

Do Healthcare Professionals have Different Views about Healthcare Rationing than College Students? A Mixed Methods Study in Portugal

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The main aim of this paper is to investigate the views of healthcare professionals in Portugal about healthcare rationing, and compare them with the views of college students. A self-administered questionnaire was used to collect data from a sample of 60 healthcare professionals and 180 college students. Respondents faced a hypothetical rationing dilemma where they had to order four patients (differentiated by personal characteristics and health conditions) and justify their choices. Multinomial logistic regressions were used to test for differences in orderings, and content analysis to categorize the written justifications. The findings suggest that both groups appeared to support three main rationing principles: (i) health maximization, (ii) priority to the severely ill and (iii) priority to the young. However, professionals seemed to give less weight to the latter principle. In conclusion, professionals have similar views to students about healthcare rationing, though may be slightly less inclined to give priority to the young.

Introduction

Healthcare policymakers and managers routinely set priorities for the allocation of scarce resources. Health professionals also sometimes find themselves at the cusp of this wider priority setting process, faced with 'bedside' healthcare rationing dilemmas about which patient to treat when not all can be treated. In recent years, these bedside rationing dilemmas have become ever more acute and visible, even in high-income countries with strong health systems. This is due to a combination of three global trends: (i) the growing economic gap between what healthcare technology can do and what healthcare payers can afford; (ii) growing social pressures for transparency and accountability in medicine and (iii) demographic changes, with a shift to an older and chronically ill population (Donaldson,

2001; Owen-Smith *et al.*, 2009; Clark and Weale, 2012; Strech and Danis, 2014).

In response, there is a growing international literature on appropriate ethical principles to take bedside healthcare rationing decisions (Broome, 1984; Butler, 1999; Williams and Cookson, 2000; Powers and Faden, 2008; Persad *et al.*, 2009; White *et al.*, 2009; Scheunemann *et al.*, 2011; Beauchamp and Childress, 2012; Clark and Weale, 2012; Oswald, 2015). In addition, there is a growing empirical literature on the views of different stakeholder groups in different countries. Studies have been performed on the views of physicians (Hurst *et al.*, 2006, 2015; Lauridsen *et al.*, 2008; Strech *et al.* 2009; Bahuš *et al.*, 2012; Bahuš and Førde, 2016), healthcare policymakers and managers (Ryynänen *et al.*, 1999; Rosén and Karlberg, 2002;

Oddsson, 2003) and the general public (Charny, 1989; Nord *et al.*, 1995; Cookson and Dolan, 1999; Kasemsup *et al.*, 2008; Diederich *et al.*, 2011; Gagnon *et al.*, 2011; Kaplan and Baron-Epel, 2013; Diederich and Salzmann, 2015; Exel *et al.*, 2015; Gu *et al.*, 2015; Rogge and Kittel, 2016). The results seem to indicate that all of these different stakeholder groups favour multiple ethical principles. However, there is little literature comparing and contrasting the views of healthcare professionals with the views of people without specialist expertise in healthcare. This is important because, at the micro level, healthcare professionals are those who ultimately decide which patients should have priority. If healthcare professionals hold systematically different ethical views about healthcare rationing than other stakeholder groups, then this would be cause for concern. If healthcare professionals base their decisions on criteria that are not shared by the citizens they serve, then it may undermine popular trust in them and in the functioning of healthcare systems. This is also a matter of procedural justice, in facilitating transparency and helping to ensure that open and fair decision-making processes are followed (Daniels and Sabin, 1997). To facilitate transparent and fair decision-making processes, it is important to know if differences exist between who decides and who are affected by those decisions, so that processes can be redesigned to ensure that one set of views does not dominate. Numerous studies have shown that individuals are more willing to accept collective decisions against their interest if they result from a fair process and if they have a voice (Daniels and Sabin, 1997; Anand, 2001; Tsuchiya *et al.*, 2005).

There is some evidence suggesting that the views of doctors and the public may differ (Neuberger *et al.*, 1998; Lees *et al.*, 2002; Rose ´n and Karlberg, 2002; Tsuchiya and Dolan, 2007; Arvidsson *et al.*, 2012; Winkelhage *et al.*, 2013). However, most of these studies elicit preferences at the ‘macro’ level of priority setting rather than the ‘bedside’ level, and those addressing bedside rationing do not analyse, simultaneously, the various and potential conflicting principles of distributing healthcare.

