health is relatively recent in Spain. It was not until 1996 that the first report about "Social inequalities in health in Spain" was published (Navarro Lopez and Benach de Rovira, 1996). Since that time, there have been several studies at different levels, such as at state level (Regidor et al., 1996), in small geographical areas (Benach and

Yasui, 1999; Borrell et al., 2009.) or at local level (Borrell and Arias, 1995).

Another important date is 2004, when the first report by the "Spanish Society for Public Health and Health Administration" focused on gender inequalities was published (Borrell et al., 2004a). From this moment on, the gender perspective has become more common in studies on health inequalities in our country (Borrell et al., 2004b; Pérez et al., 2005; Rodríguez-Sanz et al., 2005).

1.3. Socioeconomic inequalities in sexual and reproductive health

Inequalities in sexual and reproductive health refer to the differences found between groups of people regarding sexual and reproductive issues and that are due to socioeconomic inequalities. These inequalities can be detected by studying factors related to the different aspects of the way people deal with their sexuality and reproduction, and there have been different attempts to explore them, with particular emphasis on the study of socioeconomic factors related to pregnancy planning and sexually transmitted infections (STI).

Broad definitions of sexual health, such as the WHO definition mentioned above (WHO, 2006), underlie the importance not only of preventing adverse sexual health outcomes but also the maintenance of those that are beneficial, including satisfaction and sexual

function. These definitions are becoming more accepted and commented on, however, attempts to conduct population-based studies analysing positive outcomes of sexual health, and specifically socioeconomic inequalities in these outcomes, are still rare. Despite this, there are reports stressing that lower socioeconomic status is associated with lower levels of sexual satisfaction, and that this effect is more marked among women than men (Barrientos and Paez, 2006).

There are also studies regarding socioeconomic factors associated to the prevalence of sexual abuse, indicating that the prevalence of sexual abuse is greater among women of lower socioeconomic position (Abramsky et al., 2011; Kishor and Johnson, 2004), an issue that has been extensively studied in Spain (Ruiz-Pérez et al., 2006; Vives-Cases et al., 2009; Vives-Cases et al., 2010; Vives-Cases et al., 2011; Zorrilla et al., 2010).

But without doubt, one of the issues of greatest concern to public health has been pregnancy planning and related socioeconomic factors. An unplanned pregnancy is one that is produced unintentionally, and can be either a wanted or an unwanted pregnancy (Campbell and Mosher, 2000). Pregnancy planning is especially important for women, as it allows them a greater control over their life course; faced with an unplanned pregnancy the woman has to make the decision of aborting or continuing with the pregnancy, in many cases without the economic and/or emotional support needed.

In general, unplanned pregnancies are a difficult concept to tackle, because it is difficult to obtain population data on the prevalence of pregnancies distinguishing those which are planned from those unplanned. This difficulty is the reason why there is little scientific evidence regarding this issue, except for some studies done in the United States (Chandra et al., 2005; Finer and Henshaw, 2006; Henshaw, 1998), France (Sihvo et al., 2003) and Spain (Font-Ribera et al., 2008), which have analysed unplanned pregnancies and their socioeconomic determinants. These studies conclude that unplanned pregnancies are more frequent in young women, without a partner, with a low level of education and with low income.

Due to this difficulty of obtaining data about unplanned pregnancies, a variety of different approaches are usually employed to study pregnancy planning. One is to study the use of contraception, as it is widely accepted that using effective contraception is the most effective measure to control birth-rate and prevent unplanned pregnancies (Lete et al., 2007a). Studies done in different European countries show that women of lower socioeconomic positions use contraception less, although the context of the country and the place of residence also have an influence (Bentley et al., 2009; Perez et al., 2010b; Skouby, 2004; Spinelli et al., 2000). The study of the use of contraceptive methods also allows approaching the study of sexual and reproductive health in youth, seeing which risk factors are influencing their behaviour (Svare et al., 2002).

Another possible way to approach unplanned pregnancies is studying induced abortions, considering that most of them are the consequence of an unplanned pregnancy. Women mention many different reasons for having an abortion, but they principally see the abortion as a necessity in order to plan their lives and to control their fertility (Kero et al., 2001). Some studies have analysed induced abortions as a function of socioeconomic position (Addor et al., 2003; Bettarini and D'Andrea, 1996; Perez et al., 2010a; Uria and Mosquera, 1999), arriving at different conclusions about the associations between abortion and socioeconomic determinants. It is necessary to keep in mind that using the information of abortions as an approach to unplanned pregnancies, fails to take account of those unplanned pregnancies which end in a birth.

1.4. Sexual and reproductive health and rights in Spain

Between 1931, when the Second Spanish Republic was proclaimed, and 1939, when the Spanish Civil War ended, and the dictatorial regime of General Franco was implemented, Spain had a truly progressive Constitution (Palacio de las Cortes Constituyentes, 1931). In this Constitution human rights and a great number of individual and social rights were recognised and defended, such as the right of women to vote. In this context, sexual and reproductive rights had more presence than they would have later on. One example is the legalization of abortion in Catalonia in 1937 (DOGC, 1937), recognizing it as a safe form of birth control.

Following that period, Spain remained under a dictatorial regime until 1978, during which time almost all the rights achieved by its population were abolished. Regarding sexual and reproductive rights for example, contraception and abortion were declared illegal, and women who wanted to access them had to resort to smuggling or travelling to other countries (Peiro et al., 1994), which meant that only privileged women who were able to afford it had access to contraception or abortion.

With the end of the dictatorship a new period of achievement of civil rights began, framed in the Constitution of 1978 (Palacio de las Cortes, 1978). For example, in that same year contraceptive methods were legalized in Spain. Nevertheless, the Spanish population took some time to become accustomed to using contraception. In 1985, for example, only 33% of Spanish women usually used a contraceptive method (Lete and Martinez-Etayo, 2004).

Since that time, the prevalence of the use of contraception in our country has significantly increased. Between 1997 and 2003 for example it rose from 56% to 71% (Lete et al., 2007b), but even then the use of some of the most effective methods, such as the pill, was not as high as in other countries of the north of Europe, probably because of the historical delay in the legalization of its use. It has to be remarked that even today contraceptive methods receive different degrees of financial support depending on the Autonomous Community of residence (Ministerio de Sanidad y Polícita Social,

2009), which can lead to different levels of access depending on place of residence.

In 2001, emergency contraception was legalized in Spain, being dispensed freely in health care services (but also with differences in the dispensation depending on Autonomous Community). Emergency contraception is an option for women conscious of having had sexual relations with a risk of having become pregnant, or those who have had some problem with the contraceptive method used, and since the end of 2009 pharmacies should dispense it without a prescription.

Regarding abortion, it was decriminalised in Spain in 1985 (BOE, 1985) for three different legal cases: foetal malformation (until the 22nd week of gestation), rape (until the 12th week of gestation) and danger to the physical or mental health of the woman (without no explicit limit regarding time of gestation). Until that moment, women wanting an abortion had to so clandestinely or travel to some other country where abortion was legal. Even in 1985, 18000 women went to England or Wales for an abortion, whereas ten years later this figure had fallen to only 66 abortions in a year (Peiro et al., 2001).

Currently, although Spain does not have an elevated abortion rate, it has increased in recent years, from 7.7 per 1000 women aged 15-44 in 2001 to 11.4 in 2009, rates being considerably higher among younger groups (20.1 in women aged 20-24 in 2009) (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2010).

The Organic Law of 1985 remained in force until the 5th of July of 2010, and during this period, most women who had an abortion (97%) had it on the grounds of the third case mentioned above (danger to the physical or mental health of the woman) (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2010). The abortions corresponding to the third case were performed outside the public health care system, which only catered for abortions related to the other two cases (only 3% of the annual total of abortions), so that most women had to pay for their abortion (GIE and ACAI, 2008); nevertheless, depending on the Autonomous Community of residence, women could perceive different degrees of economic support, or not perceive any support (GIE and ACAI, 2008). There is also one Autonomous Community, Navarra, where even today there are no clinical centers practicing abortion, meaning women have to travel to another Autonomous Community to have an abortion (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2010). These situations would almost certainly produce inequalities in the access to abortion services for women residing in different Autonomous Communities (GIE and ACAI, 2008).

In 2010, the Ministry of Health and Social Policy undertook the National Strategy for Sexual and Reproductive Health (Ministerio de Sanidad y Polícita Social, 2010), with the general objective of offering quality sexual and reproductive health care in the National Health Care System. The text remarks that most of the policies, programs and actions in Spain deal with aspects of sexual rights as part of reproductive rights, or directly put aside sexual rights, and

that it is necessary to establish strategies for actions, programs and projects directly focused on improving sexual health, defining objectives which have a direct relation with this improvement. It has to be remarked that this strategy represents an important step forward for sexual health and rights in Spain, at least in intentions, but also that certain key aspects of sexual health and rights are missing, such as pleasure, a word which is not mentioned at all in the document.

The National Strategy for Sexual and Reproductive Health is the framework for the apparition of the new Law of Sexual and Reproductive Health and Voluntary Termination of Pregnancy of 2010 (BOE, 2010). Under this new law, a woman can interrupt her pregnancy during the first 14 weeks of gestation. Her only obligation is to receive information about the rights, benefits and public assistance designated to maternal support, and to wait at least 3 days after receiving this information before undergoing the abortion. This new law also permits the abortion until the 22nd week of gestation if there is a serious risk of illness for the foetus or the health of the mother, and without any limit of time when foetal anomalies or an incurable illness are detected.

The National Strategy for Sexual and Reproductive Health is also the framework within which the first Spanish National Sexual Health Survey was carried out (CIS, 2009). This survey is especially important because it was the first time that representative information on sexual issues had been collected in Spain, from a

point of view other than reproductive matters.

The Law of Sexual and Reproductive Health and Voluntary Termination of Pregnancy of 2010 (BOE, 2010) is currently being revised by the new conservative government in Spain, which came into power last year, in order to place more restrictions on access to the practice of abortion, based more on political and traditional thinking than on scientific evidence. What scientific evidence shows is that countries with unrestricted access to early termination of pregnancy do not report higher rates of abortion than countries with more restricted access. It is not restrictions on the practice of abortion which prevents women from choosing it (Gissler et al., 2012; Sedgh et al., 2012). Furthermore, it has been observed in Spain that decriminalisation of abortion did not have any effect on its trends, but rather it benefited Spanish women by reducing the inequalities implied by lack of access to proper health care services (Peiro et al., 2001).

1.5. Conceptual framework of socioeconomic factors influencing sexual and reproductive health in Spain

Because so many different aspects have to be kept in mind in the study of sexual and reproductive health, we have designed a conceptual framework that collects the issues we particularly want to focus on in this dissertation. This framework is an attempt to capture the socioeconomic factors that can influence different

aspects of sexual and reproductive health in Spain during a person's reproductive age, and which may produce socioeconomic inequalities at different levels. This framework is based on the literature, especially on the framework of Dahlgren and Whitehead (Dahlgren and Whitehead, 1991) and the concepts treated in the book "The Social Situation in Spain" (Navarro, 2005) (Figure 1).

Moving from the right side of the figure to the left, the way people deal with their sexuality and their sexual relationships is at the same time conditioning the form of contraception they use (or not), and as a consequence, the way they deal with pregnancy planning. Depending on the way the person deals with pregnancy planning, sexual relationships may or may not conclude in a pregnancy. If the result is a pregnancy, someone, most likely the woman, must decide between two options, having the baby or having an abortion.

In all this process of the way people deal with sexuality and pregnancy planning individual characteristics related with socioeconomic position are exerting an influence: age, gender, social class, level of education, income, having a partner and children, origin, religion, etc. Previous studies show that women of lower socioeconomic position have lower levels of sexual satisfaction (Barrientos and Paez, 2006), have more unplanned pregnancies and use less effective forms of contraception (Font-Ribera et al., 2008; Layte et al., 2007; Skouby, 2004; Spinelli et al., 2000), have more induced abortions (Eskild et al., 2007) and have a higher prevalence of sexual abuse (Abramsky et al., 2011; Kishor

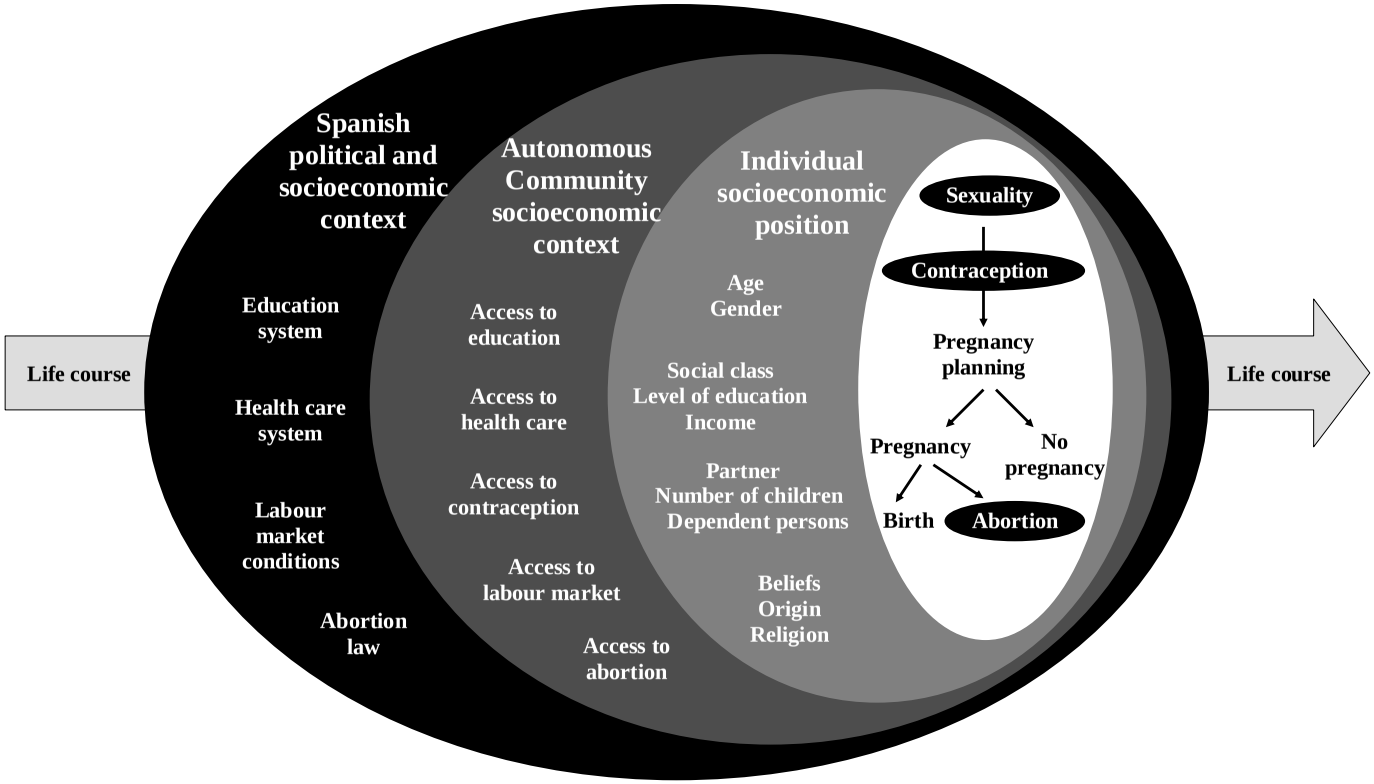

Figure 1. Conceptual framework of socioeconomic factors influencing sexual and reproductive health in Spain (personal compilation based on Dahlgren and Whitehead (1991) and Navarro (2005)).

and Johnson, 2004).

At the same time, contextual socioeconomic characteristics of the place of residence have an influence on the socioeconomic reality of a person, and therefore on the way she/he deals with sexuality and pregnancy planning (Bentley et al., 2009), from socioeconomic characteristics of the most proximal levels, such as neighbourhood or city level, to socioeconomic characteristics of more distant levels, such as the region or the country of residence.

