

Allocating a Scarce Mental Health Treatment to the Underweight and Overweight

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Abstract

Background: This is one of a number of programmatic studies on the allocation of scarce medical resources.

Aims: This study investigated whether certain characteristics about patients influence the priority they are assigned for a scarce mental health treatment. Similar studies for physical treatments have found that young, poor, and mentally healthy patients are given the highest priority.

Method: Each participant completed one questionnaire where they ranked a list of 8 hypothetical patients in order of priority for treatment for anorexia or obesity. The patients varied on three dimensions: age, social class and mental health history. This was a ranking of prioritization for treatment.

Results: Participants gave the young patients, from a low social class background, who had a mental health history the highest priority for treatment. This is in contrast to previous studies indicating that the mentally unwell are discriminated against.

Conclusions: Participants seemed to be using social class as a proxy measure of ability to pay which they weighted very highly.

Key Words: Obesity, Anorexia, poverty, mental illness, ethics

Introduction

The fair allocation of medical treatments is constantly debated (Hoffmaster & Hooker, 2013). Currently most waiting lists operate on a ‘first-come, first-served’ basis. Organ transplantation is one of the few areas that uses a system that prioritises children and young adults (NHS Choices, 2015a). Another system employed by the British NHS is based on ‘quality adjusted life years’ (QALY) (Sassi, 2006). This means that comparisons can be made across treatments.

Ethical positions on resource allocation can be divided into teleological or deontological. Teleological theories focus on the outcome of a decision; decisions are made according to the result required. One outcome that may be required is that of utilitarianism: the greatest amount of pleasure that can be achieved from a decision (Stein, 2012). In contrast, deontology focuses on the nature of the action and does not regard its consequences. One important principle here is ‘egalitarianism’ which is making decisions so that all people have an equal chance of a good outcome. In medical resource allocation, this can be achieved by using random allocation (Freund, 1971; Stein, 2012).

The most obvious criteria for resource allocation is the patient's need for treatment and their prognosis. This criterion is used all over the world in emergency situations and is termed ‘triage’. Priority is given first to those patients who need treatment to survive and last to those who are seriously injured and unlikely to survive (Frykberg, 2005). A complicated scenario, however, arises when two patients have the same prognosis and need for treatment. How does one choose between the two which has been hotly debated (Basson, 1979; Langford 1992).

Studies have analysed whether the general population favours egalitarian or utilitarian approaches (Charny, Lewis & Farrow, 1989; Fortes & Zoboli, 2002). Stahl and colleagues (2008) found that participants often tended to use utilitarian principles. These decisions were based on life expectancy, clinical urgency, quality of life or age.

In a series of studies Furnham and colleagues have looked at the scenario of choosing between patients with the same prognosis and need for treatment. Participants are provided with questionnaires with hypothetical scenarios where one treatment is available but there are a number of patients eligible. They rank the patients in order of priority of treatment and in this way a number of characteristics that determine patient priority have been identified (Furnham & Briggs, 1993; Furnham, 1996; Furnham & Ofstein, 1997; Furnham, Meader & McClelland, 1998; Furnham, Simmons & McClelland, 2000; Furnham, Thomson & McClelland, 2002; Furnham, Thomas & Petrides, 2002; Furnham, Ariffin & McClelland, 2007; Furnham, Loganathan & McClelland, 2009). Similar studies have also been conducted around the world (Furnham, Hassomal & McClelland, 2002; Lenton, Blair & Hastie, 2006; Wiseman, 2006, 2007).

The most important findings from this research are the influence of age, sex and income on resource allocation which provide support for both an egalitarian and utilitarian approach to resource allocation. The young are consistently prioritised higher (Furnham & Briggs, 1993; Furnham et al., 2002; Furnham et al., 2007; Lenton et al., 2006; Wiseman, 2007) and this pattern holds for a variety of different treatments. It is suggested that this is because younger patients have longer to live and so will benefit from the treatment for longer. They are also more likely to benefit society (Furnham & Briggs, 1993), so this is a utilitarian judgement.

Another finding that has been replicated is that females are favoured over males (Furnham & Briggs, 1993; Furnham, 1996; Furnham et al., 1998; Furnham et al., 2002, Furnham et al., 2009). This could be due to social norms where woman and children tend to be prioritised first, or it could also be due to utilitarian judgements; women are usually the primary care-givers in a family and so treating them first benefits the whole family (Furnham, 1996). However, some studies have found that there is no difference between the priority given to males and females (Furnham et al., 2000; Furnham, Thomas & Petrides, 2002; Lenton et al., 2006). It was proposed that this could be because the women were described along with their occupation, drawing attention away from their role in the family (Furnham et al., 2000).