The study reported in this article looks at general principles applicable to a broad range of bedside healthcare rationing decisions. In a context of day-to-day healthcare priority setting decisions taken by physicians, we aim to investigate the ethical principles supported by Portuguese healthcare professionals, and to compare these with those of college students without expertise in healthcare and/or clinical experience.

Our study is also the first time that views about healthcare rationing in Portuguese society have been assessed in a systematic way. The idea of explicit criteria for rationing came to the attention of the Portuguese public only

recently, due to a report on healthcare financing drawn up by the National Council of Ethics for the Life Sciences (CNECV, 2012). As healthcare rationing becomes an emerging policy concern in Portugal, it is important to investigate the views held by National Health Service (NHS) staff involved in service delivery. In our study, we compare their views directly to college students in Portugal.

Methods

This study uses a similar design to a previous mixed methods study in England based on a hypothetical rationing scenario, involving a choice between four patients with different personal and health characteristics (Cookson and Dolan, 1999). Our study has two main objectives: (i) to compare the ordering of the four patients made by two distinct groups of Portuguese society, college students and NHS health professionals and (ii) to identify the reasons associated with each ordering of patients and classify them according to the principles of distributing healthcare most discussed in literature.

Questionnaire

Combinations of quantitative and qualitative data were used to explore the appropriate ethical principles for setting priorities between patients. Data were collected through a self-reported questionnaire. The questionnaire contains questions about the respondents’ socio-demographic background and a hypothetical rationing exercise developed elsewhere (Cookson and Dolan, 1999). The healthcare rationing scenario, reproduced in Table 1, presented four patients differentiated by personal characteristics and health conditions. The description of each one was not accompanied by a photo unlike the original study (Cookson and Dolan, 1999). We did not include photographs, since they might introduce biases of various kinds, as suggested by some psychologists and sociologists (Lloyd, 2003). The exercise consisted in establishing an ordering of four patients when financial constraints precluded the treatment of them all. Additionally, the questionnaire contained free text boxes in which respondents were invited to write down the reasons that led to this ranking. The information about each patient was brief and presented dramatically to throw the ethical dilemmas into sharp relief and help focus respondents on general principles. Respondents were informed of the hypothetical nature of this exercise. Our design differed from the UK design (Cookson and Dolan, 1999) in various ways, including (i) use of self-reported questionnaires rather than focus groups,

Table 1. The hypothetical rationing exercise

<p>Suppose you are a decision maker of a hospital with a budget that allows the treatment of only one of the following patients. Please indicate your order of priority and submit as much detail as possible, the reasons for your choice</p>	<p>João is 18 years old and suffered a road traffic accident which resulted in severe facial scarring and psychological problems. Plastic surgery would correct the scarring</p> <p>Maria is 45 years old, single, with no children. She was diagnosed with hepatitis B as a result of their long years of drug consumption. Maria does not consume drugs for 5 years. There is a treatment available, which is 75 per cent effective and could extend her life expectancy</p> <p>Rosalina is 65 years old and almost blind. She is waiting for 3 years for a surgery to remove cataracts. Her blindness has worsened over time and soon she will no longer be able to live alone. She has no family. The operation allows her to be independent</p> <p>Pedro is 8 years and has leukaemia. The probability of survival is 50 per cent. There is a new treatment available that has been partially tested in a few cases</p>
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(ii) differences in the medical scenarios, including the medical conditions as well as the names, (iii) removing the photos and (iv) different sample selection in focusing on health professionals and students rather than members of the public.

Samples

The questionnaire was administered during 2015 to a sample of 180 college students and 60 NHS health professionals. The group of health professionals consisted of physicians (36 per cent), nurses (32 per cent), pharmacists (20 per cent) and health technicians (12 per cent). The student survey was collected in the classroom and filled out individually without the right to discussion. Health professionals completed the questionnaire during their workday. The participation of all respondents was voluntary, and time was granted them to formulate reflective opinions as suggested by Dolan *et al.* (1999).

