
Will elderly patients stand aside for younger patients in the queue for cardiac services?

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Summary

Background Fair management of queues for hospital-based services requires consideration of clinical need, but there is no information on public attitudes towards non-clinical factors such as age or work status as determinants of priority.

Methods We asked elderly residents of Padova, Italy, whether, if they were awaiting cardiac surgery or an outpatient cardiology consultant, they would give up their place in line for a younger or self-employed individual. We also elicited responses from a convenience sample of younger health workers asked to imagine themselves as elderly persons facing the same choices.

Findings The eligible response rate was 72% (443/616). About half deemed it right to give up their place in line for cardiac surgery to a 45-year-old (51%, 95% CI 46–56) or self-employed person (47%, 95% CI 42–51). Proportions were significantly higher for an outpatient consultation (68%, 95% CI 63–72). In multivariate analyses, married respondents, those closer to age 65, university graduates, and those who were formerly self-employed were significantly less likely to respond affirmatively. In significant contrast for all four scenarios ($p < 0.0001$), the overwhelming majority of non-elderly respondents refused to give up their places in line.

Interpretation The majority of elderly citizens were hypothetically willing to cede priority in accessing cardiac care to younger or self-employed persons, but this willingness was attenuated among the “young” elderly and more privileged respondents. Non-elderly respondents were much less self-sacrificing, suggesting that ageing baby-boomers may be more assertive about their continuing rights to health care.

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Introduction

Fair management of queues for hospital-based services requires that the traditional principle of “first come, first served” be balanced by considerations of priority based on severity of illness or clinical risk of delay.^{1,2} It is uncertain what non-clinical factors should be taken into account in waiting-list management. One Canadian survey of cardiologists and cardiac surgeons has shown that patients’ ages and work status do alter specialists’ views of the relative priority of patients scheduled for coronary revascularisation.³ Many physicians (including ourselves) would question the fairness of age-related discrimination, but there is virtually no evidence on public attitudes toward such factors. We accordingly asked: Do the elderly believe it is right for them to give up their place in a queue for specialised cardiac services, so that younger or self-employed persons might have faster access? If so, what attributes of elderly citizens would predict such altruistic behaviour? We also compared responses of elderly persons to those obtained from a convenience sample of nurses and ancillary health workers employed by a geriatric hospital.

Methods

Data collection among the elderly

We obtained ethical approval to survey a randomly selected sample of one in ten persons aged 65 years or over residing in the central district of Padova, Italy. We sent a letter to each of 659 potential participants, outlining the study goals in a fashion that would not bias responses, and suggested a time for a home interview. Potential participants were asked to advise the study team if they all preferred to be interviewed at some time or other, or wished not to participate at all. Final consent was given on the doorstep. Eight postgraduate trainees in psychiatry and psychology (aged 25–33 years) conducted the interviews between Sept, 1996, and June, 1997. The interviewers were trained by and did pilot work under the supervision of one of the present investigators, a psychiatrist with experience in community survey research; they specifically avoided offering any comment that might in any way influence responses.

Interviewers presented four case scenarios, comprised of two hypothetical patients who were behind the respondents in the queue for two types of specialised service (table 1). For example, in case 1, respondents were asked: “You need heart surgery, are on the waiting list and expect to undergo surgery in one month’s time. John Brown, which is younger than you, aged 45 years, is scheduled to receive the same type of operation 15 days later than you. Do you think it is right to give up your place for him just because he is younger than you?” The same question was posed for an outpatient consultation (case 2).

Case 3 was identical except it concerned: “David Smith, owner-operator of an automotive repair shop”, and respondents were asked: “Do you think it is right to give up your place for him so that he can start work again as soon as possible?” Again, the question was posed for both cardiac surgery and for an outpatient consultation (case 4).

We deliberately avoided discussing outcomes, leaving each respondent to infer symptom burden and degree of vital risk

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from further delay. No respondents questioned the hypothetical premise that they were exchanging places with the younger or self-employed individual.