Patients with a low income were prioritised over the rich for a number of treatments including kidney transplants (Furnham, 1996; Furnham et al., 1998), heart transplants, *in vitro* fertilization and rhinoplasty (Furnham et al., 2002). The level of income was actually the 'most powerful indicator of position on the waiting list' (Furnham et al., 1998). It is theorised that this is because participants thought that poorer patients were less able to pay for their own treatment and so should be given a higher priority than rich patients who can potentially pay for their treatment (Furnham, 1996; Furnham et al., 1998). This finding provides support for a quasi-egalitarian framework for decision making, as prioritising the poor is effectively giving them an equal opportunity for treatment as the rich, who can afford to pay for it privately.

There is also evidence that patients can be subject to much discrimination when resources are being allocated; homosexuals and promiscuous patients were prioritised lower for treatment (Furnham et al., 2007). The patients prioritised highest can change depending on the treatment being provided; patients with dependents were prioritised

highest for heart transplants, but lowest for *in vitro* fertilization and this factor had no effect on priority for rhinoplasty (Furnham et al., 2002).

Present Research

Obesity is a complex condition which can have mental health causes but is also classed as a lifestyle disease. In contrast, anorexia nervosa is an eating disorder where patients are severely underweight. It is classed as a mental health condition and can lead to death if untreated (NHS Choices, 2015b). These conditions were chosen as they are at opposite ends of the spectrum of body image and mental health. They are also common; in the UK, 24.9% of adults are obese (Health and Safety Executive, 2013) and 6.4% have an eating disorder (Health and Social Care Information Centre, 2009). Therefore, the scarcity of resources for these conditions is a highly plausible scenario.

Furthermore, there is evidence for stigma associated with both diseases (Mond, Robertson-Smith & Vetere, 2006; Puhl & Heuer, 2010). There has been research into HIV, a stigmatising condition, in this series and results showed a similar pattern of prioritising the young as with non-stigmatising conditions (Furnham et al., 2007). Hence it will be interesting to see if this pattern holds with two diseases with very different stigma associated with them and as the prevalence of obesity increases (Public Health England, 2012), this research could be important in predicting future biases in resource allocation.

The majority of patients with an eating disorder are female (Beat, 2015). In order to present a realistic scenario which could be a viable tool in predicting responses in resource allocation, all of the patients in the questionnaires were female. The patient

characteristics that will be considered will be the age of the patient, mental health history and social class.

The following hypotheses are proposed for both the anorexia and obesity conditions:

Hypothesis 1. Young patients will be favoured over older patients. We think that people will use the principle that the young have longer to live and so will allocate them the treatment as they will benefit from it for longer.

Hypothesis 2. Patients with no history of mental health conditions will be favoured over those with a history. If participants are using social utility principles they will choose the healthier patients, as it is stated that once they are given the therapy described they will return to normal health and so could be of use to society. Mental health conditions are also stigmatising and so there may be discrimination against those with a mental health history.

Hypothesis 3. Patients of low social class will be given priority over patients from a higher social class. Participants will favour those who are financially disadvantaged and thus unable to afford private treatment.

Method

Participants

In total, 388 participants took part in the study, which yielded useable data from 361 individuals. Half completed the anorexic and half the obesity questionnaire. To ensure the views expressed were representative of laypeople, no physicians or other medical professionals took part in the study. All participants were over the age of 18 years old.

Anorexia questionnaire

Out of 194 participants, the responses from 181 were complete. Thus 90 men and 89 women took part (3 did not answer this question). One hundred and twenty three of

the participants were recruited online, with the majority of the respondents coming from the United States and India. The other 58 participants were British citizens recruited by email. The participants had a mean age of 34 years (range 19 to 78 years). One hundred and fifteen participants (63.5%) had a university degree and the mean number of years in education was 16. Thirty-five participants said they had a history of mental ill-health. Of those who responded to the question about social class, 6 participants categorized themselves as being upper class, 137 middle class, and 33 lower class.

Obesity questionnaire

Out of 194 responses, 180 were complete. Ninety-eight women and 79 men took part (3 did not answer this question). Again, 144 of the participants were recruited online, with the majority of these from the United States or India. The rest were all British citizens who received an email about the study. The participants ranged from 18 to 83 years old with a mean age of 37 years. One hundred and twenty-six participants (70%) had a university degree and the mean number of years in education was 16.0. Twenty-nine participants answered 'yes' to having a mental health history. Seven participants claimed to be upper class, 139 middle class, and 30 lower class.

