



**Perceptions and knowledge of medical students about primary care and family practice in Spain: Protocol for a cross-sectional study**

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Despite the fact that family medicine has taken root as a specialty in the past 25 years, this has not been reflected in the inclusion of the specialty in the majority of medical schools in Spain. Almost 40% of the students will work in Primary Care but, in spite of this, most universities don't have an obligatory assignment as such. There are only specific practice periods in health centres or some optional course that offers few credits.

### **OBJECTIVES**

To explore the information about Primary Care that medical students in Spain have, their perception of the role of Family Practice in the health system, their expectations for professional practice and preference for the speciality they wish to follow, and their opinion of the usefulness and necessity of their acquired knowledge of Primary Care and Family Practice.

### **METHODS**

A descriptive study that consists of the repetition of cross-sectional surveys every two years. Each one of the different analyses will consist of two surveys: one for all the students in the 1st, 3rd and 5th years of medical school in all the Spanish schools of medicine asking about their knowledge, perceptions and attitudes in relation to Primary Care and Family Practice, and a second one for the coordinating professors of the study in each University about the educational activities related to Primary Care and Family Practice that are carried out in their centres. The repetition of the study every two years will allow for an analysis of the evolution of the cohort of students until they receive their degree, and the changes that take place in them during their stay in medical school.

This study will provide useful information for strategic planning decisions, content and educational methodology in the medical schools, so that they may adapt their curricula to the new needs and social expectations. It will also assist them in evaluating this

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**Article focus:**

This survey will evaluate the knowledge and perception about Family Practice of the medical students in Spain.

The study will explore the potential influence of the Family Practice curriculum in the student's opinions?

**Strengths and limitations:**

The design of this study has several strengths. One is the completion of the questionnaire in the classroom, in paper format, during some of the students' training sessions. In this way we should obtain a high response rate. The working group for this study includes professionals from 22 of the 27 universities throughout Spain, which should bring the total number of surveyed individuals to over 10,000, making this the largest study on this subject internationally. This sample size and the expected high response rate will make the study be a representative assessment of the present situation in Spain.

The principal limitations of this study are related to its design, which bases data collection on opinion surveys, and this introduces subjectivity. Secondly, the percentage of replies could still be low, and also vary according to medical school and specific items.

Family medicine (FM) has become consolidated as a specialty in the past 25 years [1, 2]. This transformation and adaptation has not been reflected in the inclusion of the specialty, either as a course of study or area of knowledge, in the majority of medical schools in Spain [3,4]. This is a marked difference from what has occurred in other Western countries, in which the presence of FM and primary care (PC) has been consolidated and acknowledged for decades. Despite the fact that almost 40% of the students is going to work in PC, the majority of universities do not have an obligatory assignment as such, and the presence of this training is limited to a few practice sessions in a health centre or an optional course that offers few credits.

At the moment there is no Department of Family Medicine in Spanish medical schools, and the presence of this subject is scarce, to say the least [5,6]. This is true not only in quantitative terms but in qualitative terms as well, when one takes into account its importance and presence in health care services and Spanish society as a whole. Starting in the 1980s some Spanish schools of medicine have offered their students practice sessions in the consults of family medicine physicians, which are complemented with seminars imparted by associate professors in the university health centres. [7,8] Since then, Spanish universities have slowly started to introduce FM in the curricula and at present 25 of the 27 schools of medicine have some type of teaching in FM [9,4]. Three universities have family and community medicine as an obligatory assignment, 7 offer it as an optional course, 17 require obligatory practice sessions, and 12 require optional practice sessions. Spanish universities now have 157 university health centres, with 153 professors in teaching and research, of which 4 are full professors and 147 are associate professors, as well as 300 honorary professors. For a few years there have been two Chairs, with their corresponding directors [4]. In general, when looking at Spain's European neighbours, it is easy to realize that there are evident differences in the universities' medical curricula, which stress a series of characteristics of FM, such as continuous care of patients and holistic health focus, and are oriented to the individual, the family and the community.

medicine in Spain are not presently well known. Two studies have been done thus far [10,11]. In the first one Menárguez Puche surveyed 216 medical students to learn their opinions about FM and its importance in undergraduate medical studies. Results showed that only 1.4% of those surveyed had FM as a first choice, whereas 48.1% was considering it as an alternative choice. On the other hand, 35.2% of the students answered that they would only choose it if they could not get into other specialties, and 15.3% said they would never choose it. It is interesting to note the discordance between what the students believe to be the importance the university gives to FM and the low importance that they themselves give to it. Nevertheless, that low importance is in accordance with their choices for postgraduate specialization. The authors conclude that FM continues to be little known by Spanish medical students, which makes them not see it as a viable choice for postgraduate study [10]. Also recently, Escobar Rabadan surveyed medical students at the beginning and end of a course on PC [11]. A total of 44 students out of the 88 surveyed answered the questionnaire. The objective of the study was to learn what sociodemographic and academic variables of medical students are associated with a better knowledge and attitude to FM, before and after finishing a course on PC. Results showed that the only variable that was associated was gender, with women, especially younger women, showing the most favourable attitudes toward FM and PC.

The international literature also has few studies on this subject, either before or after the end of undergraduate study. However, attitude has been studied in various international studies, especially by Anglo-Saxon universities [12,13,14,15,16,17]. In general the available information shows that the attitude of medical students toward FM improves as they progress in the school of medicine, and that it is proportionately related with the degree of contact they have with FM during their undergraduate training [18,19,20,21,17]. In a study done in the United Kingdom, the attitude of medical students

toward FM as a specialty and toward family physicians was analysed [15]. The students reflected a positive attitude toward both and listed their personal experience with family

physicians as the most influential factor on their attitude. The attitude of the students

of study, with FM being the only specialty to show an improvement during the course of study.

