

BMJ Open What attributes do patients prefer in a family physician? A cross-sectional study in a northern region of Portugal

Joana Nuno ,^{1,2} Susana Fernandes,¹ Teresa Rei Silva,³ Ana Catarina Guimarães,⁴ Bernardo Morais Pereira,⁵ Sara Laureano-Alves,⁵ Isabel Cristina Vieira de Sousa,⁶ Dinis Brito,^{1,2} João Firmino-Machado ^{7,8}

To cite: Nuno J, Fernandes S, Silva TR, *et al.* What attributes do patients prefer in a family physician? A cross-sectional study in a northern region of Portugal. *BMJ Open* 2021;**11**:e035130. doi:10.1136/bmjopen-2019-035130

► Prepublication history and supplemental material for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2019-035130>).

Received 22 October 2019
Revised 04 April 2020
Accepted 18 June 2020



© Author(s) (or their employer(s)) 2021. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to

Dr Joana Nuno;
joanamnuno@gmail.com

ABSTRACT

Objectives To determine which modifiable and non-modifiable attributes patients prefer in a family physician, as well as to analyse participants' characteristics associated with their choices.

Design Cross-sectional study.

Setting Family healthcare units (FHU) in the city of Braga and Barcelos (Northern Portugal).

Participants Adults aged 18 years or more, enrolled in the selected FHU.

Main outcome measures The preferred attributes were assessed with a questionnaire delivered in the FHU. These attributes included gender, age and nationality and the importance of being Portuguese, of greeting with a handshake, of welcoming in the waiting area, of using an identification badge and of wearing a white coat.

Results A total of 556 questionnaires were included in the analysis; 66% and 58% of the participants had no preference for the gender or age of the family physician, respectively. Using a multinomial logistic regression, male participants were 3.8 times more likely to have a preference for a male physician than having no preference, in comparison to female participants (OR 3.864, 95% CI 1.96 to 7.61). More than 69% of the participants considered greeting with a handshake, using an identification badge and wearing a white coat important or very important. There was a statistically significant association between being Portuguese and the major importance given to the use of an identification badge ($\beta=0.68$, 95% CI 0.23 to 1.12).

Conclusions Our data show that modifiable attributes of the family physician (greeting, presence of an identification badge and wearing a white coat) are important for patients. Potential changes in family physician attitude in consultation could ultimately affect patient-physician relationship.

INTRODUCTION

A trusting physician-patient relationship is essential to the success of medical care, since patient-centred medicine is characterised by a bidirectional interaction between the patient and physician at all stages of the decision-making process.¹⁻⁴ From the first moment, physicians work to build an effective relationship with their patients. Recent studies suggest

Strengths and limitations of this study

- This is the first European study to address the way patients are welcomed by their family physicians.
- The large sample size and the involvement of different Family healthcare units are additional strengths of the study.
- The main weakness of this study is the selection of a specific population from the same region, lacking information from other regions/countries.

that first impressions, once they occur, remain relatively stable over time.^{5,6} First impressions can be influenced by different characteristics such as the physician's nationality, gender, physical appearance, facial features, posture, speech and voice.⁵ Several meta-analyses concluded that patients who have a better relationship with their family physician are more likely to adhere to treatment plans and disclose information.^{7,8} Adherence to medication has been recognised as a key issue in health outcomes since, when inadequate, it reduces the effectiveness of treatment which represents a significant burden for both the patients and the healthcare system.⁷

During the consultation, physician's verbal and nonverbal communication as well as modifiable and non-modifiable attributes (which include gender, age, image and attitude) will influence the patient's opinion.^{9,10} Several researchers have already studied the gender preference for a doctor in many medical specialties.¹¹⁻¹⁶ A study published in 1997 showed that gender preferences are stronger for those health professions more likely engaged in intimate and psychosocial health issues, such as family physicians.¹¹ For some conditions, namely those more intimate, patients prefer family physicians of the same gender.¹⁷ Gender preference can ultimately lead to patient satisfaction.^{18,19} There is not much literature

**Table 1** Sociodemographic characteristics of the participants (n=556)

Participants' characteristics		
Age (years)		
Mean \pm standard deviation	44.8 \pm 0.6	
Minimum	18	
Maximum	84	
	n	%
Gender*		
Male	161	29
Female	394	71
Marital Status		
Single	133	23.9
Married	316	56.8
Divorced	65	11.7
Widow	24	4.3
Other	18	3.2
Nationality†		
Portuguese	533	96.2
Other	21	3.8
Education (no years)		
< 4	13	2.3
4-9	201	36.2
10-12	171	30.8
> 12	171	0.8

*One missing value.

†Two missing values.

regarding the preference for the age of the physician. Some studies reported a preference for an age between 30 and 50 years old, reflecting a balance between an experienced and up-to-date physician.^{13 20 21} However, some authors hypothesise that patient could prefer physicians of their own age.²⁰ Physician's appearance can also be a determining factor in the patient's perception of the quality of care provided, despite the sociocultural context.¹ It has long been tradition for physicians to dress professionally in white coats as a universal symbol.²² In a pioneer study in 1987, Dunn *et al* reported that over half of the primary care patients wanted their physicians to wear a white coat during a consultation.⁹ Since then, several studies in different cultures have been developed, and the majority reported similar results.^{2 22-25} However, in some population groups physician's attire does not seem to influence patients' preferences. A study driven with a population of adolescents found that 43% had no preference for the physician's form of dressing, although most of them preferred to be observed by a physician of the same gender.²⁶ Other authors studied the role that white coats and physician's attributes had on medical students' perception on competence and judgement

making abilities. The presence of a white coat did not influence the students' perception of the physician's competence, trustworthiness or professionalism. On the other hand, male gender and Caucasian race were viewed as protective from being ascribed error.⁷ Nowadays, in some societies, such as Denmark and England, it is rare to see a primary physician wearing a white coat, while in Sweden, Finland and even in Portugal many physicians still wear it.²⁷ Some countries discouraged the use of the white coat in order to prevent disease transmission.²² In general, preferences for modifiable attributes of family physicians, particularly on which attitudes the patient values the most, are scarce. However, an appropriate and relationship-centred start of each medical consultation is important and physician's self-introduction and presentation is the intervention most often reported by patients as the first explicit moment in which they form a judgement on the physician.⁵ A recent study in USA in 2019 reported that physician's name tags were perceived to be crucial in medical settings.²⁸