Questionnaires

The two questionnaires (created using Qualtrics software) were very similar; the only difference was whether the patients suffered from obesity or anorexia. The first part of the questionnaire presented a list of 8 hypothetical patients which the participants had to rank in order of priority for the behaviour modifying therapy. The second section consisted of questions about the participants' own demographics.

Procedure

Prior to collecting results the research was approved by the University Research Ethics Committee. The scenario for the research question was set by first explaining

the seriousness of the medical condition being considered ‘anorexia nervosa is classed as a serious mental health condition...’, ‘can be a fatal condition and the complications if left untreated include infertility...’ and for the other questionnaire ‘obesity is a serious problem...’, ‘can cause many health problems such as type 2 diabetes...’

The treatment for the conditions was then explained. The participants were told that there was only one place available for the treatment and that from a list of eight female patients they had to choose who should receive the treatment. They were told that all of the patients were British citizens to make it clear that all were eligible for free treatment on the NHS. It was also explained that all the patients had the same prognosis ‘all of them will return to the same, healthy, normal weight.’ to remove the success of the treatment from confounding the results and to ensure that only the demographic data given could be used to make the decision. The participants were then presented with the list of eight patients which they ranked.

Results

A 2 x 2 x 2 ANOVA was conducted for each questionnaire. The within-subject variables were the three patient characteristics (age, mental health history and social class). Partial eta-squared (η_p^2) (Cohen, 1973) was used to measure the effect size of each patient characteristic.

Insert Tables 1 to 4 here

Anorexia Questionnaire

The ANOVA results are presented in Table 1. There were significant effects of age, mental health history and social class on prioritization. Social class had the greatest effect and mental health history had the least effect. There were two significant two-way interactions, and also a significant three-way interaction between the three

characteristics. Age interacted with mental health, $F(1,180) = 7.41, p = 0.007, \eta_p^2 = 0.04$, indicating that a young individual, with a mental health condition was given the highest priority, and that an old individual, without a mental health condition was given the lowest. Mental health also interacted with class, $F(1, 180) = 11.9, p = 0.01, \eta_p^2 = 0.06$, so those with a mental health condition from a low social class were favoured over the healthy, from a high social class. The three-way interaction shows that the young, with mental health conditions and from low social classes, were ranked highest for the treatment whereas the old, without mental health conditions and from upper class backgrounds were ranked lowest, $F(1,180) = 49.0, p < 0.001, \eta_p^2 = 0.21$.

Thus, as predicted, the hypothetical patient given the highest mean priority for the behaviour modifying therapy was described as young and from a low social class. However, they also had a mental health condition, and this was not predicted. The patient with the lowest mean rank was old, had no history of mental health conditions and was upper class. A list of patients with their mean rankings is presented in Table 2.

Obesity Questionnaire

The ANOVA results are presented in Table 3. Again, there were significant effects of age, mental health history and social class on the prioritisation of the patients. Social class had the greatest impact on prioritisation, and mental health status had the least impact. There was a significant two-way interaction between mental health history and social class, $F(1,179) = 5.15, p = 0.02, \eta_p^2 = 0.03$, showing that those from lower social classes with a mental health condition were ranked higher than those from the upper classes and without a mental health condition. There was also a highly significant three-way interaction between the characteristics, $F(1,179) = 42.2, p < 0.001, \eta_p^2 = 0.19$. This indicates that the young, from low social classes, and with a mental health condition were favoured over the old, from upper social classes with no history of mental ill-

health. Again, as hypothesised, the young patient from a low social class was given the highest priority. However, it was not predicted that they would also have a mental health condition. The patient given the lowest priority had no mental health condition, was older and from an upper class background. A list of patient descriptions and mean priority ratings can be found in Table 4.

Discussion

All three factors studied - age, social class and mental health history - affected the priority assigned to patients. As hypothesised, the young were prioritised over the old, and the lower social classes over upper classes. It was not predicted that those with a history of mental health conditions would be favoured over those without.

Overall the results from the two analyses were very similar despite the fact that anorexia is acknowledged to have more of a “mental health component” than obesity. In this sense it seems that participants did not differentiate very much between the two conditions.