Interviewers collected data on various sociodemographic variables (age, sex, marital status, household composition, education level, work status with particular reference to self-employment). They obtained a brief medical history and classified individuals categorically as to presence of any form of heart disease or other chronic diseases. They also assessed activities of daily living and instrumental activities.

Folstein's Mini Mental State Examination (MMSE) score was calculated to assess cognitive status.⁴ We chose the BSI-Brief Symptom Inventory (subscale for depression) to elicit subjective depressive symptoms from respondents, applying the cut-off proposed by the scale's authors.⁵ This scale has been validated for application in the Italian elderly population.⁶

Interviewers posed three questions from the Crowne and Marlowe scale to help assess the extent to which individuals' responses may be motivated by a desire for social approval.⁷ The questions, chosen because of their factorial loading and internal consistency, were as follows: "Please state whether the following statements are true in your situation: 'I am always ready to change my plans to help someone else'; 'Sometimes I like to gossip'; and 'There have been times when I was jealous of the good fortune of others'."

Data collection among younger individuals

In January, 1997, during a continuing education course, we administered the same four questions to nurses and nurses' aides who worked in the wards in the Geriatric Hospital of Padova. Respondents were asked to imagine themselves as elderly individuals, and to give their responses accordingly.

Analysis

The questions follow a 2x2 factorial design. Factors are the type of service (surgery or outpatient consultation) and characteristics of the person behind the elderly respondent in the queue (45-year-old man of unspecified occupation, or self-employed man of unspecified age).

We examined the frequency of "Yes", "No", and "Don't know" responses for each scenario descriptively, and compared responses for the elderly and younger individuals with χ^2 tests.

We next modelled the determinants of the responses of elderly persons. A three-way or polychotomous regression of the response options would be difficult to interpret, so we accordingly did separate analyses for respondents' willingness to give up their place in line as follows: (Yes+Don't know) versus (No); (Yes) versus (No+Don't know); and (Yes) versus (No), excluding all "Don't know" responses. We used generalised estimating equations (GEE) methodology suitable for correlated data,^{8,9} and estimated logistic-regression coefficients and their SEs.

On univariate analyses, we examined associations between participants' characteristics, including answers to questions for the Crowne and Marlowe scale, and their correlated responses to the four scenarios. We then undertook a multivariate analysis to find independent predictors of willingness to give up one's place in line. An unstructured covariance matrix was assumed. Any respondent variable with p value less than or equal to 0.20 on univariate analysis was included in the first instance. The three models were reduced with a threshold to exclude variables of less than or equal to 0.10. We incorporated the scenario factors (type of service and age/work status), and looked for consistency of predictors across the three models for handling the response options. These analyses used a SAS module recently released for models of this type.¹⁰

Results

With 443 respondents out of 659 potential elderly patients, the crude response rate was 67%. 26 (4%) had left the district, eight (1%) had died, 9 (1%) had been

	Yes	No	Don't know
Case 1			
Elderly	51% (226)	23% (102)	26% (115)
Non-elderly	24% (46)	68% (129)	7% (14)
Case 2			
Elderly	68% (300)	21% (93)	11% (50)
Non-elderly	25% (47)	71% (135)	4% (7)
Case 3			
Elderly	47% (206)	28% (124)	25% (113)
Non-elderly	18% (34)	78% (147)	4% (8)
Case 4			
Elderly	68% (299)	21% (95)	11% (49)
Non-elderly	29% (54)	70% (132)	2% (3)

Percentages may not add up to 100% due to rounding.

Table 1: Responses of elderly people (n=443) versus younger people (n=189) to standing aside in the queue for cardiac services for a younger or self-employed person

admitted to hospital, five (1%) declined owing to serious family problems, and 168 (25%) declined to participate. The response rate among eligible individuals was 72%. The age and sex profiles of non-respondents did not differ significantly from respondents.

