

# Rationing decisions and the endowment effect

**Dieneke Hubbeling** 

Wandsworth Home Treatment Team, South West London and St. George's Mental Health NHS Trust, Springfield Academic Hospital, London SW17 7DJ, UK

**Corresponding author:** Dieneke Hubbeling. Email: dieneke@doctors.org.uk

Decisions about further investigations and treatment in medicine, including psychiatry, should be based on the best available evidence regarding both clinical usefulness and cost-effectiveness. However, sometimes clinicians and researchers interpret evidence differently, as the example of neuroimaging in first-episode psychosis illustrates.

It is important to explore why individuals draw different conclusions from identical facts. In this paper, we will argue that the 'endowment effect' could be a potential explanation. Taking something away seems to be worse than not getting it at all. NICE and other organisations making decisions about rationing healthcare could consider taking this into account.

## Brain scans in first-onset psychosis

If an individual without a history of mental health problems reports strange experiences and is diagnosed with a psychotic disorder, doctors and patients will wonder about a possible cause; *prima facie*, neuroimaging seems a reasonable approach in attempting to identify brain abnormalities.

Using neuroimaging, Lubman et al.<sup>1</sup> found abnormalities in 22% of patients with first-onset psychosis. However, they found a similar percentage in normal controls. A study by Katzman et al.<sup>2</sup> found that 18% of 'normal controls' had some abnormality with neuroimaging. A health technology assessment by Albon et al.<sup>3</sup> concluded that routine neuroimaging in first-onset psychosis was not cost-effective if clinical history and examination did not lead to suspicion of intracranial pathology, and they recommended – as doctors must offer cost appropriate care<sup>4</sup> – not to use routine neuroimaging in clinical practice.

The *Choosing Wisely* campaign is an international movement arguing for a discussion between health professionals and patients about unnecessary and potentially harmful tests.<sup>5</sup> The Royal College of Psychiatrists asserted for the UK *Choosing Wisely*

campaign: 'when a diagnosis of psychosis is made, computed tomography or magnetic resonance imaging head scans should only be used for specific indications, i.e. signs or symptoms suggestive of neurological problems'.<sup>6</sup>

In a more recent study, Falkenberg et al.<sup>7</sup> compared the number of abnormal neuroimaging findings between a clinical and research sample of patients with first-onset psychosis. They found more abnormalities in the clinical sample (15% clinical sample vs. 6% research sample), but they also reported that clinical management was not changed in any patient with abnormal radiological findings. This was similar to previous studies.

Even though clinical management rarely changes as a result of neuroimaging, and did not change patient management in their own study, Falkenberg et al.<sup>7</sup> advocated for routinely requesting a magnetic resonance imaging scan in first-episode psychosis. They asserted in their conclusion that this should be done because of the severe consequences of missing a brain tumour or encephalitis in a young person.

Empirical data indicate that one can find abnormalities in patients with first-onset psychosis but also in 'normal controls' and also that these abnormalities rarely change clinical management. There is no major dispute about these data, but the data are interpreted differently, with Falkenberg et al.<sup>7</sup> arguing in favour of routine brain scans and the UK *Choosing Wisely* campaign and Albon et al.<sup>3</sup> arguing against it. We can then ask why there is this difference, assuming everybody accepts that funding for healthcare is limited. The *Choosing Wisely* campaign and Albon et al.<sup>3</sup> looked solely at cost-effectiveness and Falkenberg et al.<sup>7</sup> did not. Falkenberg et al.<sup>7</sup> were clinicians working in a service with routine neuroimaging in first-onset psychosis and they also had to make a decision about taking something away from their patients. This could explain their different interpretation of the data.

## Endowment effect

Psychological experiments suggest that it is not only monetary value that determines subjective evaluation. There is a difference between already owning something and having to buy something.

In a number of studies, half of the research participants were given a mug, and the other half were not. Both groups were asked about the price of the same mug. Given that these were identical mugs, one would expect the estimated prices to be roughly the same. However, potential sellers (participants who had been given mugs) valued the same mug much higher than potential buyers (those who had not been given mugs).<sup>8</sup> This is normally referred to as the endowment effect. The endowment effect was also seen in a study where some participants were given betting tickets and others were not. Potential sellers valued the tickets more highly than did potential buyers, while participants were aware of the chance of winning and hence the monetary value of the tickets.<sup>9</sup>

The exact mechanism of the endowment effect is unknown; empirical research suggests that the endowment effect can change when certain emotions such as sadness or disgust<sup>10</sup> or regret and disappointment<sup>11</sup> are induced. For our purposes, it is important to realise that sometimes individuals seem to be motivated not only by monetary value but also by what they already own or have access to.

## Endowment effect of medical tests and treatment?

Magnetic resonance imaging scans are not routinely ordered for asymptomatic members of the public. If somebody presents with neurological symptoms and is later found to have an inoperable brain tumour, the patient and his or her doctor are not likely to believe a magnetic resonance imaging scan should have been done earlier, before there were any symptoms.

If one exclusively focuses on cost-effectiveness, there is no indication for a brain scan in first-onset psychosis. However, if somebody with first-onset psychosis turns out to have an inoperable brain tumour several months later, his or her doctor is likely to believe a brain scan should have been ordered, especially if this was routinely done in other nearby services or if it had been a routine procedure in the past within the same service. Patients may also think that it should have been ordered, if they are informed, for example by other patients or via the internet that a brain scan was routinely arranged elsewhere.