Age

The finding that the young were favoured over the old replicates results from previous studies (Furnham & Briggs, 1993; Furnham et al., 2002; Furnham et al., 2007, Lenton et al., 2010; Wiseman, 2007). As proposed by Furnham and Briggs (1993) this is likely to be because the young have longer to live and so the benefits of the treatment are appreciated for longer in the young. Previous studies which have found that the young are favoured over the old have focused on physical treatments; this is the first study to observe this result in the mental health field. In our study there was little difference in the ages between the 'old' and 'young' age groups. The older patients were only 30 years old, which is relatively young compared to the average population in the

UK. The 15 year olds were still favoured over these patients so the pattern of young prioritised over old seems to apply, regardless of how 'old' the 'old' age group is. Therefore, it is not the patients' actual age that determines their prioritisation, but their age in relation to the other patients. This finding is also contrary to Stahl et al's. (2008) research, which found that if the difference in ages is less than 15.4 years, then age has no significant effect of patient priority.

If participants were using utilitarian principles to make their decision they should have prioritised the older patients as the 30 year olds are more likely to have children and families than 15 year olds. Also, they are more likely to be socially useful, as the young age group would still be in education. Therefore the young were either prioritised higher because of their future social use or participants did not base their decisions on social utility.

Stahl and colleagues (2008) saw prioritising the young as an egalitarian judgement. This is because prioritising the young is favouring those who are 'worse-off' in terms of the years lived, and favouring those who are less fortunate is an egalitarian decision. This fits within the 'complete lives' framework endorsed by Persad et al., (2009) where the young are also favoured over the old. However, this framework separates infants from older children and adolescents and specifies that in these cases, to achieve more complete lives, children and adolescents should be prioritised over infants.

An alternate reason why the young could be prioritised higher is that they are deemed less responsible for their condition. Lenton et al., 2006; Murphy-Berman, Berman & Campbell 1998). Golan and Crow (2004) found that interventions to reduce childhood obesity are more effective if they are aimed at their parents than at the obese children themselves, supporting the argument that it is parents who determine a child's weight and not the child.

Mental Health History

Contrary to previous research (Furnham et al., 2002; Furnham et al., 2009; Wiseman, 2006, 2007) we found that patients with a history of mental health conditions were actually prioritised higher for treatment. Our finding is interesting because mental health sufferers are often discriminated against (Hamilton et al., 2016).

Participants may have prioritised sufferers of multiple mental health conditions as they believed the treatment could benefit their other conditions as well as the one in question. This is a logical conclusion to reach as there is evidence of mental health co-morbidities with both anorexia and obesity (Kaye, Bulik, Thornton, Barbarich, & Masters, 2004; Mcelroy et al., 2004).

Patients with a mental health history are unlikely to have been prioritised higher due to in-group favouritism, where participants favour people similar to themselves. On the anorexia questionnaire only 19.3% of participants declared that they had a history of mental health conditions and this number was even lower on the obesity questionnaire (16.1%).

Although the finding that mental health sufferers are favoured over non-mental health patients is surprising it is worth noting that the effect sizes for mental health were relatively small. It accounted for 14.3% of the variance for anorexia and only 3.6% of the variance for obesity. Also, when the obesity participants were divided by their nationality (American, British, Indian), mental health history had no significant effect on decisions. This effect size may have been especially low for obesity because participants were not aware of its mental health causes. Therefore, although mental health history did affect patient priority, it was to a much smaller extent than the other patient characteristics.

Social Class

As hypothesised, lower social classes were prioritised for treatment in both questionnaires. This replicates findings that the poor are favoured over the rich (Furnham 1996; Furnham et al., 1999; Furnham et al., 2002). This may be because the poor are less likely to be able to afford private treatment. People from the lower social classes could also be perceived as less responsible for their conditions. It may be believed that those in the lower social classes may not be held responsible for their conditions if they cannot afford to eat healthy food.

Implications

This study has identified that age, mental health history and social class are all factors that are salient in scarce resource allocation in the mental health field. We have identified one new patient characteristic that can be used to assign patient priority: social class. In fact, this was the most salient factor in predicting patient priority in both questionnaires, accounting for almost 50% of the variance.

In the anorexia questionnaire, there were two two-way interactions; both involving mental health. This suggests that combined with other patient characteristics mental health is a salient factor in prioritisation. The large three-way interaction between age, social class and mental health in the anorexia questionnaire (21.4%) and in the obesity questionnaire (19.1 %) shows that together, these factors were extremely important in determining patient priority.

Broad comparisons between the two questionnaires shows that they had similar results; more than half of the patients were assigned the same priority ranking in both questionnaires and social class had the largest effect size on the results. Thus, two separate studies into mental health treatment have shown that the young, with a history

of mental health conditions and from a low social class are prioritised first for treatment. This differs from work that has shown that allocation decisions differ across medical conditions (Furnham et al., 2002). However, this may be because our study looked at two conditions that are fairly similar in both being about mental health and body size, whereas Furnham and colleagues researched differences in allocation decisions across organ transplants, cosmetic surgery and fertility treatment.

