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Harm as a Necessary Component of the Concept of Medical Disorder: Reply to Muckler and Taylor

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Wakefield's harmful dysfunction analysis asserts that the concept of medical disorder includes a naturalistic component of dysfunction (failure of biologically designed functioning) and a value (harm) component, both of which are required for disorder attributions. Muckler and Taylor, defending a purely naturalist, value-free understanding of disorder, argue that harm is not necessary for disorder. They provide three examples of dysfunctions that, they claim, are considered disorders but are entirely harmless: mild mononucleosis, cowpox that prevents smallpox, and minor perceptual deficits. They also reject the proposal that dysfunctions need only be typically harmful to qualify as disorders. We argue that the proposed counterexamples are, in fact, considered harmful; thus, they fail to disconfirm the harm requirement: incapacity for exertion is inherently harmful, whether or not exertion occurs, cowpox is directly harmful irrespective of indirect benefits, and colorblindness and anosmia are considered harmful by those who consider them disorders. We also defend the typicality qualifier as viably addressing some apparently harmless disorders and argue that a dysfunction's harmfulness is best understood in dispositional terms.

Keywords: *anosmia, colorblindness, commensal virus, concept of medical disorder, concept of mental disorder, conceptual foundations of medicine, cowpox, definition of disorder, disease, disorder, harm, harmful dysfunction, mononucleosis, naturalism, normativism, philosophy of medicine*

I. INTRODUCTION

A central issue in debates over the nature of the concept of medical disorder is whether the concept is essentially normative, expressing value judgments about physical and mental conditions, or a purely naturalistic scientific concept that can be understood without reference to values. Jerome Wakefield's *harmful dysfunction analysis* (HDA) of the concept of medical disorder (Wakefield, 1992a, 1992b, 1993, 1997a, 1997b, 1999a, 1999b, 2000a, 2000b, 2001, 2007a, 2007b, 2009, 2011; Wakefield and First 2003, 2013a, 2013b, 2013c) is a "hybrid" analysis holding that both factual and value components are essential to the concept of disorder. The HDA maintains that a disorder is a harmful condition—judged by social values, thus value laden—caused by a dysfunction, where "dysfunction" is a factual concept that refers to a failure of some feature of the organism to perform a natural function for which it was biologically designed, which in turn is scientifically understood as the failure of some feature to perform a function for which it was naturally selected. This hybrid analysis has proven to have enormous explanatory power in understanding both shared disorder judgments and disputes over the disorder status of various conditions.

The HDA denies the appealing position of "strong naturalism" that sees "disorder" as strictly a scientifically definable concept. It has thus been a target of criticism by leading naturalists such as Christopher Boorse ("I am an unrepentant naturalist" [1997, 5]), who argues that "disorder" has no value component and refers simply to biological dysfunction. However, the necessity of adding the harm component is supported by the fact that there are endless harmless dysfunctions in the body that no one considers medical disorders (Wakefield, 2014).

In "The Irrelevance of Harm for a Theory of Disease," Dane Muckler and James Taylor consider the issue of the value loading of "disorder" anew and argue for the strong naturalist position, claiming that "being harmful is neither necessary nor sufficient for a dysfunction to be a disorder" (Muckler and Taylor, 2020, 334). Consequently, they argue, the HDA is subject to counterexamples due to its "harm" requirement. In order to focus on the value issue, they provisionally accept the HDA's claim that evolutionary dysfunction is a necessary condition for disorder. This entire interchange thus takes place within the agreed space of evolutionary dysfunctions.

We are grateful for Muckler and Taylor's careful probing of the possible limits of the HDA and for challenging us to think harder about the complex value issues involved in judgments of disorder. The HDA's harm component does raise many thorny issues that have yet to be sorted out. However, we believe that nothing in Muckler and Taylor's presentation disconfirms the view that something like the HDA's harm component is necessary for an adequate understanding of judgments of disorder versus nondisorder. In this

response, we explain why Muckler and Taylor's arguments fail to establish their naturalist claim.

Although Muckler and Taylor argue that harm is neither necessary nor sufficient for a dysfunction to be a disorder, we limit ourselves here to their claim that harm is not *necessary*, and to considering their three proposed counterexamples to the HDA that, they claim, are harmless dysfunctions that are nonetheless disorders. The reason for this limitation is that only the necessity argument supports Muckler and Taylor's broader strong naturalist claim—the ultimate goal of their analysis—that disorder is value free.