58% of elderly respondents were female. The mean age was 75 years, ranging from 65 to 99. 56% were married and 87% were not working outside the home. The respondents had attended school for 10.6 (SD 5.0) years on average. The mean Mini Mental State Examination score was 27.5 (2.9), ranging from 18 to 30. 98 (22%) respondents lived alone. 62 (14%) respondents had cardiac disease as follows: valvular disease, six; congestive heart failure, 22; previous myocardial infarction, 22; angina pectoris without a history of infarction, five; arrhythmias, seven. All respondents were receiving pharmacotherapy for these conditions, except one patient in the arrhythmia category who had been fitted with a pacemaker.

For non-elderly participants, we obtained a 100% response rate from 189 nurses and nurses' aides (median age 53 years, range 20-63 years), of whom 77% were women.

As shown in table 1, more than half the elderly respondents believed it was right to cede their place in line to permit faster access for a younger man waiting for cardiac surgery (51%, 95% CI 46-56) or an outpatient examination (68%, 95% CI 63-72). The pattern was similar for ceding place in line to a self-employed person for surgery (47%, 95% CI 42-51) or an outpatient examination (68%, 95% CI 63-72).

Table 1 also shows marked differences (all four comparisons, p<0.0001) in the patterns of responses among younger health workers. Asked to imagine themselves as elderly persons facing the same question, non-elderly respondents showed little uncertainty and an overwhelming majority refused to give up their places in line.

On univariate analyses, several respondent characteristics did not meet the threshold for inclusion in any model, including household composition (ie, living alone or not), working outside the home, presence of depressive symptoms, scores for activities of daily living and instrumental activities, clinical conditions other than cardiac disease, and responses to a social approval question concerning jealousy of others' good fortune.

The remaining two social approval measures had an inconsistent relationship to positive responses. In one model, elderly persons who claimed to be "always ready

	Do you think it is right to give up your place?					
	Yes versus (No, Don't know)		(Yes/Don't know) versus No		Yes versus No	
	Odds ratio (95% CI)	p	Odds ratio (95% CI)	p	Odds ratio (95% CI)	p
Age (scaled in years)	. .*	<0.10*	1.04 (1.02, 1.07)	0.001	1.04 (1.01-1.07)	0.009
Previously self-employed (Yes/No)	0.57 (0.41-0.81)	0.001	0.61 (0.41, 0.91)	0.016	0.63 (0.42-0.96)	0.031
University graduate (Yes/No)	. .*	<0.10*	0.58 (0.38, 0.87)	0.008	0.60 (0.40-0.91)	0.017
Currently married (Yes/No)	0.75 (0.55, 1.01)	0.061	. .*	. .*	0.63 (0.43-0.93)	0.02

*Did not meet alpha threshold (0.10) to remain in model.

Table 2: Independent predictors of elderly people's beliefs that they should stand aside for younger or self-employed persons in the queue for cardiac services

to change my plans to help someone else" were significantly more likely to give up their place in line (odds ratio 2.03, 95% CI 1.47-2.80). This factor was not significant in another model, but persons admitting that they sometimes liked to gossip tended ($p=0.077$) to be less likely to stand aside (odds ratio 0.67, 95% CI 0.43-1.04).

In the multivariate models, the two scenarios for a 45-year-old man elicited more positive responses than those for a self-employed person of unstated age (odds ratios from 1.21 to 1.34, p values from 0.021 to 0.004). Similarly, more respondents deemed it right to give up their place in line for an outpatient consultation than for surgery (odds ratios from 1.48 to 2.57, p values uniformly <0.001).

Table 2 shows the results for the respondent characteristics that were independent predictors of willingness to stand aside in line in at least two of three data models. Elderly respondents who were previously self-employed, married, or university graduates were less likely to respond positively, while advancing age predicted positive responses. Perhaps surprisingly, presence of heart disease was a positive factor, with an odds ratio of 2.03 (95% CI 1.25-3.31) in one model.