Therefore, the main objective of this study was to determine which modifiable and non-modifiable attributes patients prefer in a family physician. In addition, we aimed to understand if patients' sociodemographic characteristics influence their preference for gender, age, nationality of the family physician and importance of greeting with a handshake, of using an identification badge and of wearing a white coat.

METHODS

Study design and data collection

A cross-sectional study was conducted at five family health-care units (FHU) in the northern region of Portugal, two of them are in a rural area and the remaining three are in an urban area. To evaluate patients' preferences regarding the attributes of their family physician, a self-completion questionnaire was developed by the authors. The study protocol and the questionnaire are described in online supplemental file 1). This questionnaire comprises two sections. The first section comprised eight multiple-choice questions regarding the preference for modifiable and non-modifiable attributes in a family physician and a question that allowed the participant to choose an image from eleven different options depicting different types of clothing (formal, semiformal and informal) of a family doctor, in different situations/types of medical consultation. This last question analysis will not be considered in this article. The second section comprised five questions related to participants' characteristics (age, gender, marital status, nationality and educational level).

The questionnaire was delivered by the clinical secretaries of the enrolled FHU to all patients who agreed to participate in the study at the time of the appointment (scheduled or non-scheduled), in June of 2018. The questionnaire was self-filling to allow for a more truthful response. All the completed questionnaires were deposited in a properly sealed box. Patients registered in any of

Table 2 Selected preferences for the family physician (n=556)

	n	%								
Family physician's attributes										
Gender*										
Male	43	7.9								
Female	141	26								
No preference	359	66.1								
Age†										
25–34 years	35	6.5								
35–44 years	97	17.9								
45–54 years	61	11.3								
55–64 years	24	4.4								
No preference	324	59.9								
Importance of	Being Portuguese‡	Hand shake§	Welcoming in the waiting area¶		Using an identification badge**		Wearing a white coat††			
			n	%	n	%	n	%	n	%
Not important	81	14.9	25	4.6	80	14.6	21	3.8	26	4.7
Of little importance	53	9.6	19	3.5	58	10.6	32	5.8	24	4.4
Indifferent	148	26.9	74	13.5	207	37.7	88	16	119	21.6
Important	144	26.2	236	43	131	23.9	251	45.6	215	39.1
Very important	123	22.4	195	35.5	73	13.3	158	28.7	166	30.2
How to wear the white coat‡‡										
Open	24	4.5								
Closed	142	26.6								
No preference	372	69.1								

*13 missing values.

†15 missing values.

‡7 missing values.

§7 missing values.

¶7 missing values.

**6 missing values.

††6 missing values.

‡‡18 missing values.

the FHU, older than 17 years old, with an appointment during the study period, were considered eligible. Illiterate patients or those with physical/cognitive limitations that did not allow the autonomous completion of the questionnaire were excluded. The information collected was recorded in a database created for this purpose. Each researcher filled out the database on questionnaires applied at another FHU. To ensure anonymity, the database did not allow users to be identified and there was no reference to their family physician. In 2017, there were 44823 adults registered in the five FHU. Considering an α of 0.05, power of 80%, an allocation ratio of exposed to non-exposed of 1, a proportion of non-exposed participants who develop the study outcome of 72% and a proportion of exposed participants who develop the study outcome of 96%, this would result in a sample size of 92 valid questionnaires. The considered parameters were retrieved from a small Portuguese study.¹⁰ We

considered these calculations too conservative. Therefore, we assumed, instead, a proportion of non-exposed participants who develop the study outcome of 63% and a proportion of exposed participants who develop the study outcome of 75%, resulting in a total sample size of 506.

Participants were guaranteed anonymity and confidentiality, and the voluntary nature of the enrolment was emphasised.

Confidentiality was ensured by not identifying the patient or the family physician.

Patient and public involvement

Patients were involved in face validity testing and a pilot test. The face validity of the instrument was tested with eligible patients and modifications were conducted in accordance. A qualitative study was carried out to see if the questions were well understood and if the language was appropriate and modifications were made in terms



Table 3 Association between participants' characteristics and the preferred family physician's attributes