The reasons for which students choose a specific specialty for training and future practice are complex. Different factors have shown an association with the selection of FM: the desire to practice a specialty with multiple branches, social orientation, characteristics of the medical school the student attends, characteristics such as hours and aspects related to the volume and qualities of the work (expected salary, prestige, possibility of finding work, follow-up of patients, etc.), and personal interaction [22,23,16,24]. In general, students see themselves as generalists or specialists from the moment they enter medical school. Different studies have shown that, although there is a margin for variation in the selection of the future specialty, the preferred choice at the moment of entering medical school is a key predictive factor. For this reason a high percentage of students end up choosing a specialty that is closely related to the one they preferred when they entered medical school.

Within this context and given the scarce information on this subject in Spain we have designed a longitudinal study that would allow us to evaluate the potential impact of medical school teaching on the final profiles of students, both in perceptions and expectations and in the choice of specialty.

**METHODS**

This is an observational quantitative study with follow-up, and this proposal refers to the initial observation and the first follow-up after two years. Each follow-up survey will consist of two questionnaires: the first is a questionnaire given to students in different courses of the Spanish medical school undergraduate curricula, asking about their knowledge, perceptions and attitudes on PC and FM; the other questionnaire will be

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given to the professors who coordinate the study in each of the medical schools and will ask them about teaching activity related to PC and FM in each one. The repetition of the surveys every two years will allow for an analysis of the evolution of the student cohort

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study. We will additionally put together a systematic review of the available literature on this topic.

## **Subjects**

The study subjects will be all students in the first, third and fifth year of study of Medicine and Surgery in all Spanish medical schools (approximately between 12,000 and 14,000 students). At the same time, a survey will be taken by the study's local coordinating professors in each medical school (1 or 2 professors per school).

## **Student questionnaire**

### ***Design of the questionnaire***

The instrument of measure will be a specifically designed questionnaire made up of a series of items that will be evaluated on a scale similar to a Likert scale, with some open questions. A list of items will be obtained from the literature review, such as attitudes, perceptions, specialty preference, and demographic characteristics. With these items we will develop the first version of the questionnaire. A pilot study will be done with students in different years of medical school in Barcelona, Madrid, Alicante and Zaragoza in order to validate the questionnaire and verify that it is adequate and well accepted. The final version will be developed based on the results of the pilot study.

The questionnaire will also collect information on the student characteristics that the literature review shows are related to attitudes and opinions about PC and FM.

### ***Data collection***

Data collection will take place close to the beginning of the second four month period of the academic year. The completion of the questionnaire will be done in the classroom, in paper format, taking advantage of training sessions for the students. In some specific cases it will also be possible to respond via the Internet through the following website:

[www.surveymonkey.com](http://www.surveymonkey.com).

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### **Questionnaire for local coordinators**



coordinators of the study. These coordinators will answer a specific questionnaire about teaching and other activity related to PC and FM that is taking place in their local school during the present academic year.

### Data analysis

A descriptive analysis of the answers will be undertaken, both by groups and individually, for each of the study years. Proportions will be used for categorical variables and means, and standard deviations for quantitative variables. Variability according to medical school and study year will be analyzed, both via variability quotients and also by comparing the different strata with the Chi-squared test and analysis of variance.

The existence of an association between the questionnaire scores and each of its dimensions will also be analyzed. This will be done by looking at the students' individual characteristics and comparing them to teaching activity related to PC and FM in the different medical schools. This analysis will use both bivariate procedures (Chi-squared test, analysis of variance) as well as multivariate ones. A multiple linear regression will be done, with the survey scores and dimension scores as dependent variables, and the rest of the variables being considered descriptive. The selection of variables will be done step by step from an initial model formed by variables with a bivariate association with dependent variables of  $p \leq 0.20$ . The dependent variables will then be dichotomized and the analysis will be repeated through logistic regression.

After the second survey two years later the same analyses will take place and in addition the evolution of the questionnaire scores and activity related to PC and FM will be analyzed by comparing the results with those of the students in the same year of study (first, third and fifth), and also by comparing the evolution of results from those who were originally in the first and third years. This will be done through Chi-squared tests and analysis of variance.

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The proposed study has been designed to evaluate the forementioned characteristics at the beginning of medical training and throughout time. Given its sample size (number of medical schools and students) and the fact that it implies a follow-up of the students, this project will provide relevant information which is presently not available in the international literature. The results this study will generate in the next few years will provide information about the evolution of perceptions about FM and PC as a specialty when students start medical school (knowledge and attitudes). They will also assist in analyzing the relation of different factors to perception and the final choice of FM as a specialty.

### Study's limitations

The principal limitations of this study are related to its design, which bases data collection on opinion surveys, and this introduces subjectivity. Secondly, the percentage of replies can be generally low, and also vary according to medical school and specific items, which can introduce a bias. The role of the coordinating professors in each medical school is essential in order to reduce the number of unanswered questionnaires. Another difficulty, since the questionnaire is anonymous, is the impossibility of evaluating at an individual level the evolution over time of the assessed characteristics and dimensions.

### Study's strengths

The design of this study has various strengths. One of the principal ones is the completion of the questionnaire in the classroom, in paper format, during some of the students' training sessions. In this way we should obtain a high response rate, with few students not responding. Also, in specific cases it will also be possible to respond via the Internet, which will increase the response rate. The work team for this study includes professionals from 22 of the 27 universities throughout Spain, which should bring the total number of surveyed individuals to over 10,000, making this the largest study on this subject internationally. This sample size and the expected high response

### Implications

This national survey will provide information on the degree of knowledge that medical students in Spain have about PC, and their perception of its role and that of FM in the health system. It will also allow us to assess their opinion on its usefulness, and the need for specific training in PC and FM at the undergraduate level. For these reasons we believe that the results of this study will provide valuable information for curriculum development related to PC in the different Schools of Medicine, and will help to prioritize those activities that will be most effective for promoting this specialty in Spain.

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**General objectives:**

1. To learn the degree of information of medical students in Spain about Primary Care, and their perception of its role and that of Family Medicine within the health system.
2. To learn the opinion of medical students in Spain on the usefulness and need for specific training in Primary Care and Family Medicine at the undergraduate level.
3. To determine the evolution throughout time of the degree of information and opinion of medical students in Spain on Primary Care and their perception of its role and that of Family Medicine within the health system.