A few caveats before proceeding: First, we will not further summarize the HDA; the interested reader can consult Muckler and Taylor's lucid summary. Second, Wakefield (2014) has recently addressed why dysfunction is not sufficient for disorder and must be supplemented by a harm criterion, in a paper not referenced by Muckler and Taylor. We do not repeat here the many examples and arguments presented in that publication and focus exclusively on Muckler and Taylor's arguments; the interested reader should consult that paper. Third, Muckler and Taylor construe their critique of the HDA's "harm" component as a blow against normativism about "disorder" in general and briefly argue for the broader antinormativist claim, but we limit our discussion to their challenge to the validity of the HDA's harm component; if their critique fails there, then their broader antinormativist claim fails as well. Fourth, rather than following Muckler and Taylor's use of "disease," we tend to use the more generic term "disorder" for medical conditions because it encompasses injuries, poisonings, psychological malfunctions, and other such conditions that intuitively do not seem to fall under "disease." Fifth, for convenience we refer to both objective signs and subjective symptoms of disease as "symptoms," except where otherwise indicated. Finally, Muckler and Taylor deploy various accounts of harm in the course of their argument, including Hanna's (2016) counterfactual comparative account of harm, according to which one is harmed if one is worse off than one would be in the closest counterfactual world to the real world, and Parfit's (1984) triad of approaches to well-being that includes objective goods theories, desire fulfillment theories, and hedonistic theories. Although the HDA is not committed to any particular theory of well-being or harm, whenever possible we formulate our response within the accounts deployed by Muckler and Taylor so as to keep the focus on the issues at hand.

II. MILD INFECTION AS A NONHARMFUL DISORDER

The first of Muckler and Taylor's proposed counterexamples is mild viral infection. We quote their "mild virus" argument at length for ease of reference below:

A person who has a disorder may not be harmed at all by their health state. People often endure a mononucleosis infection without knowing that they have the condition because their symptoms are so mild. Often those infected with mononucleosis would (counter-factually) find out that they had a mononucleosis infection if they tried to engage in intense physical labor or ran a long distance. As long as those persons do not try to do these things, they do not enjoy less participation in objective goods than do their counterparts in the closest possible world where they do not have mono. It follows that they are not harmed according to an objective list theory of well-being. Nor do they have less pleasure or more pain than their counter-parts, since they do not have any unpleasant experiences related to their mono at all. Nor do they satisfy fewer of their desires, since the infection does not have any impact on their life. Thus, these persons are not worse off than their counterparts according to any of the three theories of well-being. It follows that these persons are not harmed. Mononucleosis is a medical disorder but persons who experience no symptoms are not significantly worse off than they would have been, had they not been so infected. This is a case where there is a disorder, but no harmful dysfunction, contra Wakefield. (Muckler and Taylor, 2020, 337)

Close scrutiny of this passage reveals that there are several different claims being made. Muckler and Taylor start off claiming that "A person who has a disorder *may not be harmed at all* by their health state" (Muckler and Taylor, 2020, 337; emphasis added). We will return to this extreme case below. However, in the next sentence, which is presumably supposed to support the initial claim, they change the situation from one in which there is no harm at all to one in which there are *mild* symptoms. Obviously, "not harmed at all" and "mild symptoms" are two different things; mild symptoms are (mildly) harmful. This variation in harm is reflected in the fact that virtually all medical disorders can be divided into "mild," "moderate," and "severe" cases according to the degree of harmful symptoms as well as dysfunction. Additionally, having a disorder and knowing one has a disorder are two different things, so whether one had the symptoms "without knowing" one had them (as Muckler and Taylor specify) is irrelevant. Even if one does not realize that one's mild fatigue is a symptom of mononucleosis (or "mono"), one's mildly harmful dysfunction is still a disorder according to the HDA.

However, further sentences reveal that the proposed counterexample is different from either having no symptoms at all or having mild experienced symptoms. Rather, Muckler and Taylor construct a case in which (1) the only symptoms are tendencies to fatigue that would emerge only if the individual attempted to engage in physical exertion, but (2) the individual does not attempt physical exertion, thus he/she never subjectively experiences the fatigue or the virally impaired capacities. So, the example has the structure: A circumstance that would normally, under standard life conditions, cause experienced harm, does not do so because of a nonstandard situational factor—in this case, lack of any exertion whatsoever—preventing the symptom's occurrence.