Family physician's attributes		Participants' characteristics												P value														
		Age			Gender			Marital status			Nationality				Education													
		n	Mean±SD	P value	Male n %	Female n %	P	Alone n %	Accompanied n %	P	Portuguese n %	Other n %	P		<4 n %	4-9 n %	10-12 n %	>12 n %										
Gender																												
Male	43	48.6±16.3	0.157	27	17.0	16	4.1	<0.001	17	7.8	26	7.9	0.604	38	7.3	5	23.8	0.004	1	8.3	23	11.9	11	6.5	8	4.7	0.007	
Female	141	44.1±15.7		28	17.6	115	29.7		62	28.4	81	24.6		134	25.6	8	38.1		4	33.3	55	28.4	53	31.2	31	18.1		
No preference	359	44.5±14.6		104	65.4	256	66.1		139	36.8	222	67.5		352	67.2	8	38.1		7	58.3	116	59.8	106	62.4	132	77.2		
Age																												
25-34 years	35	38.2±17.0	<0.001	15	9.4	20	5.2	0.137	22	10.1	13	4.0	0.038	31	6.0	4	19.0	0.008	0	0.0	11	5.7	14	8.3	10	6.1	0.064	
35-44 years	94	43.6±14.7		31	16.5	66	17.3		38	17.4	59	18.3		91	17.8	3	14.3		1	7.7	39	20.1	28	16.6	29	17.6		
45-54 years	61	50.3±13.2		19	11.9	42	11.0		20	9.2	41	12.7		55	10.6	6	28.6		4	30.8	13	6.7	24	14.2	20	12.1		
55-64 years	24	53.4±14.7		10	6.3	14	3.7		7	3.2	17	5.3		24	4.6	0	0.0		2	15.4	12	6.2	6	3.6	4	2.4		
No preference	323	44.0±14.3		84	52.8	239	62.7		131	60.1	193	59.8		316	61.0	8	38.1		6	46.2	119	61.3	97	57.4	102	61.8		
Importance of being Portuguese																												
Mean±SD	545	-	0.001	3.3±1.4	3.3±1.3	3.4±1.3	0.914	3.2±1.3	3.4±1.3	0.029	3.3±1.3	2.8±1.4	0.049	3.6±1.3	3.5±1.3	3.0±1.3	<0.001											
Importance of hand shake																												
Mean±SD	544	-	0.418	4.0±1.1	4.0±1.0	4.1±0.9	0.435	3.9±1.1	4.1±0.9	0.067	4.0±1.0	3.6±1.1	0.094	4.1±1.2	4.0±1.0	4.0±1.0	0.971											
Importance of welcoming in the waiting area																												
Mean±SD	544	-	0.085	3.2±1.3	3.1±1.2	3.1±1.2	0.365	3.1±1.2	3.1±1.2	0.400	3.1±1.2	2.9±1.1	0.328	3.2±1.2	3.3±1.2	2.9±1.3	0.021											
Importance of using an identification badge																												
Mean±SD	545	-	0.879	3.9±1.1	3.9±1.0	3.9±1.0	0.955	3.9±1.0	3.9±1.0	0.945	3.9±1.0	3.2±1.1	0.002	3.8±1.2	3.9±1.0	3.9±1.0	0.967											
Importance of wearing a white coat																												
Mean±SD	545	-	0.972	3.9±1.1	3.8±1.0	3.9±1.0	0.552	3.9±1.1	3.9±1.0	0.983	3.9±1.1	3.6±1.1	0.203	3.4±1.0	3.9±1.0	3.8±1.1	0.347											
How to wear the white coat																												
Open	23	46.5±18.1	0.617	10	6.5	14	3.7	0.137	10	4.7	14	4.3	0.038	21	4.1	3	14.3	0.008	2	22.2	7	3.6	10	5.9	5	3.0	0.064	
Closed	142	43.6±15.3		49	24.3	93	24.3		63	29.3	79	24.5		137	26.6	5	23.8		2	22.2	43	22.4	49	29.0	48	28.6		
No preference	369	44.6±14.0		95	72.1	276	72.1		142	66.0	230	71.2		357	69.3	13	61.9		5	55.6	142	74.0	110	65.1	115	68.5		

Table 4 Multinomial logistic regression models used to test the association between participants' characteristics and preference for family physician's gender

	Participants' characteristics	OR _{crude}	95% CI	P value	OR _{adjusted}	95% CI	P value
Preference for male physician vs No preference	Age	1.02	1.00 to 1.04	0.062			
	Gender						
	Male	4.15	2.15 to 8.03	<0.001	3.864	1.96 to 7.61	<0.001
	Female	1	–		1	–	
	Marital status						
	Alone	1.04	0.55 to 1.99	0.896			
	Accompanied	1	–				
	Nationality						
	Portuguese	0.173	0.05 to 0.56	0.003	0.109	0.03 to 0.39	0.001
	Other	1	–		1	–	
	Education						
	<4	2.36	0.26 to 21.56	0.448	2.29	0.24 to 22.04	0.475
	4–9	3.27	1.41 to 7.60	0.006	3.49	1.42 to 8.58	0.006
10–12	1.71	0.665 to 4.41	0.265	1.70	0.64 to 4.55	0.289	
>12	1	–					
Preference for female physician vs No preference	Age	1.00	0.99 to 1.01	0.928			
	Gender						
	Male	0.60	0.37 to 0.97	0.033	0.58	0.36 to 0.94	0.026
	Female	1	–		1	–	
	Marital status						
	Alone	1.22	0.83 to 1.81	0.316			
	Accompanied	1	–				
	Nationality						
	Portuguese	0.38	0.14 to 1.04	0.058	0.361	0.13 to 1.01	0.053
	Other	1	–		1	–	
	Education						
	<4	2.43	0.67 to 8.83	0.176	2.768	0.75 to 10.18	0.126
	4–9	2.02	1.22 to 3.35	0.006	2.152	1.29 to 3.6	0.004
10–12	2.13	1.28 to 3.56	0.004	2.103	1.25 to 3.53	0.005	
>12	1	–		1	–		

of writing and clarification of the terms described in the questionnaires. Then the pilot test considering 20 patients was carried out and no changes were implemented. All the patients considered in the pilot study or in the assessment of face validity were not included in data analysis.