Focusing on the case of Spain, the 17 Autonomous Communities are the first level of political division, and were established in accordance with the Spanish Constitution of 1978. They are socially, culturally and economically different. In addition to Spain's national political and legal system, Autonomous Communities also have their own regional laws and governments. This means that Autonomous Communities not only have differences at social, cultural and traditional levels, but also in the details of the welfare state implemented in the region, with specific characteristics within the global welfare state of Spain. Autonomous Communities can have different policies on the way they spend public investment, such as differences in investment in public education, the facilities provided to access the labour market or the access to certain services such as abortion prior to the new law of 2010, as mentioned above (GIE and ACAI, 2008). For example, the National Health Service has common guidelines for the entire state, but Autonomous Communities have powers to distribute part of

their public funding in health (Vieta and Badia, 2009), which can produce differences between Autonomous Communities in terms of access to certain health care services or certain drugs, as happens with the access to different methods of contraception (Ministerio de Sanidad y Polícita Social, 2009). All these aspects that differ between Autonomous Communities can ultimately influence the way a person lives her/his sexuality and the type of pregnancy planning she/he does, as has been seen in previous studies analysing the influence on health and health inequalities of religious context (Adamczyk, 2008), the implementation of work-life balance policies (Begall and Mills, 2011), or the redistributive policies provided by the welfare state making it more or less egalitarian (Borrell et al., 2007; Borrell et al., 2009; Muntaner et al., 2011; Navarro and Shi, 2001; Navarro et al., 2006).

Both individual socioeconomic factors and those of the Autonomous Community, which influence a person's sexuality and pregnancy planning, are influenced at the same time by the political, economic and social context of the country, determined not only by the type of Spain's present welfare state, but also by many aspects which may be considered historical legacies (Navarro, 2005). Central government determines those social policies that are mandatory at state level, such as the policies that determine the educational system, state health system, labour market policies or specific laws –such as the abortion law-, for example.

Finally, all these individual and contextual factors that influence

sexuality and pregnancy planning will be modulated continuously by the person's life course, not only because they can change during person's life, but also because they can have a different influence depending on the stage of life (Galobardes et al., 2006a; Galobardes et al., 2006b; Galobardes et al., 2007).

1.6. Multilevel studies

Epidemiology and many other sciences have long focused their studies on the individual point of view, investigating how individual characteristics are mutually interrelated and how they influence different aspects of health. The idea that individual characteristics can be influenced by characteristics of the place of residence has gained ground in recent years. A person interacts with other people, has a social network around her/him, lives in a society with specific policies and level of social cohesion, and is surrounded by environmental factors and by a great number of uncontrollable factors at individual level. All these factors influence our behaviours, so that socioeconomic characteristics can have effects beyond merely individual socioeconomic characteristics. The concept that the territory where a person lives influences her/his health is of special interest for public health and the planning of health policies (Borrell and Benach, 2005), and is the idea on which our conceptual framework is based.

Three main techniques are used to study the effects of territory on health: ecological studies, comparison between areas, and

multilevel studies (Diez Roux, 2001). Ecological studies are of great utility to study patterns in the distribution of both dependent and independent variables, but they do not permit to distinguish if the differences found between areas are due to characteristics of the areas themselves or of the people who live there. The technique of comparison between areas aims to reproduce the individual analysis as many times as areas exist, so is really only feasible when the number of areas is small. Finally, multilevel studies evaluate contextual effects of areas while at the same time taking into account individual characteristics of people residing in those areas, and are the most extensively used in studies of socioeconomic determinants of health (Diez-Roux, 2000).

1.7. Justification

Research in and publication of studies dealing with socioeconomic inequalities in health have recently been increasing in Spain, as has been detailed previously, but even today studies analysing inequalities in sexual and reproductive health are scarce. In addition, the few studies which treat these issues do so from an individual point of view, forgetting the importance of the context in socioeconomic inequalities. Furthermore, they usually deal with preventive aspects or problems of sexual and reproductive health, such as STI, unplanned pregnancies or sexual abuse, but there has been virtually no population-based research on sexuality issues in Spain.

Three population-based sources of information are currently available that allow us to explore different dimensions of interest regarding sexual and reproductive health in Spain, and the related socioeconomic factors:

- The first National Sexual Health Survey of 2009, which includes information regarding different aspects of sexuality and sexual practices of men and women in Spain. This survey is not representative at the level of Autonomous Communities.

- The Fecundity Interview of 2006, which provides information on the use of contraception among women in Spain. It is representative not only for Spain as a whole, but also for the different Autonomous Communities.

- The annual Register of Voluntary Interruption of Pregnancy, which collects information on all abortions done in Spain, and certain sociodemographic variables of the women who demand them. It is a systematic register as every center of every Autonomous Community has to collect the information and communicate it to the Ministry of Health every year.

Using these sources, we can study socioeconomic inequalities of different aspects of sexual and reproductive health, achieving a relatively broad view of the issue, and it has been possible for the first time to incorporate sexual health information representative of

Spain.

Taking the conceptual framework presented previously as a reference, our overall aim is to study socioeconomic inequalities in sexual and reproductive health of the Spanish population in reproductive age focusing on two aspects:

- Sexuality.

  Specifically, we will study sexual health status in Spain in terms of the WHO definition mentioned above.

- Pregnancy planning.

  We will study pregnancy planning in terms of the two approaches also mentioned above, namely:

  - Use of contraception, as it is the most effective means of preventing unplanned pregnancies.

  - Induced abortions, as most of the induced abortions performed in Spain before entry into force of the new law of 2010, on the grounds of danger to the physical or mental health of the woman, were the result of unplanned pregnancies.

We consider that sexuality and pregnancy planning, as well as sexual health and reproductive health, are linked and influence each

other in our population, as in our studies we deal with the sector of the population in their reproductive stage of life (16-44 or 15-49 years old depending on the study).

In this dissertation, we wanted not only to study individual socioeconomic factors which affect sexual and reproductive health in Spain, but also to use multilevel analysis when possible to permit jointly taking into account both individual socioeconomic factors and those of Autonomous Communities. No studies of this kind analysing sexual and reproductive health exist in Spain, and they are also limited in other countries, as stated earlier.

2. OBJECTIVES AND HYPOTHESES

2.1. Objectives

The general objective of this dissertation is to study the state of sexual and reproductive health of the Spanish population in reproductive age, especially focusing on individual and contextual socioeconomic inequalities.

The specific objectives are:

1. To describe the sexual health of men and women in reproductive age in Spain, accounting for the influence of individual socioeconomic factors in 2009.

2. To describe the use of contraception among women in reproductive age in Spain, during their first sexual intercourse and during sexual relations in the last month, accounting for the influence of individual and contextual socioeconomic factors in 2006.

3. To describe induced abortion among women in reproductive age in Spain, accounting for the influence of individual and contextual socioeconomic factors in 2001.

2.2. Hypotheses

The hypotheses elaborated regarding the objectives described are:

1. Different indicators of sexual and reproductive health show that the status of sexual and reproductive health in Spain is reasonably good, for country as a whole; nevertheless, socioeconomic inequalities exist at individual and contextual levels.

2. Men and women with lower socioeconomic position have a poorer status of sexual health.

3. Women with lower socioeconomic position and living in areas which are more traditional, more deprived and/or with fewer redistributive public policies, use contraception less, and use less effective methods of contraception, both during their first sexual intercourse and during sexual relations in the last month.

4. Women with lower socioeconomic position and living in areas which are more traditional, more deprived and/or with fewer redistributive public policies, are less likely to have an induced abortion.

3. METHODS AND RESULTS

In order to achieve the objectives described above the five studies in which this dissertation is divided were designed:

To achieve objective 1:

- Paper 1: **Ruiz-Muñoz D**, Wellings K, Castellanos E, Álvarez-Dardet C, Casals-Cases M, Pérez G. Sexual health and socioeconomic related factors in Spain. (Under review).

To achieve objective 2:

- Paper 2: **Ruiz-Muñoz D**, Pérez G, Garcia-Subirats I, Díez E. Social and economic inequalities in the use of contraception among women in Spain. J Womens Health 2011;20(3):403-11.

- Paper 3: **Ruiz-Muñoz D**, Pérez G, Gotsens M, Rodríguez-Sanz M. Regional inequalities in the use of contraception in Spain: a multilevel approach. Health Place 2012;18(2):408-14.

- Paper 4: **Ruiz-Muñoz D**, Pérez G. Women's socioeconomic factors associated to the choice of contraceptive method in Spain. Gac Sanit 2012. http://dx.doi.org/10.1016/j.gaceta.2012.05.009. (In press).

To achieve objective 3:

- Paper 5: Pérez G, **Ruiz-Muñoz D**, Gotsens M, Casals-Cases M, Rodríguez-Sanz M. Social and economic inequalities in induced abortion in Spain as a function of individual and contextual factors. (Under review).

3.1. Paper 1

Ruiz-Muñoz D, Wellings K, Castellanos E, Álvarez-Dardet C, Casals-Cases M, Pérez G. Sexual health and socioeconomic related factors in Spain. (Under review).

Sexual health and socioeconomic related factors in Spain

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Authorship contributions

Dolores Ruiz-Muñoz performed the data analysis, participated in the interpretation of the data and drafted the manuscript. Kaye Wellings, Esther Castellanos, Carlos Álvarez-Dardet, Mariona Casals-Cases and Gloria Pérez reviewed the analysis, participated in the interpretation of the data and in the drafting of the manuscript. All the authors have read and approved the final version of the manuscript.

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The corresponding author confirms she has full access to all the data in the study and has final responsibility for the decision to submit for publication.

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We would like to dedicate this article to the memory of Concha Colomer Revuelta (1954-2011), Sub director General of the Health Planning Office and Director of the Women's Health Observatory of the Spanish Ministry of Health, Social Policy and Equality, who promoted and supported the first Spanish national Sexual Health Survey in 2009, the source of the data analysed in the present study.

This article forms part of the doctoral dissertation of Dolores Ruiz Muñoz at the Pompeu Fabra University (UPF) of Barcelona (Spain).

Conflict of interest

The authors declare that they have no conflict of interest.

Abstract

Introduction

Sexual health is not commonly studied in a broad sense and there has been virtually no population-based research on sexuality issues in Spain. The aim of the present study was to describe sexual health in Spain according to the WHO definition while accounting for the influence of socioeconomic factors.

Methods

We performed a population-based cross-sectional study of sexually active people aged 16-44 years residing in Spain in 2009 (2,365 women; 2,532 men).

Three main aspects of sexual health were explored: sexual satisfaction, safe sex and sexual abuse. The independent variables explored were: age, age at first intercourse, reason for first intercourse, type of partner, level of education, country of origin, religiousness, parity and social class. Bivariate and multivariate logistic regression models were fitted.

Results

Both men and women were quite satisfied with their sexual life (90%), their first sexual intercourse (86% men; 61% women) and their sexual relationships during the previous year (88-97% men; 80-96% women). Most participants had practiced safe sex both at first intercourse (66% men; 73% women) and during the previous year (73-86% men; 77-92% women). Levels of sexual abuse were similar to those in other developed countries (1-4% men; 6% women).

People of lower socioeconomic position have less satisfying, more unsafe, and more abusive sexual relationships. Women experienced more sexual abuse and had less satisfaction at their first intercourse.

Conclusions

The state of sexual health in Spain is relatively good. However, inequalities by socioeconomic position and gender are found.

Keywords: Sexuality; Health; Satisfaction; Safe sex; Sex offenses; Contraception

What was already known

Sexual health is defined by the WHO as a state of physical, emotional, mental and social well-being in relation to sexuality, and requires the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence.

Such a broad concept of sexual health is not commonly used in studies. There has been almost no population-based research on sexuality in Spain.

What we know as a result of the manuscript

The state of sexual health in Spain is relatively good. Individuals are generally quite satisfied with their sexual relationships and sexual life, most practice safe sex, and the levels of sexual abuse are similar to those in other developed countries.

However, we observed socioeconomic and gender inequalities in the sexual health of Spanish population.

Introduction

The term sexual health is increasingly used by researchers as the context of empirical studies, although there is little agreement in its definition. The WHO endorses a broad definition: "Sexual health is a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled" [1].

The WHO definition has merit in underlining the importance, not only of preventing adverse sexual health outcomes, but also of maintaining those that are beneficial, including satisfaction and sexual function. Satisfying sexual experience within a relationship has been shown to contribute markedly to overall relationship satisfaction, and this sense of well-being contributes to better health [2]. These associations are seen in both men and women, although the link between sexual satisfaction and relationship quality is stronger among men [3].

Sexual satisfaction is also related to the practice of safe sex. Contraception is the most effective means of preventing unintended pregnancy and STIs (Sexually Transmitted

Infections), and the initial and continued use of contraceptive methods are influenced by their impact on sexual pleasure and satisfaction [4]. In this sense, contraceptive methods are most likely to be used if they increase sexual enjoyment and have an erotic theme [5].

Similarly, sexual violence against women, which is recognised as a global public health and human rights problem in need of urgent attention, has been shown to directly increase the risk of STIs and unwanted or mistimed pregnancies, and the physical and mental effects may last long after the violence has ended [6-8]. Furthermore, this abuse may be a marker of more general malaise: evidence suggests that most women experience either a combination of physical and sexual partner violence or physical violence alone, rather than sexual violence only [9]. This problem is not insignificant; according to one study, 35 to 76% of women had experienced physical or sexual assault after the age of 15, mainly by a current or previous partner [6, 9].

The aim of the present study was to describe sexual health in Spain according to the WHO definition while accounting for the influence of socioeconomic factors. We explored the three major dimensions of the WHO definition of sexual health: sexual satisfaction, safe sex and experience of sexual abuse. Where the data allow, these were explored at different points in the life span of the individual using response options related to their first experience of sexual intercourse, experiences during the previous year and sexual life in general. As far as we are aware, there have been no attempts to describe sexual health status in this more broad way, and there has been virtually no population-based research on sexuality issues in Spain. The implementation of a new National Strategy for Sexual and Reproductive Health [10], whose aim is to improve the sexual health status of the general population has created an urgent need for more data on this issue.

Methods

Design, setting and patients

In this paper we present data from a population-based cross-sectional study of non-institutionalised sexually active people aged 16 to 44 years residing in Spain in 2009.

The information source for this study was the first Spanish National Sexual Health Survey (SNSHS), supported by the Women's Health Observatory of the Spanish Ministry of Health, Social Policy and Equality and carried out in 2009 by the Centre for Sociological Research [11]. The survey consisted of a face-to-face interview carried out

in the participant's home, which collected socio-demographic data and information about the sexual life of men and women aged 16 years or older. The interview was introduced via a letter signed by the Chief Medical Officer of the Ministry of Health, detailing the objective of the study and providing a free phone number to deal with queries. The interview had a mixed mode of administration, with a self-administered questionnaire for questions related to first sexual intercourse and sexual intercourse during the previous twelve months, and an interviewer-administered questionnaire for the remaining items. A random, multi-stage sample selection strategy was used, stratified by Autonomous Communities (the 17 regions into which Spain is divided), and with primary (municipality) and secondary (census section) sampling units randomly selected in proportion to the population size of the Autonomous Community. Individuals from these units were selected using random route procedures with quotas calculated on the basis of sex and age. Weighting coefficients were applied to restore proportionality to the sample. The survey covered a total of 9850 adults, and the estimated overall sample error was ±1.01%. Details of SNSHS methodology are described elsewhere [11]. 2,532 men and 2,365 women who were sexually active and aged between 16 and 44 were selected for inclusion in this study.

Measurements and variables

During the interview, sexual intercourse was defined as any practice performed by two or more persons for the purpose of obtaining sexual pleasure, and which does not necessarily include intercourse or lead to an orgasm.

Three main aspects of sexual health, sexual satisfaction, safe sex and sexual abuse, were explored at different points of the life course and separately for regular and casual partners , where possible. Data on sexual satisfaction were analysed in terms of satisfaction with sexual life in general, and also after sexual intercourse at specific stages of life, namely first sexual intercourse and sexual intercourse during the previous year. The practice of safe sex was examined in terms of contraception use during first intercourse and during intercourse in the previous year. Sexual abuse was examined by asking respondents about experiences of sexual intercourse against their will, and also experience of sexual abuse and/or rape at any time in their life. Details of the construction of the dependent variables are provided in Box 1.

