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NEUROCRITICAL CARE SOCIETY

NEUROCRITICAL CARE THROUGH HISTORY

The History of Self-Fulfilling Prophesy: Sociocultural Thinkers Enter Medicine

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What disturbs and alarms man's actions are not actions, but opinions and fancies about actions. Epictetus, The Encheiridion, 110 A.D.

Neurointensivists are decision-makers. They decide on medical and ethical matters. Ethical matters involve the determination of futility or, at least, trying to interpret the degree of brain injury based on (eloquent) localization [1] and to translate that into recovery potential—or, in essence, to predict what the future might hold. We make common sense choices in average daily professional life, and the choices reflect what concerns us.

Any diagnosis implies a prognosis. In our field of neurocritical care, the issues of prognostication cannot be easily historically cataloged. In the early days, prognostication mostly involved neurosurgical patients attended by neurosurgeons with strong but differing opinions, a certain residual of optimism, and a perceived duty to be hopeful. But in the last few decades, medicine (and, especially, neurocritical care) has been conscious of "self-fulfilling prophesy," a term that did not emerge until 1948, when Robert Merton introduced it in an article published in a literary magazine [2]. In the medical literature, the term appeared much later, likely not before 1989, when it was introduced in an article on decision-making to stop or to continue CPR [3]:

These patients [with no long-term survival] were characterized by [cardiac arrest] on arrival of the MICU, no pupil reaction to light during CPR, inefficient external chest compression. The question is whether this poor outcome is the result of a self-fulfilling prophecy or the result of a decision-making process to stop CPR based on other clinical and ethical parameters that were not studied in this registry.

It was somewhat frightening to think that, perhaps unconsciously, we could actually determine outcomes ourselves.

Recognizing that it is not possible for modern historians to get inside the head of prior sociologists and philosophers to answer questions, it still is useful to revisit these early thinkers. We may discover whether their concerns are still valid or intellectually unsupported in medicine. For sure sociologic systems differ from medical systems. In medicine, the outcome after withdrawal of major life support often reinforces what is already known (or should be known) rather than significantly changing outcome [6].

The Sociology and Philosophy of Outcome

The ancient Greeks hinted toward the bias we now know as the Thomas theorem and, later, the self-fulfilling prophecies. We know it best as the "placebo effect," when a person experiences beneficial outcomes because they expect an inactive "look-alike" substance or treatment to work, even though it has no known medical effect. The Pygmalion effect is a type of other-imposed self-fulfilling prophecy that states that the way you treat someone has a direct impact on how that person acts. If a physician or other health care provider thinks something will happen, families and the patient may consciously or unconsciously make it happen through their actions or inaction.

The Thomas theorem is a theory of sociology formulated in 1928 by sociologist William Isaac Thomas and his wife (and former student), Dorothy Swaine Thomas (Fig. 1): "If men define situations as real, they are real in their consequences," or in other words, the outcome of a

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Fig. 1 William Isaac Thomas and Dorothy Swaine Thomas. (Portrait of Dorothy Thomas used with permission from the University of Pennsylvania Archives.)

situation depends on an individual's perception of it and not on the situation itself [2, 4]. When he coined the term "self-fulfilling prophesy," Merton (Fig. 2) considered it to be a creative extension of the theoretical framework by Thomas and Thomas. The Thomas theorem can help us understand clearly how so many aspects of our lives are nothing but social constructions. In other words, people respond not only to the objective features of a situation but also to the meaning that situation has for them. If people believe in something, such beliefs have tangible consequences—definitions organize experiences. It took some time for this idea to cohere and for neurointensivists to say the quiet part out loud [5].

Robert K. Merton is typically credited with the theory of self-fulfilling prophesy because he coined the name, but several philosophers before him, including Karl Popper, also independently contributed to this concept, and Merton acknowledges that in his introduction. Merton uses several examples in his article [2]: "So common is the pattern of the self-fulfilling prophecy that each of us has his favored specimen. Consider the case of the examination neurosis. Convinced that he is destined to fail, the anxious student devotes more time to worry than to study and then turns in a poor examination." And later again, without asserting a proprietary claim on the idea, he goes on to say, "The application of the Thomas theorem l so suggest shows the tragic, often vicious, circle of self-fulfilling prophecies can be broken. The initial definition of the situation which has set the circle in motion must be abandoned. Only when the original assumption is questioned, and a new definition of the situation introduced, does the consequent flow of events give the lie to the assumption. Only then does the belief no longer father the reality."

Merton further explained that "the self-fulfilling prophecy is, in the beginning, a false definition of the situation evoking a new behavior which makes the originally false conception come true. The specious validity of the self-fulfilling prophecy perpetuates a reign of error. For the prophet will cite the actual course of events as proof that he was right from the very beginning." Merton also stated that the "counterpart of the self-fulfilling prophecy is the suicidal prophecy, which so alters human behavior from what would have been its course had the prophecy not been made, that it fails to be borne out. The prophecy destroys itself." The suicidal prophesy is better known as the "self-defeating prophesy" or "prophet's dilemma."