Statistical analysis

All the categorical variables were presented as frequencies and percentages and the continuous variables as means and SD or medians and IQRs, as appropriate. To test the association between the participants' characteristics and family physician's attributes, we used the correlation test, when both correspond to continuous variables (Pearson correlation test) and the χ^2 test when both variables are categorical. The continuous variables that describe participants' characteristics were compared across the preferred

family physician's gender, age groups and way of wearing the white coat, using independent sample t-tests or one-way analysis of variance, as appropriate. To test the association between participants' characteristics (age, gender, marital status, nationality and education) and preference regarding the age, gender and way of wearing the white coat by the family physician, multinomial logistic regression models were adjusted. Initially, univariate models were performed to assess the crude association between each of the participants' characteristics and all the outcomes. Afterwards, multivariate models were conducted considering as independent variables those identified with a $p < 0.05$ in the univariate analysis. To test the association between participants' characteristics and the Likert scale questions (importance of Portuguese


Table 5 Multinomial logistic regression models used to test the association between participants' characteristics and preference for family physician's age

	Participants' characteristics	OR _{crude} No preference	95% CI	P value	OR _{adjusted} No preference	95% CI	P value
Preference for physician with 25–34 years vs No preference	Age	0.969	0.94 to 0.996	0.024	0.98	0.95 to 1.01	0.123
	Gender						
	Male	2.13	1.05 to 4.36	0.037	2.31	1.10 to 4.83	0.027
	Female	1	–				
	Marital status						
	Alone	2.49	1.21 to 5.13	0.013	2.01	0.92 to 4.40	0.079
	Accompanied	1	–				
	Nationality						
	Portuguese	0.196	0.06 to 0.69	0.011	0.28	0.07 to 1.03	0.055
	Other	1	–		1	–	
	Education						
	<4	*	*	*	*	*	*
	4–9	0.94	0.39 to 2.31	0.898	1.46	0.54 to 3.92	0.452
10–12	1.47	0.62 to 3.47	0.377	1.53	0.63 to 3.68	0.345	
>12	1	–					
Preference for physician with 35–44 years vs No preference	Age	1.00	0.98 to 1.014	0.792	0.99	0.98 to 1.01	0.548
	Gender						
	Male	1.34	0.82 to 2.19	0.250	1.35	0.81 to 2.24	0.250
	Female	1	–		1	–	
	Marital status						
	Alone	0.949	0.60 to 1.51	0.825	0.87	0.53 to 1.43	0.578
	Accompanied	1	–				
	Nationality						
	Portuguese	0.77	0.20 to 2.99	0.713	0.75	0.19 to 2.92	0.672
	Other	1	–		1	–	
	Education						
	<4	0.59	0.07 to 5.07	0.627	0.69	0.08 to 6.32	0.742
	4–9	1.15	0.67 to 2.00	0.612	0.16	0.63 to 2.14	0.632
10–12	1.02	0.56 to 1.83	0.96	1.06	0.58 to 1.92	0.857	
>12	1	–					
Preference for physician with 45–54 years vs No preference	Age	1.029	1.01 to 1.05	0.002	1.04	1.02 to 1.07	<0.001
	Gender						
	Male	1.287	0.71 to 2.34	0.407	1.11	0.59 to 2.09	0.739
	Female	1	–				
	Marital status						
	Alone	0.719	0.40 to 1.28	0.263	0.78	0.42 to 1.44	0.421
	Accompanied	1	–				
	Nationality						
	Portuguese	0.23	0.08 to 0.695	0.009	0.25	0.08 to 0.80	0.019
	Other	1	–				
	Education						
	<4 vs >12	3.4	0.88 to 13.15	0.076	1.28	0.29 to 5.73	0.745
	4–9 vs >12	0.56	0.26 to 1.18	0.125	0.31	0.13 to 0.71	0.006
10–12 vs >12	1.26	0.66 to 2.43	0.487	1.09	0.55 to 2.16	0.795	
>12	1	–					

Continued

Table 5 Continued

	Participants' characteristics	OR _{crude} No preference	95% CI	P value	OR _{adjusted} No preference	95% CI	P value
Preference for physician with 55–64 years vs No preference	Age	1.043	1.01 to 1.07	0.003	1.03	1.00 to 1.07	0.061
	Gender						
	Male	2.03	0.87 to 4.75	0.101	1.64	0.68 to 3.93	0.268
	Female	1	–				
	Marital status						
	Alone	0.607	0.25 to 1.50	0.281	0.79	0.31 to 2.03	0.630
	Accompanied	1	–				
	Nationality						
	Portuguese	†	†	†	†	†	†
	Other	1	–				
	Education						
	<4 vs >12	8.50	1.29 to 56.07	0.026	3.48	0.44 to 27.76	0.240
	4–9 vs >12	2.57	0.80 to 1.22	0.111	1.44	0.41 to 5.11	0.570
10–12 vs >12	1.58	0.43 to 5.76	0.490	1.47	0.40 to 5.44	0.561	
>12	1	–					

*Preference for 25–34 years was not selected by participants with less than 4 years of scholarship.

†Preference for 55–64 years was selected by Portuguese participants only.

nationality, importance of a handshake, importance of welcoming in the waiting area, importance of using an identification badge and importance of wearing a white coat), linear regression models were used, after testing for linearity. Initially, simple linear regression models were conducted to assess the association between each of the participants' characteristics and all the outcomes. Afterwards, multiple linear regression models were performed considering as independent variables those identified with a $p < 0.05$ in the univariate analysis. Listwise deletion was the chosen method for handling missing values. All the computed p values were two tailed with a p value lower than 0.05, indicating statistical significance. All the analysis was conducted using SPSS V.25.0.

RESULTS

A total of 650 questionnaires were delivered and a total of 556 were completed by the participants of the enrolled FHU. Most of them were female (71%), with a mean age of 44.8 ± 0.6 years and 3.8% ($n=21$) were non-Portuguese (table 1).