We tested for association between these dependent variables and the following independent variables: age (16-24; 25-34; 35-44 years), age at first intercourse (<16; ≥16 years), reason for first intercourse (curiosity; being in love; risk-associated reasons,

such as being forced, having to please their partner or having taken drugs), type of partner (regular only; regular and casual; casual only), level of education (illiterate or incomplete primary education; primary education; secondary education; university education), country of origin (developed countries, including Australia, Bahamas, Canada, Japan, USA, Norway, Switzerland, Andorra and the European Union prior to May 2004 [note that 98% of participants from developed countries were Spanish]; developing countries, including all other countries), religion (Catholic; any other religion; nonbeliever and atheist), parity (no children; ≥1 children), and social class of the interviewee or of the household's main earner, when this could not be attributed to the interviewee (manual; non-manual, according to the classification system proposed by the Spanish Society of Epidemiology) [12].

The proportions of missing data were 0.4-1.9% for men and 0.6-2.9% for women for all variables except that related to sexual satisfaction during intercourse with a regular partner during the previous year, for which 12.1% of men and 12.3% of women had missing data. Missing values were excluded from the analyses.

Statistical analysis

We performed univariate and bivariate descriptive analyses using the Chi-squared test. To examine the relationships between the independent and dependent variables, bivariate and multivariate logistic regression models were fitted, and crude and adjusted odds ratios (OR and aOR, respectively) and their corresponding 95% confidence intervals (95% CI) were calculated, selecting the most appropriate final model in each case.

All analyses were stratified by sex and were performed using STATA, version 10.1 [13].

Results

Sexual satisfaction

Approximately 90% of men and women reported being very or quite satisfied with their sexual life in general. Women with a lower level of education were generally less satisfied (aOR=0.31; CI:0.18-0.53 for women with less than primary level education compared to those with a university education). Both men and women with children reported greater satisfaction than those without children (Table 1).

Satisfaction at first sexual intercourse was higher among men (86%) than women (61%). In men, none of the independent variables was associated with satisfaction at

first sexual intercourse, but dissatisfaction in women was associated with being atheist (aOR=0.64; CI:0.44-0.93 compared to being nonbeliever), being from a developing country (aOR=0.66; CI:0.50-0.87), having had their first experience with a casual partner (aOR=0.65; CI:0.51-0.83) and particularly if this was for a risk-associated reason (aOR=0.32; CI:0.18-0.55 compared to being in love) (Table2).

95% percent of men and women reported being satisfied with sexual intercourse during the previous year. Individuals from developing countries reported being less satisfied, as did those who had had sexual intercourse with a casual partner (aOR=0.54; CI:0.32-0.91 and aOR=0.46; CI:0.25-0.85 for men and women, respectively, who had had intercourse with both casual and regular partners during the previous year compared to those who had had intercourse with a regular partner only) (Table 3).

Stratifying by type of partner, individuals who had intercourse with a regular partner reported being more satisfied (97% men and 96% women) than those who had intercourse with a casual partner (88% men and 80% women). Among men who reported having had sex with a regular partner during the previous year, those who had had intercourse with both casual and regular partners were, again, less satisfied than those who had only had intercourse with a regular partner (aOR=0.32; CI:0.18-0.58). Among women who reported having had sex with a regular partner during the previous year, satisfaction was lower among those who had a lower level of education and were from developing countries (aOR=0.51; CI:0.28-0.90). Among women who reported having had sex with a casual partner during the previous year, none of the independent variables was associated with satisfaction, whereas among men, being from developing countries was associated with being less satisfied (aOR=0.40; CI:0.23-0.71) (Table 4).

Note also that we observed some significant differences in the rate of missing data between some groups, with the highest rates of missingness observed among men aged 16-24 years (1.1%; $p<0.01$) and women with less than primary studies (2%; $p=0.04$) for variables related to satisfaction with sexual life; among women from developing countries (4.8 and 1.8%; $p<0.01$) for variables related to satisfaction during first intercourse and during the previous year, respectively; and among men aged 35-44 years (15.1%; $p<0.01$), or who had a university-level education (17.8%; $p<0.01$) or who were from developed countries (12.9%; $p<0.01$) for variables related to satisfaction during the last year with a regular partner.

Safe sex

Seventy-three percent of women and 66% of men reported having used contraception during their first sexual intercourse. The majority (87% of women and 89% of men), reported having done so to prevent both pregnancy and STI, as opposed to preventing pregnancy (11% women; 8% men) or STI (2% women; 3% men) only. The rate of contraception use during first sexual intercourse was lower among older men and women, as well as among individuals who had their first intercourse before age 16 or who were from developing countries, and among men whose first sexual partner was not a regular partner. The rate of contraception use was also lower among women who had a lower educational level, or a religious affiliation, or whose reason for first intercourse was considered risky (aOR=0.43; CI:0.21-0.86 compared to being in love) (Table 5).

With regard to sexual intercourse during the previous year, use of contraception varied depending on whether it was used with a regular or a casual partner (Table 6). Seventy-three percent of men and 77% of women reported having always or almost always used contraception with their regular partner during the previous year (57% of men and 47% of women used it to prevent both pregnancy and STI, 40% of men and 51% of women to prevent pregnancy only and 3% of men and 2% of women to prevent STI). In contrast, 86% of men and 92% of women reported having used contraception during their last sexual intercourse with a casual partner (86% of men and 88% of women to prevent pregnancy and STI, 9% of men and women to prevent pregnancy, and 5% of men and 3% of women to prevent STI). Older men and women, those with a lower level of education, those from developing countries, and in the case of men, those with children, used contraception less frequently with their regular partner. Men from the manual social class (aOR=0.46 CI:0.27-0.81), and men and women with children were less likely to have used contraception during their last intercourse with a casual partner (Table 6).

We observed no marked differences in missingness in these data, except for variables related to contraception use with a regular partner during the previous year, where a higher rate of missingness was observed among women from the non-manual social class (1.5%; p=0.03).

Sexual abuse

Twenty-four men (1%) and 39 women (1.6%) reported that the main reason for having had their first sexual intercourse was having been forced (data not shown).

4.4% of men and 6.5% of women reported having had sexual intercourse against their will at some time in their life, and 1.6% of men and 6.1% of women had experienced sexual abuse and/or rape. Older men and women and those from developing countries were more likely to have experienced sexual abuse, to have had intercourse against their will, or to have been sexually abused and/or raped. Women with a lower level of education generally had a higher likelihood of having unwillingly had sexual intercourse (aOR=3.60; CI:1.85-7.04 for women with less than primary education compared to those with university education) (Table 7).

We observed no marked differences in missingness in these data, except for the variable related to experiences of unwilling sexual intercourse, where a higher rate of missingness was observed among men from developing countries (3.3%; p=0.04).

Discussion

Both men and women in Spain reported high rates of satisfaction with their sexual lives (90%), and were generally more satisfied after sexual intercourse with a regular partner during the previous year (96% women; 97% men) than with a casual partner (80% women; 88% men). Individuals were generally least satisfied after their first sexual intercourse, and the difference between men and women was greatest in this respect (61% women; 86% men). Satisfaction with one's sexual life was found to vary with educational level among women, but not men, and was greater among individuals who had children. Satisfaction with sexual intercourse during the previous year was found to vary according to the type of partner; socioeconomic factors, such as educational level and country of origin were also relevant, especially among women. Socioeconomic factors were also important determinants of sexual satisfaction among women following their first intercourse, and we note the markedly lower level of satisfaction among those whose main reason for having their first experience was having been forced, having to do it to please their partner or having taken drugs.

This study supports the hypothesis that the concepts of general sexual satisfaction and satisfaction with sexual activity are distinct and are not influenced by the same factors. General sexual satisfaction is related to one's sex life in the sense of overall contentment, whereas satisfaction with sexual activity is more related to sexual enjoyment and pleasure [14, 15]. Levels of sexual satisfaction were higher in this study than those reported previously in other countries [14, 16]. The finding that men and women in stable and satisfactory relationships report higher rates of sexual satisfaction

is consistent with data from other studies [3, 17, 18]. This may not only be because the preferences of the partner become better known with familiarity, but also because sexual satisfaction is influenced by intimacy [18, 19] and exclusivity [20, 21]. The findings that socioeconomic factors influence sexual satisfaction, that lower socioeconomic status is associated with lower levels of satisfaction, and that this effect is more marked among women than men has also been reported elsewhere [16].

The use of contraception, and thereby the practice of safe sex, is quite prevalent, and is higher among women than among men. In Spain, as in many other countries, the use of contraception has become more common in recent decades. In this study, two thirds of men and almost three quarters of women reported having used contraception during their first intercourse, and approximately three quarters of men and women reported having used it during the last year with a their regular partner, compared to ~90% of men and women who used it during their last intercourse with a casual partner. These rates are quite similar to those from a recent study in Spain [22] and to reports from other European countries [23-25]. The use of contraception is modulated by socioeconomic factors in both women and men, and during first as well as recent sexual intercourse, with lower socioeconomic position associated with greater exposure to unsafe sexual intercourse [22, 24, 25].

The prevalence of a history of sexual abuse was relatively low in this study. Approximately 1 in 20 women reported having experienced sexual abuse at some time in their life and a lower prevalence was observed among men. Consistent with results from other studies [26, 27], the prevalence of sexual abuse was greater among women of lower socioeconomic position. In previous studies in Spain approximately one in ten women had suffered some type of intimate partner violence (IPV) in the previous year, one in a hundred had experienced sexual violence, with higher prevalence among women of lower socioeconomic position, or who were separated, divorced, had children or had insufficient social support, especially immigrant women [28-32].

This study has some limitations, particularly in relation to the information source, the National Sexual Health Survey of 2009, as the nonresponse rate is not available [11]. All surveys based on self-reporting, especially those dealing with sexual behaviour, are likely to suffer from social desirability bias [33]. However, if participants can trust in the legitimacy and confidentiality of the survey, and if the interviewer takes an appropriate professional approach, this facilitates accurate disclosure of sensitive information [34]. Moreover, some questions may have been misunderstood by the

participants, such as those concerning the reasons for using contraception or the two questions about sexual abuse, where people may not perceive a clear distinction between having had sexual intercourses against their will and having experienced sexual abuse and/or rape [11]. We believe that this is common in new surveys such as this one, but the questionnaires tend to be revised and improved in subsequent editions.

In general, we can conclude that the state of sexual health in Spain is relatively good. People are generally satisfied with their sexual relationships and with their sexual life, the majority practice safe sex, and levels of sexual abuse are no higher than those in other developed countries. However, we observed differences in sexual health as a function of socioeconomic position and sex. It is also possible that regional differences exist in sexual satisfaction, similar to those previously reported in the prevalence of contraception use [35] and IPV [36].

No one should be forced to endure any type of sexual abuse. Efforts should be made to diminish not only the incidence of sexual abuse but also to place particular emphasis on reducing the socioeconomic differences between victims that has been observed in this study. IPV should be viewed as a complex process because women are known to be better able to seek outside help if they have support and personal resources [37], including the engagement of health care services [38].

There is also room for improvement in the rates of satisfaction at first intercourse among women (61%), which are lower than among men. Moreover, promoting pleasure in parallel with the safe sex message can increase the use of condoms as a form of contraception [39, 40].

A positive approach to sexuality is necessary. There is increasing evidence that the best way to improve sexual health is introducing a pleasurable and positive approach to sexuality issues, starting with the empowerment of young people.

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Box 1. Questions from the 2009 National Sexual Health Survey in Spain, from which dependent variables were constructed.

The three main aspects of sexual health covered by this study are shown in **BOLD UPPERCASE**; the dependent variables constructed in **bold lowercase**, the survey's textual question(s), from which the dependent variable was constructed in *italics*; and the categories (collapsed or not) of the dependent variables in 'plaintext'.

SEXUAL SATISFACTION

Satisfaction with sexual life

In general, how satisfied are you with the sexual life you have had?

Very or quite satisfied / neither satisfied nor unsatisfied or very or quite unsatisfied.

Satisfaction after your first sexual intercourse

And which of the next two feelings I am going to read, would define best your state of mind after your first sexual intercourse?

Satisfied / Unsatisfied or neither

Satisfaction during the last year

During this period of time (the last twelve months), which of the next two feelings I am going to read, would define best your state of mind after having sexual intercourse?

Satisfied / Unsatisfied or neither

Satisfaction during the last year with a regular partner

And in general, in sexual intercourse with your regular partner, you feel…

A lot of or quite a lot of satisfaction / Some, little or no satisfaction

Satisfaction during the most recent sexual intercourse with a casual partner (limited to the previous 12 months)

Thinking about the last time you had sexual intercourse with a casual partner, did you feel…

A lot of or quite a lot of satisfaction / Some, little or no satisfaction

SAFE SEX

Since the types of contraception used for the purpose of preventing STIs may be different to those used for preventing pregnancy, the questionnaire contained separate questions concerning the use of contraception for each of these purposes. We combined the responses for these two questions in a single variable, thereby recording participants' use of an appropriate form of contraception for the intended purpose. We excluded individuals who reported that they did not use contraception for a specific reason (e.g. they wanted to become pregnant, were sterile, etc.).

Use of contraception during first sexual intercourse

1. Do you remember if you or your partner used any protection to avoid pregnancy during your first sexual intercourse?

2. And did you or your partner use any protection to avoid sexually transmitted disease, such as HIV/AIDS or hepatitis?

Yes / No

Use of contraception during sexual intercourse with a regular partner during the previous year

1. How often have you used contraceptive methods during sexual intercourse with your regular partner in the last twelve months?

2. And how often have you used methods to avoid sexually transmitted diseases, such as HIV/AIDS or hepatitis, during sexual intercourse with your regular partner?

Always or almost always / Sometimes, almost never or never.

Use of contraceptives during the most recent sexual intercourse with a casual partner (limited to the previous 12 months)

1. And the last time you had sexual intercourse with a casual partner, did you use any contraceptive method?

2. And the last time you had sexual intercourse with a casual partner, did you use any method to avoid sexually transmitted diseases, such as HIV/AIDS or hepatitis?

Yes / No

SEXUAL ABUSE

Unwilling sexual intercourse

Have you ever been forced to have sexual intercourse against your will?

Yes / No

Sexual abuse and/or rape

Have you ever experienced sexual abuse and/or rape?

Yes /No

Table 1. General satisfaction with sexual life, stratified by selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)
Age (years)										
16-24	560	87.71		1	1	508	89.76		1	1
25-34	1015	90.25		1.30 (0.94-1.78)	1.05 (0.74-1.47)	936	91.80		1.28 (0.90-1.82)	0.97 (0.67-1.41)
35-44	944	90.88		1.39 (1.00-1.94)	0.80 (0.53-1.19)	898	89.51		0.97 (0.70-1.36)	0.67 (0.44-1.03)
Total	2520	89.92	0.1403			2342	90.48	0.1991		
Educational level										
Less than primary	203	87.80		0.88 (0.53-1.48)	0.83 (0.48-1.43)	146	81.98		0.34 (0.20-0.58)	0.31 (0.18-0.53)
Primary	1008	89.30		1.03 (0.72-1.47)	0.95 (0.65-1.40)	828	89.40		0.64 (0.43-0.94)	0.59 (0.40-0.88)
Secondary	773	91.77		1.37 (0.92-2.04)	1.27 (0.84-1.92)	709	91.19		0.78 (0.52-1.18)	0.73 (0.48-1.11)
University	516	89.05		1	1	644	92.96		1	1
Total	2501	89.89	0.2146			2327	90.47	0.0005		
Parity										
No children	1506	87.13		1	1	1044	89.72		1	1
One or more children	1006	94.49		2.53 (1.82-3.52)	2.90 (1.97-4.25)	1294	91.07		1.17 (0.88-1.55)	1.52 (1.07-2.16)
Total	2512	90.07	<0.0001			2338	90.47	0.2733		

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column.

