

## **TITLE PAGE**

### **Title**

What do Spanish men know about menopause?

### **Running title**

Men knowledge about menopause

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## **ABSTRACT**

*Objective:* The aim of the study is to evaluate the knowledge that men have about menopause and to analyze whether sociodemographic aspects influence in this knowledge.

*Methods:* 560 consecutive surveys were collected during 2019. The surveys were completed anonymously, voluntarily and without incentives by men. A maximum score of 45 points was considered for the knowledge analysis.

*Results:* The mean age was  $49.13 \pm 11.1$  years. The most frequent source of information to obtain knowledge about menopause were friends (61.4%). The mean of the questionnaire score was  $20.69 \pm 6.1$ . The most frequent symptoms associated with menopause were hot flashes and vaginal dryness (93.7%; 48%) and the best-known treatment to improve vaginal health was lubricants at 69.5%. The most common treatment men know for improving menopause symptoms was menopause hormone treatment; however, 27.9% of men think there is no treatment for menopause.

Differences between ages in numbers and grades were found ( $p=0.032$ ). The scores by levels of study showed statistically differences (primary school, high school, professional training and university education (men with a higher level of education had significantly more knowledge) ( $p=0.013$ ). Differences were showed in men who obtained information from health staff with respect to other sources ( $p<0.001$ ).

*Conclusions:* The knowledge in men in this sample is limited. Differences between ages, level of education and sources of information were found. No differences were found between public and private hospitals. The teaching of this knowledge should be carried out by trained personnel, preferably health staff.

### **Keywords**

Menopause; men survey; knowledge menopause; perceptions men.

## TEXT

### Introduction

A systematic review shows that menopause is a life stage experienced in different ways. The experience of menopause is characterized by personal symptoms such as hot flushes, night sweats, mood disorders, sexual dysfunction, among others, which affect quality of life <sup>1</sup>. It is believed that a couple's knowledge and understanding of all these symptoms could help a woman improve her relationship and quality of life, as published studies have shown in a small town <sup>2-4</sup>. Educational programs for couples need to be designed and implemented. In order to design a correct educational program, it is necessary to know in advance the sources that men use to obtain information. On the other hand, it is important to analyze whether sociodemographic aspects such as age, educational level or socio-economic level influence this knowledge. Some authors have described this influence on women <sup>3,5,6</sup>.

Men and women turn to more accessible sources such as the media (Internet, television, magazines) or family and friends to learn about menopause and do not always come to valid conclusions <sup>7</sup>. An example of all this is the knowledge about menopausal hormone therapy (MHT). Following the conclusions of the WHI (2002) study in which MHT was associated with an increased risk of breast cancer <sup>8</sup>, the media questioned its safety and indications and encouraged women not to use it. Today, the media still give out this questionable information, often issuing out-of-context statements that once again alert society to MHT's safety. The advantages today are a rapid positioning of scientific societies to avoid false news and resolve doubts that may arise in society; an example of this happened on August 29, 2019 with an article published in *The Lancet* <sup>9</sup> that again questioned the safety of MHT. Currently, national and international scientific societies have a clear consensus on MHT and its indications <sup>10,11</sup>.

The aim of this study is to evaluate the knowledge that men who accompany their partners to the gynecology consultation have about menopause through an anonymous in-person knowledge test without incentives that allows us to compare the different aspects described above. Depending on the findings, educational programs can be implemented according to each population.

### Methods

#### *Participants*

560 consecutive surveys were collected during 2019 and analyzed prospectively. The surveys were completed anonymously, voluntarily and without incentives by men who

accompany their partner (living together full time) to the gynecological consultation. All those men who wanted to participate were included in the study. There was no selection by age, socioeconomic level or level of studies. All men who wanted to participate in the study and understood Spanish were included.

It has been non-probability sampling for convenience, which allows for a simple, economical and fast way to achieve the objective of starting workshops oriented on education in menopause. This sampling is most useful for exploratory studies such as pilot survey. We are aware of its main defect, which may be the lack of representativeness and the risk of bias due to sampling criteria. This will be mentioned in the limitations of the study.

