Abstract: In this paper, I defend a version of the medical model of disability, which defines disability as an enduring biological dysfunction that causes its bearer a significant degree of impairment in mainstream society. We should accept the medical model, I argue, because it succeeds in capturing our judgments about what conditions do and do not count as disabilities, it gives a satisfactory account of what makes something a disability, and it explains why the federal government is justified in spending billions of dollars annually on aid to the disabled. I conclude by responding to a pair of objections that Elizabeth Barnes has raised against the medical model.

Word count: 2982, excluding notes, references, and abstract.

1. Introduction

Although it has been widely discussed for decades, there has never been a sustained defense of the medical model of disability. The purpose of this paper is to correct this deficit. The medical model, as I formulate it, defines disability as an enduring biological dysfunction that causes its bearer a significant degree of impairment in mainstream society. I begin, in Section 2, by outlining three desiderata which we should expect any account of disability to satisfy. In Section 3, I explain the medical model and show how it satisfies these desiderata, while in Section 4, I respond to several potential objections.

2. Desiderata for A Theory of Disability

There are three desiderata which we should expect any successful account of disability to satisfy. The first and most important desideratum is extensional adequacy:

**Extensional Adequacy**: An account of disability should give correct necessary and sufficient
conditions for disability, that is, it should capture our informed, pretheoretical judgments about what conditions do and do not count as disabilities.

Some medical conditions -- blindness, tetraplegia, autism -- are paradigm cases of disabilities, while other physiological and psychological properties -- being a woman, being white, being short-tempered -- are paradigm cases of non-disabilities. An account of disability which does not sort all or virtually all of these into the appropriate categories is for that reason alone defective.

For our second desideratum, we should also require that a successful account of disability have explanatory power:

**Explanatory Adequacy**: The account should explain what makes a disability count as a disability, and thereby identify what features all disabilities have in common.

In other words, a good account of disability must give genuinely informative conditions for what counts as a disability. If disabilities constitute a real kind, rather than a heterogeneous collection of unrelated medical conditions, there must be some set of features which disabilities (at least) typically have in common and which non-disabilities (at least) typically lack. An account of disability should identify what these features are, on pain of incompleteness.

Our third desideratum has a social or ethical dimension:

**Justifying Aid**: Our society devotes immense resources to researching, treating, and accommodating various disabilities, and on direct payments to people with disabilities. A successful account of disability should be able to explain why these expenditures are justified.

Here in America, the federal government spends hundreds of billions of dollars each year supporting people with disabilities in various ways. I, along with most of the rest of society, consider
this money well spent. Hence, if an account of disability has difficulty explaining why we should devote such vast resources to aiding people with disabilities, that spells trouble for the theory.

3. The Medical Model

Here, then, is what I take to be the best way of formulating the medical model:

The Medical Model: $F$ is a disability if, and only if, $F$ is an enduring biological dysfunction that causes its bearer a significant degree of impairment in mainstream society.

This definition contains three conditions; first, a disability must be enduring; second, it must count as a biological dysfunction; third, it must cause its bearer a significant degree of impairment in mainstream society. Let’s take a closer look at each of these conditions, in turn.

The duration condition is fairly straightforward. Heat stroke, a broken arm, and influenza do not normally qualify as disabilities, despite the fact that all are biological dysfunctions and all cause a significant degree of impairment. The obvious explanation for why is that these conditions are all too ephemeral to count as disabilities, and a genuine disability must be enduring. Disabilities need not be permanent; a man who was blind for his first thirty years of life, but subsequently had his sight restored by a surgical procedure, was once disabled but no longer is.¹

Next, the dysfunction condition. As noted above, I intend the notion of biological dysfunction to be understood historically or etiologically, in terms of an organ or trait’s selective history. Roughly speaking, a function of an organ is whatever effect it was selected to produce. More precisely, an organ