Table 2. Satisfaction at first sexual intercourse stratified by selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)
Age										
16-24	559	87.41		1	1	505	60.21		1	1
25-34	1007	86.26		0.90 (0.67-1.22)	0.82 (0.60-1.13)	928	58.27		0.92 (0.75-1.14)	0.92 (0.73-1.14)
35-44	935	85.14		0.82 (0.61-1.11)	0.82 (0.59-1.13)	885	64.23		1.19 (0.96-1.47)	1.16 (0.93-1.46)
Total	2501	86.04	0.4667			2318	60.97	0.0299		
Type of partner										
Regular	1164	87.21		1	1	1857	63.61		1	1
Casual	1201	86.03		0.90 (0.70-1.16)	1.04 (0.79-1.37)	413	50.03		0.57 (0.46-0.71)	0.65 (0.51-0.83)
Total	2365	86.61	0.4238			2270	61.14	<0.0001		
Country of origin										
Developed	2129	86.04		1	1	1972	61.98		1	1
Developing	348	87.05		1.09 (0.77-1.55)	1.00 (0.64-1.58)	320	53.64		0.71 (0.56-0.90)	0.66 (0.50-0.87)
Total	2477	86.18	0.6289			2291	60.82	0.0054		
Religion										
Catholic	1465	87.18		1.33 (1.00-1.78)	1.27 (0.94-1.73)	1560	62.21		1.03 (0.82-1.30)	1.05 (0.82-1.34)
Any other religion	181	89.81		1.73 (0.99-2.99)	1.94 (0.96-3.92)	127	62.14		1.03 (0.68-1.57)	1.37 (0.84-2.22)
Nonbeliever	532	83.63		1	1	382	61.45		1	1
Atheist	280	84.63		1.08 (0.71-1.63)	0.97 (0.63-1.50)	190	47.85		0.57 (0.40-0.82)	0.64 (0.44-0.93)
Total	2458	86.31	0.1014			2259	60.87	0.0024		

Table 2 (continued)

	MEN					WOMEN				
	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)
Reason										
Curious	1910	85.31		1.17 (0.58-2.34)	1.08 (0.50-2.31)	1251	58.20		0.70 (0.59-0.84)	0.82 (0.68-1.00)
In love	486	89.23		1	1	971	66.45		1	1
Risky	66	83.26		1.67 (0.79-3.52)	1.43 (0.64-3.23)	71	37.18		0.30 (0.18-0.50)	0.32 (0.18-0.55)
Total	2463	86.03	0.0884			2292	61.04	<0.0001		

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column.

Table 3. Satisfaction with sexual intercourse in the last year stratified by selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)
Age										
16-24	518	93.36		1	1	474	94.03		1	1
25-34	954	94.75		1.28 (0.83-1.99)	1.15 (0.73-1.81)	874	95.87		1.47 (0.90-2.39)	1.21 (0.72-2.02)
35-44	897	95.90		1.66 (1.04-2.66)	1.41 (0.82-2.40)	827	94.30		1.05 (0.67-1.65)	0.85 (0.51-1.41)
Total	2370	94.88	0.1196			2175	94.87	0.2171		
Type of partner										
Regular only	1651	96.21		1	1	1896	95.54		1	1
Casual only	328	92.58		0.49 (0.30-0.81)	0.52 (0.31-0.87)	95	93.29		0.65 (0.27-1.53)	0.57 (0.24-1.39)
Regular and casual	355	92.66		0.50 (0.31-0.81)	0.54 (0.32-0.91)	151	91.28		0.49 (0.27-0.89)	0.46 (0.25-0.85)
Total	2334	95.16	0.0016			2142	95.14	0.0481		
Country of origin										
Developed	2022	95.39		1	1	1852	95.19		1	1
Developing	326	91.37		0.51 (0.32-0.81)	0.49 (0.31-0.79)	296	92.68		0.64 (0.39-1.05)	0.57 (0.34-0.96)
Total	2348	94.84	0.0034			2148	94.84	0.0766		

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column.

Table 4. Satisfaction with sexual intercourse in last year stratified by type of partner and selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)
REGULAR PARTNER										
Age										
16-24	352	95.45		1	1	385	95.23		1	1
25-34	729	96.40		1.27 (0.69-2.37)	1.00 (0.54-1.85)	730	96.45		1.36 (0.76-2.44)	1.16 (0.63-2.12)
35-44	686	97.32		1.73 (0.88-3.38)	1.19 (0.55-2.59)	685	95.05		0.96 (0.56-1.66)	0.83 (0.47-1.46)
Total	1767	96.57	0.2909			1801	95.65	0.3835		
Type of partner *										
Regular only	1444	97.52		1	1	1664	95.77		1	1
Regular and casual	323	92.3		0.30 (0.18-0.52)	0.32 (0.18-0.58)	137	94.22		0.72 (0.33-1.54)	0.68 (0.31-1.50)
Total	1767	96.57	<0.0001			1801	95.65	0.3960		
Educational level										
Less than primary	133	96.73		1.03 (0.35-3.08)	1.19 (0.38-3.70)	112	92.45		0.30 (0.12-0.78)	0.33 (0.12-0.89)
Primary	729	96.66		1.01 (0.48-2.12)	1.02 (0.46-2.27)	652	94.38		0.42 (0.21-0.83)	0.41 (0.21-0.82)
Secondary	541	96.45		0.95 (0.43-2.07)	1.05 (0.44-2.55)	542	96.26		0.64 (0.30-1.36)	0.68 (0.32-1.42)
University	352	96.62		1	1	486	97.57		1	1
Total	1755	96.59	0.9968			1791	95.69	0.0216		
Country of origin										
Developed	1485	96.85		1	1	1523	95.99		1	1
Developing	266	94.79		0.59 (0.31-1.12)	0.60 (0.30-1.23)	254	93.22		0.57 (0.33-1.01)	0.51 (0.28-0.90)
Total	1751	96.54	0.1058			1777	95.60	0.0502		

Table 4 (continued)

	MEN					WOMEN				
	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)	N	% of satisfaction	p value	OR (95% CI)	aOR (95% CI)
CASUAL PARTNER										
Age										
16-24	248	86.77		1	1	95	79.03		1	1
25-34	265	88.29		1.15 (0.68-1.94)	1.20 (0.70-2.07)	99	81.82		1.19 (0.59-2.40)	1.20 (0.60-2.40)
35-44	159	87.68		1.08 (0.59-1.99)	1.24 (0.66-2.31)	45	78.05		0.94 (0.40-2.23)	0.96 (0.41-2.26)
Total	671	87.59	0.8774			239	80.01	0.8320		
Country of origin										
Developed	565	89.43		1	1	219	79.58		1	1
Developing	98	77.84		0.41 (0.24-0.73)	0.40 (0.23-0.71)	18	83.10		1.26 (0.40-4.00)	1.29 (0.41-4.00)
Total	663	87.72	0.0018			237	79.85	0.6909		

* This variable refers to satisfaction with sexual intercourse with the regular partner in the previous year; respondents were stratified according to whether they had sexual intercourse with a regular partner only, or with both a regular partner and additional casual partners.

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column for each type of partner.

Table 5. Use of contraception at first intercourse stratified by selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of use	p value	OR (95% CI)	aOR (95% CI)	N	% of use	p value	OR (95% CI)	aOR (95% CI)
Age										
16-24	458	82.87		1	1	415	83.76		1	1
25-34	829	70.50		0.49 (0.38-0.65)	0.44 (0.33-0.60)	759	76.49		0.63 (0.47-0.84)	0.50 (0.36-0.70)
35-44	769	52.02		0.22 (0.17-0.29)	0.18 (0.13-0.25)	694	63.25		0.33 (0.25-0.44)	0.25 (0.18-0.35)
Total	2055	66.34	<0.0001			1868	73.18	<0.0001		
Age first intercourse										
<16	554	52.78		0.46 (0.37-0.56)	0.45 (0.35-0.58)	268	56.56		0.42 (0.32-0.55)	0.41 (0.30-0.57)
≥16	1437	70.97		1	1	1567	75.70		1	1
Total	1991	65.91	<0.0001			1835	72.91	<0.0001		
Type of partner										
Regular	1006	71.45		1	1	1543	73.82		1	1
Casual	948	61.51		0.64 (0.52-0.78)	0.72 (0.57-0.91)	293	69.42		0.80 (0.61-1.06)	0.91 (0.65-1.28)
Total	1954	66.63	<0.0001			1836	73.11	0.1286		
Educational level										
<Primary	180	64.00		0.94 (0.64-1.38)	1.07 (0.66-1.73)	121	56.41		0.34 (0.22-0.53)	0.43 (0.26-0.73)
Primary	836	67.02		1.07 (0.82-1.40)	1.01 (0.73-1.38)	697	69.87		0.62 (0.46-0.82)	0.61 (0.45-0.85)
Secondary	636	66.85		1.06 (0.80-1.41)	1.04 (0.75-1.44)	566	76.15		0.85 (0.62-1.15)	0.96 (0.68-1.35)
University	390	65.50		1	1	469	79.02		1	1
Total	2043	66.41	0.8646			1854	73.23	<0.0001		
Total	2022	66.54	0.0132			1844	73.56	0.0008		

Table 5 (continued)

	MEN					WOMEN				
	N	% of use	p value	OR (95% CI)	aOR (95% CI)	N	% of use	p value	OR (95% CI)	aOR (95% CI)
Country of origin										
Developed	1740	68.95		1	1	1567	76.96		1	1
Developing	293	50.99		0.47 (0.36-0.61)	0.54 (0.38-0.76)	276	51.32		0.32 (0.24-0.41)	0.32 (0.23-0.45)
Total	2033	66.36	<0.0001			1844	73.12	<0.0001		
Religion										
Catholic	1218	66.47		0.93 (0.73-1.18)	1.02 (0.77-1.35)	1265	72.77		0.62 (0.44-0.85)	0.68 (0.47-0.98)
Any other	145	51.82		0.50 (0.34-0.75)	0.69 (0.41-1.17)	107	52.06		0.25 (0.15-0.41)	0.45 (0.24-0.82)
Nonbeliever	435	68.13		1	1	301	81.27		1	1
Atheist	223	72.00		1.20 (0.83-1.75)	1.26 (0.83-1.92)	146	77.34		0.79 (0.48-1.29)	0.71 (0.40-1.26)
Total	2021	66.38	0.0012			1819	73.32	<0.0001		
Reason										
Curious	1546	64.76		0.69 (0.53-0.89)	0.74 (0.54-1.00)	978	72.52		0.82 (0.66-1.03)	0.85 (0.66-1.10)
In love	416	72.77		1	1	808	76.22		1	1
Risky	61	69.25		0.84 (0.45-1.56)	0.74 (0.38-1.45)	58	53.98		0.37 (0.21-0.64)	0.43 (0.21-0.86)
Total	2022	66.54	0.0132			1844	73.56	0.0008		

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column.

Table 6. Use of contraception during the previous year stratified by type of partner and selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of use	p value	OR (95% CI)	aOR (95% CI)	N	% of use	p value	OR (95% CI)	aOR (95% CI)
REGULAR PARTNER										
Age										
16-24	371	85.78		1	1	417	85.14		1	1
25-34	815	72.91		0.45 (0.33-0.61)	0.50 (0.36-0.70)	807	77.48		0.60 (0.45-0.81)	0.47 (0.34-0.65)
35-44	796	66.67		0.33 (0.24-0.45)	0.43 (0.29-0.64)	789	72.26		0.45 (0.34-0.61)	0.33 (0.23-0.48)
Total	1982	72.81	<0.0001			2014	77.02	<0.0001		
Educational level										
Less than primary	147	63.04		0.64 (0.43-0.98)	0.59 (0.37-0.94)	121	62.01		0.38 (0.25-0.58)	0.33 (0.20-0.52)
Primary	797	73.59		1.05 (0.79-1.40)	0.96 (0.71-1.30)	728	74.66		0.68 (0.52-0.90)	0.57 (0.42-0.77)
Secondary	605	74.72		1.12 (0.83-1.51)	1.12 (0.81-1.53)	601	79.01		0.87 (0.65-1.18)	0.81 (0.59-1.11)
University	422	72.57		1	1	553	81.17		1	1
Total	1971	72.93	0.0552			2002	77.00	<0.0001		
Country of origin										
Developed	1681	74.03		1	1	1705	78.50		1	1
Developing	279	65.85		0.68 (0.51-0.90)	0.70 (0.51-0.95)	283	67.06		0.56 (0.42-0.74)	0.49 (0.37-0.67)
Total	1960	72.86	0.0071			1988	76.87	<0.0001		
Parity										
No children	1047	79.56		1	1	817	79.96		1	1
One or more children	932	65.40		0.49 (0.39-0.60)	0.63 (0.48-0.83)	1194	74.95		0.75 (0.60-0.93)	1.30 (0.98-1.74)
Total	1979	72.89	<0.0001			2010	76.98	0.0100		

Table 6 (continued)

	MEN					WOMEN				
	N	% of use	p value	OR (95% CI)	aOR (95% CI)	N	% of use	p value	OR (95% CI)	aOR (95% CI)
CASUAL PARTNER										
Age										
16-24	239	88.63		1	1	83	91.67		1	1
25-34	264	86.43		0.82 (0.48-1.38)	0.88 (0.50-1.55)	97	93.02		1.21 (0.41-3.58)	2.12 (0.69-6.51)
35-44	155	80.74		0.54 (0.31-0.94)	0.74 (0.39-1.41)	43	92.31		1.09 (0.28-4.30)	3.07 (0.72-13.14)
Total	658	85.89	0.0950			222	92.38	0.9424		
Social class										
Non manual	243	91.76		1	1	105	90.68		1	1
Manual	392	82.35		0.42 (0.24-0.72)	0.46 (0.27-0.81)	109	93.43		1.46 (0.54-3.94)	2.54 (0.86-7.51)
Total	636	85.95	0.0014			214	92.07	0.4498		
Parity										
No children	546	88.52		1	1	174	94.53		1	1
One or more children	108	74.10		0.37 (0.22-0.63)	0.46 (0.25-0.85)	49	84.73		0.32 (0.11-0.90)	0.17 (0.05-0.51)
Total	653	86.14	0.0002			222	92.38	0.0242		

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column for each type of partner.

Table 7. Sexual abuse stratified by selected variables, Spain, 2009.

	MEN					WOMEN				
	N	% of abuse	p value	OR (95% CI)	aOR (95% CI)	N	% of abuse	p value	OR (95% CI)	aOR (95% CI)
UNWILLING SEXUAL INTERCOURSE										
Age										
16-24	556	4.02		1	1	506	4.68		1	1
25-34	995	4.92		1.23 (0.75-2.01)	1.25 (0.75-2.08)	916	6.16		1.34 (0.84-2.12)	1.47 (0.91-2.37)
35-44	934	4.18		1.04 (0.62-1.73)	1.08 (0.64-1.84)	884	7.93		1.75 (1.13-2.73)	2.10 (1.32-3.33)
Total	2485	4.44	0.6403			2306	6.52	0.0492		
Educational level										
<Primary	197	5.16		1.56 (0.68-3.58)	1.47 (0.62-3.49)	145	13.65		3.77 (2.01-7.08)	3.60 (1.85-7.04)
Primary	992	4.41		1.33 (0.72-2.43)	1.37 (0.74-2.54)	813	6.27		1.59 (0.96-2.63)	1.81 (1.08-3.04)
Secondary	763	5.14		1.56 (0.84-2.88)	1.35 (0.72-2.52)	696	7.74		2.00 (1.21-3.30)	2.05 (1.23-3.44)
University	514	3.36		1	1	636	4.03		1	1
Total	2466	4.47	0.5162			2290	6.56	0.0002		
Country of origin										
Developed	2121	3.83		1	1	1951	5.62		1	1
Developing	340	8.22		2.25 (1.41-3.59)	2.18 (1.34-3.54)	326	11.52		2.19 (1.46-3.28)	2.16 (1.43-3.27)
Total	2461	4.44	0.0005			2277	6.47	0.0001		

Table 7 (continued)

	MEN					WOMEN				
	N	% of abuse	p value	OR (95% CI)	aOR (95% CI)	N	% of abuse	p value	OR (95% CI)	aOR (95% CI)
SEXUAL ABUSE AND/OR RAPE										
Age										
16-24	554	0.72		1	1	509	4.21		1	1
25-34	997	1.32		1.83 (0.63-5.31)	1.77 (0.62-5.10)	921	5.64		1.36 (0.84-2.20)	1.43 (0.87-2.34)
35-44	934	2.46		3.47 (1.29-9.30)	3.54 (1.32-9.53)	887	7.78		1.92 (1.21-3.03)	2.16 (1.34-3.46)
Total	2486	1.61	0.0247			2317	6.14	0.0184		
Country of origin										
Developed	2121	1.39		1	1	1960	5.45		1	1
Developing	340	3.10		2.27 (1.05-4.88)	2.34 (1.09-5.01)	328	10.34		2.00 (1.31-3.04)	2.11 (1.38-3.22)
Total	2462	1.63	0.0316			2288	6.15	0.0010		

The totals of each variable do not coincide because of missing values.

aOR refers to the OR adjusted for all the variables included in the column for each type of abuse.