Muckler and Taylor claim that in such cases no harm occurs, as judged by the various theories of well-being. As compared to the possible counterpart who does not have mono, the mildly infected individual who abstains from exertion (1) enjoys the same participation in objective goods, (2) is not prevented from realizing the comparable satisfaction of desires, and (3) does not experience any less pleasure. It follows, Muckler and Taylor claim, that the infected person is not harmed by what is nevertheless clearly a medical disorder.

Muckler and Taylor's comments regarding the "objective goods" perspective are unpersuasive. Recall that Muckler and Taylor themselves characterize the "objective goods" account as follows:

> [W]ell-being consists of participation in some set objective goods. The value of these goods is independent of one's attitudes towards those goods. That is, certain kinds of activities, achievements, and experiences have non-instrumental prudential value, whether or not the subject desires them. (Muckler and Taylor, 2020, 336)

Biologically normal-range physical and mental capabilities would certainly appear on any such list of objective goods. Inability to run for a bus, play sports, escape a fire, or have vigorous sex are harms on the objective goods account, irrespective of whether the individual exercises such capacities.

Whereas the harm on the objective goods account is clear, the situation with the desire and pleasure accounts is more complex. Given that the example stipulates that the individual is psychologically constituted to avoid desire or enjoyment in precisely the effortful activities precluded by the infection, we grant that, in the example, no harm is done in the sense of lowered pleasure or desire satisfaction. However, in reality, life inevitably requires exertion at times, and those moments are often ones in which the satisfaction of strong desires (e.g., survival in running from danger, protection of loved ones, success, romantic passion) and intense pleasures are at stake. The reality is that mono infections frequently last between 2 and 4 weeks or more, and the likelihood of not exerting oneself at all during that time range, while possible, is very unlikely. The example is constructed to so fully eliminate expectable real-life contingencies regarding pleasure and desire to which all people are exposed and that routinely form a context for our pleasure and desire intuitions that it likely tells us little about how the concept of harm actually works on the respective accounts. We are essentially agreeing here with Muckler and Taylor that there are limits to the counterfactual approach's explanation of intuitions about harm, a point they make with regard to the classic preemption problem. Moreover, there are many obvious examples of disorders that do not harmfully impact an individual—for example, the impotent celibate, or the infertile woman who does not want children—but are considered disorders only because they are *typically* or *dispositionally* harmful, and the example's mono would typically be harmful to desire and pleasure.

Despite the failure of Muckler and Taylor's mononucleosis counterexample, it raises the issue that there are instances of disorder that do not cause harm, at least at the time of diagnosis. One example is a tumor that is detected and treated at an early stage of development. Such dysfunctions are nevertheless disorders because they "typically" cause harm. For example, in defining medical disorder, Spitzer and Endicott state that the condition "in the fully developed or extreme form" (1978, 18) is associated with certain harms. They explain: "The phrase *in the fully developed or extreme form* is used because in medicine many conditions are recognizable in an early form, frequently with the aid of laboratory tests, before they have any undesirable consequences" (Spitzer and Endicott, 1978, 19). This is reflected in both DSM-III and DSM-5 which respectively require that disorders are "typically" (1980, 6) or "usually" (2013, 20) harmful.

Similarly, Spitzer and Wilson proposed: "The condition *in its full blown state* is *regularly* and intrinsically associated with" harmful effects (1975, 829; emphasis added). They explain:

> [T]he phrase "full blown" acknowledges that some psychiatric conditions in an early stage of development may not be associated with subjective distress or impairment, just as many non psychiatric medical illnesses may be initially asymptomatic. Similarly, the phrase "regularly . . . associated with" recognizes that, just as some highly unusual cases of carcinoma may remain totally asymptomatic, so it is possible that some rare persons with even a psychotic illness may not evidence subjective distress or impairment in social effectiveness. These criteria are for defining conditions that are mental disorders, not for defining persons who are overtly ill. (Spitzer and Wilson, 1975, 829)

Thus, even without subjective symptoms, there can be objective signs of a disease process—that is, of a dysfunction that is (dispositionally) harmful—that allow diagnosis. Muckler and Taylor's mono example is not subjectively experienced but (dispositionally) makes exertion unduly fatiguing, so falls into the same general category. Just as neurologists perform tests of coordination and reflex response and cardiologists perform treadmill "stress tests" to establish objective signs of dysfunction prior to harm being subjectively detectable by the patient, so physicians would no doubt detect Muckler and Taylor's described condition by having the patient engage in physical exertion and would similarly act to prevent potential harm.

