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## Selection of patients by dentists in a situation where health resources are scarce

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**Abstract:** To identify which criteria influenced the selection of patients by dentists in a city of Northeastern Brazil. A cross-sectional study was carried out by collecting data through a questionnaire, consisting of identification data and a case scenario, 308 respondents had to choose, by looking at photos of six supposed patients, the only one who should receive emergency dental treatment in a situation of scarce health resources. The absolute and percent frequencies were obtained for data analysis (descriptive statistical techniques). For the selection of the six patients, the most frequently chosen patient was the 50 year old white male (70.5%) followed by the female of African descent (12%). The dentist's gender did not have a statistically significant effect on the choice of the patient ( $P=0.3366$ ). Age was the most relevant criterion for the choice (46.4%) followed by the patient's physiognomy (30.8%). There was no significant difference between age and choice of the patient ( $P=0.8133$ ). However, there was a significant association between age and reason of choice ( $P=0.0258$ ). Subjective criteria interfered in the choice: the first impression caused by different physical features.

**Key Words:** allocation of resources, patient selection, health care rationing

### Selección de pacientes por dentistas en una situación en que los recursos de salud son escasos

**Resumen:** Para identificar qué criterios influenciaron a los dentistas en la selección de pacientes en una ciudad del Nordeste de Brasil, se realizó un estudio transversal recolectando datos mediante un cuestionario, consistente en datos de identificación y un caso escenario. 308 Respondientes tuvieron que elegir, observando fotos de seis supuestos pacientes, el único que debería recibir tratamiento dental de emergencia en una situación de escasos recursos de atención de salud. Se obtuvo mediante el análisis de los datos las frecuencias absolutas y de porcentaje (técnicas estadísticas descriptivas). En la selección de los seis pacientes, el elegido más frecuentemente fue un hombre blanco de 50 años (70,5%) seguido de una mujer de descendencia africana (12%). El género del dentista no tuvo un efecto estadísticamente significativo en la elección del paciente ( $P=0,3366$ ). La edad fue el criterio más relevante de elección (46,4%) seguido de la fisonomía del paciente (30,8%). No existió diferencia significativa entre la edad y la elección del paciente ( $P=0,8133$ ). Sin embargo, existió una asociación significativa entre la edad y la razón de elección ( $P=0,0258$ ). Criterios subjetivos interfirieron en la elección: la primera impresión causada por diferentes características físicas.

**Palabras clave:** distribución de recursos, selección de pacientes, racionamiento de atención de salud

### Seleção de pacientes por dentistas em situação de escassos recursos sanitários

**Resumo:** Para identificar qual critério influencia a seleção de pacientes por dentistas numa cidade do Nordeste do Brasil, um estudo de corte transversal foi realizado através de dados coletados por questionário, consistindo de dados de identificação e o cenário de um caso. 308 respondentes fizeram a escolha pela observação de fotos de seis supostos pacientes, e somente um deveria receber o tratamento odontológico de emergência havendo recursos de saúde. As frequências absolutas e percentuais foram obtidas para análise de dados (técnicas de estatística descritiva). Na seleção dos seis pacientes, o paciente mais comumente escolhido foi do sexo masculino, 50 anos de idade, de cor branca (70,5%), seguido por mulher de ascendência africana (12%). O sexo do dentista não teve efeito estatisticamente significativo sobre a escolha do paciente ( $P = 0,3366$ ). A idade foi o critério mais relevante para a escolha (46,4%), seguido da fisionomia do paciente (30,8%). Não houve diferença significativa entre idade e escolha do paciente ( $P = 0,8133$ ). No entanto, houve uma associação significativa entre a idade e a razão da escolha ( $P = 0,0258$ ). Critérios subjetivos interferiram na escolha: a primeira impressão foi determinada pelas diferentes características físicas.