**Specific objectives:**

1. In relation to the degree of information that Spanish medical students have about Primary Care and their perception of its role and that of Family Medicine within the health system, and their opinion on the usefulness and need for specific training in Primary Care and Family Medicine at the undergraduate level:
  - To determine the degree of variability in relation to the year of study the student is in
  - To determine the degree of variability in relation to the medical school
  - To determine what student characteristics are associated with information, perception and opinion
  - To evaluate if information, perception and opinion are related to training activity in Primary Care during the period of study
2. To learn exactly what teaching activity, both theoretical and practical and related to Primary Care is offered in Spanish schools of medicine
3. To describe the expectations for professional practice of medical students in relation

4. To determine the characteristics associated with the choice of Family Medicine as a specialty

5. To evaluate the viability of electronic surveys

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## Figure legends

**Figure 1.** Study design flowchart

## Abbreviations

PC: primary care, FM: family medicine

## Competing interests

The authors declare that they have no competing interests.

## Authors' contributions

AMZ, JJV and PAC participated in the conception and design of the protocol and drafted a first version. All authors participated, revising it critically for important intellectual content and have given final approval of the version to be published.

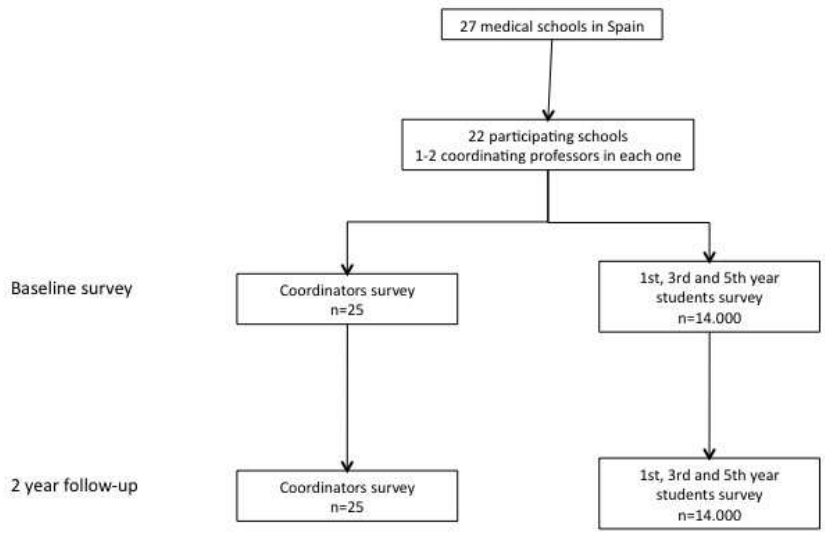
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**Research Checklist**

We followed the “Good practice in the conduct and reporting of survey research” guidance to prepare this protocol.

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**Research Checklist**

We followed the “Good practice in the conduct and reporting of survey research” guidance to prepare this protocol.

For peer review only

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Despite the fact that family medicine has become established as a specialty in the past 25 years, this has not been reflected in the inclusion of the specialty in the majority of medical schools in Spain. Almost 40% of the students will work in Primary Care but, in spite of this, most universities don't have an assessed placement as such. There are only specific practice periods in health centres or some student selected components with little weight in the overall curricula.

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**OBJECTIVES**

To evaluate the attitudes and perceptions of medical students about Primary Care, and about the role of Family Practice in the health system. To assess the perception of medical students about the need for specific training in Family Medicine in the undergraduate level. To review what teaching activity in Family Medicine is offered across the Spanish Schools of medicine.

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**METHODS**

A descriptive repetitive of cross-sectional survey, Each one of the different analyses will consist of two surveys: one for all the students in the 1st, 3rd and 5th years of medical school in all the Spanish schools of medicine asking about their knowledge, perceptions and attitudes in relation to Primary Care and Family Practice. There will be an additional survey for the coordinating faculty of the study in each University about the educational activities related to Primary Care and Family Practice that are carried out in their centres. The repetition of the study every two years will allow for an analysis of the evolution of the cohort of students until they receive their degree, and the changes that take place in them during their stay in medical school.

This study will provide useful information for strategic planning decisions, content and educational methodology in the medical schools. It will also help to evaluate the impact

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## Article summary

### Article focus

- There is a need to explore further the reasons for which students choose a specific specialty for training and future practice.
- This protocol outlines the design of a repetitive cross-sectional survey to evaluate attitudes and perceptions of medical students about family medicine. The project will assess the potential impact of medical school teaching on the final profiles of students, both in perceptions and expectations and in the choice of specialty.

### Key messages

- This is a protocol of a multicenter survey that will take place in Spanish medical schools. The study includes a survey for students and one for the coordinators of family medicine in each center.
- The repetition of the student survey every two years will allow for an analysis of the evolution of the student cohort until the end of their studies, as well as the changes in those that are beginning their study.
- The results of this study will provide valuable information for curriculum development related to PC in the different Schools of Medicine, and will help to prioritize those activities that will be most effective for promoting this specialty in Spain.

### Strengths and limitations of this study

- Strengths: the research team for this study includes coordinating faculty from 22 of the 27 universities throughout Spain. The repetitive nature of the survey will allow to evaluate the change in time of the different issues studied.
- Limitations: the principal limitations of this study are related to its design, which bases data collection on attitude surveys, and this introduces subjectivity. The anonymous nature of the questionnaire makes it impossible to evaluatei at an individual level the evolution over time.

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This transformation and adaptation has not been reflected in the inclusion of the specialty, either as a course of study or area of knowledge, in the majority of medical schools in Spain<sup>3,4</sup>. This is a marked difference from what has occurred in other Western countries, in which the presence of FM and primary care (PC) has been consolidated and acknowledged for decades<sup>5,6</sup>. Despite the fact that almost 40% of the students will go on working in PC, the majority of universities do not have an assessed placement as such, and the presence of this training is limited to a few practice sessions in a health centre or a student selected component with little weight in the curricula<sup>4,7</sup>.