It could be that the same problem occurs with other treatments. In the EBOR trial, pharmacists

came to general practices to encourage evidence-based prescribing, and it was later checked whether guidelines were followed. When general practitioners had to add some medication, guidelines were better followed than when they had to stop prescribing according to the guidelines.<sup>12</sup>

Furthermore, some expensive cancer treatments are not funded on the NHS. In 2008, it was decided that if individuals purchased a cancer treatment privately, the NHS would stop offering any treatment; this was known as the so-called co-payment ban, which made paying only for ‘top-up treatment’ impossible. This co-payment ban caused a public outcry, as people felt they were entitled to NHS treatment regardless of what else was purchased, and the measure was not implemented consistently (see for example, <https://www.thetimes.co.uk/article/nhs-co-payment-ban-in-disarray-j0sw2krs1wt>). A possible explanation for the lack of public support could be that people felt that the right to NHS treatment was already owned and therefore should not be taken away.

## The threshold for taking something away

Prima facie, healthcare rationing should be based on clinical usefulness and cost-effectiveness. However, people tend to value what they own more highly. Healthcare treatments could be considered ‘owned’ in countries with publicly funded healthcare, such as the UK; Rawlins<sup>13</sup> pointed out that one cannot solely use utilitarianism to make rationing decisions. Happiness is not all that matters and one cannot truly calculate happiness. Cost-effectiveness and quality-adjusted life-years are only a type of proxy measure for evaluating treatments.

The examples of neuroimaging in first-onset psychosis, the EBOR trial and blocking co-payments suggest that taking something away from patients or doctors is worse than not giving it to them in the first place. One could state that people should not be influenced by this and that only cost-effectiveness should be taken into account, or one could accept other influences.

Perhaps NICE and similar organisations making rationing decisions have two options: either starting a campaign to explain that people do find it harder to give something up, but that cost-effectiveness is the only criterion used even though it is not ideal, or they should take into account that taking healthcare options away (such as access to a diagnostic test or treatment) is worse than not providing it in the first place.

NICE has departed from cost-effectiveness in the past and now focuses also on assessment of

population benefits.<sup>14</sup> There are guidelines to fast-track treatments which may prolong life in terminally ill cancer patients, even if the normal standard for cost-effectiveness is not met, because it is generally accepted that extending life in cancer patients, with several months on average, can be worthwhile <https://www.nice.org.uk/Media/Default/About/what-we-do/NICEguidance/NICE-technology-appraisals/process-and-methods-guideaddendum.pdf>. Here, NICE not only uses cost-effectiveness. Perhaps there should also be a different threshold for taking something away compared to starting it.

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**ORCID iD:** Dieneke Hubbeling  <https://orcid.org/0000-0002-3460-3139>

#### References

- Lubman DI, Velakoulis D, McGorry PD, Smith DJ, Brewer W, Stuart G, et al. Incidental radiological findings on brain magnetic resonance imaging in first-episode psychosis and chronic schizophrenia. *Acta Psychiatr Scand* 2002; 106: 331–336.
- Katzman GL, Dagher AP and Patronas NJ. Incidental findings on brain magnetic resonance imaging from 1000 asymptomatic volunteers. *JAMA* 1999; 282: 36–39.
- Albon E, Tsourapas A, Frew E, Davenport C, Oyeboode F, Bayliss S, et al. Structural neuroimaging in psychosis: a systematic review and economic evaluation. *Health Technol Assess* 2008; 12: iii–iv, ix–163.
- Frank JRJ, Snell L and Sherbino JE. *CanMEDS 2015 Physician Competency Framework*. Ottawa: Royal College of Physicians and Surgeons of Canada, 2015.
- Malhotra A, Maughan D, Ansell J, Lehman R, Henderson A, Gray M, et al. Choosing wisely in the UK: The Academy of Medical Royal Colleges' initiative to reduce the harms of too much medicine. *BMJ* 2015; 350: h2308.
- Royal College of Psychiatrists. *Choosing Wisely – Shared Decision Making*. See <https://www.rcpsych.ac.uk/healthadvice/choosingwisely.aspx> (last checked 17 October 2019).
- Falkenberg I, Benetti S, Raffin M, Wuyts P, Pettersson-Yeo W, Dazzan P, et al. Clinical utility of magnetic resonance imaging in first-episode psychosis. *Br J Psychiatry* 2017; 211: 231–237.
- Kahneman D, Knetsch JL and Thaler RH. Experimental tests of the endowment effect and the coase theorem. *J Polit Econ* 1990; 98: 1325–1348.
- Walasek L, Yu EC and Lagnado DA. Endowment effect despite the odds. *Think Reason* 2018; 24: 79–96.
- Lerner JS, Small DA and Loewenstein G. Heart strings and purse strings carryover effects of emotions on economic decisions. *Psychol Sci* 2004; 15: 337–341.
- Martinez LF, Zeelenberg M and Rijsman JB. Regret, disappointment and the endowment effect. *J Econ Psychol* 2011; 32: 962–968.
- Freemantle N, Nazareth I, Eccles M, Wood J, Haines A, Mason J, et al. A randomised controlled trial of the effect of educational outreach by community pharmacists on prescribing in UK general practice. *Br J Gen Pract* 2002; 52: 290–295.
- Rawlins MD. National Institute for Clinical Excellence: NICE works. *J R Soc Med* 2015; 108: 211–219.
- Littlejohns P, Chalkidou K, Culyer AJ, Weale A, Rid A, Kieslich K, et al. National Institute for Health and Care Excellence, social values and healthcare priority setting. *J R Soc Med* 2019; 112: 173–179.