**Palavras-chave:** alocação de recursos, seleção de pacientes, critérios em cuidado de saúde

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## Introduction

Ethics is the set of values, principles and standards used as the basis for human behavior; it guides us on what is right, correct and fair, as well as the responsibility of individuals for their actions, in order to live well in society(1). When it comes to everyday life, the emerging and exciting aspects give way to the more traditional and conservative ones, but that does not mean they are less important or not worthy of being analyzed(2). The decision making, integrating the main bioethical issues dignity, autonomy and responsibility— as unavoidable components in decisions geared to continuous total quality improvement in the vast field of medical care(3).

In order to make an ethical decision, as well as there being alternatives of action, an ethical person should be allowed to choose between possible options (freedom to choose) and have the freedom to act according to the choice made(1).

The process of decision making in situations where resources are lacking is never an easy task and can create many situations of contradictory positions, and conflict is inevitable. The ethical issues involved may make the process more complex, but provide, without doubt, an important reference to be used. What is important to remember is that the simplification of the process may make it less fair, while recognizing its complexity can guarantee this fundamental characteristic of ethical adequacy(4).

The criteria that are most commonly used for the allocation of resources are need, merit and effectiveness. The following are usually selected as social criteria: the patient's cooperation with health professionals, age, gender, workforce potentially affected and recovered, the life potential and expectancy and a supportive environment for follow-up treatment(5). However, the majority of decisions are taken in an implicit, intuitive fashion. There is evidence that health professionals do not share a common process of decision making.

In dentistry, there may also be such dilemmas between the point of view of the norm and the descriptive point of view when making a decision.

The task of the dentist when choosing the optimal treatment for each patient requires a rational assessment of the risks involved in a positive and negative decision. There is evidence that the characteristics of the patient, of the professional and of the work specifically influence the decisions made in treatment by dentists(6).

The process of solving a clinical problem is characterized by two elements of decision making: the first one is the content, a knowledge base that exists in the memory of the professional who is looking for the solution of the problem; the second is the method of applying this knowledge in the attempt to resolve this existing problem(7).

There is very little Brazilian literature on studies that emphasize the decision to select who should receive dental care in a situation where resources are scarce. Thus, there is the need to develop research that could define what criteria may affect this decision. This research aims to identify which criteria influence the selection of patients by dentists in a city of northeastern Brazil, by considering age, race and gender. With this study we aim to improve the parameters of the patient-dentist relationship.

## Material and methods

This cross-sectional study was carried out in the city of João Pessoa, Northwest, Brazil. For the study sample, 308 dentists were randomly selected from 1,555 professionals enrolled in the Council of Dentistry of the city.

This study used a standardized "case scenario", i.e. a case report. Case scenarios have been used in other trials and epidemiological research(5-7). Currently, they are being used in specific decision-making studies and are proving to be a method of great value. One of the advantages of this method is the ability to control variables and analyze to what extent they affect decision making(6).

The survey was sent to the Ethics and Research Committee of the State University of Paraíba (UEPB) along with a copy of the consent form in accordance with World Medical Association Declaration of Helsinki version 2002 guidelines and

national health research norms.

The professionals were presented with a two-part questionnaire: the first part for data collection dealt with their identification, and the second presented the case scenario. The case was described as follows: At 17:45 six patients arrive at a Health Care unit that provides dental service on Fridays between 14 and 18 o'clock. None of them can afford to pay for private dental care. All patients have symptoms of pulpitis, but there is only one set of sterilized dental tools available. The case was presented and the following question asked: which patient should be treated?

Photographs of the patients were placed on the same page, identified by letters A to F to facilitate the definition of the sequence. The random sequence was as follows: picture A – a 30 year old female patient of African descent; picture B – a 50 year old white male patient, photo C – a 30 year old male patient of African descent, picture D – a 20 year old white male patient; picture E – a 30 year old white female patient, picture F – a 30 year old white male patient. Patients who volunteered to give their images for the study were selected in the waiting rooms of University dental clinics and signed at the consent form. The selected patients wore a white shirt, so there would be standardization, and agreed to be photographed on a white wall, under the conditions set out in the consent form.