The majority of respondents (55.8 per cent) were female with ages ranging between 20 and 54 years (students' ages ranged between 18 and 44 years and health professionals' ages ranged between 25 and 54 years). Most respondents (72.5 per cent) were single, and 57.5 per cent had a net monthly income that exceeds 1500 €. Regarding the perception of their health status, almost all respondents (89.6 per cent) considered themselves to have good or very good health. A detailed description of the samples can be found in Table A1. On average, the sample was younger and had higher income than the Portuguese population.

Quantitative Analysis

Descriptive statistics and multinomial logistic regressions were performed using SPSS (version 23) and

STATA (version 14). We used non-parametric Mann–Whitney tests as a simple initial comparison between the patients' orderings made by college students and health professionals to check whether observed differences could simply have been due to random sampling error or response error. Multinomial logistic regression models based on the pooled sample were then used to (i) control for respondent socio-demographics' characteristics and (ii) explore associations between the distributive principles mentioned by the respondent and the choices of the patient to treat in first place.

Qualitative Analysis—Rationing Principles

Taking the whole sample as our unit of analysis, we undertook a content analysis of the reasons stated by respondents (Bardin, 2013). The stated reasons given were interpreted using the classification of the ethical principles that should guide healthcare allocation. Many principles could form the basis of rationing decisions in healthcare, each of which represents a different interpretation of distributive justice. The following have been proposed as valid material of principles of distributing healthcare (Brock, 2002; Persad *et al.*, 2009; Scheunemann *et al.*, 2011; Beauchamp and Childress, 2012): (i) fair chances (including lottery and first come first served principles), (ii) health maximization, (iii) priority to the worse off (including both current illness severity and lifetime health shortfall) and (iv) desert-based distribution. The relevant considerations were identified and grouped into categories and subcategories. The approach consisted in coding word groups using a classification scheme constructed through an iterative process. The interactive process of categorization ranked the reasons given by respondents into five

general categories corresponding to the principles of rationing identified in the literature (and described below). The reasons referred to by the respondents were thus encoded as ‘Principles’ (main category) and ‘Factors’ (subcategory). The principles correspond to the general criteria for the distribution of healthcare, and the factors depict specific subcategories relating to different aspects or variants of each principle. All the questionnaires were analysed by two of the authors of the study (first two authors). Discrepancies were resolved by discussion and agreement between these two authors.

A brief description of each rationing principle is given below. First, fair chances. According to the ‘fair chances’ argument, every person should have a fair chance of treatment (Brock, 2002). The moral status supports an equal claim to scarce resources (Ramsey, 2002). Two straightforward strategies to treat people equally are lottery and first come first served. Patient selection through randomization may be considered the only fair way to choose, especially when explicitly deciding who to treat may be considered unethical or invidious (Coast, 2000). Secondly, health maximization. According to the health maximization principle, healthcare should be distributed in such a way as to increase the sum total health of the whole community (Culyer, 1997). Health maximization is a quasi-utilitarian criterion, and fits with the consequentialist logic of the classical model of rational choice that underpins standard economic theory. The maximization principle can, however, take account of indirect consequences such as the cost of long-term care, both financial and in terms of burden to others, either physically or emotionally. Thirdly, priority to the worse off. This is what philosophers call a ‘prioritarian’ conception of justice (Parfit, 1997). In general terms, it attempts to give weighted priority to those who are considered worse off in situations in which all cannot receive a particular resource (Persad *et al.*, 2009). There are two main ways of defining ‘worse-off’ in a health context. First, by focusing on current severity of illness. The ‘rule of rescue’ argument is a variant of this criterion with a focus on the psychological impulse to attempt to save those facing immediate death, no matter how expensive (Jonsen, 1986). Secondly, by focusing on the worse off in terms of overall length and quality of life over the whole life course. In general, one implication of this principle is to give priority to younger patients. In a healthcare context, this ‘fair-innings argument’ implies that younger people ought to be prioritized insofar as they would otherwise not be expected to enjoy a long and healthy life (Williams, 1997). Fourthly, desert-based distribution. The desert-based principle supports the

Table 2. Mean rank of the four patients (median in brackets)