Non-modifiable attributes of the family physician

More than half of the participants had no preference for the gender of the family physician ($n=359$, 66.1%), but for those who showed a preference, most preferred to be seen by a female physician ($n=141$, 26.0%) (table 2). A statistically significant association was found between the characteristics of the patients (gender, nationality and education) and the physician's gender ($p < 0.001$, $p=0.004$ and $p=0.007$, respectively) (table 3). Regression models also showed this association. Male participants were 3.8 times more likely to

have a preference for a male physician and 42% less likely to have a preference for female physician, in comparison to female participants (OR 3.864, 95% CI 1.96 to 7.61 and OR 0.58, 95% CI 0.36 to 0.94, respectively) (table 4). Most non-Portuguese patients had a preference for a particular gender of the family physician, where 38.1% preferred a female physician and 23.8% preferred a male physician (table 3), whereas Portuguese participants are more likely to have no preference (OR 0.109, 95% CI 0.03 to 0.39 for male preference) (table 4). Finally, patients with a higher education considered the gender of the family physician less important ($n=132$, 77.2%) in comparison with those with a lower education (table 3). People with 4–12 years of education were about two times more likely to have a preference for either male or female physicians, rather than having no preference, in comparison to those with a higher education (table 4).

Most patients did not have a preference concerning the age group of their family physician ($n=323$, 60.1%) (table 3). However, among those who had a preference, participants preferred physicians aged 35–44 years ($n=94$, 17.5%) or 45–54 years ($n=61$, 11.4%) (table 3). There was a statistically significant association between the preference for the age of the physician and the marital status, nationality and the age of the responders ($p=0.038$, $p=0.008$ and $p < 0.001$, respectively). Patients prefer family physicians from the same age group as their own. In regression models, this association with age was found for the preference for a physician with an age between 45 and 54 years-old, where an increase in 1 year of life increased 4% the odds to select this option rather than no preference (table 5). In comparison to females, male

Table 6 Linear regression models used to test the association between participants' characteristics and Likert scale questions

	Participants' characteristics	Non-standardised β_{crude}	95% CI	P value	Non-standardised β_{adjusted}	95% CI	P value
Importance of Portuguese Nationality	Age	0.01	0.01 to 0.02	0.001	0.01	-0.001 to 0.02	0.104
	Gender						
	Male vs female	-0.01	-0.26 to 0.23	0.914			
	Marital Status						
	Alone vs accompanied	-0.25	-0.48 to 0.03	0.029	-0.12	-0.35 to 0.12	0.325
	Nationality						
	Portuguese vs other	0.58	0.003 to 1.16	0.049	0.47	-0.11 to 1.04	0.109
	Education						
	<4 vs >12	0.62	-0.14 to 1.39	0.110	0.42	-0.38 to 1.21	0.303
4-9 vs >12	0.59	0.32 to 0.86	<0.001	0.47	0.18 to 0.76	0.002	
10-12 vs >12	0.42	0.15 to 0.70	0.003	0.42	0.14 to 0.70	0.003	
Importance of hand shake	Age	0.001	-0.003 to 0.01	0.418			
	Gender						
	Male vs female	-0.08	-0.27 to 0.11	0.405			
	Marital status						
	Alone vs accompanied	-0.17	-0.34 to 0.01	0.058			
	Nationality						
	Portuguese vs other	0.40	-0.07 to 0.87	0.094			
	Education						
	<4 vs >12	0.05	-0.55 to 0.65	0.875			
4-9 vs >12	-0.02	-0.23 to 0.19	0.851				
10-12 vs >12	-0.05	-0.27 to 0.17	0.671				
Importance of welcoming in the waiting area	Age	0.01	-0.001 to 0.01	0.085			
	Gender						
	Male vs female	0.10	-0.12 to 0.33	0.365			
	Marital status						
	Alone vs accompanied	-0.09	-0.30 to 0.12	0.400			
	Nationality						
	Portuguese vs other	0.26	-0.26 to 0.79	0.328			
	Education						
	<4 vs >12	0.25	-0.45 to 0.96	0.477			
4-9 vs >12	0.39	0.14 to 0.64	0.002				
10-12 vs >12	0.16	-0.09 to 0.42	0.206				
Importance of using an identification card	Age	0.001	-0.005 to 0.006	0.879			
	Gender						
	Male vs female	0.01	-0.18 to 0.19	0.955			
	Marital status						
	Alone vs accompanied	0.01	-0.17 to 0.18	0.945			
	Nationality						
	Portuguese vs other	0.68	0.25 to 1.12	0.002			
	Education						
	<4 vs >12	-0.11	-0.72 to 0.51	0.736			
4-9 vs >12	-0.03	-0.24 to 0.18	0.776				
10-12 vs >12	-0.05	-0.26 to 0.17	0.664				

Continued

Table 6 Continued

	Participants' characteristics	Non-standardised			Non-standardised		
		β_{crude}	95% CI	P value	β_{adjusted}	95% CI	P value
Importance of wearing a white coat	Age	0.0001	-0.006 to 0.006	0.972			
	Gender						
	Male vs female	0.06	-0.13 to 0.26	0.530			
	Marital status						
	Alone vs accompanied	-0.002	-0.18 to 0.18	0.983			
	Nationality						
	Portuguese vs other	0.30	-0.16 to 0.76	0.203			
	Education						
	<4 vs >12	-0.40	-1.02 to 0.21	0.200			
	4-9 vs >12	0.11	-0.11 to 0.33	0.315			
10-12 vs >12	0.02	-0.20 to 0.25	0.843				

participants are 2.3 times more likely to prefer a physician aged 25–34 years rather than having no preference (OR 2.31, 95% CI 1.10 to 4.83).