¹ One minor caveat: to count as a disability, the condition must be enduring due to factors which are, in some sense, endogenous. Dysfunctions which persist only because they are continually induced by the patient, or by some other party, do not qualify. For instance, a malingering who repeatedly breaks and rebreaks her left leg each month to get out of work is not disabled (not, at least, so far as her leg is concerned), nor is a man who is in a constant state of cognitive dysfunction because he is surreptitiously dosed with mescaline each morning. This caveat also entails that the somatic manifestations of Munchausen syndrome (factitious disorder) and self-mutilation disorders like dermatillomania (compulsive skin-picking) do not count as disabilities, although the underlying psychological disorders themselves are still good candidates. I do not mean for the caveat to extend to dysfunctions which are sustained by mere omission; clearly, a tetraplegic who opts not to undergo a surgery which would fully repair the damage to her spinal cord remains disabled.
has \( \varphi \)-ing as a function iff that organ persists in a population (at least partly) because \( \varphi \)-ing was favored in recent rounds of selection. To illustrate, the function of the human eye is to see, because the reason why we today have eyes is that our sighted ancestors continually prevailed over their blind conspecifics in the struggle to survive and reproduce. By the same token, the function of the human heart is to pump the blood and thereby oxygenate the body, because past members of our species whose hearts failed to pump their blood had an unfortunate tendency to die before propagating their genes.

With this (more or less standard) definition of biological function in place, we can now safely define dysfunction in terms of function without risk of circularity -- an organ is dysfunctional iff it fails to perform a function it was selected to perform. For example, a pancreas is dysfunctional if it fails to produce insulin, a human hand is dysfunctional if it fails to produce insulin, a human hand is dysfunctional if it cannot grasp or manipulate objects, an immune system is dysfunctional if it attacks healthy tissue, and so on. Often this notion of dysfunction will be quantitative, rather than all-or-nothing -- it is not enough for a pancreas to produce some insulin; to perform its function properly, it must produce a large enough quantity of insulin to stave off the symptoms of diabetes. Similarly, this notion of dysfunction is also implicitly conditional, taking into account the organism's environmental circumstances. The function of the human eye is to see given sufficient ambient light, not to see sans phrase -- our eyes were not selected to work, like an owl's, in conditions approaching total darkness.

Our third condition is that the dysfunction must cause its bearer a significant degree of impairment in mainstream society, where a dysfunction causes impairment iff it makes it harder to satisfy the ordinary demands of life. Impairment, so defined, can take on many forms, including (but not limited to) pain, restricted mobility, problems with cognition or memory, difficulty navigating one's environment, and difficulty interacting with others or forming social relationships. There are two reasons for relativizing the impairment condition to mainstream society. First, there is really no

2 This definition is modified from Godfrey-Smith (1994). For background on functions, see the papers collected in Buller (1999).

3 I mean for this definition to exclude conditions causing infertility alone. We do not normally think of infertile people as being disabled; I suggest this is because we see conception and childbearing as extraordinary life activities, despite their immense importance both on a personal level and from the perspective of biology.
such thing as impairment *tout court*; all impairment arises from a complex interaction of individual and environmental factors, and only a handful of dysfunctions (those causing chronic pain, perhaps) would result in impairment under just about any conceivable circumstances. Second, many people with paradigm disabilities do not experience a significant degree of impairment in environments specially tailored for their use. Deafness, for instance, may cause few hardships for a student or professor at Gallaudet, but we still wish to count deafness as a disability, especially for purposes of justifying society's aid to the deaf.

One further caveat is in order. In the interests of extensional adequacy, the medical model should be amended to require that the dysfunction cause a significant degree of impairment in mainstream society even after the effects of overt prejudice and discrimination have been factored out. To see the need for this qualification, consider a society where people with heterochromatic eyes (i.e. eyes of mismatched color) are routinely persecuted as witches. In a society like this, heterochromia would meet all three of the medical model's conditions — it is permanent; it distorts facial symmetry, a key factor in sexual selection, and so counts as a biological dysfunction; and being persecuted as a witch will undoubtedly cause a significant degree of social impairment. Hence, without the added qualification, the medical model would sometimes classify heterochromia as a disability. But this would be an error: as dysfunctions go, heterochromia is just too trivial and cosmetic to qualify as a disability, and it is beside the point that having mismatched eyes might, in certain cultures, place you under suspicion of witchcraft. To genuinely count as a disability, a dysfunction must cause impairment directly, so to speak, and not only by way of society's prejudice against the disabled.

Now let's see how the medical model fares with the desiderata outlined in Section 2. One of the chief virtues of the medical model, I contend, is that it comes closer to achieving extensional adequacy than any possible other account of disability. Our judgments of what conditions do and do not count as disabilities really do seem to track the medical model's criteria. We can establish this by comparing pairs of medical conditions which are identical save that one of the conditions meets all of the medical conditions.

