

Factors Relating to the Allocation of Medical Resources

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This study is an extension of the work of Furnham and Briggs (1993). It examined the choice strategies non-medical people employ when asked to rank-order a waiting list of patients suffering from kidney failure. Participants were given minimum demographic data about 16 hypothetical patients, and were asked to rank them in order of priority for treatment. Patients differed in sex, income, voting preference, and whether or not they smoked. Groups favoured for treatment included females more than males, non-smokers more than smokers, "poor" more than "rich," and left-wing more than right-wing patients. Participants' political party allegiance interacted with the voting pattern of the hypothetical patient showing in-group favouritism. That is, left-wing voters favoured left-wing patients and right-wing favoured right-wing. Implications of studies of this sort for socio-medical and ethical and moral issues were discussed.

Modern medical research has increasingly been able to offer patients treatment for previously incurable ailments. The cost of many of these life-saving or life-sustaining treatments is often high, and limited resources mean difficult prioritising decisions have to be made. The fair and just allocation of medical resources, however, requires political and ethical imperatives for the efficient management and distribution of these resources which transcend national boundaries (Franklin, 1988; Freud, 1971; Gilligan, 1982; Hogan, 1973). Hence there is a vigorous debate in medical ethics on these, and related, topics (Arthur, 1986; Basson, 1979; Furnham & Briggs, 1993; Furnham & Brown, 1992; Runkle, 1982).

The problem of allocating limited resources via an equitable and just system has yet to be solved and is hotly debated in medical ethics circles (Langford, 1992; McLachlan, 1995; Ward, 1986). Most methods of rationing resources have naturally encountered criticism. The so called "God committees" in the U.S.A., of which the most widely discussed was the screening process for kidney patients at the Seattle Artificial Kidney Center, is one case. Their decisions to allocate scarce resources in the early days of renal dialysis were based on a notion of social worth. The

least offensive charge against this was that it exalted middle class values (Lamb, 1990).

Different organizations apply different standards and criteria, given particular circumstances. In the American Air Force at war the following applies: When resources are abundant relative to casualties, the civilian norm is followed and worst cases get treated first. But when casualties exceed resources, then the least injured get first treatment and the worst cases are given a temporary palliative or allowed to die (Furnham & Briggs, 1993).

Lamb (1990) noted that policy decisions concerning the allocation of scarce resources rests upon two sociopolitical principles which he refers to as "social utility" and "egalitarian principles," respectively. Decisions to allocate resources on the basis of a social utility principle often invoke a utilitarian framework within which the assessment of a candidate's worth is made with reference to his or her capacity to benefit society. Problems arise, therefore, when one endeavours to find the mechanism or formula required for the evaluation of social worth. The perception of what will benefit society differs between individuals because of the subjective nature of that perception: The effects of values, personality, religion, and political credo cannot be underestimated. Thus far, none of the ethical "solutions" or recommendations designed to evaluate social worth in areas other than medicine have satisfactorily avoided criticism and accusations of abuse (Calman, 1994; Langford, 1992).

In practice, all attempts to single out certain patients as worthy or unworthy of therapy on moral, social, or any other extra-medical grounds risk accusations of bias, subjectivity, and even corruption (Weiss, 1992; Weisz, 1985). For this reason, value judgments may be resisted lest they introduce a yardstick of moral worthiness. For instance, that liver transplants should be withheld on non-therapeutic grounds from those with alcohol abuse may be resisted.

The case for a fundamental egalitarian approach was made soon after the transplant programme began in 1971. Freud stated that "when mortals are called on to make ultimate choices for life and death among their innocent fellows, the only tolerable criterion may be equality of worth as a human being" (p. 637). When supply is short, it is difficult to maintain these principles of equality (Ward, 1986). Appeals to pour more and more resources into certain services or machines may be seen by some as an attempt to avoid having to make inevitable ethical decisions.

Franklin (1988) drew attention to a case where a U.S. authority transferred funds from a child's liver transplant operation to another area of need. He cited this as an example of utilitarianism's inherent potential for discrimination: the possibility that what is perceived as "good" for the

ranked much higher than older, unmarried (with no dependents) patients. Place of birth (i.e., nationality) was only slightly significant as a determinant of position, as was the sex of the patient. Both males and females seemed to give female patients higher priority. Finally, respondent ethical ideologies measured in the study did not seem to relate directly to the prioritising of patients for treatment.