Concepts float in a sea of background assumptions, beliefs, and theories, including those about the standard conditions in which the concept is instantiated. Spitzer pointed out that we do not negate the harmfulness of a condition just because, using various ad hoc means, we can create a situation in which the condition's harms do not occur (e.g., the bubble boy is protected against the harm from an immunological disorder). Thus, Spitzer and Endicott (1978) built into their criteria for harm that the harm occurs in environments other than those specifically designed to avoid the harm. Muckler

and Taylor's counterfactuals are similarly designed simply to create a situation in which the usual harm is avoided, whereas the concept of disorder presupposes that harm would occur in expectable real-world conditions.

Nevertheless, typicality-type qualifiers are admittedly imprecise and have been challenged by others (e.g., Savalescu and Kahane, 2011), so it is reasonable to ask: is a typicality qualifier a legitimate way to indicate that a disposition to cause harm is conceptually essential to disorder even if not realized in every case? Muckler and Taylor argue that it is not, for two reasons. First, they claim that an atypically harmless disorder would have to be atypical in some fundamental way but, they argue, their examples of harmless disorders "are paradigmatic exemplars of pathology . . . that any definition of disorder should take into account" (Muckler and Taylor, 2020, 341).

There are several problems with this argument. First, as we have seen in the mono example (and will shortly see regarding cowpox), their proposed counterexamples are not in fact valid examples of harmlessness, so they do not raise any issues that must be addressed by a typicality qualifier. The second problem is that judging what is paradigmatic seems arbitrary here. It is not at all clear that cases of mono that are so mild that one never notices the incapacitating symptoms if one does not exert oneself, and as it happens one does not *ever* exert oneself, are paradigmatic cases of mono. Similarly, in the midst of a smallpox epidemic, cowpox may be a godsend, but it is not obvious that contraction of cowpox followed by the benefit of surviving an actual smallpox infection represents the paradigmatic case of cowpox. Both cases involve special circumstances selected to make a point and not routine cases of infection. Third, it is misleading to complain that such examples (assuming them harmless) are the kind that a definition of disorder ought to take into account, because taking them into account as disorders is precisely the point of incorporating the "typicality" qualifier.

Muckler and Taylor's second argument against adding typicality qualifiers to the harm requirement is that this poses a problem for resolving controversial or ambiguous cases. They argue that knowing that harm is *typically* required for a dysfunction to be a disorder allows for exceptions and thus does not "resolve the disease status of conditions like schizotypal personality disorder, childhood ADHD, transgender identity, etc.," for such conditions may be atypical (Muckler and Taylor, 2020, 342).

Muckler and Taylor are mistaken in thinking that a concept of disorder must "resolve" fuzzy cases. Most concepts have inherently fuzzy conceptual criteria, so the concept itself cannot resolve the fuzziness. The concept "night" does not resolve whether twilight is night or day, and the concept "adult" does not resolve whether a 17-year-old is a child or an adult. Conceptual analyses may occasionally resolve disputes and ambiguities, but more often they explain both sides of a given controversy. In any event, the typicality qualifier, which concerns only the application of the "harm" component of the HDA, would not affect the HDA's ability to address most

diagnostic controversies because almost all such disputes about disorder status—including disputes over Muckler and Taylor's examples—concern the factual issue of whether the condition represents a dysfunction, not whether the dysfunction is harmful.

Spitzer and Wilson's comment that "These criteria are for defining conditions that are mental disorders, not for defining persons who are overtly ill," illuminates where Muckler and Taylor's analysis goes wrong. Harmfulness as used in the HDA's phrase "harmful dysfunction" is intended not as a criterion for what necessarily happens to each and every individual, but as a dispositional concept that pertains to the dysfunction's typical effects under some range of standard circumstances as judged by social values. As philosophers of science have noted, salt is water soluble even if it sits on a shelf and is never actually placed in water and despite the fact that there are some nonstandard circumstances in which it would not dissolve even if placed in water, given that it would dissolve under conditions in which standard background contextual assumptions are satisfied. Similarly, by definition, a poison is a substance that when ingested causes physical harm, yet this is clearly intended as a dispositional concept, because there are many circumstances in which ingesting a poison results in no harm to the intended victim. Disorder is conceptualized in a similar way. Just as harm is essential to the concept of poison, and yet there is nothing incoherent about the fact that some individuals may not be harmed by a poison, harm is essential to the concept of disorder, and yet there is nothing incoherent about an individual who has a disorder but is not harmed.