Limitations

Like all others, this study had a number of limitations. It was a self-report, cross-sectional study which meant it was open to all the various biases associated with self-report including impression management, social desirability and systematic rating errors. Next, although we had a relatively large international group of participants they could hardly be said to be representative of any national group, being younger and better educated than the majority. Finally we did not explore other potentially interesting and important individual difference factors that may have affected the results, such as personal experience of either illness (anorexia, obesity), religious and political beliefs or actual (as opposed to self-assessed) socio-economic status.

These limitations could have biased these findings, which require replication. For instance, it is possible that if we had a more representative sample, older people would not have favoured younger patients as much. Further, had we obtained information about the participant's current BMI, or their history of eating disorders, it is possible this factor may have systematically influenced the results. However the findings fit broadly with the hypotheses and other studies in this area.

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Table 1 - Mean priority rankings for patient characteristics and F values for anorexia questionnaire

Characteristic	M	SD	$F(1, 180)$	η_p^2
Age			112.41***	.38
Young	3.65	1.97		
Old	5.34	1.89		
Mental Health History			30.14***	.14
No History	4.88	1.91		
History	4.12	1.93		
Social Class			160.73***	.47
Low	3.71	1.92		
Upper	5.29	1.92		

*** $p < 0.001$

Table 2 – Anorexia Questionnaire: Means, Standard Deviations and Ranks for the 8 patient descriptions

Patient Description	Characteristics	<i>M</i>	<i>SD</i>	Rank
Lily is a 15 year old schoolgirl whose family live on benefits and she has no history of mental illness	Young, no mental health history, low social class	3.51	1.77	2
Emily is a 15 year pupil at a top independent school and is mentally well	Young, no mental health history, middle/upper class	4.75	2.21	6
Isabella is a 15 year old schoolgirl who has suffered from post-traumatic stress disorder after a car crash a few years ago. She is from a low-income background	Young, mental health history, low social class	2.31	2.05	1
Zara is a 15 year old student who has an anxiety disorder. She lives in a rich neighbourhood in the city	Young, mental health history, upper class	4.04	1.83	3
Kate is a 30 year old woman with little education as her family were unable to afford it. She has no history of mental illness	Old, no mental health history, low social class	4.40	1.88	4
Anne is a 30 year old woman who has had a privileged life and has no other health conditions	Old, no mental health history, upper class	6.87	1.73	8
Stephanie is a 30 year old woman with generalised anxiety disorder and from a low-income background	Old, mental health history, low social class	4.62	1.98	5
Rebecca is a 30 year old woman with a history of depression and from a privileged background	Old, mental health history, upper class	5.50	1.86	7

Table 3 - Mean priority rankings for patient characteristics and F values for obesity questionnaire

Characteristic	M	SD	$F(1, 179)$	η_p^2
Age			51.34***	.22
Young	3.86	2.04		
Old	4.32	1.88		
Mental Health History			6.76***	.04
No History	4.68	1.99		
History	4.32	2.03		
Social Class			158.29***	.47
Low	3.64	2.01		
Upper	5.36	2.00		

*** $p < 0.001$

Table 4 – Obesity Questionnaire: Means, Standard Deviations and Ranks for the 8 patient descriptions

Patient Description	Characteristic	<i>M</i>	<i>SD</i>	Rank
Lily is a 15 year old schoolgirl whose family live on benefits and she has no history of mental illness	Young, no mental health history, low social class	3.39	1.77	2
Emily is a 15 year pupil at a top independent school and is mentally well	Young, no mental health history, upper class	4.74	2.43	6
Isabella is a 15 year old schoolgirl who has suffered from post-traumatic stress disorder after a car crash a few years ago. She is from a low-income background	Young, mental health history, low social class	2.73	2.10	1
Zara is a 15 year old student who has an anxiety disorder. She lives in a rich neighbourhood in the city	Young, mental health history, upper class	4.56	1.77	5
Kate is a 30 year old woman with little education as her family were unable to afford it. She has no history of mental illness	Old, no mental health history, low social class	4.06	1.81	3
Anne is a 30 year old woman who has had a privileged life and has no other health conditions	Old, no mental health history, upper class	6.52	1.86	8
Stephanie is a 30 year old woman with generalised anxiety disorder and from a low-income background	Old, mental health history, low social class	4.39	2.32	4
Rebecca is a 30 year old woman with a history of depression and from a privileged background	Old, mental health history, upper class	5.61	1.89	7