Data were collected using the technique of intensive direct observation in an individual interview carried out by the author, following a standardized or structured form.

For the data analysis, the study obtained absolute and percentual univariate and bivariate distribution variables in nominal scale measures statistics: minimum, maximum, mean, standard deviation and coefficient of variation for numerical variables (Descriptive statistical techniques) and were used Chi-square and Fisher exact tests. Data were entered in the Excel spreadsheet and the statistical software used to obtain the statistical calculations was SAS (Statistical Analysis System) version 8.0. The significance level used in the decisions of the statistical tests was 5.0%.

## Results

At the end of the study, a sample of 308 respondents' questionnaires were recorded and quantitatively analyzed. To identify the interviewee's social status (education and income) the following variables were used: age, sex and declared race.

Of the total respondents, 60.4% were women. Regarding race, 68.2% described themselves as white. 61, 1% of respondents were married. Regarding the time elapsed since graduation, 46.1% graduated up to 10 years previously; 31.5% graduated over 21 years previously and 22.4% graduated between 31 and 40 years (table 1).

Table 1: Distribution of respondents according to the variables: race, marital status, time of graduation. João Pessoa – PB- Brazil, 2010

	<i>n</i>	%
• <i>race</i>		
<i>White</i>	210	68,2
<i>No white</i>	98	31,8
<i>TOTAL</i>	308	100,0
• <i>Marital status</i>		
<i>Single</i>	95	30,9
<i>Married</i>	188	61,1
<i>Divorced</i>	25	8,1
<i>TOTAL</i>	308	100,0
• <i>Time of graduation (in years)</i>		
<i>Up to 10</i>	142	46,1
<i>11 to 20</i>	69	22,4
<i>21 or more</i>	97	31,5
<i>TOTAL</i>	308	100,0

Table 2 shows that the dentist's gender did not have a statistically significant effect on the choice of the patient ( $P=0.3366$ ). The greatest difference occurred with patient B, who was selected by 75.4% of females compared to 70.1% of males – a 5.3% difference.

Table 2: Distribution of respondents according to the variables: patient choice and relevant factor for the choice of the patient - João Pessoa – PB- Brazil, 2010

• Choice of patient		
A-30 year old female patient of African descent	37	12.0
B- a 50 year old white male patient	217	70.5
C- a 30 year old male patient of African descent	8	2.6
D- a 20 year old white male patient	16	5.2
E- a 30 year old white female patient	15	4.9
F - a 30 year old white male patient	3	1.0
Did not choose anybody	12	3.9
TOTAL	308	100.0
• Which factor was relevant for the choice		
Physiognomy	95	30.8
Age	143	46.4
Biological Factor	49	15.9
Gender	7	2.3
Necessity to work	2	0.6
Would not treat anybody	12	3.9
TOTAL	308	100.0

Table 3 shows the patient choice according to dentist's age group. This table highlights that the greatest percentage difference was recorded for the 31 to 40 years, with the choice of patient B (77.9%). However, there was no significant difference between age and choice of the patient ( $P=0.8133$ ).

Table 3: Assessment of the choice of patient according to the dentist's gender. João Pessoa – PB- Brazil, 2010

Choice of patient	Female		Male		Group total		p Value
	n	%	n	%	n	%	
A	14	12.0	23	12.9	37	12.5	$p(1) = 0.3366$
B	82	70.1	135	75.4	217	73.3	
C	3	2.6	5	2.8	8	2.7	
D	8	6.8	8	4.5	16	5.4	
E	7	6.0	8	4.5	15	5.1	
F	3	2.6	-	-	3	1.0	
TOTAL	117	100.0	179	100.0	296	100.0	

(1) Using Fisher's Exact Test

As regards the dentist's race, the respondents did not present great percentage differences (table 4). The greatest difference was 2.3% for patient C, greater among non-whites (4.3% vs. 2.0%). Thus, no significant association was found between race and patient choice.