3.2. Paper 2

Ruiz-Muñoz D, Pérez G, Garcia-Subirats I, Díez E. Social and economic inequalities in the use of contraception among women in Spain. J Womens Health 2011;20(3):403-11.

3.3. Paper 3

Ruiz-Muñoz D, Pérez G, Gotsens M, Rodríguez-Sanz M. Regional inequalities in the use of contraception in Spain: a multilevel approach. Health Place 2012;18(2):408-14.

3.4. Paper 4

Ruiz-Muñoz D, Pérez G. Women's socioeconomic factors associated to the choice of contraceptive method in Spain. Gac Sanit. 2013; 27(1): 64-7.

3.5. Paper 5

Pérez G, **Ruiz-Muñoz D**, Gotsens M, Casals-Cases M, Rodríguez-Sanz M. Social and economic inequalities in induced abortion in Spain as a function of individual and contextual factors. (Under review).

Social and economic inequalities in induced abortion in Spain as a function of individual and contextual factors

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Abstract

Background and objectives: Socio-economic position of women who have an induced abortion has been explored extensively, but without taking contextual factors into account. The objective was to describe socio-economic inequalities in the rate of induced abortion in Spain in 2001, jointly evaluating the effects of both regional and individual socio-economic characteristics.

Methods: A cross-sectional study with a multilevel approach was carried out among women who were resident in Spain in 2001, considering the hierarchical structure of relevant factors. Analyses were carried out at individual and regional level. We fit Poisson regression models to calculate adjusted relative risks (aRR) of induced abortion and 95% confidence intervals (CI).

Results: The estimated abortion rate was 6.26 per 1,000 women aged 20-49 years. Induced abortion was more frequent among younger women (aRR=1.55 for women aged 20-24 years, compared to those aged 25-34 years) and those with less than primary education (aRR=2.25 compared to women with university studies). Women residing in regions with lower public spending on non-university education (aRR= 0.83, 95%CI: 0.70-0.98) and a higher percentage of non-EU immigrants (aRR= 1.06, 95%CI: 1.02-1.10) were also more likely to have had an induced abortion.

Conclusions: The broad variability in induced abortion rates between regions suggests the involvement of contextual socio-economic factors, and these should be taken into

account in addition to individual socio-economic characteristics. Some of these factors are cultural and others are related to public policies concerning the prevention of unintended pregnancies and access to abortion services.

Introduction

An important requisite for a woman's active participation in society is their recognized right to determine whether and when to have children[1]. In general, women spend most of their reproductive life (an average of 30 years) trying to avoid pregnancy rather than trying to become pregnant. Contraception is widely used in European countries[2], although with clear variations between countries[3]. Condoms and oral contraceptive pills are the most frequently used methods of contraception and both rely on consistent use in order to be effective. Unintended pregnancies usually occur as a result of forgetting to take the pill, failing to negotiate condom use, or failing to choose or use an effective method[4,5].

Unintended pregnancy continues to represent up to one third of pregnancies in some European countries[6], many of which end in induced abortion, regardless of its legal status. A woman's decision to end an unintended pregnancy is most commonly influenced by her perception that having children will change her life, interfere with her education or career, create excessive economic pressure, or harm her relationship with her male partner[7].

Unlike in some European countries[8], in Spain official estimates of the rate of unplanned pregnancies are unavailable. However, this issue has been addressed in two separate studies, which estimated that 41% of all pregnancies are unintended, of which 60% end in abortion[9], and that 32% of pregnancies among women aged 40-50 years are unintended[10]. These rates are similar to those observed in other European countries. Furthermore, an upward trend in rates of abortion has been observed in young girls and those from disadvantaged social classes[11].

Social and economic inequalities that affect family planning lead to unequal prospects of preventing unintended pregnancies as a function of women's socio-economic position[12]. Previous studies have assessed the role of educational level, social class, occupation[13], and immigrant status[14] on induced abortion.

The contextual, social and economic characteristics of the area in which a person lives appear to influence health in various ways[15,16]. As far as we are aware, only one other

study, which was carried out in the UK, examined reported abortion rates at the district level[17] .

Following the end of the dictatorship in 1978, Spain was divided into 17 regions called Autonomous Communities (ACs) which represent the highest political division established under the Spanish Constitution, and between which social, cultural and economic differences are evident. In addition to Spain's nationally applicable laws, ACs also have their own regional laws and government competencies. Based on the conceptual framework of the Commission to reduce health inequalities in Spain[18], we hypothesized that contextual (AC-level) social and economic factors influence the decision to have an abortion.

The aim of the present study was to describe socio-economic inequalities in the rates of induced abortion among women living in Spain in 2001, and to evaluate the effects of individual and regional socio-economic characteristics.

Methods

Design, study population and information sources

A cross-sectional population-based study was carried out using a multilevel approach. The study population consisted of all women aged between 20 and 49 years who were resident in Spain in 2001. Analyses were carried out at individual and regional (AC) level. The source of information on induced abortions was the register of Voluntary Interruption of Pregnancy maintained by the Spanish Ministry of Health, Social Services and Equality. Since 1985, authorized health centres have been required by law to complete an individual anonymous questionnaire for each induced abortion they perform. These procedures are registered within each AC, and then reported to the central register, which therefore contains data on all induced abortions carried out within Spanish territory since 1985. Induced abortions (N = 59,743) performed in 2001 under the third legal condition of the 1985 Act on decriminalization of abortion under certain circumstances (Law 9/1985: "risk to the mother's physical or mental health") were included in this study.

Contextual data were retrieved from various sources: the 2001 Population Census and 2005 Labour Force Survey from the National Statistics Institute (INE); the 2006 Fertility Survey from the Centre for Sociological Research (CIS); and the draft report on the National Strategy for Sexual and Reproductive Health from the Spanish Ministry of Health, Social Services and Equality[19].

Indicators and variables

The dependent variable was number of induced abortions per 1,000 women aged between 20 and 49 years. The denominators on which these rates are based were obtained from the last national population census (2001), which therefore requires the numerator of the abortion rate to be based on data from 2001.

Independent variables at individual level were: age group (20-24, 25-34 or 35-49 years), level of education (no or incomplete primary education (<10 years of primary schooling); complete primary (10 years of schooling); secondary (12 years of schooling) and university (more than 12 years of schooling.

We explored structural aspects of the welfare state[18], such as public policy on education (public expenditure on non-university education as a percentage of GDP in 2001) and housing (average cost of house ownership as a percentage of mean net household income in 2000). We also explored other regional social and economic characteristics related to productivity and reproduction, such as: the percentage of unemployed individuals who are their household's main earner (2001); the percentage of men in the manual social class (2004); the percentage of women whose main activity is unpaid home-based work, such as housework or childcare (2006); average number of children, defined as the number of children born to a woman throughout reproductive life, between 15 and 49 years of age (2006); percentage of non-EU immigrants according to municipal registers (2005); percentage of women who are practicing Catholics (2006); and level of public funding devoted to barrier contraception (condom).

Statistical analysis and modelling strategy

We performed individual-level descriptive analyses. Rates of induced abortion per 1,000 women were estimated as a function of individual and regional characteristics. Spearman correlation coefficients were calculated between dependent variables and contextual variables and among the contextual variables themselves in order to assess their relationships and degrees of mutual association.

Multilevel Poisson regression models were fitted to jointly analyse individual and contextual characteristics. Adjusted Rate Ratio (aRR) and its 95% confidence interval (95%CI) (fixed coefficients) and variability in the rate of abortion between regions (random intercept) are reported. The multilevel analysis consisted of fitting a basic model adjusted for individual variables (Model 1) and a series of nested models (Models 2-5), which were fit by adding one or more contextual variables to the basic model (see Table 3). The proportional reduction in random variation of the intercept

with respect to Model 1 was calculated for Models 2-5 as an indicator of the variance explained by the contextual variable(s)[20].

All statistical analyses were performed using Stata v9.0[21], and HLM v6.02[22].

Results

The overall abortion rate in Spain in 2001 was 6.3 per 1,000 women aged 20-49 years which varied markedly between ACs from 3.5 to 10.5 per 1,000 women (Table 1 shows the distribution of regional variables).

The induced abortion rate was positively correlated with the average cost of house ownership as a percentage of mean net household income, the percentage of unemployed individuals who are the main earner, the percentage of non-EU immigrants and the average number of children, and was negatively correlated with the level of public expenditure on non-university education as a percentage of GDP, the percentage of men in the manual social class, the percentage of women whose main activity is unpaid home-based work and the percentage of women who are practicing Catholics (Table 2).

The induced abortion rate differed as a function of age and level of education, being higher in younger women (12.2 per 1,000) and those with less than primary education (7.7 per 1,000) (Table 3). After adjustment for individual variables, multi-level modelling revealed marked variability in aRR of induced abortion between regions, even after accounting for individual socio-economic differences (Model 1, Table 3). Women living in regions with partial public funding of barrier contraception (Model 2, aRR=1.40 95%CI: 0.99-1.96), lower public expenditure on non-university education (Model 3, aRR=0.72, 95% CI95%CI: 0.61-0.85) or a high percentage of non-EU immigrants (Model 4, aRR=1.08; 95%CI: 1.05-1.12) were more likely to have had an induced abortion (Table 3).

Regional variability in induced abortion rates was best captured by the percentage of non-EU immigrants (72% reduction in variance with respect to the basic model), although this variability remained significant for all three models (Models 2-4, Table 3). None of the other contextual variables examined could explain as much of the model variance as these three (data not shown).

The greatest reduction in variance was observed for Model 5 (85%, Table 3), which includes public expenditure on non-university education as a percentage of GDP and percentage of non-EU immigrants. Women living in regions with lower public

expenditure on non-university education (adjusted RR=0.83, 95%CI: (0.70-0.98) and a higher percentage of non-EU immigrants (adjusted RR= 1.06, 95%CI: (1.02-1.10) were more likely to have an induced abortion. Thus, in this model the variability between regions was statistically significant despite the inclusion of more variables.

Discussion

This study shows that there is marked regional variability in rates of induced abortion in Spain, and that these differences are partly modulated by regional socio-economic factors that act independently of individual socio-economic characteristics. As far as we are aware, ours is the first study to describe this marked effect of a region's socio-economic status on induced abortion rate. Our results show that induced abortion is more frequent in regions with a high percentage of non-EU immigrants, those with limited public expenditure on non-university education as a percentage of GDP, or limited public expenditure on barrier methods of contraception. However, rates of induced abortion are also strongly correlated with the average cost of house ownership as a percentage of mean net household income and the average number of children per female. Further, regions with lower induced abortion rates generally have a higher percentage of men in the manual social class, a higher percentage of women whose main activity is unpaid home-based work, and a higher percentage of women who are practicing Catholics.

Spain has undergone two important changes in the composition of its labour force that have led to important social changes and a demand for adaptation of the labour market: the incremental incorporation of women into the labour market since the early 1980's, and the recent influx of immigrants from economically underprivileged countries. In both Spain and most other EU countries, the increased presence of women in the labour market has not been accompanied by an equitable distribution of the domestic workload, such as housework and child care[23]. Employed women with a higher level of education have been found to be most likely to postpone child-bearing, followed by less educated employed women and unemployed women, while women whose main activity is unpaid home-based work generally have children earlier than employed women[24]. In the absence of policies focused on reconciling the differences between paid and unpaid work and/or on addressing precariousness in the labour market, women often delay the birth of their first child until they achieve their intended level of education and subsequent stable employment.

In the labour market, unemployed women are not inactive. In fact, the prospect of unemployment can discourage women from continuing their pregnancies[25], especially those from disadvantaged social classes[26]. In this context, many Spanish women may decide to interrupt their pregnancy in order to remain active in the labour market. Moreover, Spain's social welfare system provides four months of maternity leave and an income level that depends on the woman's previous participation in the workforce. The relatively high fertility of Scandinavian countries compared with other developed countries may reflect the favourable conditions for maternity leave offered by their welfare systems, which could provide an incentive for motherhood among women with a high level of education and a high income prior to becoming pregnant. This is consistent with the observation that a low level of education has been found to be associated with fewer childbirths and a higher frequency of induced abortion in Norway[27].

The non-EU immigrants included in this study were found to be mainly of working age (16-64 years), indicating that these individuals leave their countries of origin for economic reasons. Most immigrants were from Latin America, Eastern Europe and North Africa, and, while having better living conditions than in their country of origin, immigrants from poor countries still had greater job insecurity and poorer living conditions than natives[28]. Nonetheless, regions with a high percentage of non-EU immigrants also generally had a high level of work activity.

As a result of the culture of property speculation in Spain, house prices rose during the period of this study, leading to an aggravation of social problems related to the affordability of housing and affecting individuals' right to a home, especially younger individuals or those with a low income[29]. Moreover, housing expenditure was found to vary from 20% to 30% between regions, with consumers in the regions of Madrid, the Basque Country, Aragon and Catalonia spending most on housing[30]. These are also the regions with the highest rates of induced abortion. Education determines access to a particular occupation and thereby the level of income a person is likely to achieve. Education is also related to cultural level and influences behaviour12. Public expenditure on education in Spain is among the lowest in the Organization for Economic Cooperation and Development (OECD), and lies below that of other countries with similar GDP[31]. In 2008, Iceland devoted 7.4% of its GDP to education whereas Spain assigned only 4.3%, despite the fact that both countries form part of the OECD. Non-university education is aimed at improving young people's education and

their chances of finding their first job after completing their mandatory education. The efficiency with which this is achieved in Spain is limited because it has the second highest percentage of students who leave school before completing their mandatory education[32]. These figures reflect national and regional education policies, which have been driven by a process of decentralization, resulting in the transfer of public budgets to the ACs in the form of tax-sharing block grants, and ACs decide how to invest the budget.

Previous studies have reported a relationship between health care access and abortion rates as a result of the fact that cost may deter many women from having an abortion, especially young unmarried women, who are more likely to have limited resources[4,7]. Although all Spanish residents have access to universal health care, induced abortion, oral contraception[33], and IUD were not covered by the National Health Service during the period of this study. However, induced abortion was covered by some regional public healthcare systems, leading to inequalities between territories.

In our study, regions with higher percentages of practicing Catholic women (which is the majority religion in this country) generally had a lower rate of induced abortion. A number of researchers have suggested that young women who are actively religious are less likely to have premarital sex and generally start having sex later than less religious women. This may limit actively religious women's likelihood of become pregnant before marriage, which is the most common situation in which women find themselves when considering terminating their first pregnancy[34]. Moreover, a religious context (e.g. public opinion or anti-abortion attitudes) could influence women's attitudes and behaviours in relation to abortion[35]. Further, behaviour in relation to abortion appears to be largely driven by clinical service availability and public abortion policies, which have been suggested by previous research to be partly driven by religious attitudes and beliefs[36].

The contextual factors described above are likely to be related to cultural, traditional and political factors that determine public policies concerning the prevention of unintended pregnancies and access to pregnancy termination.