According to the data obtained, on average, patients considered indifferent to be seen by a physician of Portuguese nationality (average score 3.3 ± 1.3 , ranging from 1 to 5) (table 3). Nevertheless, it seems that participants with 4–9 years of scholarship consider Portuguese nationality more important than those with higher education (β -adjusted=0.47, 95% CI 0.18 to 0.76) (table 6).

Modifiable attributes of the family physician

More than 78% of the participants considered greeting with a handshake important or very important (average score 4.0 ± 1.0 , ranging from 1 to 5), regardless of the participants' characteristics (table 3). On average, patients also considered indifferent that the physician welcomes them in the waiting area (average score 3.1 ± 1.2) but more than 74% considered the use of an identification badge important or very important (average score 3.9 ± 1.0) (table 3). There was a statistically significant association between the nationality of patients and the importance of using an identification badge, where Portuguese participants assign more importance to this attribute than other nationalities (β -adjusted=0.68, 95% CI 0.25 to 1.12) (table 6).

Wearing a white coat was considered important or very important in more than 69% of the participants (average score 3.9 ± 1.0), regardless of the participants' characteristics (table 3). However, about 69% of participants did not have a preference for the way of wearing the white coat (open or closed) (table 3). In regression models, participants with less than 4 years of scholarship are almost 10 times more likely to prefer an opened white coat rather than having no preference, in comparison to those with higher education (OR 9.87, 95% CI 1.48 to 65.9) (table 7). Male participants are 1.6 times more likely to prefer a closed white coat rather than having no

preference, in comparison to females (OR 1.60, 95% CI 1.05 to 2.45) (table 7).

DISCUSSION

In our study, we aimed to understand what modifiable and non-modifiable attributes patients prefer in a family physician. As in two previous studies, we found no gender preference for the attending physician.^{11 29} However, we found that male participants showed a stronger preference for male physicians than female participants did for female physicians, results that are similar to another study.²⁰ Concerning physician's age, our results are coincident with a Portuguese study in which most patients showed no preference on this subject.³⁰ However, for those who have a preference, the most selected options were 35–54 years, which is in line with previous international studies.^{13 20 21} In the same Portuguese study, Portuguese patients preferred Portuguese physicians whereas foreign patients were indifferent to nationality. Conversely, in our study, being observed by a Portuguese physician was indifferent for most Portuguese patients and of little importance for most foreign patients. However, participants with 4–9 years of scholarship considered Portuguese nationality more important than those participants with a higher education; we believed that this may be due to language issues.

Our data also show that modifiable attributes of the family physician (greeting, identification and the wear of a white coat) are important to patients. These findings are important because potential changes in family physicians' attitude in consultation could ultimately affect patient–physician relationship. We found that more than 69% of the participants considered greeting with a handshake, using an identification badge and wearing a white coat important or very important, regardless of the participants' characteristics. In our study, greeting with a handshake was considered important, even though

Table 7 Multinomial logistic regression models used to test the association between participants' characteristics and preference for the way of using the white coat

	Participants' characteristics	OR _{crude}	95% CI	P value	OR _{adjusted}	95% CI	P value
Preference for opened white coat vs No preference	Age	1.01	0.98 to 1.04	0.544			
	Gender						
	Male	2.08	0.89 to 4.83	0.090	2.16	1.00 to 5.13	0.081
	Female	1	–		1	–	
	Marital status						
	Alone	1.16	0.50 to 2.68	0.733			
	Accompanied	1	–		1	–	
	Nationality						
	Portuguese	0.26	0.07 to 0.96	0.044	0.26	0.07 to 1.05	0.058
	Other	1	–		1	–	
	Education						
	<4	9.20	1.42 to 59.59	0.020	9.87	1.48 to 65.92	0.018
	4–9	1.13	0.35 to 3.67	0.834	1.15	0.35 to 3.81	0.820
10–12	2.09	0.69 to 6.31	0.191	2.03	0.67 to 6.20	0.213	
>12	1	–		1	–		
Preference for closed white coat vs No preference	Age	1.00	0.98 to 1.01	0.490			
	Gender						
	Male	1.53	1.01 to 2.32	0.045	1.60	1.05 to 2.45	0.029
	Female	1	–		1	–	
	Marital status						
	Alone	1.29	0.87 to 1.91	0.200			
	Accompanied	1	–				
	Nationality						
	Portuguese	1.00	0.35 to 2.85	0.997	1.14	0.39 to 3.23	0.809
	Other	1	–		1	–	
	Education						
	<4	0.96	0.18 to 5.11	0.960	0.92	0.17 to 4.93	0.919
	4–9	0.73	0.45 to 1.17	0.190	0.68	0.42 to 1.11	0.122
10–12	1.07	0.66 to 1.72	0.789	1.07	0.66 to 1.73	0.784	
>12	1	–		1	–		

participants felt it to be indifferent to be welcomed in the waiting area. A previous study also found it important for patients to shake their doctors' hand.³¹ In respect to the use of an identification badge, there was a statistically significant association between being Portuguese and the major importance given this attribute (β -adjusted=0.68, 95% CI 0.25 to 1.12). We hypothesised that this may be due to the fact that Portuguese participants can actually understand what is written in the identification badge, but we cannot exclude other factors. It has already been reported that most patients preferred to see the physician's name badge worn at the breast pocket.³² The same was shown in another study, where 84.5% of patients felt that physicians should wear name badges in a clearly visible place.³³ Our findings emphasise its relevance. The

previous literature showed that wearing a white coat is highly valued by patients, which is consistent with our results.^{9,34} Moreover, older patients seem to attribute more importance to this uniform.³⁵ This was not confirmed in our study; we postulate that the main difference in these results was due to the different methodology and clinical settings between studies. Study designs included picture-based surveys and encounter-based survey of patients conducted prior or after receiving care and one study was in general practice context. Also, not only cultural aspects come into play concerning the use of a white coat. As mentioned previously, in some countries, this use is discouraged based on infection control measures. In fact, in an Asian study, when this was explained to patients, the majority, which had preferred doctors wearing a white

coat, changed their mind.²² Nevertheless, in several countries, the white coat still carries a strong symbolic value, transmitting confidence and reassurance to patients,³⁶ as well as identifying physicians as such. We additionally found that most patients had no preference concerning the way the physicians wear their coat (open/closed), a question that has received little attention, but those who had a preference, chose, by large, a closed coat.