	Overall	Students	Health professionals
Pedro	1.5 (1.00)	1.38 (1.0)	1.93 (1.50)
Rosalina	2.54 (2.00)	2.25 (2.50)	2.5 (2.00)
João	2.6 (3.00)	2.65 (3.00)	2.4 (2.5)
Maria	3.26 (4.00)	3.25 (4.00)	3.25 (4.00)

idea that patients should get what they deserve and, conversely, should not get what they do not deserve. In a healthcare context, one common desert issue is the lifestyle choices of people whose ill health is related to those choices (Cappelen and Norheim, 2005). This idea rests in the principle of equality of substantive opportunity for health (LeGrand, 1991), according to which inequality in achieving health outcomes may be acceptable if it arises from unhealthy lifestyle choices for which individuals ought to be held responsible. An implication is that patients who are deemed partly responsible for their own illness should receive lower priority for treatment. Following Cookson and Dolan (1999), we refer to this idea as ‘choicism’.

Results

Quantitative Results I—The Overall Rank Orderings

Table 2 presents the mean and median of the ranking exercise carried out by students and health professionals. From the full sample of 240 individuals, only four respondents [three students (1.7 per cent) and one health professional (1.7 per cent)] refused to order patients—all the rest gave priority to at least one patient. Pedro (the 8-year-old boy with cancer) was the top or joint-top priority, followed by Rosalina (the 65-year-old lady needing the surgery to remove cataracts and then João (the 18-year-old man needing facial surgery), with Maria (the 45-year-old lady needing treatment for hepatitis B) receiving lowest priority on average. A detailed ranking for all patients can be found in Table A2.

Although Pedro emerged as the top priority on average for both groups of respondents (73.4 per cent of students and 50.8 per cent of health professionals), healthcare professionals were significantly less likely than students to give top priority to Pedro ($P = 0.005$; Mann–Whitney test—see Table A2). Furthermore, more healthcare

professionals than students placed the young adult (João) in the first priority [difference of 14.1 percentage points (p.p.)] followed by Maria (difference of 6.2 p.p.) and then Rosalina (difference of 2.3 p.p.).

Qualitative Results—The Stated Reasons

Table 3 summarizes the number and proportion of respondents who mentioned a reason that could be classified according to the rationing principles, by student and health professional groups.

The findings suggest that fair chance principles and ‘choicism’ received little explicit support in the qualitative statements. However, this qualitative finding is somewhat at odds with the fact that both student and professional groups gave lowest priority to Maria, the patients with a history of drug consumption. Age, severity of the condition and treatments outcomes were the most frequently mentioned principles by respondents. Support for the health maximization principle was revealed by concerns related to gains in length and quality of life and the avoidance of deterioration in health requiring future treatment. For example, respondents said that, ‘João and Rosalina are the ones who ensure higher recovery or who will gain greater quality of life’; ‘João may benefit longer from treatments’; and ‘Rosalina should be prioritized in order to reduce the burden of long term care’. The support for clinical need included comments such as: ‘Pedro and Rosalina are those with greater urgency’ and ‘Pedro should be treated in the first place because otherwise he dies’.

Health professionals were slightly more likely than students to mention the principle of health maximization reflected particularly by arguments in favour of gains in years or quality of life (5 versus 1 per cent, respectively) and treatments outcomes (13 versus 9 per cent, respectively). Health professionals state, for example, that ‘Treatments directed to Maria or João have a high chance of success’ and/or ‘Pedro has a small expected benefit’. Similarly, the principle of priority to the severely ill and more specifically the ‘rule of rescue’ was much more frequently mentioned by health professionals than students (12 versus 3 per cent, respectively). One health professional stated, for example, that ‘Maria faces the next, after Pedro, most immediate threat to life’. In line with the greatest happiness for the greatest number rooted on the maximization principle, indirect consequences were also mentioned with similar frequency by both groups, including comments relating to the risk of becoming dependent on others (both Pedro and Rosalina) and the emotional impact on family members (in relation to Pedro). Comments

Table 3. Principles and factors mentioned by student and healthcare professional groups