In addition, our study showed that the rate of induced abortion in Spain lies in the middle of the range of European countries, with figures similar to those in Sweden[37] and England[38]. It also confirms that individual socio-economic characteristics are strongly associated with the rate of induced abortion in Spain, independently of contextual socio-

economic factors: younger and less privileged women are more likely to have an abortion[27].

We note the following limitations in our study. This study has been carried out using data from the registry of induced abortions, a type of register that generally seem to be less biased than population-based interviews, which are often subject to recall bias[39] and under-reporting[40] (interviewees may be reluctant to report an abortion), and this in turn may depend on socio-economic factors[41]. However, the information available in this type of registry may be more limited; for example information about socio-economic position, such as the social class of the women or her partner, was unavailable. On the other hand, educational level is widely considered to be a valid indicator of socio-economic position and may be especially useful for our study as it is informative regardless of age or working circumstances[42]. In excluding women under twenty, we have also excluded the most vulnerable population, although some of these women have yet to complete their education.

In relation to the period of study, we only used data from 2001, the year of the last census of the Spanish population, and the only source of information from which to compute the denominators of abortion rates. We used information on regional context from different years, which appeared to be stable up until 2008, the beginning of the current economic crisis.

In relation to regional inequalities, ACs may be considered to be "large" areas with internal heterogeneity that could affect women's family planning. However, political decision-making and action in relation to the labour market, public welfare and access to health care services fall within the jurisdiction of the Acs. Inequalities at this level may have significant consequences for women's living conditions. On the other hand, it seems likely that induced abortion rates are influenced by more local factors related to neighbourhood and social network, which were not accounted for in this study.

In conclusion, individual socio-economic characteristics are strongly associated with induced abortion rates in Spain, even when regional socio-economic context is taken into account. Induced abortion is more frequent in regions with a high percentage of non-EU immigrants, low levels of public expenditure on non-university education, or a lack of public funding devoted to barrier contraception. Rates of induced abortion are also strongly correlated with the average cost of house ownership as well as the average number of children. In contrast, regions with lower induced abortion rates generally have a higher percentage of men in the manual social class, a higher percentage of

women whose main activity is unpaid home-based work, and a higher percentage of women who are practicing Catholics.

Key points:

- In Spain, exist marked regional variability in induced abortion rates
- Regional factors modulate abortion rates independently of individual socio-economic characteristics.
- Some of these regional factors are related to cultural and traditional characteristics, but also political factors that determine public policies concerning the prevention of unintended pregnancy and access to pregnancy termination services.

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Table 1. Induced abortion rates and regional socio-economic characteristics, stratified by Autonomous Community, Spain.

Autonomous Community	Induced abortion rate per 1,000 women aged 20-49 years, 2001	Public expenditure on non-university education as a % of GDP, 2001	% unemployed individuals who are the main earner, 2001	% men in the manual social class, 2004	Mean number of children per woman, 2006	Average cost of house ownership as a % of mean net household income, 2000	% of non-EU immigrants, 2005	% women whose main activity is unpaid home-based work, 2006	% women who are practicing Catholics, 2006	Level of public funding devoted to barrier contraception (condom)
Basque Country	3.50	3.28	23.80	56.60	1.23	21.80	2.60	30.20	32.97	Total
Extremadura	3.57	5.53	24.30	61.10	1.31	21.70	1.44	39.79	47.16	Unknown
Cantabria	3.59	2.81	15.60	61.30	1.16	20.70	3.06	31.51	34.70	Partial
Galicia	3.59	3.66	21.20	58.30	1.03	22.30	1.92	28.22	46.00	Total
Navarra	3.80	2.97	28.10	61.00	1.39	21.60	6.61	30.39	50.35	Total
Castilla-La Mancha	4.04	4.33	19.80	64.40	1.34	22.70	5.38	44.08	44.66	Unknown
Castilla and Leon	5.34	3.20	20.00	60.60	1.11	24.40	3.06	37.76	52.04	Total
Canary Islands	5.45	3.60	24.00	54.50	1.21	22.10	6.88	23.72	42.94	Total
La Rioja	6.39	2.58	27.00	66.90	1.31	23.80	9.02	25.62	39.55	Partial
Asturias	6.55	3.22	15.80	61.50	0.99	22.30	2.04	33.48	39.74	Total
Andalusia	6.57	3.69	25.70	57.10	1.51	21.50	3.55	36.71	33.19	Total
Valencia	6.76	3.01	30.40	59.90	1.39	22.80	9.11	28.65	35.20	Partial
Aragon	8.07	2.64	22.80	55.20	1.32	23.30	6.40	35.33	41.74	Partial
Catalonia	8.74	2.20	28.70	54.00	1.47	22.70	9.26	21.61	24.77	Total
Murcia	8.87	3.67	24.30	60.20	1.64	23.70	11.06	27.91	36.36	Partial
Madrid	9.49	1.87	25.30	42.40	1.41	24.20	11.22	23.99	33.83	Partial
Balearic Islands	10.48	2.51	32.20	51.70	1.40	22.80	10.92	24.38	31.10	Partial

Table 2. Spearman correlations between induced abortion rate and regional socio-economic characteristics, Spain.

	Induced abortion rate per 1,000 women aged 20-49 years, 2001	Public expenditure on non-university education as a % of GDP, 2001	% unemployed individuals who are the main earner, 2001	% men in the manual social class, 2004	Mean number of children per woman, 2006	Average cost of house ownership as a % of mean net household income, 2000	% of non-EU immigrants, 2005	% women whose main activity is unpaid home-based work, 2006	% women who are practicing Catholics, 2006
Induced abortion rate per 1,000 women aged 20-49 years, 2001	1								
Public expenditure on non-university education as a % of GDP, 2001	-0.502*	1							
% unemployed individuals who are the main earner, 2001	0.511*	-0.378	1						
% men in the manual social class, 2004	-0.517*	0.387	-0.420	1					
Mean number of children per woman, 2006	0.640**	-0.167	0.698**	-0.398	1				
Average cost of house ownership as a % of mean net household income, 2000	0.593*	-0.405	0.157	-0.158	0.166	1			
% of non-EU immigrants, 2005	0.811**	-0.564*	0.646*	-0.458	0.728**	0.554*	1		
% women whose main activity is unpaid home-based work, 2006	-0.485*	0.568*	-0.522*	0.573*	-0.273	-0.256	-0.667**	1	
% women who are practicing Catholics, 2006	-0.483*	0.436	-0.411	0.509*	-0.494*	0.018	-0.443	0.505*	1

* p – value < 0.05; ** p – value < 0.01

Table 3. Multilevel association between induced abortion rate, according to individual and regional socio-economic characteristics, Spain, 2001.

	Induced abortion rate per 1,000 women aged 20-49 years, 2001	Model 1	Model 2	Model 3	Model 4	Model 5
		aRR (95%CI)	aRR (95%CI)	aRR (95%CI)	aRR (95%CI)	aRR (95%CI)
Age group						
20-24	12.2	1.55 (1.38-1.74)	1.55 (1.38-1.74)	1.55 (1.38-1.74)	1.55 (1.38-1.74)	1.55 (1.38-1.74)
25-34	8.1	1	1	1	1	1
35-49	2.4	0.28 (0.24-0.32)	0.28 (0.24-0.32)	0.28 (0.24-0.32)	0.28 (0.24-0.32)	0.28 (0.24-0.32)
Level of education						
Less than primary	7.7	2.25 (1.91–2.64)	2.25 (1.92-2.64)	2.27 (1.93-2.67)	2.23 (1.90-2.63)	2.26 (1.92-2.66)
Primary	6.1	1.52 (1.31–1.76)	1.52 (1.31-1.76)	1.53 (1.32-1.77)	1.51 (1.31-1.75)	1.53 (1.32-1.77)
Secondary	5.9	1.13 (0.99–1.33)	1.14 (0.99-1.33)	1.14 (0.99-1.33)	1.14 (0.98-1..33)	1.14 (0.99-1.33)
University	4.5	1	1	1	1	1
Level of public funding devoted to barrier contraception (condom)						
Total			1			
Partial			1.40 (0.99-1.96)			
Unknown			0.65 (0.37-1.12)			
Public expenditure on non-university education as a % of GDP, 2001 (*)				0.72 (0.61-0.85)		0.83 (0.70-0.98)
% of non-EU immigrants, 2005 (*)					1.08 (1.05-1.12)	1.06 (1.02-1.10)
Variance (p-value)		0.12295 (<0.001)	0.07177 (<0.001)	0.04416 (<0.001)	0.03490 (<0.001)	0.01804 (0.003)
% reduction in variance			41.63 %	64.08%	71.61%	85.33%

Public expenditure on non-university education as a % of GDP and % of non-EU immigrants are continuous variables
Model 1: abortion risk ~ age + level of education; Model 2: abortion risk ~ age + level of education + public funding on contraception; Model 3: abortion risk ~ age + level of education + public funding on university education; Model 4: abortion risk ~ age + level of education + % non-EU immigrants; Model 5: abortion risk ~ age + level of education + public funding on university education + % non-EU immigrants

4. DISCUSSION

The state of sexual and reproductive health in Spain is quite good. Levels of satisfaction with sexual relationships and sexual life are high, as are levels of use of contraception during first sexual intercourse and more recent intercourse, whereas rates of induced abortion are similar to those of other European countries, and sexual abuse rates do not exceed those of other developed countries. However, socioeconomic inequalities are detected in almost all the aspects studied. It is important to highlight that these socioeconomic inequalities present in the different aspects of sexual and reproductive health are not only due to individual factors. Contextual socioeconomic factors are clearly influencing sexual and reproductive health in Spain, and this is possibly one of the main contributions of this dissertation.

In general, findings reported in the papers support our hypotheses and are in line with previous studies, except for the direction of the influence of socioeconomic contextual factors, which varies depending on the issue studied. These findings also help to show the importance of factors highlighted in our conceptual framework such as socioeconomic factors influencing sexual and reproductive health in Spain at different levels.

4.1. State of sexual and reproductive health in Spain

4.1.1. Sexual satisfaction

Men and women in Spain reported high and similar rates of satisfaction with their sexual lives (90%) and sexual intercourse during the previous year, being more satisfied after sexual intercourse with a regular partner (~96%) than with a casual partner (80% women; 88% men). Nevertheless, women are somewhat less satisfied than men after their first sexual intercourse (61% women; 86% men). The levels of sexual satisfaction with current sexual intercourse are higher in our study than those reported previously in other countries (Barrientos and Paez, 2006; Philippsohn and Hartmann, 2009). It has to be mentioned that sexual satisfaction is not an issue commonly studied from a point of view of public health and population-based studies, especially regarding satisfaction with first sexual intercourse, and we have not found any studies with which to compare our results to.

Concepts of satisfaction with sexual life and satisfaction with sexual intercourse in our study appear not to be influenced by the same factors. Satisfaction with sexual life seems to be a broader concept, more linked to the kind of relationships people have had in their lives, whereas satisfaction with sexual intercourse seems to be more focused on sexual enjoyment and pleasure with specific sexual practices (Fahs and Swank, 2011; Philippsohn and Hartmann,

2009).

4.1.2. Sexual abuse

About 1% of men and women declared having been forced as the main reason for having had their first intercourse. This does not mean that they were physically forced, as the question was not formulated in this sense, but in some way they felt that the reason for their first intercourse was different from really wanting to, and this is important to highlight.

The prevalence of sexual abuse during their lifetime was relatively low in this study. Approximately 4% of men and 6% of women declared having had sexual intercourse against their will at some point in their life, and about 2% of men and 6% of women had been victims of sexual abuse and/or rape. It is difficult to study sexual abuse in isolation, as it is usually presented in combination with physical and psychological violence (Alsaker et al., 2012; Garcia-Moreno et al., 2006), so studies tend to treat intimate partner violence (IPV) as a whole. It has been seen for example how usually sexual assault cases attended in referral hospitals are related with IPV (Grau Cano et al., 2011). There are quite a lot of studies in Spain about this issue, showing that approximately one in ten women suffered some type of IPV in the previous year (Ruiz-Pérez et al., 2006; Vives-Cases et al., 2009; Vives-Cases et al., 2010; Vives-Cases et al., 2011; Zorrilla et al., 2010).

4.1.3. Use of contraception

The use of contraception, and thereby the practice of safe sex, is quite prevalent in Spain. Approximately 70% of women and 66% of men used contraception during their first intercourse. Regarding the use of contraception in more recent intercourse, about 73% of men and 77% women used contraception in recent intercourse with a regular partner, whereas in the case of intercourse with a casual partner these prevalences rise to 86% for men and 92% for women. These rates are quite similar to those of other European countries (Manning et al., 2000; Skouby, 2004; Spinelli et al., 2000; Svare et al., 2002)

During their first sexual intercourse women mostly reported the use of a condom, as has been previously reported in other European countries (Cibula, 2008; Darroch et al., 2001; Svare et al., 2002). Those reporting other methods mostly used the pill, while the rest of methods are practically not used. Condom is also the method most used in more recent intercourse. The use of other reversible methods such as the pill or IUD, and especially permanent methods, increase with age, as has been described previously (Lete et al., 2007c). Among younger people, condom use is more prevalent both during first intercourse and more recent intercourse, possibly as a result of "safe sex" campaigns implemented to prevent STI especially targeting youth (Lete et al., 2007c; Spinelli et al., 2000), and these campaigns may also explain why its use is higher than in other European countries (Cibula, 2008; Skouby, 2004; Spinelli et

al., 2000).

4.1.4. Induced abortion

The abortion rate in Spain in 2001 was 6.3 per 1,000 women aged 20-49 years. Between 2001 and 2010 the abortion rate in the country rose to 11.5 per 1,000 women aged 15-44, and in general increased in all age groups but particularly among the youngest (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2010). In spite of this increase, current rates of abortion in Spain are not especially high and fall midway in the range of European countries (Gissler et al., 2012; Sedgh et al., 2012).

As mentioned previously, the abortion law in Spain has changed recently. The Law of Sexual and Reproductive Health and Voluntary Termination of Pregnancy of 2010 (BOE, 2010) states that a woman can interrupt her pregnancy during the first 14 weeks of gestation. This should not affect the abortion rate. It has been shown that less restricted access to abortion in a country does not imply a higher rate of abortion in comparison to when more restricted laws were in force (Gissler et al., 2012; Peiro et al., 2001).

4.2. The influence of individual socioeconomic factors in sexual and reproductive health in Spain

The results of the different papers of this dissertation show that in Spain there are socioeconomic inequalities at individual level in almost all the different aspects studied regarding sexual and reproductive health. Individual socioeconomic factors maintain their strong association with the issues studied even when contextual socioeconomic factors are taken into account. People of lower socioeconomic position tend to have less satisfactory and more unsafe sexual intercourse, suffer more sexual abuse, and are more likely to have an induced abortion.

The only issue for which we did not detect socioeconomic inequalities was in the choice of contraceptive method. Once a woman used contraception, the method used appeared to be more influenced by her stage of life than by socioeconomic factors. It is important to highlight that no individual socioeconomic factor appeared to be associated to the choice of an ineffective contraceptive method, contrary to what we had hypothesized.

The different socioeconomic factors used in this dissertation as indicators of socioeconomic position are discussed below in relation to their influence over the aspects of sexual and reproductive health studied. It has to be highlighted that most of these indicators are interrelated, so that while influencing sexual and reproductive

health outcomes they are at the same time influencing each other.

4.2.1. Gender

Sexual and reproductive health is one of the issues where both sex and gender matter (Krieger, 2003). It is clear that neither sexuality nor reproduction are lived in the same way depending on our sex; basically, they are highly conditioned by our biological male or female reproductive system. But sexual and reproductive health is also an issue that has been socialized to a high degree by society. Men and women have different sexual and reproductive experiences because of their sex and their gender (Doyal, 2001).

Unfortunately, it was only possible to include both women and men as the study population in the first paper of this dissertation. In the others, we only have the women's side of the story, due to the population targeted by the sources of information.