The surveys were collected from the gynecology service of the Zarzuela University Hospital (Hospital belonging to a private health service located in an environment of medium-high socioeconomic level) and the San Carlos University Clinical Hospital in Madrid and the Miguel Servet University Hospital in Zaragoza (both belonging to the public health service located in an environment of medium socioeconomic level).

Although these surveys were anonymous and without incentives, the project was sent to an ethical medical research committee (Hospital Universitario Puerta de Hierro in Madrid) that period "That the project titled: What do Spanish men know about menopause?" is considered an opinion survey and does not need to be followed up by the CEIM as a biomedical research project, and that there is no ethical or legal impediment to doing so and no need to sign a written informed consent document, however; the purpose of the study should be informed in simple, clear language. No physician was paid for the study, nor were the men in the study. The only additional expense generated was the printing of the questionnaires that were assumed by each hospital in the study.

#### *Surveys in men*

They were carried out by the authors of the different hospitals of the study.

A maximum score of 45 points was considered for the knowledge analysis. No negative responses were considered; only the correct responses were added together. Questions 1 and 2: only one answer could be selected; Questions 3-10: more than one answer could be selected.

The only purpose of the knowledge survey was to compare scores between populations in the sample. We know that we do not have an external reference to correlate this test scores.

The questions were scored as follows:

1. Question Do you know what the term "menopause" means? If your answer is the date of the last period you score 5 points, other answers score 0 points.
2. Question Do you know the average age at which menopause occurs in Spain? If you answer 46-55 years old, you score 5 points, other answers score 0 points.
3. Question What symptoms are most frequently associated with menopause? If they respond positively to hot flashes; 1 point, decreased sexual desire; 1 point, vaginal dryness; 1 point, risk of fractures; 1 point, insomnia; 1 point. Maximum score of 5 points.
4. Question Do you know how menopause affects some diseases? If they respond positively to higher risk of heart attack and brain damage; 1 point, sexual dysfunction; 1 point osteoarthritis; 1 point, osteoporosis; 1 point, depression; 1 point. Maximum score of 5 points.
5. Question What are the benefits of the following lifestyle habits for women in menopause? One point for every healthy lifestyle habit marked, all answers are valid. Scored as 0 without response. Maximum score of 6 points.
6. Question Which of these treatments do you know of to treat menopausal symptoms in women? If you respond positively to phytotherapy; 1 point, acupuncture; 1 point, lubricants; 1 point, hormonal treatment; 1 point, antidepressants; 1 point, foods rich in calcium and vitamin D; 1 point. Maximum score of 6 points.
7. Question Do you know what the main indications are for hormone therapy in menopause? If you respond positively to improve bones and joints; 1 point, improve hot flashes; 1 point, no pain during sexual intercourse; 1 point, improve sleep; 1 point. Maximum score of 4 points.
8. Question Do you know what the risks of hormone therapy are? If you respond positively to the risk of thrombosis; 1 point. Other answers score 0 points. Maximum score of 1 point.
9. Question How do you think menopause influences sexuality? If you respond positively to a decrease in sexual intercourse; 1 point, decrease in sexual desire; 1 point, pain in intercourse; 1 point. Maximum score of 3 points.
10. Question What treatments do you know to improve vaginal atrophy in women? If you respond positively to vaginal lubricants; 1 point, vaginal moisturizers; 1 point, estrogen creams and eggs; 1 point, intercourse; 1 point, vaginal laser; 1 point. Maximum score of 5 points.

With these arbitrary scores, we wanted to verify whether the type of hospital (private versus public hospital), the age of the men (<45 years, 45-65 years and >65 years) and the educational level (primary, secondary, professional training or university studies) had significant differences and thus be able to define the predictive variables of a better knowledge about menopause.

#### *Statistical analysis*

It was carried out using SPSS 21.0<sup>®</sup> software for Windows (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.).

Quantitative variables were presented using means and standard deviation. Qualitative variables were shown in frequencies and percentages.

An inference was made using **non-parametric U Mann-Whitney test and Kruskal Wallis analysis** to demonstrate differences between groups. **Linear logistic regression was carried out between the total score obtained in the interviewed men respect the age.**

**Frequencies and percentages were compared using Chi-square test.**

Statistically significant results were obtained with a value of  $p < 0.05$ .