Principles	Factors	Number of people mentioning this principle or factor (per cent)		
		Both groups	Students	Health Professionals
P1. Fair chance principles	Lottery and first come first served	5 (2.1)	3 (1.7)	2 (3.3)
P2. Health maximization	Direct consequences	5 (2.1)	2 (1.1)	3 (5.0)
	Indirect consequences	24 (10)	16 (8.9)	8 (13.3)
P3. Priority to the worse off	P3.1. Clinical need	11 (4.6)	9 (5.0)	2 (3.3)
		15 (6.3)	12 (6.7)	3 (5.0)
		30 (12.5)	22 (12.2)	8 (13.3)
		6 (2.5)	6 (3.3)	0 (0.0)
P4. Desert-based principles	P3.2. Fair innings	12 (5.5)	5 (2.8)	7 (11.7)
	Choicism	94 (39.2)	82 (45.6)	12 (20.0)
	Penalizing unhealthy behaviour/	1 (0.4)	1 (0.6)	0 (0.0)

Table 4. Multinomial logistic estimates: associations between respondents' demographic, socio-economic and health characteristics and the top priority assigned to patients

Variables	Coefficient (standard error)	Marginal effects João (standard error)	Coefficient (standard error)	Marginal effects Maria (standarderror)	Coefficient (standard error)	Marginal effects Rosalina (standard error)	Marginal effects Pedro (standard error)
Health professionals	1.220 ^{ss} (0.496)	0.134 ^{ss} (0.064)	0.975 ^{ss} (0.544)	0.017 ^{ss} (0.029)	1.272 ^{ss} (0.608)	0.097 ^s (0.057)	—0.249 ^{ss} (0.064)
Age	0.004 (0.024)		0.044 (0.039)		—0.014 (0.033)		
Gender							
Female	—0.080 (0.375)		0.129 (0.772)		—0.493 (0.457)		
Marital status							
Single	—0.320 (0.535)		—0.391 (0.932)		—0.952 (0.746)		
Net monthly income							
Lower than 1501 €	—0.55 (0.402)		—0.352 (0.8137)		—0.41 (0.462)		
Self-rated health							
Good or very good	—0.064 (0.585)		—0.672 (0.925)		1.085 (1.085)		
Constant	—1.379 (1.050)		—4.016 (1.937)		—1.703 (1.556)		
Number of observations: 235							
Likelihood-Ratio (LR) Test z^2 : (18) 21.14							
$P > z^2$: 0.000							
McFadden's adjusted R^2 0.080							

Notes: ^sSignificant at $P < 0.05$ level; ^{ss}Significant at $P < 0.01$ level. The multinomial logistic regression estimates the probability of ranking the patient in first place, given that all predictors, health professionals (dummy, 1 = health professionals, 0 = college students), age (continuous variable), gender (dummy, 1 = female), marital status (dummy, 1 = single, 0 = otherwise), net monthly income (dummy, 1 = lower than 1501 €, 0 = otherwise) and self-rated health (dummy, 1 good and very good, 0 = otherwise) are set to their mean values. The patient Pedro is the reference case. The coefficients do not have direct interpretation, which is the reason that the marginal effects were calculated. Only the sign can be easily interpreted and not the magnitude.

here, for example, included 'Pedro and Rosalina will become dependent soon' and 'Pedro because no father/mother deserves the pain of losing a child'.

Health professionals revealed less tendency to mention principles relating to age (only 20 per cent of health professionals mentioned a principle of this kind, against 45.6 per cent of the students) confirming the finding of Table 2. For example, some physician wrote 'age is not a value in itself'. Whereas many students appeared to defend the reduction of lifetime inequalities, with a comment such as: 'Pedro is a child with a whole life ahead, he deserves a chance to live'.

Quantitative Results II—Logistic Regression to Explore the Determinants of Rankings

Multinomial logistic regressions were applied to test for differences in the top priority assigned to patients. We controlled for (i) respondents' socio-demographic characteristics and (ii) the stated relevance of each ethical principles. The regressions were run for all the patients. Tables 4 and 5 present the coefficients and the marginal effects for each regression.