Regarding the use of contraception, we saw that women used contraception more than men, both during their first sexual intercourse and sexual intercourse of the previous year, but these differences were not important. These results are interesting because studies in the literature usually only investigate contraception in women, in couples, or in the case of men, mainly in men who have sex with men, but not in both sexes of the same population.

With respect to sexual satisfaction, men and women were reasonably equally satisfied with their sexual life and sexual intercourse they had had the previous year with a regular partner. Fewer women than men had had sexual intercourse with a casual partner during the previous year, and if they had, these experiences had been less satisfactory. But the greatest differences appeared in satisfaction after their first sexual intercourse. As we mentioned previously, men declared having been satisfied in 86% of cases, in contrast to only 61% of women. We have not found any other studies dealing with sexual satisfaction after first intercourse, but these results could be related to different attitudes and perceptions that young men and women have regarding sexual intercourse, as differences have been reported for example in situations of non-consensual sex involving risky behaviours (Gunby et al., 2012). In fact, we see a relation between a risky reason for having the first intercourse and less satisfaction and less contraception use in women but not in men.

In relation to sexual abuse, especially rape, this is more common among women than men not only in our study, but in all studies and countries, and in fact it is sometimes called gender-based violence as it maintains and perpetuates gender inequality that puts women and girls in subordinate positions (Garcia-Moreno and Stöckl, 2009; Kishor and Johnson, 2004).

Nevertheless, perhaps the most surprising finding regarding gender in our study, is that men are less affected by the socioeconomic

factors studied than women, even though this had been seen previously in certain specific aspects (Barrientos and Paez, 2006).

4.2.2. Age

Age is not only a biological factor, since at the same time it influences how people are positioned in society. In this sense, especially younger people and the elderly constitute social groups that can be more vulnerable in the face of certain situations, and they can at the same time have difficulties getting access to certain health care services (Towsend et al., 1998).

The only aspect studied in this dissertation which appears not to be related to age is sexual satisfaction. In the rest, we see a clear association between age and sexual and reproductive health indicators. Older people still in reproductive age used contraception less during their first sexual intercourse and more recent intercourse, they suffer more sexual abuse and are less likely to have an induced abortion.

In the case of the use of contraception during the first intercourse, not only age, but also the year in which a woman started having intercourse have an influence, undoubtedly due to a cohort effect (Wellings et al., 2001). Older people who started having sexual intercourse longer ago used contraceptive methods less because they were not as readily available as in more recent times.

Regarding the use of contraception during recent intercourse, it has been seen that as women approach the end of their reproductive life they tend to use contraception less and are less concerned about pregnancy planning (Lete et al., 2001; Lete et al., 2003). Age also influences the choice of contraceptive method in recent intercourse, with older women preferring a permanent method to a reversible one more than younger women (Skouby, 2004), and the choice appears to be more influenced by the woman's stage of life than by any other socioeconomic factor (Lete et al., 2007c; Skold and Larsson, 2012).

In reference to sexual abuse, it has been seen that IPV is more frequent among women with greater family responsibilities (Ruiz-Pérez et al., 2006; Vives-Cases et al., 2009), and these are more common among older women.

Finally, regarding induced abortion, younger women tend to have the strongest motivations for ending a pregnancy in order to continue with their studies and their project of life (Sihvo et al., 2003).

4.2.3. Level of education and social class

The use of level of education as an indicator of individual socioeconomic position seems highly appropriate in the study of inequalities in sexual and reproductive health issues in women. In the aspects studied in this dissertation it always appears as a central

factor associated with the different indicators studied in women, whereas this does not happen with social class. We are convinced that educational level better reflects socioeconomic inequalities in sexual and reproductive health in women than social class. A possible explanation may be that a proportion of the women included in our studies are not in the labour market, and so using level of education means they are not excluded from the analysis.

Women with a higher educational level were more satisfied with their sexual life and sexual intercourse of the last year, made more use of contraception both in their first intercourse and more recent intercourse, had fewer experiences of sexual abuse, and were less likely to have an abortion, these results being consistent with those from other studies (Abramsky et al., 2011; Barrientos and Paez, 2006; Eskild et al., 2007; Kishor and Johnson, 2004; Skouby, 2004; Svare et al., 2002). As remarked in the introduction, a higher level of education can allow women to have a greater awareness of their own necessities and more abilities to develop their sexuality and pregnancy planning with a greater degree of control.

On the other hand, educational level does not appear as relevant when the studies are centred on men. In fact, the only aspect where social class was associated with the sexual and reproductive health issues studied was in the use of contraception during their last sexual intercourse with a casual partner in men, whereby manual social class men used contraception less than men of non-manual social class.

4.2.4. Country of origin and religion

Country of origin and religion both mark people's cultural background and can influence their behaviour with respect to sexual and reproductive health issues. Apart from this, country of origin also can be a good indicator of socioeconomic position in Spain because here most immigration is from economically underprivileged countries. People from developing countries are more likely than natives to work in jobs below their educational level, and they have greater job insecurity and social vulnerability (Agudelo-Suarez et al., 2009; INE, 2007).

In general, people from developing countries were less satisfied after their first sexual intercourse and after intercourse during the last year, made less use of contraception both in their first sexual intercourse and during intercourse in the last year, and suffered more sexual abuse than people from developed countries.

On the other hand, religion does not seem to have a lot of influence in sexual satisfaction or sexual abuse in the studies of this dissertation, but it does influence the use of contraception, especially during first sexual intercourse, since women who were practicing Catholics or any other religion used contraception less than women who were nonreligious or non-practicing Catholics.

Regarding the use of contraception, there are various studies showing that the cultural background of women marked by their origin and religion is especially important among young women at

the time of their first sexual intercourse (Galazios et al., 2008; Jones et al., 2005; Raine et al., 2003). In these first intercourse experiences, the choice of contraceptive method also seems to be affected by country of origin, specifically, being from a developing country means prioritising the pill over the condom, especially among women from Latin America (Ali and Cleland, 2005). After their first sexual intercourse, although culture and religion still affect the contraceptive behaviour of practicing women, they are more influenced by the realities of their family life, attending to other priorities than those of strict doctrines and with birth control being more relevant than religious teachings (Srikanthan and Reid, 2008).

Regarding sexual abuse, it has been observed in Spain that those socioeconomic factors influencing sexual violence in native women (lower socioeconomic position, children, lack of social support…) (Ruiz-Pérez et al., 2006; Vives-Cases et al., 2009; Vives-Cases et al., 2011; Zorrilla et al., 2010) are more strongly associated in the case of immigrant women, aggravating their situation (Vives-Cases et al., 2010).

We were not able to take into account either country of origin or religion when we analyzed abortion rates in Spain, although it is very likely that both could affect a woman's decision, as has been shown in other studies (Adamczyk, 2008; Eskild et al., 2007). Country of origin was not systematically recorded for induced abortions in Spain until 2008-2009; however, in those places where

it was recorded, it has been found that immigrant women from disadvantaged countries had higher rates of induced abortion than native women, and also that these rates varied substantially between the different countries of origin (Malmusi and Perez, 2009).

4.2.5. Partner and children

In this dissertation we found that people were more satisfied with their experiences of sexual intercourse during the last year with a regular partner than with a casual one, and that they were more satisfied with their general sexual life if they had children. Women were less satisfied after their first sexual intercourse when this was with a partner not considered as a regular one. Men who had had sexual intercourse during the last year with a regular partner, were more satisfied with these experiences if they were not involved in a sexual relationship at the same time with a casual partner. It is consistent with other studies that men and women in stable and satisfying relationships report higher rates of sexual satisfaction (Byers, 2005; Henderson et al., 2009; Sprecher, 2002). This may have different explanations, such as that the preferences of the partner become better known with familiarity, or that sexual satisfaction can be influenced by intimacy (Byers, 2005; Yeh et al., 2006) and exclusivity (Gatzeva and Paik, 2011; Waite and Joyner, 2001).

Regarding the use of contraception, men used contraception less during their first sexual intercourse when this was with a partner

considered casual. Regarding the use of contraception in more recent intercourse, the prevalence varies depending on the type of partner, being higher when the partner is casual. It could be that people having sexual intercourse with a regular partner use contraception less because they do not feel the same pressure to avoid unplanned pregnancies or STI as people having intercourse with a casual partner. However, we can only speculate about this, given the kind of data we have, but it seems likely since in our study people who used contraception declared different reasons for using it depending on the moment of the sexual intercourse and the type of partner, as has been seen previously (Grady et al., 2010; Juarez and Martin, 2006; Kusunoki and Upchurch, 2011). Moreover, men and women used contraception less during their last sexual intercourse with a casual partner when they had children, as did men during experiences of sexual intercourse in the last year with a regular partner. Unfortunately, we cannot provide a good explanation for these results.

On the other hand, focusing on the last month, women made more use of contraception during intercourse in the last month when they were cohabiting with their partner and had children, and this use increased as the number of children increased. Moreover, having children was associated with preferring a permanent contraceptive method to a reversible one in recent intercourse. We talked previously about how culture and religion lose part of their influence when women are faced with the realities of family life, prioritizing birth control over cultural or religious teachings

(Srikanthan and Reid, 2008). It seems obvious that living with a partner can affect women's contraceptive use, not only in predicting sexual intercourse, but also because these women can share contraceptive decision making with their partners (Gomez et al., 2007; Martin, 2005). Moreover, women who already have the number of children they want, may use more contraception, and in fact they tend to choose permanent contraceptive methods more often (Lete et al., 2007c; Skold and Larsson, 2012).

Regarding sexual abuse, in our study people who had children were more likely to suffer from sexual abuse. It has been seen previously in other Spanish studies that women with children suffer more from IPV, and that the number of children is related to the severity of this violence (Ruiz-Pérez et al., 2006; Vives-Cases et al., 2011).

Our results show that when people grow up and have sexual intercourse as a part of their life, their stage of life, and mainly their age, the type of relationship with their partner and the number of children they have become very strong influences on sexual and reproductive health indicators. They become so important that they may influence a person's choice more than the other socioeconomic factors found to be relevant during first sexual intercourse.

4.2.6. Age at first intercourse and use of contraception at first intercourse

Age at first intercourse is an important variable to take into account

when first sexual relationships are being studied. In our studies, initiating intercourse before 16 was associated with lower rates of use of contraception, which is in agreement with the results of various studies that highlight the relationship between early initiation of sexual activity and risky sexual behaviours (Raine et al., 2003; Wellings et al., 2001).

It is necessary also to highlight how much the use of contraception at first intercourse affects its use during more recent intercourse. Our results support previous evidence showing that the use of contraception at first intercourse reinforces the habit of using it for the rest of a woman's fertile life (Shafii et al., 2004; Shafii et al., 2007).

4.3. The influence of contextual socioeconomic factors in sexual and reproductive health in Spain

We were able to incorporate multilevel statistical techniques in two papers of this dissertation, which allowed us to account for the hierarchical structure of the data and to estimate jointly the contribution of individual and contextual socioeconomic factors (Diez-Roux, 2000). These papers showed how in Spain socioeconomic inequalities exist not only at individual level but also at contextual level in sexual and reproductive issues, specifically in the use of contraception and the practice of abortion.

As we explained in the introduction, we thought that apart from individual socioeconomic factors that could influence sexual and reproductive health, contextual socioeconomic factors could also be affecting sexual and reproductive health of the Spanish population. We were able to specifically test this in relation to the use of contraception and the practice of abortion, as the sources of information available for these two studies were representative at both national level and Autonomous Community level.

Again, as explained in the introduction, apart from differences between Autonomous Communities in terms of cultural or traditional characteristics, they also have their own regional governments and laws. These different governments and laws can influence the health of the region's population, including sexual and reproductive health. It has been seen that more redistributive policies and full-employment policies, are generally more successful in improving the health of the population (Muntaner et al., 2011; Navarro and Shi, 2001; Navarro et al., 2006).

We retrieved contextual indicators of Autonomous Communities that could provide information about the different aspects of our conceptual framework from various sources of information: the 2001 Population Census and the 2005 and 2006 Labour Force Survey of the National Statistics Institute (INE, 2010), the Fecundity Interview of 2006 from the Centre for Sociological Research (CIS, 2009), and additional on-line and published sources describing social, contraceptive and abortion patterns in Spain (GIE

and ACAI, 2008; Ministerio de Sanidad y Polícita Social, 2009; Navarro, 2005; Observatorio Social de España, 2010); and tested in each one of the two studies which contextual variables best explained the variability that persisted in the use of contraception or the practice of abortion when individual socioeconomic factors had been already taken into account.

We saw that many variables we had chosen regarding the labour market, health care system, educational context, policies regarding public benefits, etc., were related among themselves. This makes sense if we consider that the kinds of policies a government develops determine the type of welfare state of its region, all the different aspects conforming the welfare state being related (Borrell et al., 2007)

Finally, the contextual variables chosen to form part of the different multilevel analyses were variables related to family economic context (the percentage of families considered poor given the national wage distribution), female educational context (percentage of women with university-level education among all women aged ≥ 16 years), female labour market context (percentage of unemployed women among the total active female population aged ≥ 16 years), immigration context -it has to be remarked that in Spain regions with a higher prevalence of non-European immigrants also generally have a higher level of work activity, so we interpret this variable as linked with the labour market- (percentage of total immigration, and specifically of women, from non-European

countries), policies facilitating the incorporation of women into the labour market (rate of school enrolment per 1000 children aged 0-2 years), and the public expenditure on public goods (public expenditure on non-university education as a percentage of GDP) and specifically on aspects related to pregnancy planning (level of public funding devoted to barrier contraception, availability of financial support for women wanting an abortion).

Our results show that the use of contraception, particularly during first sexual intercourse, and the practice of abortion, were not equally distributed across all geographical regions of Spain, and that part of this variation was probably due to contextual socioeconomic factors, in addition to and independently of individual socioeconomic factors.

Women living in regions with a lower percentage of poor families, higher school enrolment rates for children aged 0-2 years and higher percentages of women with university studies, used more contraception during their first sexual intercourse. On the other hand, a higher prevalence of more current use of contraception was observed among women living in regions that did not offer financial support for abortion, had higher percentages of female unemployment and had lower percentages of women from non-European countries. Regarding the practice of abortions, women living in regions with partial public funding of barrier contraception, lower public expenditure on non-university education and a higher percentage of non-European immigrants

were more likely to have had an induced abortion.

To sum up, we found that women living in those Autonomous Communities which were more deprived and with fewer redistributive public policies used contraception less often during their first sexual intercourse, as we had hypothesized, whereas the use of contraception during the last month was highest among these women, contrary to what we had previously hypothesized; it is important to highlight the fact that variability in the use of contraception during the last month was considerably lower than that for the use of contraception during first intercourse. Regarding the practice of induced abortion, women living in Autonomous Communities which were less deprived, less traditional and with fewer redistributive public policies, were more likely to have an induced abortion, as we had hypothesized, except in regard to the direction of the influence of redistributive public policies.

It has to be emphasized that in the case of induced abortion, the variability which remained in the individual model, after adjusting for individual socioeconomic factors, was much higher than in the two cases of the use of contraception. In fact, the last multilevel model of induced abortion has more or less the same variability as the two initial individual models for the use of contraception. It is important to highlight that in the individual model of induced abortion, important individual socioeconomic factors were lacking (we only had age and educational level), as was commented previously, but which we were able to include in the models for the

use of contraception.

We speculate that the factors influencing the use of contraception during first sexual intercourse are different from those influencing contraception use in more recent circumstances. It is possible that public policies and educational programs targeting young people had considerable influence on the use of contraception during first sexual intercourse, and these are more common in those regions which are less deprived and have more redistributive policies. These policies and programs may strongly influence the decision by young people to use contraception during their first sexual intercourse, when it is primarily used to prevent STI and unintended pregnancies (Bearinger et al., 2007).