---

4 See Grammer and Thornhill (1994).
model's criteria, while the other fails to satisfy exactly one. Having one's arm paralyzed for an hour or a day does not make one disabled, but having one's arm paralyzed for a decade does; this demonstrates that the medical model's duration criterion is genuinely a necessary condition on disability. Likewise, for the dysfunction condition: compare a man who has difficulty forming interpersonal relationships as a result of autism to a man who has difficulty forming interpersonal relationships because he is simply too self-centered to care about the needs or interests of others. Clearly, the first man counts as disabled, while the second man does not. Finally, for the impairment condition, we can compare a man who has sustained damaged to his spine which causes him no noticeable impairment to a man with the same injury who finds himself unable to walk. Again, it is quite clear that the second man is disabled while the first man is not.

This argument suggests that the medical model's three criteria are each individually necessary for a medical condition to count as disability. Unfortunately, there is no comparably efficient test to determine whether these criteria are jointly sufficient. The only proof of this I can offer is the absence of counter-examples: I know of no paradigmatic non-disabilities which fully satisfy the medical model's definition, and I challenge the reader to find one.\(^5\)

Our second desideratum is explanatory adequacy. To understand how the medical model satisfies this desideratum, let's examine the properties described by each of the medical model's three criteria in greater detail. The medical model conceives of disability as a social kind marked by the co-occurrence of two natural properties and one socio-ethical property. Duration and biological dysfunctionality are natural properties, just like (say) the property of being arsenic, or the property of being a chimpanzee; they are built-in features of the natural world, in no way dependent on human values or interests. Duration is a fundamental physical magnitude, while biological dysfunctionality is a (non-fundamental) natural property which is underwritten by the theory of evolution by natural selection and plays an important role throughout the life sciences.\(^6\) The property of causing significant

\(^5\) There is one paradigmatic disability which likely fails to satisfy the dysfunction condition, and so serves as an apparent counter-example to its necessity -- dyslexia. I discuss this in the next section.

\(^6\) See e.g. Fitzpatrick (2007) or Roy and Irimia (2009).
impairment in mainstream society, on the other hand, has no claim to naturalness: it picks out a subset of enduring biological dysfunctions for special social and ethical concern.

The last of our three desiderata is that a successful account of disability must be able to justify society's aid to the disabled. The medical model offers a compelling explanation for why the federal government should devote billions of dollars of resources to treating and accommodating disability: we have a special moral duty to aid those who face hardships as a result of compromised health, and disabled people qualify for this aid by virtue of experiencing significant impairment caused by a biological dysfunction. I suggest that this duty is primitive, in the sense that it cannot be fully reduced to more general moral obligations -- we have no comparable duty to aid those who face hardships caused by enduring psychological and physiological properties which are not biological dysfunctions.

Before proceeding, there is one additional feature of the medical model I wish to emphasize: it in no way implies that people with disabilities always, typically, or even often have worse lives than people without disabilities. This does not follow from the dysfunction condition; one of your organs can fail to perform the function it was selected to perform without causing you any appreciable harm, as with typical cases of heterochromia (conceivably, some biological dysfunctions might even make your life better, on balance). Nor does this follow from the impairment condition; a dysfunction might cause you a significant degree of impairment in mainstream society without making your life worse overall, either because it offers compensating benefits in other areas of life, or because you spend all of your time in a sub-cultural community tailor-made for people who share your disability. The medical model's principal aim is to capture and explain our judgments of disability and non-disability -- it just isn't in the businesses of prognosticating anyone's future happiness or quality of life. This is as it should be. Whether a particular disability tends to make your life worse or not is a complex empirical question which can only be answered by careful social scientific research into the lives of people affected by that disability; it cannot be settled by a definition.

4. Objections to the Medical Model
In this section, I respond to a pair of objections Barnes (2016) raises against the medical model, and discuss dyslexia as a potential counter-example to the medical model's dysfunction condition.

Barnes's first objection (2016: 14) is that an account of disability couched in terms of biological dysfunction overgeneralizes: "there are many departures from normal functioning," she writes, "which are not disabilities." She gives the example of the champion Olympic swimmer Michael Phelps, whose swimming prowess is partly the result of his unusually lanky body or "marfanoid habitus". Barnes suggests that, because Michael Phelps's physique is so abnormal, the medical model will classify him as disabled. But this is clearly the wrong result: "Marfanoid habitus is not (by itself) a disability, even though it's a departure from normal functioning." Hence, according to Barnes, the medical model's criteria are not sufficient for a condition to count as a disability, which means it comes up short with respect to extensional adequacy.