Our study has notable strengths. First, it is, to the best of our knowledge, one of the first European studies to evaluate how patients understand the way they are welcomed by the family physician. Second, the relevance of the study, since these results can be used to modify our attitudes towards the patient, which is in line with the patient-centred approach previously mentioned. Third, the study was conducted in different FHUs, allowing a strong sample size and the comparison between different realities. Finally, although it was performed in the northern area of Portugal, it is possible to replicate in different populations in order to adapt our practices to local patient's expectations. Our results must be interpreted in the context of a few limitations. Only one region of Portugal has been studied, so it is not possible to report the data safely to the general Portuguese population or other countries. In addition, the studied sample has some asymmetries, namely regarding the distribution between genders, with a strong female predominance, and in terms of nationality, with more than 96% of patients being Portuguese. This imbalance demands caution in interpreting our results. Moreover, we excluded illiterate patients to ensure self-filling of the questionnaire; however, this may not constitute an important limitation since the illiteracy rate in Portugal is quite low.³⁷

Future studies examining patients' preferences regarding physicians' appearance in several clinical contexts would be interesting, seeing that strategies targeting these attributes may enhance trust and satisfaction. This is further strengthened by the fact that these preferences may be highly variable between different populations and countries, requiring understanding of the local context. On the other hand, it would also be interesting to assess whether the patients' answers are influenced by their family physician's attributes. That is, to test if there is an association between the patients' preferences and their own family physician's characteristics and usual behaviour (nationality, use of identification badge, white coat, etc). This was not performed due to the risk of bias, because we felt patients could be less truthful if they had to identify their physicians.

In conclusion, not only did we find that patients have little preference for gender, age or nationality of their family physician, but more important, patients value certain modifiable aspects such as being greeted with a handshake, the use of an identification badge and of a white coat. Potential changes in family physicians' attitude in consultation could ultimately affect the patient-doctor relationship, which highlights the importance of this study.

Author affiliations

- ¹Family Health Unit 7fontes, Northern Regional Health Administration, Braga, Portugal
²ICVS/3B's - PT Government Associate Laboratory, Life and Health Sciences Research Institute (ICVS), School of Medicine, University of Minho, Braga, Portugal
³Family Health Unit Gualtar, Northern Regional Health Administration, Braga, Portugal
⁴Family Health Unit +Carandá, Northern Regional Health Administration, Braga, Portugal
⁵Family Health Unit Ruães, Northern Regional Health Administration, Braga, Portugal
⁶Family Health Unit Viatodos, Northern Regional Health Administration, Barcelos, Portugal
⁷EPIUnit -The Epidemiology Research Unit, University of Porto, Porto, Portugal
⁸Western Oporto Public Health Unit, Northern Regional Health Administration, Porto, Portugal

Acknowledgements The authors thank all the professional groups (physicians, nurses, clinical secretaries and operational assistants) of the five health units involved in this research.

Contributors JN, SF, ACG, TRS, SL-A, BMP, ICvS and DB designed the study concept, wrote the protocol and collected the data. All authors contributed to the questionnaire validation (only face validity) and data collection. JN, SF and JF-M conducted the analyses. JN and SF drafted the first version of the manuscript. All authors helped to draft the manuscript, read and approve the final manuscript. All authors had full access to all data (including statistical reports and tables) in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval The study was approved by the Ethics Committee of the Northern Health Region of Portugal (number 55/2018).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as online supplemental information. The questionnaire is available on request to the corresponding author.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Joana Nuno <http://orcid.org/0000-0003-3536-4296>

João Firmino-Machado <http://orcid.org/0000-0001-9410-633X>

REFERENCES

- Gopichandran V, Chetlapalli SK. Factors influencing trust in doctors: a community segmentation strategy for quality improvement in healthcare. *BMJ Open* 2013;3:e004115.
- Zollinger M, Houchens N, Chopra V, *et al*. Understanding patient preference for physician attire in ambulatory clinics: a cross-sectional observational study. *BMJ Open* 2019;9:e0226009.
- Rodriguez-Osorio CA, Dominguez-Cherit G, Carlos A. Medical decision making: paternalism versus patient-centered (autonomous) care. *Curr Opin Crit Care* 2008;14:708-13.