The idea that one can abandon the harm requirement and have a purely naturalist account that explains disorder attributions is a mirage. For example, regarding Muckler and Taylor's mono example, the disease is caused by the Epstein-Barr virus, which exists in roughly 95% of the world's adult population (Moore and Chang, 2017). It is only when Epstein-Barr gives rise to harmful symptoms—which tends to occur with exposure during adolescence and young adulthood—that it is classified as the disease of mononucleosis: "Epstein-Barr virus (EBV) was initially found to infect most healthy laboratory staff with no apparent disease" (Griffiths, 1999, 74).

A similar differentiation is common among other microbes. Consider, for example, the bacterium *streptococcus pneumoniae*, which has been recognized as a major cause of pneumonia since the nineteenth century. Does the dysfunction that consists of infection with this bacterium constitute a disorder? Not necessarily, because the vast majority of infections occur harmlessly in the nose and sinuses, and the bacterium only becomes problematic under special circumstances, such as infection with influenza virus that causes the bacterium to migrate to the lungs and become more virulent (Vu and Kaiser, 2017) or in an immunosuppressed host. Infection with the bacterium is not described in the literature as a disease, disorder, pathology, or pathogenic, and individuals are described as "healthy" and "normal" when it harmlessly

resides in the nasal passages (Wikipedia Contributors, 2018). However, the description changes to the language of disease and sickness when the virus becomes harmful: "Bacteria are all around—and inside—us. Some are harmless, some are beneficial and some, of course, cause disease . . . the common bacterium Streptococcus pneumoniae . . . dwells harmlessly in people's nasal passages. Every so often, however, when S. pneumoniae senses danger, it disperses . . . making us sick" (Braun, 2013, 2–3).

To consider one further example, the polio virus actually causes the horrific symptoms associated with the disease of polio (or poliomyelitis) in a small minority of cases, and only those are considered cases of disease: "polioviruses cause disease in only 1% of infected cases" (Griffiths, 1999, 73); "Although polio can cause paralysis and death, the majority of people who are infected with the virus don't get sick" (Mayo Clinic Staff, 2018). Here, too, among viral infections, disease is distinguished from nondisease by the presence or absence of harmful symptoms. Indeed, the medical definition of polio as disease is formulated not in terms of the dysfunction of having the replicating virus in one's cells, but in terms of the presence of harm: "Most people who get infected with poliovirus . . . will not have any visible symptoms . . . Note that "poliomyelitis" (or "polio" for short) is defined as the paralytic disease. So only people with the paralytic infection are considered to have the disease" (Center for Disease Control and Prevention, 2017). These examples reflect the fact that when it comes to understanding the concept of disease, dysfunction essentialism is inadequate to account for the actual distinctions drawn by medical professionals.

What would be clearly inconsistent with the HDA is a disorder with no disposition to cause harm. According to Muckler and Taylor's approach, as well as Boorse's, there ought to be many such disorders that are inherently harmless. A ready-made potential example is found in the field of virology; after all, every cell virus replicates by using the genetic machinery that is biologically designed for other purposes and so causes a dysfunction. Consequently, the naturalist-dysfunction account would imply that every viral infection—at least every infection that is active as opposed to latent—would be a disorder, whether harmless or not. Until recently, however, this implication was not tested because it was assumed that all viral infections must be harmful on the grounds that their use of cellular machinery and the immune response to the infection must inevitably lead to harmful symptoms (Griffiths, 1999).

The naturalist prediction that all viral infections will be considered diseases, given that cellular dysfunction is necessary for their replication has recently been decisively tested with the surprising discovery of many commensal viruses that infect their hosts and replicate by co-opting the cell's genetic machinery like other viruses (Wylie et al., 2014) but cause no harm. Although these viruses behave in every way as do viruses that are classified as disorders, researchers and clinicians consider them normal and consistent with health and not diseases on the grounds that they do not harm the host

(Popgeorgiev et al., 2013; Roossinck, 2011, 2015; Virgin, Wherry, and Ahmed, 2009; Vu and Kaiser, 2017; Wylie et al., 2014). Given the opportunity for the medical community to make use of a nonnormative classification system by inaugurating in the literature a group of new nonharmful viral diseases, they have chosen to do just the opposite and classify them as nondisordered, falsifying the naturalist claim and confirming the HDA: "Virome interactions with the host cannot be encompassed by a monotheistic view of viruses as pathogens" (Virgin, 2014, 142). This natural conceptual experiment in virology decisively falsifies the naturalist hypothesis proposed by Muckler and Taylor.