But the version of the medical model I have defended is not committed to saying that Michael Phelps is disabled. First, Phelps's physique, however unusual, is not dysfunctional in the sense outlined above -- no organ in his body fails to perform the function it was selected to perform (not, at least, so far as I am aware). Second, Phelps's marfanoid habitus also does not cause him any evident impairment. Since Phelps fails to satisfy several of the medical model's criteria, the medical model does not classify him as disabled after all, so Barnes's first objection has no traction against it.

Barnes (2016: 15) goes on to suggest that the medical model might also wrongly classify homosexuality as a disability, and "it's a requirement of any successful theory of disability that it can distinguish between being disabled and being gay". But this objection, too, cuts no ice against this version of the medical model. Both the ontogenesis and phylogensis of homosexuality are poorly

---

7 Note that Barnes's objections are aimed at a version of the medical model where the function of an organ is understood non-historically, in terms of a species-typical or statistically normal contribution to survival and reproduction. The question of whether Barnes's objections succeed against their intended target would take us too far afield, so I will not consider it here.

8 Barnes (2016: 15) notes that individuals like Phelps with marfanoid habitus are at "higher risk of various cardiac problems". This still will not be enough for the medical model to classify Phelps as disabled: a risk of dysfunction is not a dysfunction, and unrealized risks cause no impairment. The medical model would classify Phelps as disabled only if he were presently experiencing persistent heart problems as a result of his physique -- appropriately so, because he would then be disabled.
understood (Bailey et al. 2014), so it is not clear at present whether or not we should see homosexuality as a biological dysfunction in the historical/etiological sense. What is clear, however, is that any impairment caused by homosexuality is solely the result of overt prejudice and discrimination; gay people do not have any difficulty satisfying the ordinary demands of life where they are not persecuted. So, even in the event that homosexuality does turn out to be a biological dysfunction, the medical model still will not count it as a disability for the same reasons it does not count heterochromia as a disability.

The most compelling objection to the medical model I am aware of is that it may fail to classify dyslexia as a disability.9 This is because literacy appears to have emerged too recently in our evolutionary history to have been targeted by natural selection to any significant degree; the ability to read and write is more likely a byproduct of our faculty for processing spoken language. If so, that would mean that a condition which impairs only literacy will not qualify as a biological dysfunction, and hence cannot satisfy the medical model's definition of disability.10 This is a serious problem, because dyslexia is a paradigmatic learning disability, and state and local governments spend millions each year on special education for students affected by the condition. Hence, if the medical model fails to count dyslexia as a disability, that will count against its success in fulfilling both the extensional adequacy and justifying aid desiderata.

I have two points I wish to make in response to this objection. First, I believe that the medical model is fundamentally correct in classifying dyslexia as a non-disability, if indeed the language-processing regions of our brains were never selected for the ability to read and write. When we teach children literacy, we are effectively demanding that their brains perform a function that they are not prepared, biologically, to perform, and when -- predictably -- a substantial minority of these children cannot carry out this task to our satisfaction, we pronounce them disabled. This strikes me as

---

9 The DSM 5 (APA 2013: 66–74) recognizes three "specific learning disorders": "impairment in reading" (dyslexia), "impairment in written expression" (dysgraphia), and "impairment in mathematics" (dyscalculia). I focus on dyslexia here, which, I take it, has the best claim to being considered a paradigmatic disability. I do not think this is a coincidence; I suspect we are more reluctant to think of dyscalculia as a disability precisely because it is palpably not a dysfunction -- it is just too obvious that dividing fractions and solving quadratic equations are not natural activities for human children.

10 Kingma (2013) raises a similar objection to historical accounts of dysfunction in the context of mental illness.
unreasonable, no different in principle than classifying incompetent driving or a poor aptitude for technology as disabilities. Having difficulty keeping up with the increasingly extreme demands of modernity does not make one disabled.

That being said, the classification of dyslexia as a disability is well-established in medical practice, so it may make sense to grandfather the condition in as a disability, even if it does not, strictly speaking, meet all of the medical model's criteria. Still, I am wary that the same reasoning which today underwrites classifying dyslexia as a disability will someday be used to classify incompetent driving and computer illiteracy as disabilities as well, when, patently, they are not. So we should resist granting any further waivers to the dysfunction requirement.
References