Concept of Futility Coming to Light

Self-fulfilling prophesy closely relates to the term "futility." In its simplest form, the determination of futility can lead to a self-fulfilling prophesy. Historically, futility was not new in medicine; it was known since time immemorial. However, it became a topic of discussion in neurology after the neurosurgeon Bryan Jennet published his thoughts in *The Lancet* and *Journal of Medical Ethics* in the late 1980s in response to an article by Heim and Steinbach [7–9]. His thoughts were influenced by a meeting attended by representatives from Europe, the United Kingdom, and the United States, where he noted some interesting differences. This erudite summary is worth reprinting:

> *Discussion of the individual case-histories submitted by those attending revealed an interesting*

THE SELF-FULFILLING PROPHECY

By **ROBERT K. MERTON**

IN A SERIES OF WORKS seldom consulted outside the academic fraternity, W. I. Thomas, the dean of Americn sociologists, set forth a theorem basic to the social sciences: "If men define situations as real, they are real in their consequences." Were the Thomas theorem and its implications more widely known more men would understand more of the workings of our society. Though it lacks the sweep and precisoin of a Newtonian theorem, it possesses the same gift of relevance, being instructively applicable to many, if indeed not most, social processes.

"If men define situations as real, they are real in their consequences," wrote Professor Thomas. The suspicion that he was driving at a crucial point becomes all the more insistent when we note that essentially the same theorem had been repeatedly set forth by disciplined and observant minds long before Thomas.

Fig. 2 Title page of Merton's article introducing the term "self-fulfilling prophesy."

gradient of paternalism on the part of doctors, from continental Europe, via the UK, to the US, where it was least marked. It was difficult to know whether the American position had been reached as a result of the education of the public about medical matters, the consumer movement, the pronouncements of philosophers, or the fear of lawyers. Whatever the reasons, there seems little doubt that the trend to the American style of decision-making, more open and more shared, is likely to accelerate in Britain and to spread to Europe [9].

Even more subtle detail was found later:

Some of the latter patients will probably have signed an advance directive, and such a course would then be in accord with their wishes; it would indeed be the last opportunity to respect their autonomy. The same could be said of the voluntary euthanasia that many Dutch doctors now make available, mostly in patients' own homes. It is ironic that this option is not available to patients in a vegetative state in Holland because they cannot request it or consent to it.

Some authors began to consider who has the right or power to decide whether medical care is futile. They wondered whether the wiser course would be to establish standards of rationing, which might be more likely to achieve a consensus. Rationing highlights the essential problem—medical resources are not endless. Helft noted, "Doctors all recognize clinical situations in which intervention will be futile and should tell patients and families when they believe further treatment is futile. In many situations, the term 'futile' is an extremely useful descriptor of how the physician feels about the patient's care" [10].

Everyday Clinical Practice

Aggressive care may achieve a good outcome, including in patients with poor prognoses. Less aggressive or less attentive care may result in poor outcome. One overriding issue is the data we use and how we use them. Reinterpretation of data after recategorizing data points may be prevalent. This is, for example, evident in designating a modified Rankin Score of 3 as a good outcome and dramatically changing the outlook. A modified Rankin Score may place patients into an ambiguous category in which they are "moderately disabled" and often cannot function independently at home but are able to walk independently [11, 12].

In neurology, the problem of the self-fulfilling prophecy has been raised in many different contexts. Predictions

may strongly affect families' understanding of the situation and their subsequent decisions. For example, informing families that their loved one is irreparably damaged may make them give up, thus contributing to the loved one's early demise. Awareness of this problem has contributed to doctors' reluctance to prognosticate. Becker might have been the first to pose this dilemma in cerebral hemorrhage [5], but theoretically it may arise in any treatment decision [13].

There is no sharp inflection point in the numbers of PubMed articles using the term of self-fulfilling prophesy for management of neurocritical illness, but in the last decade, it has gradually trickled in and became *le mot juste* for a complex but potentially compelling mechanism. If physicians believe that a self-fulfilling prophecy may influence outcome, it will constrain their decision-making process.

And so, sociologic principles on people's reactions to situations and their biases have entered medicine and neurocritical care, seriously challenging our actions and exposing our potential errors in judgment. They prompt serious reflection on courses of action, which, although admirable and well-intentioned, may worsen the situation by planting doubts about whether we have done our best for the patient or somehow manipulated events for our own convenience. As physicians, we must avoid the extremes of nihilism or Pollyannaism.

Fundamental questions remain about how overconfident, erroneous physician prognosticators could manipulate outcome trajectories, and we must be careful about assuming we know all the answers. How often does self-fulfilling prophesy apply, and is it a real phenomenon? It certainly cannot apply to an irrevocably injured brain. Might there be serendipity in prognostication? Does it question our best day-to-day judgment? Can we ever believe that these theoretical frameworks must change neurobiologic and neuropathologic certainties supported by rational explainable mechanisms? Did Merton think this theory could be applicable to medicine? Now, that is a thought!

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