Discussion

Journal articles shed little light on public attitudes about whether non-clinical factors should influence patients' priority of access to scarce services. Drawing on a unique survey of community-dwelling elderly residents of Padova, Italy, we have shown that most elderly citizens believe it is right that they should give up their place in line for cardiac services to permit faster access for younger or self-employed individuals. Elderly people agreed more often for routine outpatient care than for heart surgery, illustrating that, despite our deliberate avoidance of clinical detail, respondents correctly inferred differences in negative consequences of delay and took them into account.

The responses of the elderly differed strikingly from those of young health care workers, who, when asked to imagine themselves as an elderly person faced with the same question, were much less likely to trade places with a younger or self-employed individual. Not only did a clear majority of younger respondents oppose giving up their place in line, they also showed little indecision and were relatively unaffected by the type of service under consideration. Such contrasting responses could partly reflect the fact that younger respondents were medically sophisticated, and as employees of a geriatric hospital, might be more inclined to reject age disorientation. However, the response pattern is also consistent with generational dilution of altruism. Put another way, chivalry may not be dead, but it is perhaps dying out.

We compared the groups of elderly respondents willing and unwilling to give up their place in the waiting list. We hypothesised that some people might respond favourably because of their concern to maintain an appearance of socially or morally desirable behaviours. Although we obtained more positive responses from individuals who affirmed that they would always change their plans to help others or who denied that they sometimes liked to gossip, the findings were not consistently significant across models.

Instead, the factors that emerged most consistently as independent predictors of refusal to give up one's place in line were lower mean age, being married, previous self-employment, and having a university education. The negative impact of more education or previous self-employment may reflect socioeconomic advantages that mitigate the infirmity of ageing and lead these individuals to place a higher value on preservation of their health. The finding may also be interpreted as indicating a lack of social generosity on the part of those who are already advantaged.

We emphasise, however, that defining or predicting altruistic behaviour is complex. Human motivation is often mixed; researchers have no benchmark to distinguish altruistic responses from those that reflect concerns with maintaining appearances or other baser motives. Moreover, additional patient characteristics that were not measured may have increased the explanatory power of our models.

Some other limitations of this work should be acknowledged. First, response biases are a concern in any community survey. However, we obtained a 72% response rate from elderly citizens in central Padova, and age/sex profiles of respondents and non-respondents were similar. Second, we relied on a convenience sample of health workers in a geriatric hospital to obtain responses from non-elderly persons. Other non-elderly citizens may have different attitudes than our respondents. Third, the interviewers asked respondents about hypothetical and simplified case scenarios using closed questions. We do not know how responses would change with additional clinical details. More open-ended questions might have yielded richer insights into the thought processes of our patients. Above all, it remains unknown whether, if confronted with the actual situation, those who responded positively would be willing to stand aside for a younger or self-employed individual.

Although waiting lists have been a persistent feature of public health-care systems in many nations, little has been published on citizens' attitudes to queuing practices, and we cannot compare our results with other studies. Our findings must be seen as exploratory but do raise issues pertinent to both the general concern with more public input into health-services priority-setting,¹¹ and the specific debate about age discrimination in health

care. Should we take altruistic elderly people at their word and consider age and work status as factors in any explicit queuing system? Or do these findings primarily represent a manifestation of the extent to which many elderly citizens, particularly those who are advanced in years or lacking higher education, feel overwhelmed, have lost self-esteem, and have internalised society's discriminatory attitudes? Finally, even if many of today's elderly people believe that their health needs should be secondary to those of younger persons, our findings suggest that tomorrow's elderly—the large generation of greying “baby boomers”—will be intolerant of age discrimination and assertive about their continuing rights to health care.

Contributors

Aldo Mariotto conceived the study, played the lead role in designing and implementing it, and co-wrote the paper. Diego De Deo contributed to constructing the vignettes, selected the psychometric instruments, interpreted results, and collected data. Marirosa Dello Buono co-ordinated all operational aspects, including data management, and also helped to select the psychometric instruments and interpret the results. Carlo Favaretti contributed to the overall design and the construction of the vignettes. Peter Austin was primarily responsible for development of the analytical methods. C David Naylor helped design the analysis and statistical models and co-wrote the paper.

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