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At the moment there is no Department of Family Medicine in Spanish medical schools, and the presence of this subject in University is scarce, to say the least<sup>8,9</sup>. This is true not only in quantitative terms but in qualitative terms as well, when one takes into account its importance and presence in health care services and Spanish society as a whole. Starting in the 1980s some Spanish schools of medicine have offered their students practice sessions in the consultation of family medicine physicians, which are complemented with seminars imparted by associate professors in the university health centres<sup>7,8</sup>. Since then, Spanish universities have slowly started to introduce FM in the curricula and at present 25 of the 27 schools of medicine have some type of teaching in FM<sup>4,9</sup>. Three universities have family and community medicine as an assessed placement, 7 offer it as an student selected component, 17 require obligatory practice sessions and 12 optional sessions. Spanish universities now have 157 university health centres, with 151 faculty in teaching and research, of which 4 are professors and 147 are associate professors, as well as 300 honorary professors. For a few years there have been two Chairs, with their corresponding directors<sup>4</sup>. In general, when looking at Spain's European neighbours, it is easy to realize that there are evident differences in the universities' medical curricula, which stress a series of characteristics of FM, such as continuous care of patients and holistic health focus, and are oriented to the individual, the family and the community.

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The attitudes and perceptions toward PC and FM of students in the schools of medicine in Spain are presently not well known. Two studies have been performed so far.<sup>10,11</sup> In the first one Menárguez Puche surveyed 216 medical students to assess their attitudes towards FM and its importance in undergraduate medical studies. Results showed that only 1.4% of those surveyed had FM as a first choice of specialty, whereas 48.1% were considering it as an alternative choice. On the other hand, 35.2% of the students answered that they would only choose it if they could not get into other specialties, and 15.3% said they would never choose it. The students believed that university should give an important role to FM. However they gave low importance themselves to it. Nevertheless, that low importance is in accordance with their choices for postgraduate specialization. The authors conclude that FM continues to be little known by Spanish medical students, which makes them not see it as a viable choice for postgraduate study.<sup>10</sup> Also recently, Escobar Rabadan et al. surveyed medical students at the beginning and end of a course on PC.<sup>11</sup> A total of 44 students out of the 88 surveyed answered the questionnaire. The objective of the study was to explore what socio-demographic and academic variables of medical students are associated with a better knowledge and more favourable attitude to FM, before and after finishing a course on PC. Results showed that the only variable that was associated was gender, with women, especially younger women, showing the most favourable attitudes toward FM and PC.

The international literature also has few studies on this subject, either before or after the end of undergraduate study. However, attitude has been studied in various international studies, especially by Anglo-Saxon universities.<sup>12-17</sup> In general the available information shows that the attitude of medical students toward FM improves as they progress in the school of medicine, and that it is proportionately related with the degree of contact they have with FM during their undergraduate training.<sup>17,21</sup> In a study performed in the United Kingdom, the attitude of medical students toward FM as a specialty and toward family physicians was analysed.<sup>15</sup> The students reflected a positive attitude toward both and listed their personal experience with family physicians as the most influential factor on their attitude. The attitude of the students with respect to the specialty as well as to

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The reasons for which students choose a specific specialty for training and future practice are complex. Different factors have shown an association with the selection of FM: the desire to practice a specialty with multiple branches, social orientation, characteristics of the medical school the student attends, characteristics such as hours and aspects related to the volume and qualities of the work (expected salary, prestige, possibility of finding work, follow-up of patients, etc.), and personal interaction<sup>16,22-24</sup>. In general, students see themselves as generalists or specialists from the moment they enter medical school. Different studies have shown that, although there is a margin for variation in the selection of the future specialty, the preferred choice at the moment of entering medical school is a key predictive factor<sup>11,25</sup>**Error! Reference source not found.** For this reason a high percentage of students end up choosing a specialty that is closely related to the one they preferred when they entered medical school.

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Within this context and given the scarce information on this subject in Spain we have designed a repetitive, cross-sectional survey that will allow us to evaluate the potential impact of medical school teaching on the final profiles of students, both in perceptions and expectations and in the choice of specialty.

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## METHODS

This is a multicenter survey that will take place in Spanish medical schools. This proposal refers to the initial observation and the first follow-up after two years. Each follow-up survey will consist of two different questionnaires: one will be given to students in different courses of the Spanish medical school undergraduate curricula, asking about their knowledge, perceptions and attitudes on PC and FM. This questionnaire will be repeated every two years. The repetition of the survey every two years will allow for an analysis of the evolution of the student cohort until the end of their studies, as well as the changes in those that are beginning their study. The other questionnaire will be given to the coordinating faculty who coordinate the study in each of the medical schools and will

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### Subjects

The study subjects will be all students in the first, third and fifth year of study of Medicine and Surgery in all Spanish medical schools (approximately between 12,000 and 14,000 students). The rationale for choosing the third and fifth year is that in the third is when the students start clinical exposure, and in the fifth year they are in a more advanced situation from the clinical point of view. The first year will provide a baseline value. At the same time, a different survey will be addressed to the study's local coordinating faculty in each medical school (1 or 2 faculty per school). Participation will be voluntary.

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### Student questionnaire

#### Design of the questionnaire

The instrument of measure will be a specifically designed questionnaire made up of a series of items that will be evaluated on a scale similar to a Likert scale, with some open questions. A list of items will be obtained from the literature review, such as attitudes, perceptions, specialty preference, and demographic characteristics. With these items we will develop the first version of the questionnaire. A pilot study will be done with students in different years of medical school in Barcelona, Madrid, Alicante and Zaragoza in order to validate the questionnaire, evaluate its reliability, and verify that it is adequate and well accepted. The final version will be developed based on the results of the pilot study. The questionnaire will also collect information on the student characteristics that the literature review shows are related to attitudes and perceptions about PC and FM.