- 4 Fernández-Ballesteros R, Sánchez-Izquierdo M, Olmos R, *et al.* Paternalism vs. autonomy: are they alternative types of formal care? *Front Psychol* 2019;10:1460.
- 5 Rimondini M, Mazzi MA, Busch IM, *et al.* You only have one chance for a first impression! impact of patients' first impression on the global quality assessment of doctors' communication approach. *Health Commun* 2019;34:1413–22.
- 6 Gunaydin G, Selcuk E, Zayas V. Impressions based on a portrait predict, 1-Month later, impressions following a live interaction. *Soc Psychol Personal Sci* 2017;8:36–44.
- 7 Ladha M, Bharwani A, McLaughlin K, *et al.* The effect of white coats and gender on medical students' perceptions of physicians. *BMC Med Educ* 2017;17:93.
- 8 Barbosa CD, Balp M-M, Kulich K, *et al.* A literature review to explore the link between treatment satisfaction and adherence, compliance, and persistence. *Patient Prefer Adherence* 2012;6:39–48.
- 9 Dunn JJ, Lee TH, Percelay JM, *et al.* Patient and house officer attitudes on physician attire and etiquette. *JAMA* 1987;257:65–8.
- 10 Rehman SU, Nietert PJ, Cope DW, *et al.* What to wear today? Effect of doctor's attire on the trust and confidence of patients. *Am J Med* 2005;118:1279–86.
- 11 Kerssens JJ, Bensing JM, Andela MG. Patient preference for genders of health professionals. *Soc Sci Med* 1997;44:1531–40.
- 12 Nolen HA, Moore JX, Rodgers JB, *et al.* Patient preference for physician gender in the emergency department. *Yale J Biol Med* 2016;89:131–42.
- 13 Schindelheim GL, Jerrard DA, Witting M. Patient preference for emergency physician age and gender. *Am J Emerg Med* 2004;22:503.
- 14 Johnson AM, Schnatz PF, Kelsey AM, *et al.* Do women prefer care from female or male obstetrician-gynecologists? A study of patient gender preference. *J Am Osteopath Assoc* 2005;105:369–79.
- 15 Varadarajulu S, Petruff C, Ramsey WH. Patient preferences for gender of endoscopists. *Gastrointest Endosc* 2002;56:170–3.
- 16 Abghari MS, Takemoto R, Sadiq A, *et al.* Patient perceptions and preferences when choosing an orthopaedic surgeon. *Iowa Orthop J* 2014;34:204–8.
- 17 Delgado A, Martínez-Cañavate T, García V, *et al.* [Patient preference and stereotype about the gender of the family physician]. *Aten Primaria* 1999;23:268–74.
- 18 Schmittiel J, Grumbach K, Selby JV, *et al.* Effect of physician and patient gender concordance on patient satisfaction and preventive care practices. *J Gen Intern Med* 2000;15:761–9.
- 19 Hall JA, Blanch-Hartigan D, Roter DL. Patients' satisfaction with male versus female physicians: a meta-analysis. *Med Care* 2011;49:611–7.
- 20 Furnham A, Petrides KV, Temple J. Patient preferences for medical doctors. *Br J Health Psychol* 2006;11:439–49.
- 21 McNaughton-Filion L, Chen JS, Norton PG. The physician's appearance. *Fam Med* 1991;23:208–11.
- 22 Zahrina AZ, Haymond P, Rosanna P, *et al.* Does the attire of a primary care physician affect patients' perceptions and their levels of trust in the doctor? *Malays Fam Physician* 2018;13:3–11.
- 23 Petrilli CM, Saint S, Jennings JJ, *et al.* Understanding patient preference for physician attire: a cross-sectional observational study of 10 academic medical centres in the USA. *BMJ Open* 2018;8:e021239.
- 24 Al Amry KM, Al Farrah M, Ur Rahman S, *et al.* Patient perceptions and preferences of physicians' attire in Saudi primary healthcare setting. *J Community Hosp Intern Med Perspect* 2018;8:326–30.
- 25 Yonekura C, Certain L, Karen S. Perceptions of patients, physicians, and medical students on physicians' appearance. *Revista da Associação Médica Brasileira* 2013;59:452–9.
- 26 Neinstein LS, Stewart D, Gordon N. Effect of physician dress style on patient-physician relationship. *J Adolesc Health Care* 1985;6:456–9.
- 27 Menahem S, Shvartzman P. Is our appearance important to our patients? *Fam Pract* 1998;15:391–7.
- 28 Varnado-Sullivan P, Larzelere M, Solek K, *et al.* The impact of physician demographic characteristics on perceptions of their attire. *Fam Med* 2019;51:737–41.
- 29 Rowland PA, Coe NPW, Burchard KW, *et al.* Factors affecting the professional image of physicians. *Curr Surg* 2005;62:214–9.
- 30 Pereira AV, Jorge GP, Guerra NC, *et al.* O médico de família ideal - Perspectiva do utente. *Revista Portuguesa de Clínica Geral* 2008;24:555–64.
- 31 Laird JE, Tolentino JC, Gray C. Patient greeting preferences for themselves and their providers in a military family medicine clinic. *Mil Med* 2013;178:1111–4.
- 32 Lill MM, Wilkinson TJ. Judging a book by its cover: descriptive survey of patients' preferences for doctors' appearance and mode of address. *BMJ* 2005;331:1524–7.
- 33 Gallagher J, Waldron Lynch F, Stack J, *et al.* Dress and address: patient preferences regarding doctor's style of dress and patient interaction. *Ir Med J* 2008;101:211–3.
- 34 Kurihara H, Maeno T, Maeno T. Importance of physicians' attire: factors influencing the impression it makes on patients, a cross-sectional study. *Asia Pac Fam Med* 2014;13:2.
- 35 Petrilli CM, Mack M, Petrilli JJ, *et al.* Understanding the role of physician attire on patient perceptions: a systematic review of the literature--targeting attire to improve likelihood of rapport (TAILOR) investigators. *BMJ Open* 2015;5:e006578.
- 36 Chung H, Lee H, Chang D-S, *et al.* Doctor's attire influences perceived empathy in the patient-doctor relationship. *Patient Educ Couns* 2012;89:387–91.
- 37 Instituto Nacional de Estatística. *Statistics Portugal. Censos 2011 Resultados Definitivos – Portugal*, 2012.