Table 4: Assessment of patient choice according to dentist's age group. João Pessoa – PB- Brazil, 2010

	Age Group (in years)								
Patient Choice	22 to 30		31 to 40		41 or more		Group total		p value
	n	%	n	%	n	%	n	%	
A	11	10.8	9	10.5	17	15.7	37	12.5	$p(1) = 0.8133$
B	76	74.5	67	77.9	74	68.5	217	73.3	
C	1	1.0	2	2.3	5	4.6	8	2.7	
D	6	5.9	4	4.6	6	5.6	16	5.4	
E	7	6.9	3	3.5	5	4.6	15	5.1	
F	1	1.0	1	1.2	1	0.9	3	1.0	
TOTAL	102	100	86	100	108	100	296	100	

(1) – Using the Likelihood-ratio test

No great difference was found regarding the gender and the reason for choice. The greatest difference was 6.4% for the patient's physiognomy which was highest among female dentists (34.6% x 28.2%). The association between sex and reason for choice was not significant ( $P=0.8073$ ) (table 5).

Table 5: Assessment of patient choice according to dentist's race. João Pessoa – PB- Brazil, 2010

	Race						
Patient choice	White		Non-white		Group total		p value
	n	%	n	%	n	%	
A	26	12.8	11	11.8	37	12.5	$p(1) = 0.8073$
B	148	72.9	69	74.2	217	73.3	
C	4	2.0	4	4.3	8	2.7	
D	11	5.4	5	5.4	16	5.4	
E	11	5.4	4	4.3	15	5.1	
F	3	1.5	-	-	3	1.0	
TOTAL	203	100	93	100	296	100	

(1) – Using Fisher's Exact test

Table 6 reveals that the percentage of those who chose the patient based on patient's age was higher among dentists aged 31 to 40 years (57.0%)

followed by those between 22 to 30 years old versus 31 to 40 years old regarding the patient's age (47.1% vs. 57.0%) and physiognomy (35.3% vs. 25.6%). There was a significant association between age and reason of choice ( $P=0.0258$ ). Furthermore, there was not a great percentage difference between whites and non-whites for the reason of choice. The greatest percentage difference occurred for the reason of gender, with the highest percentage difference occurring among non-whites and the association between race and choice was not significant.

Table 6: Assessment of reason for choice according to gender, age group and race of the dentist. João Pessoa – PB- Brazil, 2010

	Gender						
Reason	Female		Male		Group total		p value
	n	%	n	%	n	%	
Physiognomy	33	28.2	62	34.6	95	32.1	p(1) = 0.2003
Age	56	47.9	87	48.6	143	48.3	
Biological factor	24	20.5	25	14.0	49	16.6	
Gender	2	1.7	5	2.8	7	2.4	
Necessity to work	2	1.7	-	-	2	0.7	
TOTAL	117	100	179	100	296	100	

	Age group (in years)								
Reason	22 to 30		31 to 40		41 or more		Group total		p value
	n	%	n	%	n	%	n	%	
Physiognomy	36	35.3	22	25.6	37	34.3	95	32.1	p(2) = 0.0258*
Age	48	47.1	49	57.0	46	42.6	143	48.3	
Biological Factor	12	11.8	14	16.3	23	21.3	49	16.6	
Gender	6	5.9	-	-	1	0.9	7	2.4	
Necessity to work	-	-	1	1.2	1	0.9	2	0.7	
TOTAL	102	100	86	100	108	100	296	100	

	Race						
Reason	White		Non-white		Group total		p value
	n	%	n	%	n	%	
Physiognomy	65	32.0	30	32.3	95	32.1	$p(3) = 1.0000$
Age	97	47.8	46	49.5	143	48.3	
Biological factor	34	16.8	15	16.1	49	16.6	
Gender	5	2.5	2	2.2	7	2.4	
Necessity to work	2	1.0	-	-	2	0.7	
TOTAL	203	100	93	100	296	100	

(1) – Using Fisher's Exact test

(\*) – Significant association at 5.0% level

(2) – Using Likelihood-ratio test

(3) – Using Fisher's Exact test

## Discussion

In dental literature, there is a scarcity of information using a case scenario that involves dilemmas over the allocation of scarce resources(8,9). Regarding the use of criteria in the selection of people needing care and competing for health resources, there are divergences over the ethical validity of the criteria. Some claim that it is better to use them than to not use any criteria(4,10-16) others think it is best to take random decisions(14,16,18,19).