On the other hand, as we saw studying individual socioeconomic factors, the use of contraception in more recent intercourse is greatly influenced by the woman's stage of life when birth control and family planning become more relevant, an aspect which might be an especially important motivation in deprived socioeconomic contexts and contexts with a lack of investment in redistributive policies. In Spain, as in other European countries, the increased presence of women in the labour market has not been accompanied by an equitable distribution of the domestic workload, such as housework and child care, gender inequalities having been detected in employment and working conditions, as well as in work-related health problems (Artazcoz et al., 2001; Bartley et al., 1999; Campos-Serna et al., 2012). In this context, in addition to the lack

of redistributive policies focused on reconciling paid work with the childcare, women often delay their pregnancies. It has been seen how various labour market indicators act as strong predictors of the intention to become a mother, and how in contexts where childcare availability is low, higher levels of job strain are associated with lower fertility intentions, and these effects are stronger among women who already have a child (Begall and Mills, 2011).

Regarding the practice of abortion, it would also be influenced by variables related to family planning as in the case of the use of contraception in recent sexual intercourse; it has been seen, for example, that unemployment might act as a disincentive to continuing pregnancies among women (Kelaher et al., 2007). In this sense, it is possible that Autonomous Communities with fewer redistributive public policies could present higher rates of induced abortion. On the other hand, less deprived Autonomous Communities and which offer more opportunities in the labour market, and in consequence with a higher concentration of immigration, have higher rates of induced abortion. In fact, the Autonomous Communities with greater public expenditure on non-university education are precisely the ones with lower income, as Autonomous Communities with higher income levels invest more in private education (Navarro, 2005). It is possible that variables are interacting in a more complex manner in the case of induced abortion, possibly because currently other variables more related to cultural and traditional characteristics are increasing in importance, determining for example the differences in accessibility to abortion

services between Autonomous Communities (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2010). Spain has an important Catholic tradition and we saw in our study how regions with higher percentages of practicing Catholic women had lower rates of induced abortion. Previous studies have shown that the religious context influences abortion through the framing of religious messages within religious groups, rather than through general religious importance and practices, and how this context can result in a lack of abortion clinics and limited public funding, which are the aspects having most influence on women's abortion decisions (Adamczyk, 2008; Tomal, 2001).

We sincerely believe that more research is needed to explore socioeconomic contextual indicators to really understand what they are reflecting, especially in the case of induced abortion. Moreover, it is necessary to explore more proximal contextual indicators, such as the characteristics of the city or neighbourhood of residence, as we know that even within a given Autonomous Community there can be considerable variability between different provinces and cities, and high variability between neighbourhoods within a city. These more proximal indicators could be a more important determinant of the use of contraception and the practice of abortion than the characteristics of the Autonomous Community, where the unit of analysis may be too large. This possibility is highlighted by a UK study that analyzed the role of contextual factors of small areas in the use of contraception and showed that contraception use in disadvantaged areas was lower (Bentley et al., 2009).

4.4. Limitations and strengths

4.4.1. Limitations

The main limitations of this dissertation are due to the information sources used in the different studies.

Firstly, we used two surveys based on self-reported data in four of the papers. All surveys based on self-reporting, especially those dealing with sexual behaviour, are likely to suffer from social desirability bias (Wellings et al., 2006). Another important limitation of these two surveys is that their response rates were not published in the methodology and it has not been possible to obtain them.

The study carried out using the registry of induced abortions does not have these problems. In this case the register contains all the cases of abortions practiced in Spain every year, as health centres have been required by law to complete an individual anonymous questionnaire for each induced abortion they perform. However, the information available in this type of registry may be more limited; for example in this case no information was available for various socioeconomic variables, such as the woman's country of origin or religion, and as we previously mentioned, this could have a great influence in the high proportion of unexplained variability that remained in the multilevel models for the practice of induced abortion.

Even when socioeconomic variables were available, we still had to deal with certain problems. Regarding the country of origin, the sample size was not sufficient to stratify the analyses further, and it was not possible to divide the group of developing countries into more categories, which would have allowed us to study differences between women of different origins. On the other hand, religion was considered in a different way in the first paper compared to the three papers studying the use of contraception. In the first paper people were classified as: Catholic, from any other religion, nonbeliever and atheist; whereas in the other three papers women were classified as: religious (women of any faith) or nonreligious (women who report being nonreligious or nonpracticing Catholics); these differences arose because the questions asked in the two surveys were different. Finally, we lacked certain variables, such as data regarding parents' socioeconomic position, which would have allowed us to perform a more detailed study of contraception use in adolescent women (Hassani et al., 2006), or data regarding contraceptive counselling, one of the most important factors affecting the choice of a contraceptive method (de Irala et al., 2011; Dehlendorf et al., 2011; Gemzell-Danielsson et al., 2011; Harper et al., 2010; Skold and Larsson, 2012).

In the first study we established the upper age limit of our population as 44 years, while in the other four studies the limit was 49 years. This is because in the first four studies that we analyzed (the last four in the order of the dissertation) we wanted to consider the broadest definition of reproductive age possible, while in the

last study conducted (and the first of the dissertation) we restricted reproductive age to that of the WHO definition, as the aim of the paper was focused on the WHO definition of sexual health.

The age group of 15-19 years was excluded from the multilevel analysis of the use of contraception during the last month and in the study of induced abortion, but was included in the other studies (in the first study the youngest age group started at 16). We realized that in this group variables concerning cohabitation status and number of children could not be treated in the same way as for other age groups when analysing use of contraception, while in the case of induced abortion educational level was so decisive to our individual analysis that these women had to be excluded because they had not yet completed their education.

In terms of the contextual level variables, we mentioned above that Autonomous Community may be too a large unit of analysis for the study of the use of contraception, especially in the cases of recent sexual intercourse, and the practice of abortion. It seems likely that policies adopted at Autonomous Community level can have an important impact on the use of contraception at first intercourse, when young people are most susceptible to being influenced by educational and political interventions. On the other hand, it also seems likely that current use of contraception and the practice of abortion are more influenced by more proximal factors that affect women's day to day life, local factors more related to neighbourhood and social network (Bentley et al., 2009). Since

these studies were based on indicators previously defined by other sources, it is also possible that other important indicators were missing.

Unfortunately, it was only possible to include both women and men as the study population in one of the studies of this dissertation. In the others, we only have the woman's part of the story, a consequence of the target populations used in the sources of information.

We would have liked to be able to explore the relationship between use of contraception and the practice of abortion in Spain, but this was not possible because information about contraception was absent from the register of abortions, and also information about abortions was not available in the two surveys that asked about contraception. On the other hand, when we used the prevalence of use of contraception as a contextual factor, it did not appear to be related to the practice of abortion in Autonomous Communities, and conversely, when we used the rate of abortion as a contextual factor, it did not appear related to the use of contraception in Autonomous Communities. The relationship between the use of contraception and the practice of abortion is often seen as a paradox. As has also occurred in other countries, abortion rates in Spain have not decreased in the same measure as the increase of the use of contraception in recent decades. Studies in France show that most women undergoing abortions were taking contraception during the previous months, and that to really understand what is

happening would require taking account of the contraceptive specificities they present (Bajos et al., 2006; Moreau et al., 2010). In the same sense, in a recent study in Spain it was observed that unwanted pregnancies and induced abortions were related to the use of methods of low efficacy and the incorrect use or failures in the use of effective methods (Serrano et al., 2012).

Finally, it is important to remark that not all abortions are due to the pregnancy being unplanned, and even more important, that we have no information about those unplanned pregnancies that ended in a birth. It is very likely that this information were available, we would be able to understand better the socioeconomic factors related to pregnancy planning in Spain.

4.4.2. Strengths

The main strength of this dissertation is that all our results are based on general population samples, and hence allow generalizable observations while being less prone to selection bias. To our knowledge, no similar studies have previously been conducted in Spain studying socioeconomic factors at different levels related to sexual and reproductive health using a representative sample.

As far as we know, there have been no previous attempts to describe the sexual health status of a population in a broad way as we did in the first paper. Moreover, there has been virtually no population-based research on sexuality issues in Spain, and even

less dealing with the socioeconomic inequalities in this field. Sexual satisfaction is an issue that has been poorly studied in the general population, and we did not find any study which dealt with satisfaction during first sexual intercourse.

Regarding the use of contraception, these studies are the first to analyse socioeconomic inequalities in the use of contraception among the general population in Spain and where it was possible to compare the use of contraception during the first intercourse to that during recent sexual activity within the same sample of participants. Moreover, it is the first time that the use of contraception has been compared between Autonomous Communities, and regional studies employing multilevel analysis in this issue are also almost non-existent in higher-income countries.

The situation is similar for the practice of abortion. In Spain, there have been previous attempts to describe individual socioeconomic factors related to the practice of induced abortion, but to our knowledge, this is the first time that rates of induced abortion have been compared between Autonomous Communities with a multilevel approach, an analysis technique hardly ever used in the study of this issue.

We also consider the design of our conceptual framework as a strength of the dissertation. The different studies conducted proved that sexual and reproductive health in Spain is being influenced by socioeconomic factors at the different levels described in the conceptual framework, and that most of the socioeconomic factors

highlighted for each level have an influence.

Regarding the socioeconomic factors used, we made an effort to include all available and important socioeconomic factors. In the case of individual socioeconomic factors, we analyzed all those that were available in the register or the surveys used and that the relevant literature and our framework suggested could be affecting sexual and reproductive health. Regarding the contextual socioeconomic factors, we consulted all the sources available in the country we were aware of containing socioeconomic indicators for Autonomous Communities, and we previously performed a descriptive ecological analysis in order to determine which socioeconomic indicators to use.

Finally, we also consider that an important strength of the dissertation is the fact that we were able to analyse different aspects of sexual and reproductive health that are interrelated in the age group studied, as we remarked in connection with the conceptual framework. We were able to study sexual satisfaction, use of contraception, induced abortion and sexual abuse, thus permitting a broader vision of the subject of sexual and reproductive health of the Spanish population than would have been possible otherwise.

4.5. Recommendations and implications for future research

This dissertation indicates the importance of taking socioeconomic factors of different levels into account when designing administrative measures and interventions for promoting any aspect related to sexual and reproductive health. This is important in light of the new Spanish Law on Sexual and Reproductive Health and Voluntary Termination of Pregnancy of 2010, which aims to guarantee equal access to sexual and reproductive health for all women in the country (BOE, 2010), and could be even more important if the current government finally changes it. Furthermore, these issues have been emphasized in European reports, where inequalities in sexual and reproductive health have been observed between countries (ESC, 2011).

In this sense, this dissertation highlights the importance of considering not only individual socioeconomic characteristics of the population to assure that an intervention or specifically designed measure benefits all the different groups of a population, but also that the socioeconomic context of the region has to be taken into account in order for the measure to be effective. If socioeconomic differences between individuals or regions are not taken into account, inequalities in sexual and reproductive health will be maintained over time, or may even increase.

Regarding sexual satisfaction, there is clearly room for

improvement as seen in the rates of satisfaction at first sexual intercourse among women, where lower prevalences are detected compared to men. Sexual satisfaction is an issue poorly studied in general and particularly in Spain. Future research in this area is needed to understand different factors related to sexual satisfaction and how sexual satisfaction can be improved when necessary, especially in specific groups of the population, such as women having their first sexual intercourse.

Regarding the use of contraception and the practice of abortion, we want to remark once more that policies addressed to reduce socioeconomic inequalities between different groups of women are needed. All women in Spain should have the same degree of access to the use of contraception and the practice of abortion, as these are undeniable sexual and reproductive rights (UN, 1995; UNFPA, 1994).

Regarding sexual abuse, strong efforts should be made to diminish not only the incidence of sexual abuse but also to place particular emphasis on reducing the socioeconomic differences between victims. IPV should be viewed as a complex process. It is known that women are better able to seek outside help if they have support and personal resources (Montero et al., 2010) including the engagement of health care services (Ruiz-Pérez et al., 2004), and greater efforts should be made in this sense.

We sincerely believe that a positive approach to sexuality is necessary. Preventive campaigns and messages to promote safe

sexual intercourse, focused on the use of contraception and especially of condoms, with young people as the main target, have clearly been determinants contributing to the increased use of contraception observed in Spain in recent decades. Nevertheless, today the same models of interventions and messages are being reproduced again and again, while it is clear that they are not managing to improve sexual and reproductive health as much as they did years ago. On the other hand, there is increasing evidence that the best way to improve sexual and reproductive health is introducing a pleasurable and positive approach to sexuality issues. Promoting pleasure in parallel with the safe sex message, for example, has been seen to increase the use of condoms as a form of contraception (Philpott et al., 2006a; Philpott et al., 2006b). Adolescence could be the ideal moment to try a positive approach to dealing with sexuality issues, as they will incorporate the positive messages for the rest of their sexual life (Shafii et al., 2004).

More studies of sexual and reproductive health are required in Spain, especially taking into account socioeconomic factors, to have guidelines for promoting interventions addressed to improve different aspects of Spanish sexual and reproductive health, especially in population groups at greatest risk. As was previously noted, one important area to be addressed by such studies is the relationship between the use of contraception and the practice of abortion, an aspect which continues to be poorly studied.

As also highlighted previously, more research is needed to

understand how socioeconomic contextual factors are affecting the different aspects of sexual and reproductive health; and to really understand what exactly they are reflecting also contextual indicators more proximal than Autonomous Communities are needed. The study of more proximal contextual factors would improve the understanding of how the context influences sexual and reproductive health at different levels.

We also consider that it is necessary to incorporate new research regarding sexuality of people older than reproductive age. Elderly people are also sexually active and consider sexuality as an important aspect of their life, although they infrequently discuss the issue with physicians (Lindau et al., 2007; Lindau and Gavrilova, 2010). In Spain, population based studies about sexuality in elderly people, apart from those related to sexual dysfunction, are just starting (Palacios-Cena et al., 2012).

5. CONCLUSIONS

The conclusions of this dissertation are:

- The general state of sexual and reproductive health of the Spanish population in reproductive age is quite good. Levels of satisfaction with sexual relationships and sexual life are high, as are levels of use of contraception during first sexual intercourse and more recent intercourse, whereas rates of induced abortion fall within the range of other similar European countries, and sexual abuse does not exceed rates of other developed countries.

- Individual socioeconomic inequalities are detected in almost all the aspects studied regarding sexual and reproductive health. Individual socioeconomic factors maintain their strong associations even when contextual socioeconomic factors are taken into account. People of lower socioeconomic position tend to have sexual intercourse experiences which are less satisfactory and more unsafe, they suffer more sexual abuse and are more likely to have an induced abortion.

- Individual socioeconomic factors are associated to the sexual and reproductive health issues studied more strongly in women than in men. Also these associations are stronger for first sexual intercourse than for more recent intercourse, especially regarding the use of contraception. Once women age and their

sexual relationships are an integral part of their life, factors related to their stage of life, such as age, partner status and children, become more influential.

- The use of contraception, particularly during first sexual intercourse, and the practice of abortion, are not equally distributed across the different Autonomous Communities of Spain, and part of this variation is likely to be due to contextual socioeconomic factors, in addition to and independently of individual socioeconomic factors.

    - Regional variability in the use of contraception during sexual intercourse in the last month was considerably lower than that for the use of contraception during first sexual intercourse.

- Contextual socioeconomic factors of Autonomous Communities affect the sexual and reproductive health issues studied in different ways:

    - Women living in those Autonomous Communities which are more deprived and have fewer redistributive public policies used contraception less often during their first sexual intercourse.

    - Women living in those Autonomous Communities which are more deprived and have fewer redistributive public policies used contraception more often during sexual

intercourse in the last month.

- Women living in those Autonomous Communities which are less traditional, less deprived and have fewer redistributive public policies were more likely to have an induced abortion.

- Sexual and reproductive health should be seen as the result of multiple interactions of a variety of factors acting at different levels. For a full understanding of the relation between socioeconomic factors and the outcomes evaluated, the relationships of contextual variables acting at different levels should be tested more in-depth.

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APPENDIX

The impact in the media of the studies included in this dissertation

The following news item and interview were published on the SINC website ("Servicio de Información y Noticias Científicas") of the FECYT ("Fundación Española para la Ciencia y la Tecnología"), and were subsequently used as the source of information by several national and international media. Available from http://www.agenciasinc.es/Noticias/El-70-de-las-mujeres-usa-anticonceptivos-en-su-primera-relacion-sexual (accessed 28/8/2012).