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#### Data collection

Data collection will take place close to the beginning of the second four-month period of the academic year. The completion of the questionnaire will be done in the classroom, in paper format, taking advantage of training sessions for the students. If needed, it will also be possible to respond via the Internet ([www.surveymonkey.com](http://www.surveymonkey.com))

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In each medical school there will be one or two faculty who will be the local coordinators of the study. These coordinators will answer a specific questionnaire about educational and other activities related to PC and FM that is taking place in their local school during the present academic year.

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### Data analysis

A descriptive analysis of the answers will be undertaken, both by groups and individually, for each of the study years. Proportions will be used for categorical variables and means, and standard deviations for quantitative variables. Variability according to medical school and study year will be analyzed, both via variability quotients and also by comparing the different strata with the Chi-squared test and analysis of variance.

The existence of an association between the questionnaire scores and each of its dimensions will also be analyzed. This will be done by looking at the students' individual characteristics and comparing them to teaching activity related to PC and FM in the different medical schools. This analysis will use both bivariate procedures (Chi-squared test, analysis of variance) as well as multivariate ones. A multiple linear regression will be done, with the survey scores and dimension scores as dependent variables, and the rest of the variables being considered descriptive. The selection of variables will be done step by step from an initial model formed by variables with a bivariate association with dependent variables of  $p \leq 0.20$ . The dependent variables will then be dichotomized and the analysis will be repeated through logistic regression.

Alter the second survey two years later the same analyses will take place and in addition the evolution of the questionnaire scores and activity related to PC and FM will be analyzed by comparing the results with those of the students in the same year of study (first, third and fifth), and also by comparing the evolution of results from those who were originally in the first and third years. This will be done through Chi-squared tests and analysis of variance.

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The proposed study has been designed to evaluate the forementioned characteristics at the beginning of medical training and throughout time. Given its sample size (number of medical schools and students) and the fact that it implies a follow-up of the students, this project will provide relevant information which is presently not available in the international literature. The study takes place in the context of the changes due to the Bologna Process (<http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>). The overarching aim of the Bologna Process is to create a European Higher Education Area (EHEA) based on international cooperation and academic exchange. There are changes taking place actually, due to Bolgne Process and to the general tendency in most medical schools to start introducing some more teaching activities in Family Practice. The results of this study will generate in the next few years information about the evolution of knowledge, attitude and perceptions about FM and PC as a specialty. They will also assist in analyzing the relation of different factors to perception and the final choice of FM as a specialty.

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### Study's limitations

The principal limitations of this study are related to its design, which bases data collection on attitude surveys, and this introduces subjectivity. Secondly, the percentage of replies can be generally low, and also vary according to medical school and specific items, which can introduce a bias. The role of the coordinating faculty in each medical school is essential in order to reduce the number of unanswered questionnaires. Another difficulty, since the questionnaire is anonymous, is the impossibility of evaluating at an individual level the evolution over time of the assessed characteristics and dimensions.

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### Study's strengths

The design of this study has various strengths. One of the principal ones is the completion of the questionnaire in the classroom, in paper format, during some of the

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students not responding. In specific cases, when local circumstances make difficult to get the students together, it will also be possible to respond via the Internet. The research team for this study includes coordinating faculty from 22 of the 27 universities throughout Spain, which should bring the total number of surveyed individuals to over 10,000, making this the largest study on this subject internationally. This sample size and the expected high response rate will make the study be a representative assessment of the present situation in Spain.

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**Implications**

This national survey will provide information on the attitudes and perceptions students in Medical Schools have of primary care and the role of family practice, in the health system. It will also allow us to assess their attitude on its usefulness, and the need for specific training in PC and FM at the undergraduate level. For these reasons we believe that the results of this study will provide valuable information for curriculum development related to PC in the different Schools of Medicine, and will help to prioritize those activities that will be most effective for promoting this specialty in Spain.

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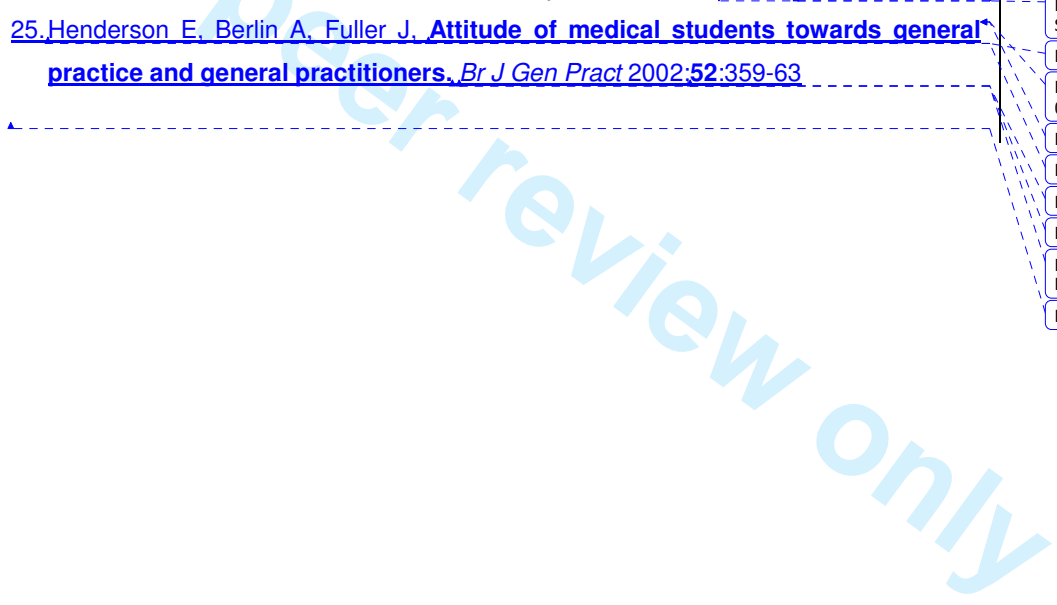
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Figure legends

Figure 1. Study design flowchart

Abbreviations and definitions

PC: primary care, FM: family medicine

Primary care: initial point of consultation for patients in a national health care organisation. The professionals involved usually include family physicians, nurses and pediatricians. Sometimes some primary care centres include other specialist like midwives, gynaecologist, cardiologist, endocrinologist or others.