The current study was an extension of the research by Furnham and Briggs (1993). It differed, however, in two ways. In the original study, the "patients" were classified in terms of four features (sex, age, birthplace, and marital status), while in this study, they were classified by sex, wealth, political allegiance, and whether or not they were smokers. It was thought these factors would influence medical resource allocation decisions even more strongly than those chosen in the previous study. Age was dropped because it has already been shown to be a powerful predictor. Similarly, medical diagnosis and prognosis were not included as variables (except for smoking) because it was assumed that these all-powerful variables would wash out other more subtle "social worth" variables that are the focus of this research. Secondly, whereas Furnham and Briggs (1993) examined the ethical ideology of the respondents as the independent variable, this study examined whether the political leaning and gender of the respondents effected their ranked allocation of medical resources. Thus the design was essentially the same but the dependent variable (patient characteristics) and independent variable (subject characteristics) were changed.

It was anticipated that females would be favoured above males (Furnham & Briggs, 1993). Further, given current concerns with anti-smoking legislation and the disapproval of the habit, it was anticipated that non-smokers would be given preference over smokers. The issue of patient wealth is less debated but clearly one of interest (Furnham & Lewis, 1986). It was anticipated that there would be a significant statistical difference in prioritizing, with the poorer "patient" favoured over "richer" one. Finally, it was anticipated that there would be a powerful interaction between the political preferences of the participants and the supposed political alliance of the patients. That is, it was anticipated that there would be strong evidence of in-group favouritism (Tajfel, 1982).

METHOD

Participants

The 29 men and 96 women who took part in this investigation represented a broad cross-section of society. Forty percent were psychology panel volunteers. The remaining sixty percent were volunteers solicited from patients at a general practice surgery in Hampshire over a period

majority may in fact be "bad for the minority." Certainly patient groups can often provide a special case for resources being diverted to them, without specifying from which "budget" they might be derived, or indeed how other deserving cases should or could "pay" for them.

This study concerns lay people, and how they rank-order patients queuing up to use scarce resources—in this case a kidney machine. Although first-come, first-served seems to be notionally a fair system on which to base the allocation of scarce medical resources, what does one do if presented with a choice between saving an elderly person with no dependents and a young person with young children if the elderly person had presented first? The system might recommend allocating the treatment to the elderly person, but is that fair? It is important to discover, not only upon what criteria lay people make their decisions, but also what type of moral position this decision is created from, and whether a lay person's particular demographic status (e.g., age, education, class, number of dependents, religion, etc.) affects this decision.

One recent study attempted to investigate the ethics of medical resource allocation empirically. Furnham and Briggs' (1993) study was designed to discover which of four demographic patient factors (sex, age, race, and marital status plus presence of dependents) was the most salient to non-medical people. They were asked to make a decision about who they would most and least favour, out of sixteen people, to save by allocating them a place on a high-technology kidney machine. Medical need, the likelihood of benefiting from treatment, and presence of comorbidities were left unspecified to hold such determinants of access "constant" as was done in this study. To what extent participants indeed held all medical needs constant in their ranking is, however, uncertain. Various subject demographic factors were measured in order to ascertain whether they were potential predictors of the allocation rank-ordering.

The results clearly demonstrated that, of the four patient variables examined, the age of the patients was the most powerful indicator of their ranked position on the waiting list. Marital status (plus presence of dependents) also had a highly significant effect on ranked waiting list position. This is thought to be due firstly to the consideration that the youngest person would benefit to a greater extent from the treatment because he or she is more likely to live longer than an older person. Secondly, the effect of dependents was no doubt due to the utilitarian principle that states that, if patient "x" has no family and patient "y" has a family, then it benefits the greatest number if patient "y" is given the treatment. The interaction between the age and marital status of the patients on their eventual position in the waiting list for treatment showed this result quite clearly: The young and married (with dependents) were

of two months. They ranged in age from 17 to 41 years, with an average age of 27. Only nine had university degrees. In all, 81 were single, the remaining being married or cohabiting. Their religious and political views and allegiances showed that they came from all sections of the community. Seventy-six claimed to be non-religious and 21 very religious. Fifteen supported the Conservative Party (capitalist; right-wing), 14 the Liberal Democrats (mixed economy; middle-of-the-road), 29 Labour (socialist; left-wing), and 67 said they were undecided or unaligned. This was not a representative sample and the bias to younger, better educated participants may have had a significant effect on the results (Backhouse, 1984; Eysenck, 1975).