#### Results

A descriptive study of 560 men in three hospitals was conducted. In the Hospital de la Zarzuela 58.6% of the participants (328 men) were collected, in the Hospital Miguel Servet 37.3% (209 men) and in the Hospital Clínico Universitario San Carlos 4.1% (33 men). The mean age of the sample was  $49.13 \pm 11.1$  years. The most frequent level of studies was university (n: 275, 49.1%) and the most frequent physical activity performed with the partner was walking (n: 419, 74.8%). The most frequent source of information to obtain knowledge about menopause were friends and relatives in 61.4% (n: 400) and if they had to solve specific doubts about menopause they would go more frequently to the health staff, being the gynecologist the health staff to which they most frequently go to in 86.8%. 40.9% of men do not discuss sexuality with health personnel, and the most frequent reason is because health personnel do not ask about these topics in 140 (61.1%). Table 1 shows sociodemographic factors (educational level, sports with a partner, conversation with health personnel about sexuality, sources of knowledge about menopause and resolution of doubts about menopause).

**The median of the questionnaire score was 20.0 (Interquartile Range: 17.00-25.00).** The most frequent symptoms men associated with menopause were hot flashes, vaginal dryness, decreased sexual desire, and weight gain (93.7%; 48%; 45.2% and 44.1% respectively). The most frequent response on how menopause can affect some diseases

was that "menopause has no impact on diseases" in 83%. The most common treatment men know for improving menopause symptoms is menopause hormone treatment (45.5%); however, 27.9% of men think there is no treatment for menopause. Regarding healthy lifestyle habits, not smoking and physical exercise are the most frequently reported healthy habits (77%, 75.4%). When asked about the main indications for hormonal treatment of menopause, the most frequent answers were to improve hot flashes (55.4%) and delay aging (27.7%). 33% of men were unaware of the main indications for the treatment of menopause. When asked about the most frequent risks of hormone therapy for menopause, 60.7% answered that they were unaware of these risks. The most frequent response on how menopause affects sexuality was that it decreases sexual desire by 50.4%. The best-known treatment for men to improve vaginal health was lubricants at 69.5%. The menopause awareness questionnaire is shown in table 2.

No differences were found in the questionnaire score between public and private hospitals ( $20.8 \pm 5.7$  versus  $20.6 \pm 6.3$ ;  $p = 0.681$ ). With respect to age, it was classified into three groups (<45 years, 45-65 years and >65 years) and the scores **no** show statistically intra-group differences ( $19.8 \pm 6.3$ ;  $21.3 \pm 5.8$ ;  $20.2 \pm 6.6$ ;  $p = 0.209$ ). The comparison between these age groups testing is shown in Table 3.

Differences between ages in numbers and grades were determined by linear regression showing statistically significant differences ( $p = 0.032$ ) finding an increase in the score of 0.05 points per man year ( $y=18.218+0.050x$ ) ( $R^2 = 0.008$ ) (Figure 1).

Another comparison was made between groups by levels of study among men, in this aspect the scores show statistically significant differences between school and high school ( $18.7 \pm 6.1$ ;  $20.2 \pm 6.9$ ;  $p = 0.041$ ), between school and professional training ( $18.7 \pm 6.1$ ;  $20.2 \pm 5.4$ ;  $p = 0.038$ ), between school and university ( $18, 76 \pm 6.1$ ;  $21.3 \pm 6.3$ ;  $p = 0.013$ ), between high school and university ( $20.2 \pm 6.9$ ;  $21.3 \pm 6.3$ ;  $p = 0.048$ ) and between professional training and university ( $20.2 \pm 5.4$ ;  $21.3 \pm 6.3$ ;  $p = 0.049$ ). All these data are shown in table 4.

Finally, in order to evaluate whether the source of information is important in the knowledge of menopause, those men who obtained information from health personnel with respect to other sources (friends, television, press and internet) showed statistical differences. ( $23.88 \pm 6.5$  vs  $20.04 \pm 5.8$ ;  $p < 0.001$ ) (Table 5).