Based on the data collected, it can be seen that, in addition to the criteria such as age, gender and race, the physical appearance also influenced which potential candidate was chosen for the one vacancy for dental care.

The stereotypes are false or distorted ideas without foundation about individuals or groups, which can also cause prejudice. In professional practice, visual stereotypes and prejudice are a fundamental ethical issue since they mediate social relationships in this field(20).

It was found that 70.7% of respondents revealed interference due to first impressions, an attitude that is quite common in human relationships. In a study conducted in Australia(20) assessing what the choices and justifications of the population would be when having to choose between a newborn and a school-age child to receive a transplant, more than half of respondents (52%) refused to choose, indicating that they would not consider the age difference as a criterion for decision making.

A study comparing the emergency care of a child who was less than seven years old and an elderly 65 year old, victims of a car accident. According to the survey data, the child was chosen by 72.7% of respondents, while 22.8% chose the elderly person. In the same survey in an emergency situation between two men, one aged 25 and the other 65, also car accident victims, 60.8% chose the older patient and 36.2% chose the younger. This demonstrates that the results show a significant option for people who are in a disadvantageous situation(21).

Physicians can unintentionally incorporate racial



stereotypes. They can also judge the patient, taking into account their ability to pay for an expensive treatment or the patient's desire for a given treatment(22-24).

These conceptions by professionals regarding the behavior and attitude of patients were confirmed by other authors(25). Through interviews, the cited authors found that doctors rated patients of African descent, after consultation, as being more likely to engage in high risk behavior and be less cooperative, regardless of their socioeconomic status.

In Brazil, previous study showed that dentists's subjective criteria in the choice: the first impression caused by different physical appearances(7, 8).

In research by(26-31), comparing the conduct of invasive cardiac procedures in four groups: white males, white females, males of African descent and females of African descent, the authors concluded that more procedures were carried out on white males. Females and racial minorities received fewer cardiac procedures.

According to Giles et al.(26) and Giacomini(27), this fact could be due to differences in disease severity rather than the selection of patients. Moreover in the other research(28,30-34) point out that females seek health care earlier than males, so their heart problems are less severe. This is a fact that may occur in Brazil since the Basic Health Care Units operate during business hours, 8:00 to 12:00 o'clock and 14:00 to 18:00 o'clock, which is the time when men are working, who consequently miss out on health care. There is no specific time to treat this economically active age group. In this study, the case reported is a common situation in health care units. People spend the day working and only seek care at the end of the working day to avoid missing work.

Dentists may also have preconceived ideas about patients, expressing their views on how these patients should be treated(35). In the analysis presented here, it was possible to diagnose, through questionnaires, racial influences, as shown in the following comments: "I do not like to discriminate against color or be accused of it. "The male of African descent has better preserved teeth because his enamel crystals are more resistant, as does the female of African descent." "Patients of African-descent apparently have a lower financial condition".

Public health policies need to be effective regarding the enforcement of the doctrinal principles of the System of Health in Brazil. These principles are: universality, comprehensiveness, and equity. Only then can one reflect upon who should be selected in situations where resources are scarce. In any event, our choices should be guided by ethics and avoid discrimination of people based on their race, gender, age or socioeconomic status. If selection criteria exist, they must be transparent, acknowledged and accepted by professionals and by society.

This is an undesirable situation, since there must be no discrimination against people due to their race, sex, age or socioeconomic status, in order to avoid that social criteria lead to discrimination of any kind.

## Conclusion

Subjective criteria interfered in the choice: the first impression caused by different physical features. The selection criterion used was the patient's age.

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