Questionnaire and Procedure

The participants were given a questionnaire and were asked to complete it in their own time. They were permitted to take the questionnaire away with them and return it to a central collection point. The return rate was eighty-one percent. On the first page of the questionnaire, participants were told that there is "located in South Midland Hospital, ... a machine which functions as a kidney, for people who have lost the use of their own..." Participants were then informed that there is only one place available on this machine and that they will be presented with a list of patients who, they are told, have already been screened for other diseases. The participants were then requested to fulfill the difficult task of selecting the one person on the list who would, in their view, be most deserving of this treatment, and then to rank the remainder again on the same basis of who would benefit the most.

On the list given to the participants was printed the name, sex, whether or not they smoked, the annual income (£8-12,000 (\$12-18,000) or £41-50,000 (\$60-75,000) per annum of each person), and their political allegiance (Labour or Conservative). This allowed for a 2 (sex) \times 2 (smoking) \times 2 (income) \times 2 (voting) design. The participants were expected to be able to make their decision based upon this data alone. They were required to read the details of the sixteen named people and rank order them for treatment where a low rank indicated higher priority.

In the final part of the questionnaire, the participants were asked to give various demographic details about themselves, including sex, year of birth, number of years of formal schooling, university degree, marital status, number of children, occupation, degree of religious persuasion, and political leanings.

RESULTS

A mixed-design ANOVA was completed with subject sex and voting preference being a between-subjects variable, and the four characteristics

associated with each rank ordered patient being a "within-subject variable," following the analysis of Furnham and Briggs (1993). Though a Friedman non-parametric analysis of variance may be technically correct, the sheer number of variables used here (16) and the distribution of the data suggest that the infringement of various assumptions of the ANOVA model would not be serious or significantly change the results.

"Patient Variables"

A $2 \times 2 \times 2 \times 2$ ANOVA (within-subject) was completed. All main effects were significant. Occasional missing data meant the degrees of freedom changed slightly between different analyses.

Participants tended to favour females over males ($F(1, 117) = 27.77$, $p < .001$: Males = 8.85, $SD = 4.66$; Females = 8.14, $SD = 4.53$), non-smokers over smokers ($F(1, 117) = 210.79$, $p < .001$: Smoker = 10.77, $SD = 3.75$; Non-Smoker = 6.22, $SD = 4.25$), those with lower, rather than higher, incomes ($F(1, 117) = 63.14$, $p < .001$: "Rich" = 9.92, $SD = 4.19$; "Poor" = 7.07, $SD = 4.57$), and Labour (left-wing) voters, over Conservative (right-wing) voters ($F(1, 117) = 12.16$, $p < .001$: Labour = 8.86, $SD = 4.64$; Conservative = 8.13, $SD = 4.55$).

The biggest difference lay in the smoking status and income of the patients. The effect sizes were for smoking .86, income .67, vote .27, and sex .36. A few of the 2- and 3-way interactions were also significant. They were all scalar rather than crossover, making interpretations straightforward. There were four significant within-two-way integrations: Gender \times Smoker ($F(1, 120) = 3.65$, $p < .05$) indicating non-smoking females were favoured most and smoking males favoured least; Smoker \times Wealth ($F(1, 120) = 42.41$, $p < .001$) showing poorer non-smokers the most favoured and rich smokers least favoured; Gender \times Vote ($F(1, 120) = 14.66$, $p < .001$) with left-wing females being most favoured and right-wing males least favoured; and Wealth \times Vote ($F(1, 120) = 19.78$; $p < .001$) with poor Labour voters preferred over rich Conservatives. There were two significant three-way interactions: Sex \times Wealth \times Politics ($F(1, 124) = 2.94$, $p < .05$) with smaller income, left-wing females favoured most; and Sex \times Smoking \times Voter ($F(1, 124) = 8.20$, $p < .01$) with non-smoking, left-wing females being favoured most.

"Subject Variables"

There were four significant interactions with the two *between*-participants variables, namely the political beliefs and the sex of those completing the questionnaire. There was a politics-of-patient \times politics-of-subject interaction ($F(3, 117) = 5.01$, $p < .001$) which indicated clear in-group favouritism, notably that left-wing voters favoured left-wing patients and vice versa.

There was also a subject politics \times patient wealth interaction ($F(1, 120) = 19.78, p < .001$) indicating that right-wing participants did not favour poor patients as much as left-wing participants did. A patient gender \times smoker \times subject vote interaction ($F(1, 124) = 8.20, p < .001$) indicated that left-wing voters showed a strong preference for non-smoking females. Finally, a gender \times wealth of patient \times subject vote interaction ($F(1, 124) = 39.08, p < .01$) showed that left wing voters favoured poorer females over right-wing voters.