Table 4 indicates that, of all the respondents' socio-demographic characteristics, only occupation proved to

Table 5. Multinomial logistic estimates: associations between ethical principles mentioned and top priority assigned to patients

Variables	Coefficient (standard error)	Marginal effects João (standard error)	Coefficient (standard error)	Marginal effects Maria (standard error)	Coefficient (standard error)	Marginal effects Rosalina (standard error)	Marginal effects Pedro (standard error)
P1. Fair chances	0.842 (0.496)		0.016 (0.642)		0.565 (0.671)		
P2. Health maximization	0.509 ^{sss} (0.107)	0.055 ^{sss} (0.009)	0.162 ^{ss} (0.386)	0.008 ^{ss} (0.012)	0.328 ^{ss} (0.149)	0.018 ^{ss} (0.010)	−0.064 ^{sss} (0.017)
P3.1. Clinical need	−0.450 (0.277)		−0.496 (0.426)		0.599 ^{sss} (0.161)	0.082 ^{sss} (0.620)	
P3.2. Fair innings	−0.849 (0.423)		−0.587 (0.755)		−0.548 ^{sss} (0.655)	−0.109 ^{sss} (0.052)	0.191 ^{sss} (0.061)
P4 Choicism	−0.601 (0.327)		0.573 (0.042)		−0.630 (0.549)		
Constant	−1.434 ^{sss} (0.285)		−2.5388 ^{sss} (0.482)		−2.197 ^{sss} (0.370)		

Number of observations: 235
Likelihood-Ratio (LR) Test z^2 : (15) 11.08
 $P > z^2$: 0.0000
McFadden's adjusted R^2 : 0.067

Notes: Significant at ^s $P < 0.05$ level; ^{ss} $P < 0.01$; ^{sss} $P < 0.001$ level. The multinomial logistic regression estimates the probability of ranking the patient in first place, given that all predictors (P1. Fair chances, P2. Health maximization, P3.1. Clinical need, P3.2. Fair innings and P4. Choicism), are set to their mean values. Patient Pedro is the reference case. The coefficients do not have direct interpretation, which is the reason that the marginal effects were calculated. Only the sign can be easily interpreted and not the magnitude.

be significant in explaining the first priority assigned to all the patients. It also shows that controlling for socio-demographic variables does not alter the basic conclusion from our initial analysis—i.e. students were more likely than health professionals to place Pedro as first choice. Being healthcare professional decreases by 24.9 p.p. the probability of choosing Pedro (the youngest) to be treated first and increases by 13.4 p.p. the probability of choosing João, 1.7 p.p. Maria and 9.97 p.p. Rosalina.

The second regression evaluates which principles are more important in explaining the choice of the top priority assigned to patients. Table 5 reveals that the health maximization principle is statistically significant for all regressions. The clinical need principle is only statistically significant in choosing Rosalina to be attended first, and the 'fair-innings' principle is statistically significant in choosing Rosalina and Pedro to be the first patients to attend. The health maximization principle increases the probability of selecting any patient to be the first to be attended (João by 5.5 p.p.; Maria by 0.8 p.p. and

Rosalina by 1.8 p.p.) except for Pedro (decreases by 6.4 p.p.). The clinical need principle increases the probability of selecting Rosalina to be attended first by 8.2 p.p. The fair innings principle decreases the probability of choosing Rosalina by 10.9 p.p. and increases the probability of selecting Pedro by 19.1 p.p.

Discussion

This study compares the views of healthcare professionals about bedside rationing with those of college students without professional expertise or experience working in the healthcare field. The results indicate that Portuguese healthcare professionals have similar views to Portuguese students. Both groups gave the same average ranking of four patients, and in their open-ended responses, they seemed to endorse three main principles of justice: (i) health maximization, (ii) priority to the severely ill and (iii) priority to the