Family medicine: Family medicine is normally the point of first medical contact within the health care system, providing open and unlimited access to its users, dealing with all health problems regardless of the age, sex, or any other characteristic of the person concerned (Wonca Europe. The European Definition of General Practice/Family Medicine. 2002).

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

AMZ, JJV and PAC participated in the conception and design of the protocol and drafted a first version. All authors participated, revising it critically for important intellectual content and have given final approval of the version to be published.

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### **Table 1. Objectives**

#### ***General objectives:***

To assess learn the degree of information of medical students in Spain about Primary Care, and their perception of its role and that of Family Medicine within the health system.

To learn assess the opinion perceptions of medical students in Spain on the usefulness and need for specific training in Primary Care and Family Medicine at the undergraduate level.

To follow the changes and determine the evolution throughout time of the degree of information and opinion attitudes of medical students in Spain on towards Primary Care and their perception of its role and that of Family Medicine within the health system.

***Specific objectives:***

In relation to the degree of information that Spanish medical students have about Primary Care and their perception of its role and that of Family Medicine within the health system, and their opinion perception on the usefulness and need for specific training in Primary Care and Family Medicine at the undergraduate level:

To determine the degree of variability in relation to the year of study the student is in

To determine the degree of variability in relation to the curricular experience medical school of each Medical School

To determine what student characteristics are associated with information, perception and opinion attitudes

To evaluate if information, perception and opinion attitudes are related to training activity in Primary Care during the period of study

To learn collect exactly what teaching activity, both theoretical and practical and related to Primary Care is offered in Spanish schools of medicine

To describe the expectations for professional practice of medical students in relation to Primary Care and Family Medicine and their variability, according to year of study and medical school

To determine the characteristics associated with the choice of Family Medicine as a specialty

To evaluate the viability of electronic surveys

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Primary care: Primary care is the term for the health services by providers who act as the principal point of consultation for patients within a health care system.[1][2] Such a professional can be a primary care physician, such as a general practitioner or family physician, or depending on the locality, health system organization, and patient's discretion, they may see a pharmacist, a nurse practitioner, a nurse (such as in the United Kingdom), a clinical officer (such as in parts of Africa), or an Ayurvedic or other traditional medicine professional (such as in parts of Asia).

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**Attitudes and perceptions of medical students about primary care and family practice in Spain: Protocol for a cross-sectional survey**

Journal:	<i>BMJ Open</i>
Manuscript ID:	bmjopen-2011-000231.R2
Article Type:	Protocol
Date Submitted by the Author:	22-Sep-2011
Complete List of Authors:	Martín-Zurro, Amando; Servicio Catalán de la Salud, División de Planificación y Evaluación Operativa Jiménez Villa, Josep; Servicio Catalán de la Salud, División de Planificación y Evaluación Operativa Monreal Hajar, Antonio; Catedra UNIZAR-Novartis de Docencia e Investigación en Medicina de Familia y Atención Primaria, Universidad de Zaragoza Mundet Tuduri, Xavier; Catedra UAB-Novartis de Docencia e Investigación en Medicina de Familia, Universitat Autònoma de Barcelona Otero Puime, Ángel; Cátedra UAM-Novartis de doencia e Investigación en Medicina de Familia y Atención Primaria, Universidad Autónoma de Madrid Alonso-Coello, Pablo; Iberoamerican Cochrane Centre, CIBERESP-IIB Sant Pau
<b>Primary Subject Heading</b>:	General practice & Family practice
Keywords:	EDUCATION & TRAINING (see Medical Education & Training), EPIDEMIOLOGY, PRIMARY CARE

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**Research Checklist**

We followed the “Good practice in the conduct and reporting of survey research” guidance to prepare this protocol.

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Despite the fact that family medicine has become established as a specialty in the past 25 years, this has not been reflected in the inclusion of the specialty in the majority of Medical Schools in Spain. Almost 40% of the students will work in Primary Care but, in spite of this, most universities don't have an assessed placement as such. There are only specific practice periods in health centres or some student selected components with little weight in the overall curricula.

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**OBJECTIVES**

To evaluate the attitudes and perceptions of medical students about Family Medicine in the health system and their perception, about the need for specific training in Family Medicine at the undergraduate level. To explore change over time of these attitudes and perceptions, and to examine potential predictive factors for change. Finally, we will review what teaching activity in Family Medicine is offered across the Spanish Schools of medicine.

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**METHODS**

Descriptive cross-sectional survey. Each one of the different analyses will consist of two surveys: one for all the students in the 1st, 3rd and 5th years of Medical School in all the Spanish schools of medicine asking about their knowledge, perceptions and attitudes in relation to Primary Care and Family Medicine. There will be an additional survey for the coordinating faculty of the study in each University about the educational activities related to Family Medicine that are carried out in their centres. The repetition of the study every two years will allow for an analysis of the evolution of the cohort of students until they receive their degree and the potential predictive factors.

This study will to provide useful information for strategic planning decisions, content and educational methodology in Medical Schools in Spain and elsewhere. It will also help to evaluate the influence of the ongoing changes in Family Medicine, locally, and at the

Article summary

Article focus

- There is a need to explore further the reasons for which students choose a specific specialty for training and future practice. This protocol outlines the design of a cross-sectional survey to evaluate attitudes and perceptions of medical students about Family Medicine.
- The project will assess the potential impact of Medical School teaching on the final profiles of students, both in perceptions and expectations and in the choice of specialty.

Key messages

- This is a protocol of a multicenter survey that will take place in Spanish Medical Schools. The study includes a survey for students and one for the coordinators of Family Medicine in each centre.
- The repetition of the student survey every two years will allow for an analysis of the evolution of student cohorts until the end of their studies.
- The results of this study will provide valuable information for curriculum development related to Family Medicine in the different Schools of Medicine, and will help to prioritize those activities that are likely to be most effective for promoting this specialty.