Discussion

This study presents the first results of a knowledge test carried out on Spanish men who accompany their partners to the gynecology service. It differs from other surveys <sup>12,13</sup> in that it does not present economic incentives and is face-to-face, which allows us to explain the reason for the survey. There are no selection criteria based on age, educational level, socioeconomic level or health care in a public or private hospital. This has allowed us to know if there are differences in men's knowledge in our sample. In this study we found that the physical activity that men most frequently do as a couple is walking, that they use mainly friends and relatives to obtain information about menopause from and that they do not talk to health personnel about this issue because this health personnel does not ask them; however, we found that men use health personnel when they want to resolve doubts about a specific menopause issue. Another piece of information provided by this study is that the men with the greatest knowledge of menopause are those who are informed by health staff. In this respect we could establish an indirect comparison with other studies <sup>2-4</sup>, that find that men's knowledge improves after educational programs. To our knowledge there is no regulated educational program currently for men in Spain, also in this study similar knowledge is found among men who go to public and private hospitals <sup>13</sup>.

In this study we find a lack of knowledge in basic aspects of menopause when performing the "examination". The maximum score would be 45 points and the average overall score was 20.6. This study shows that men with a higher level of education had significantly more knowledge about menopause than those with a lower level of education, but none of them would pass the test (passing average: 27-28 points). This lack of knowledge could be explained by the sources of information from which knowledge is obtained; very few men turn to health personnel (13.6%). This allows us to affirm that a health education will probably correct errors and improve knowledge; since in our study the men whose priority source of information was health personnel had significantly greater knowledge about menopause than those who resorted to other sources. In these aspects we don't have to compare.

From this study we have learned that there is a lack of proactive information from health personnel as we discovered that the main reason men do not discuss sexuality or menopause with health personnel is because health personnel do not ask them. This allows us to reflect on the little importance we are giving to information on sexuality and menopause and the need for educational programs to improve knowledge, as other studies refer <sup>12,14,15</sup>.

Another relevant data from our study is that the age of men is relevant to their knowledge on menopause; men who are at an age close to menopause (45-65) have more knowledge than those who have more extreme ages (<45 or >65) and in this study we found that men acquire more knowledge about menopause as they get older and approach the theoretical age of menopause for women in Spain. With respect to these findings, we have no one to compare because it's the first study to report it.

Regarding the most frequent symptoms of menopause, in this study we found that the most frequent symptoms known to men are night sweats or hot flashes and in this regard there is an agreement with Parish et al <sup>12</sup> that also finds these symptoms as the most known to men. On the effect menopause has on other diseases, 83% of men surveyed do not know that menopause can worsen other diseases, and, in this respect, we have no one to compare.

When asked about treatments for menopause, our study agrees with the MATE survey study <sup>12</sup> that knowledge of treatment options in men is limited, however, we provided new data that almost 30% of men thought menopause had no treatment and that the treatment most known to men to improve vaginal health was lubricants at 69.5%.

About knowledge about the indications of menopause treatment and the risks of this treatment we found in the study that most men were unaware of these data. This data is provided only in this study.

When asked about sexuality in menopause one of the most frequently known data by men is that sexual desire decreases, and this is associated with 26% of men surveyed believing that menopause does not affect sexuality. Regarding this data, we agree with Jannini and Nappi study <sup>16</sup>, that it is important to adopt a couple-oriented approach to control and improve sexual satisfaction, but for us it is also important that the couple knows other symptoms that affect the menopausal woman.

In our hospital (Hospital de la Zarzuela) after findings found in the study, educational programs in menopause for couples that allow to expand knowledge and solve mistakes will begin in 2020. All these programs will be carried out by health personnel properly trained.

A limitation of sampling is it has been non-probability sampling for convenience, which allows for a simple, economical and fast way to achieve the objective of starting workshops oriented on education in menopause. We are aware of its main defect, which may be the lack of representativeness and the risk of bias due to sampling criteria.

Other limitation of this study is we know that we do not have an external reference to correlate this test scores, but the only purpose of the knowledge test is to compare scores between populations in the sample.

### Conclusions

Men know some aspects related to menopause, but their knowledge is currently limited. Differences between ages, level of education and sources of information were found. No differences were found between public and private hospitals. The teaching of this knowledge should be carried out by trained personnel, preferably health staff who really know all the aspects related to this stage of life. A more couple-oriented approach is needed to improve this knowledge to help women with menopausal symptoms live this stage more successfully.

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## **FIGURE LEGENDS**

Figure 1: Linear regression between ages in men and scores obtained in survey.