young. However, healthcare professionals seemed to give slightly less weight to priority to the young. For example, only 50.8 per cent placed the 8-year-old child as first priority in this exercise, contrasting with 73.4 per cent of the students. Healthcare professionals were less likely to mention principles relating to age, and tended to give higher priority according to the capacity to benefit from treatments. This seems to explain the higher priority given to João, Maria and Rosalina when compared to Pedro. One possible explanation for why healthcare professionals may have given less priority to the 8-year-old boy in the exercise is that they may have adopted less optimistic clinical assumptions about the effectiveness of the treatment for the boy's cancer. That would not be a difference in ethical views, just a difference in factual views about clinical prognosis. This finding is supported by evidence suggesting that physicians give precedence to the patient's biological age rather than chronological age (Werntoft and Edberg, 2009). Furthermore, students did not prioritize the young adult (João) more than health professionals. So it is possible that their concern focused specifically on young children, rather than being a generalized concern with reducing inequalities in people's lifetime experience of health. Moreover, international findings suggest that the general public are divided on the question of whether age in general versus priority to young children in particular should be a factor in decision-making (Diederich *et al.*, 2011 for a review). Robust research evidence explaining why professionals and non-professionals may differ in their preferences concerning healthcare allocation is lacking. However, we can speculate as follows. According to 'construal level theory', health-related attitudes and preferences might change depending on psychological distance from a disease or illness (Trope and Liberman, 2010). The difference in the preferences could then be explained by health professionals having closer contact with both young and elderly patients experiencing pain and suffering due to their illness, while non-professionals have greater psychological distance from situations of illness and hence are more susceptible to be influenced by abstract principles of justice such as the 'fair innings' argument. It may also be possible that professional attitudes and preferences are influenced by professional medical training and codes of conduct that emphasize treating all patients on the basis of need (Epstein and Nicholson, 2009), which preferences may be reinforced by professional experiences and culture (Levine-Taub *et al.*, 2015).

The lack of association between respondent age and stated choices reported in our findings is noteworthy. As the student sample consists mostly of young people, one

might have expected them to identify with João (the young adult). Similarly, older respondents did not show a greater tendency to choose Rosalina (the older patient).

One key strength of our study is its mixed methods approach, which allowed in-depth investigation of the views of Portuguese health professionals and students. A second strength is our use of vignettes covering multiple different disease areas, allowing us to elicit general principles rather than views focusing only on one particular disease area. The results should be interpreted with appropriate caution, however, given the non-random nature of the sample. The findings cannot be generalized to the Portuguese healthcare professionals or the Portuguese general public. In particular, for the students' sample, a large empirical literature suggests that age and level of education affect people's attitudes towards distributional preferences (Nord *et al.*, 1995; Mossialos and King, 1999; Rynänen *et al.*, 1999; Linos and West, 2003; Jaeger *et al.*, 2006; Winkelhage and Diederich, 2012; Rogge and Kittel, 2016). However, the main aim here was not to achieve an accurate representation of the opinions of the Portuguese people in general but to set up a comparison whereby the value judgments made by two distinct groups could be juxtaposed. Nevertheless, and while recognizing the methodological differences between our study and the one conducted in UK (Cookson and Dolan, 1999), the views expressed by the Portuguese college students in our survey are similar to those expressed by members of the public in UK. Thus, it seems that Portuguese health professionals may have similar views to Portuguese students, and the English public though may give less priority to younger patients.

Besides this sampling limitation, there are also limitations in using a count of whether a participant mentions an issue to indicate whether they consider that issue to be important. It is well acknowledged in the qualitative literature that the number of times a particular phenomenon is mentioned does not necessarily correlate with its social significance (Denzin and Lincoln, 2000). Likewise, the fact that a respondent did not mention a particular priority setting principle in their free text response does not necessarily mean they disagree with it. It is our contention that these drawbacks are overcome by the contribution of this study.

In follow-up research, it would be useful more specifically to investigate potential differences in views on age rationing between healthcare professionals and stakeholder groups. It would also be useful to conduct further international comparative research to compare views across a range of different countries using a

common study design—either this one or another common format—to explore cultural differences and trace patterns of common distributive principles.

Overall, our findings suggest that healthcare professionals do not have ethical views that are grossly discordant with those of the wider general public they serve. However, our study does provide suggestive evidence of a possible tension between the opinions of NHS health professionals and students regarding priority to young children. Differences between the views of public and health professionals raise interesting questions about the role that citizen participation in health decision-making should take and how the results of studies such as this should be used. For example, previous evidence (Botelho *et al.*, 2014) suggest that Portuguese population wish to be consulted in matters of rationing healthcare but do not want the responsibility of having to make those kinds of decisions, i.e. they believe doctors should play the most important role in rationing decisions (Botelho *et al.*, 2014). Whoever makes the decisions, however, it is important to ensure that those decisions are not grossly discordant with the views of members of the public on whose behalf the decisions are being made. Given the increasing pressure on healthcare budgets and the need to prioritize within healthcare systems, it becomes important to have knowledge regarding public and professional views on these topics. Only with such knowledge can decision makers develop explicit healthcare rationing policies and assure that transparency and accountability in medicine are achieved.