Strengths and limitations of this study

- Strengths: the research team for this study includes coordinating faculty from 22 of the 27 universities throughout Spain. The study will be repeated every two years and will explore change over time of the issues addressed.
- Limitations: the principal limitations of this study are related to its design, of observational nature. The results observed will serve as hypotheses generating and cannot be regarded as definitive. Finally, the fact that the survey will be anonymous will impede the evaluation, at an individual level, of change over time.

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Family medicine (FM) has become consolidated as a specialty in the past 25 years<sup>1,2</sup>. This transformation and adaptation has not been reflected in the inclusion of the specialty, either as a course of study or area of knowledge, in the majority of Medical Schools in Spain<sup>3,4</sup>. This is a marked difference from what has occurred in other Western countries, in which the presence of Family Medicine has been consolidated and acknowledged for decades<sup>5,6</sup>. Despite the fact that almost 40% of the students will go on working in Family Medicine, the majority of universities do not have an assessed placement as such, and the presence of this training is limited to a few practice sessions in a health centre or a student selected component with little weight in the curricula<sup>4,7</sup>.

At the moment there is no Department of Family Medicine in Spanish Medical Schools, and the presence of this subject in University is scarce, to say the least<sup>8,9</sup>. This is true not only in quantitative terms but in qualitative terms as well; when one takes into account its importance and presence in health care services and Spanish society as a whole. Starting in the 1980s some Spanish schools of medicine have offered their students practice sessions in the consultation of family medicine physicians, which are complemented with seminars imparted by associate professors<sup>7,8</sup>. Since then, Spanish universities have slowly started to introduce Family Medicine in the curricula and at present 25 of the 27 schools of medicine have some type of teaching in Family Medicine<sup>4,9</sup>. Three universities have Family and Community medicine as an assessed placement, 7 offer it as a student selected component, 17 require obligatory practice sessions, and 12 optional sessions. Spanish universities now have 157 university health care centres, with 151 faculty teaching and research positions, of which 4 are professors and 147 are associate professors, as well as 300 honorary professors. During the last few years there have been two Chairs, with their corresponding directors<sup>4</sup>. In general, when looking at Spain's European neighbours, it is easy to realize that there are evident differences in the universities' medical curricula, with these Schools emphasizing more a series of characteristics of FM, such as continuous care of patients and holistic health focus, and are oriented to the individual, the family and the community.

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in Spain are presently not well known. Two studies have been performed so far<sup>10,11</sup>. Menárguez Puche surveyed 216 medical students to assess their attitudes towards FM and its importance in undergraduate medical studies<sup>10</sup>. Results showed that only 1.4% of those surveyed considered FM as their first choice of specialty, whereas 48.1% were considering it as an alternative choice. On the other hand, 35.2% of the students answered that they would only choose it if they could not get into other specialties and 15.3% said they would never choose it. Students believed that FM should have an important role in university. However, they did not prioritize it themselves. This is consistent with their choices for postgraduate specialization. The authors concluded that FM continues to be not well known amongst Spanish medical students, difficulting that this specialty becomes a viable choice for postgraduate study<sup>10</sup>. Recently, Escobar Rabadan et al. surveyed 88 medical students at the beginning and end of a course on Primary Care<sup>11</sup>. The objective of the study was to explore what socio-demographic and academic variables are associated with a better knowledge and more favourable attitude to FM. Results showed that the only variable that was associated was gender, with women, especially younger women, showing the most favourable attitudes towards Family Medicine.

The international literature also has few studies on this subject, either before or after the end of undergraduate study. However, attitude has been studied in various international studies, especially by Anglo-Saxon universities<sup>12-23</sup>. In general the available information shows that the attitude of medical students toward FM improves as they progress in the school of medicine, and that it is proportionately related with the degree of contact they have with Family Medicine during their undergraduate training<sup>17,21</sup>. In a study performed in the United Kingdom, the attitude of medical students towards Family Practice as a specialty and toward family physicians was analysed<sup>15</sup>. The students reflected a positive attitude toward both and listed their personal experience with family physicians as the most influential factor on their attitude. The attitudes of the students with respect to the specialty as well as to family physicians improved during their course of study, with FM being the only specialty to show an improvement.

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The reasons for which students choose a specific specialty for training and future practice are complex. Different factors have shown an association with the selection of Family Medicine: the desire to practice a specialty with multiple branches, social orientation, characteristics of the Medical School, characteristics such as hours and aspects related to the volume and quality of the work (expected salary, prestige, possibility of finding work, follow-up of patients, etc.), and personal interaction<sup>16,24,25</sup>. In general, students see themselves as family doctors, or hospital specialists from the moment they enter Medical School. Different studies have shown that, although there is a margin for variation in the selection of the future specialty, the preferred choice at the moment of entering Medical School is a key predictive factor<sup>11,26</sup>.

Within this context, and given the scarcity of information on this topic, in Spain we have designed a cross-sectional survey to evaluate the potential impact of Medical School teaching on the final students' profiles, both in perceptions and expectations, and in the choice of specialty. Our hypothesis is that those Medical Schools with greater exposure to Family Practice will have students with more positive attitudes and perceptions than those with less. On the other hand we hypothesize that attitudes and perceptions will improve over time as students get exposed to Family Practice through their undergraduate years. Finally, given the actual situation of this specialty, in Spain and at the European level, with an increase in its inclusion in Medical Schools, we hypothesize that these attitudes and perceptions will also improve over time.

**METHODS**

This is a multicenter survey that will take place in Spanish Medical Schools. This proposal refers to the initial observation and the first follow-up after two years. Each survey will consist of two different questionnaires: one will be given to students in different courses of the Spanish Medical School undergraduate curricula, asking about their knowledge, perceptions and attitudes about Family Medicine. This questionnaire will be repeated every two years. The repetition will help exploring the evolution of the student cohort until the end of their undergraduate studies. The other questionnaire will

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evaluate the educational activity related to Family Medicine in each center. This protocol was approved the Research Ethics Board at the IDIAP Jordi Gol, Barcelona.