DISCUSSION

The results clearly demonstrate that, of the patient variables examined in this study, the fact that the patient smoked was the most powerful indicator of their ranked position on the waiting list: Overall, smokers were ranked 10.77, while non-smokers were given a much higher ranking of 6.22. The issue of whether smokers are net contributors (through tax on tobacco) or beneficiaries of money spent on health services remains a highly contentious issue. Nevertheless, moral issues such as tobacco advertising and sponsorship along with issues of passive smoking has meant that smokers are rapidly becoming a marginalized minority. Presumably, discrimination against them in this study is yet more evidence of the moral, ethical, and medical crusade against the habit (McLachlan, 1995). It would, however, set a very important precedent if smokers were discriminated against in terms of the use of scarce medical resources.

Certainly non-smokers were favoured over smokers, possibly despite the little evidence that smoking is directly linked to kidney damage (Haire, Sherrard, Scardopace, Curtis, & Brunzell, 1978). It may well be that participants believe smokers knowingly put themselves at greater health risks generally and that they therefore do not deserve to be put ahead of those who do not smoke. This may be seen as the "just world" thesis (Furnham & Boston, 1996; Lerner, 1980), which suggests that people need to believe they live in a just and orderly world and that people get what they deserve. No doubt, the smoking habits of the participants would interact with this judgment but were not ascertained in this study. Just as this study clearly demonstrated an in-group, self-serving bias with respect to political beliefs, so it may be expected that smokers may not discriminate against fellow smokers and may in fact actively discriminate in favour of them. This thesis warrants further testing.

The patient's income (rich vs. poor) also had a highly significant effect on ranked waiting list position. Poorer people were favoured over the rich, presumably because it was thought that rich people could buy these medical facilities whereas the poor could not. It could be argued that, because the rich had, in fact, contributed more to the Health Service

than the poor in taxes, they should benefit more. However, there is no way of knowing why these participants favoured the "poor" over the "rich," though both these terms are relative.

As in the previous studies, females were favoured above males for treatment. These results confirm the first hypothesis. Whilst this may be a manifestation of the "women and children first" rule, it could also be seen as a utilitarian judgment because females are frequently primary care-givers with dependents, and it is, therefore, more cost-effective to save them. Note that in this study, as in the Furnham and Briggs (1993) study, both sexes of subject favoured females over males.

Thus this study showed female more than male, non-smoker more than smoker, "poor" rather than "rich," and "left-wing" rather than "right-wing" patients were favoured by these participants. The significant interactions (two- and three-way) showed that poor, non-smoking, left-wing females were favoured above other groups.

The fact that left-wing patients were favoured over right-wing patients is explicable because the interactions do cover many of the main effects. An obvious and simple explanation may be that, in this study, there were considerably more left-wing than right-wing participants and that they simply discriminated in favour of those with similar beliefs. Alternatively, using voting preference as a measure of political beliefs may be too crude an index. It also may be that because of the paucity of information provided in these patient vignettes, the participants were encouraged to focus on a variable (i.e., political beliefs) they would otherwise not consider particularly relevant.

It is the interaction with subject's political opinions that is of particular note. All lay participants (that is not medically trained) clearly used the similar political beliefs of the hypothetical patients to influence their prioritisation for scarce medical resources. It is a moot point to what extent this in-group favouritism occurs with other variables and with the medical, legal, and ethical experts who have actually to make these difficult choices. Thus religion, professional group, or racial category could all be used explicitly or implicitly by those making allocation decisions to favour their own group.

This investigation suggests that even the minimum amount of demographic data given on a patient enables people to construct value judgments about that patient. It also shows that factors such as income, political beliefs, smoking habits, and gender mediate the perceived "social worth" or "value" judgments people make about patients welfare and "rights" to services. Although not all of the variables are immediately observable (i.e., political beliefs), others are (i.e., smoking), and it may well be that they are implicitly considered when making medical prefer-

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ential judgments. Most importantly, the possibility of an in-group favouritism process suggests that committees should be closely monitored for the heterogeneous nature of those making the decisions, particularly with respect to wealth and political ideology. However, it should be emphasized that other higher salient medical factors associated with the patients as well as their age remain the most common and important criteria by which decisions are made as to the rank-ordering for scarce medical resources.

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