Conclusions

This study examined whether the value judgments expressed by health professionals concerning bedside rationing decisions are aligned with those of college students. We used an in-depth mixed methods approach, based on a hypothetical healthcare rationing exercise that elicits both quantitative and qualitative responses. We found that healthcare professionals have broadly similar views to students, in that they support three main principles of healthcare rationing: (i) health maximization, (ii) priority to the severely ill and (iii) priority to the young. However, we found some evidence that healthcare professionals may give less priority to younger patients than the students' group. This potential tension between professional and non-professional value judgments merits further investigation to help inform healthcare policymakers in the process of developing guidance for health professionals on appropriate principles for healthcare rationing.

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Appendix

Table A1. Demographic, socio-economic and health characteristics of the samples (percentage)

	Students (per cent) (<i>n</i> = 180)	Health professionals (per cent) (<i>n</i> = 60)	All respondents (per cent) (<i>n</i> = 240)
Course			
Economics	26	–	–
Management	26	–	–
Medicine	16	–	–
Psychology	16	–	–
Law	16	–	–
Total	100	–	–
Jobs			
Doctors	–	36	–
Nurses	–	32	–
Health technicians	–	12	–
Pharmaceutical	–	20	–
Total	–	100	–
Gender			
Female	54.4	60.0	55.8
Male	45.6	40.0	44.2
Total	100	100	100
Age			
[18, 24]	70.5	0.0	48.3
[25, 34]	28.3	38.3	28.6
[35, 44]	1.2	45.0	18.0
[45, 54]	0.0	16.7	5.1
Total	100	100	100
Marital status			
Single	85.6	33.3	72.5
Married	11.7	56.7	22.9
Divorced	2.7	6.7	3.8
Widow	0.0	3.3	0.8
Total	100	100	100
Net monthly income			
Less or equal 850€	9.0	1.7	7.2
[851 and 1500€]	31.5	46.7	35.3
[1501€ and 2500€]	30.9	18.3	27.7
>2500€	28.7	33.3	29.8
Total	100	100	100
Self-rated health			
Very good	36.1	23.3	32.9
Good	56.1	58.3	56.7

(continued)

Table A1. Continued

	Students (per cent) (n = 180)	Health professionals (per cent) (n = 60)	All respondents (per cent) (n = 240)
Fair	7.2	16.7	9.6
Poor	0.6	1.7	0.8
Very bad	0.0	0.0	0.0
Total	100	100	100

Table A2. Ranking of the four patients by students group (sample size 180) and healthcare professionals group (sample size 60)

	Rank 1		Rank 2		Rank 3		Rank 4	
	Students (per cent)	Health professionals (per cent)	Students (per cent)	Health professionals (per cent)	Students (per cent)	Health professionals (per cent)	Students (per cent)	Health professionals (per cent)
Pedro	130 (73.4)	30 (50.8)	25 (14.1)	11 (18.6)	15 (8.5)	8 (13.6)	6 (3.4)	10 (16.9)
Rosalina	20 (11.3)	8 (13.6)	69 (39)	31 (52.5)	55 (31.1)	15 (25.4)	33 (18.6)	5 (8.5)
João	23 (13)	16 (27.1)	59 (33.3)	14 (23.7)	56 (31.6)	16 (27.1)	45 (25.4)	12 (20.3)
Maria	4 (2.3)	5 (8.5)	24 (13.6)	3 (5.1)	51 (28.8)	20 (33.9)	93 (52.5)	32 (54.2)
Not indicate	3	1	3	1	3	1	3	1

Note: Mann–Whitney *U*-test statistics = 4,313,000 ($Z = -2.794$; $P = 0.005 < 0.05$) for first priority.