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**Subjects**

The study subjects will be all students in the first, third and fifth year in all Spanish Medical Schools (approximately between 12,000 and 14,000 students). The rationale for choosing the third and fifth year is that in the third is when the students start clinical exposure, and in the fifth year they are in a more advanced situation from the clinical point of view. The first year will provide a baseline value. At the same time, a different survey will be addressed to the study's local coordinating faculty in each Medical School. Participation will be voluntary.

**Student questionnaire**

**Design of the questionnaire**

The instrument of measure will be a specifically designed questionnaire made up of a series of items that will be evaluated on a scale similar to a Likert scale, with some open questions. A list of items will be obtained from the literature review, such as attitudes, perceptions, specialty preference, and demographic characteristics. With these items we will develop the first version of the questionnaire. A pilot study will be done with students in different years of Medical School in Barcelona, Madrid, Alicante and Zaragoza in order to validate the questionnaire, evaluate its reliability, and verify that it is adequate and well accepted. The final version will be developed based on the results of the pilot study. The questionnaire will also collect information on the student characteristics that the literature review shows are related to attitudes and perceptions about Family Medicine.

**Data collection**

Data collection will take place close to the beginning of the second quarter of the academic year. The completion of the questionnaire will be done in the classroom, in

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### Questionnaire for local coordinators

In each Medical School there will be one or two faculty who will be the local coordinators of the study. These coordinators will answer a specific questionnaire about educational and other activities related to Primary Care, and Family Medicine, taking place in their local school during the academic year.

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### Data analysis

A descriptive analysis of the answers will be undertaken, both by groups and individually, for each of the study years. Proportions will be used for categorical variables and means, and standard deviations for quantitative variables. Variability according to Medical School and study year will be analyzed, both via variability quotients and also by comparing the different strata with the Chi-squared test and analysis of variance.

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The existence of an association between the questionnaire scores and each of its dimensions will also be analyzed by comparing the students' individual characteristics with the teaching activity related to Primary Care and Family Practice in the different Medical Schools. This analysis will use both bivariate procedures (Chi-squared test, analysis of variance) as well as multivariate ones. A multiple linear regression will be done, with the survey scores and dimension scores as dependent variables, and the rest of the variables being considered descriptive. The selection of variables will be done step by step from an initial model formed by variables with a bivariate association with dependent variables of  $p \leq 0.20$ . The dependent variables will then be dichotomized and the analysis will be repeated through logistic regression.

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Alter the second survey two years later the same analyses will take place and in addition the evolution of the questionnaire scores and activity related to Primary Care and Family Medicine will be analyzed by comparing the results with those cohorts of students in the

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## DISCUSSION

The proposed study has been designed to evaluate the [aforementioned](#) characteristics at the beginning of medical training and throughout time. Given its sample size (number of [Medical Schools](#) and students) and the fact that it implies a follow-up of the students, this project will provide relevant [information, which](#) is presently not available in the international literature. The study takes place in the context of the changes due to the [Bologna Process](#) (<http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>). The overarching aim of this [Process](#) is to create a European Higher Education Area (EHEA) based on international cooperation and academic exchange. There are changes taking place actually, due to [the Bologna Process](#) and to the general tendency in most [Medical Schools](#) to [introduce progressively](#) more teaching activities in Family [Medicine](#). The results of this study will generate in the next few years information about the evolution of knowledge, attitude and perceptions about [Family Medicine](#) as a specialty. They will also assist in analyzing the relation of different factors to perception and the final choice of [FM](#) as a specialty.

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## Study's limitations

The principal limitations of this study are related to its design. [First, given its observational nature the results observed should be considered hypothesis generating rather than conclusive. Our hypothesis is that at present, where there is a shortage of Family Medicine in University in our country, more Family Medicine training will improve attitudes and perceptions. If this is true, it is likely that given the actual circumstances and changes taking place in Family Medicine in Spain and the Bologna process across Europe, the increase in the presence of Family Practice will improve the attitudes and perceptions of students towards it. However, other factors, that we are unable to control](#)

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Secondly, the percentage of replies can be generally low, and also vary according to Medical School and specific items, which can introduce a bias. The role of the coordinating faculty in each Medical School is essential in order to reduce the number of unanswered questionnaires. Another difficulty, since the questionnaire is anonymous, is the impossibility of evaluating at an individual level the evolution over time of the assessed characteristics and dimensions.

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### Study's strengths

The design of this study has various strengths. One of the principal ones is the completion of the questionnaire in the classroom, in paper format, during some of the students' training sessions. In this way we should obtain a high response rate, with few students not responding. In specific cases, when local circumstances make difficult to get the students together, it will also be possible to respond via the Internet. The research team for this study includes coordinating faculty from 22 of the 27 universities throughout Spain, which should bring the total number of surveyed individuals to over 10,000, making this the largest study on this subject internationally. This sample size and the expected high response rate will make the study be a representative assessment of the present situation in Spain.

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### Implications

This national survey will provide information on the attitudes and perceptions students in Medical Schools have of Family Medicine in the health system. It will also allow us to assess their attitude on its usefulness, and the need for specific training in Family Medicine at the undergraduate level. For these reasons we believe that the results of this study will provide valuable information for curriculum development related to Family Medicine in the different Schools of Medicine, and will help to prioritize those activities that will be most effective for promoting this specialty in Spain.

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**Figure legends****Figure 1. Study design flowchart****Abbreviations and definitions**

FM: family medicine

Family medicine: Family medicine is normally the point of first medical contact within the health care system, providing open and unlimited access to its users, dealing with all health problems regardless of the age, sex, or any other characteristic of the person concerned (WONCA, Europe. The European Definition of General Practice/Family Medicine. 2002).

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**Competing interests**

The authors declare that they have no competing interests.

**Authors' contributions**

AMZ, JJV and PAC participated in the conception and design of the protocol and drafted a first version. AMH, XMT and AOP participated in the design and provided important intellectual content to the first draft. All authors participated, revising it critically for important intellectual content and have given final approval of the version to be published.

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**Acknowledgements**

We would like to thank Carmen Llenas for her help with the running of the study.

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