III. *PRO TANTO* VERSUS NET HARM

The Cowpox Counterexample

Muckler and Taylor's second claimed counterexample to the necessity of harm is cowpox, a milder virus closely related to the smallpox virus, so that cowpox infection inoculates against smallpox infection, reducing the chance of mortality from that disease. Based on the potential benefit of smallpox prevention, and employing Parfit's three frameworks for evaluating well-being—objective goods, pleasure, and desire-satisfaction—Muckler and Taylor argue that cowpox "include[s] some significant harms, but no *net* harm," and thus is a harmless disorder:

> For example, consider being infected with cowpox in a sixteenth century community stricken by a smallpox outbreak. Cowpox can be a serious infection, but it is almost never as grave as smallpox. A person infected with smallpox is likely to experience the loss of many objective goods, since the condition often killed one in three persons. Few people want to die prematurely or be permanently disfigured by smallpox scars, so cowpox infection would be a superior outcome from the standpoint of desire-satisfaction accounts of well-being. A smallpox infection would result in a greater amount of pain and discomfort, so it would be worse from a hedonic viewpoint. It is certain that the counterpart of a person infected with cowpox during eras when smallpox was common was often not harmed by the cowpox infection. (Muckler and Taylor, 2020, 337)

In this passage, Muckler and Taylor run together *harm* and *net harm*, assuming that net harm is the notion referred to by the HDA's harm component. Thus, they seem to think that, according to the HDA, if the insurance settlement for your broken arm is large enough to offset the direct harm caused by the broken arm, then the broken arm was not a disorder after all. That, of course, is not what the HDA's harm component means, as Wakefield has explained: "[A] disorder may be *prima facie* negative in itself but still be overall better to have. For example, it may be worth experiencing the relatively minor symptoms of cowpox to gain protection against the deadly condition of smallpox, but cowpox is still a disorder because in itself it is

harmful" (Wakefield, 2000a, 42, n.3); "The harm in harmful dysfunction need only be *prima facie* significant harm" (Wakefield, 2014, 21–22).

Neither the HDA nor medical judgment prioritizes net harm over "some significant harm." Even Boorse, who has similarly deployed the cowpox example against the harm criterion more than once (Boorse, 1977, 545; 1987, 369), has acknowledged that the answer may be that "perhaps diseases are *prima facie* undesirable" (Boorse, 1987, 369). A harmful dysfunction is a dysfunction that causes significant direct harm as one consequence, termed "*prima facie*" harm by Boorse and Wakefield but recently more commonly described as "*pro tanto*" harm (Bradley, 2012), to be distinguished from net or on-balance or all-things-considered harm that takes into account the overall balance of all harms and benefits.

As we learned from Socrates in Plato's *Gorgias*, just because one desires an end and thus desires an instrumental means to that end, that does not mean one desires the means in itself which may in fact be undesirable, and that includes medical interventions: "**Socrates**. For example, do you consider that those who drink medicine at the doctor's orders will what they are doing, namely the drinking of medicine with all its unpleasantness, or the health for the sake of which they drink? **Polus.** Obviously, the health" (Plato, 1989, 467c–467d). Socrates might well go on to ask: If one contracts cowpox as a means to avoiding smallpox, does one really want the cowpox? Of course not. One wants the benefit of avoiding smallpox, and the cowpox is the means to that benefit, but that does not change the fact that the cowpox in itself is harmful and undesirable.

IV. COLORBLINDNESS AND ANOSMIA

Minor Perceptual Deficits and Theories of Well-Being

The third counterexample Muckler and Taylor present to the necessity of harm for disorder consists of minor perceptual deficits, and they present two examples, colorblindness and congenital anosmia (loss of sense of smell). They argue that these two conditions "are dysfunctions without causing any harm at all," but nonetheless are classified as disorders by major medical organizations and researchers (Muckler and Taylor, 2020, 337). However, as we shall show, Muckler and Taylor's analysis fails to demonstrate that these conditions are harmless, and in fact, the medical organizations and researchers cited by Muckler and Taylor actually use the concept of disorder consistent with the HDA.

First, Muckler and Taylor argue, based on Parfit's three perspectives on well-being, that these two perceptual deficits are in fact harmless. Regarding objective goods, they claim that "seeing in color and smelling are not objective goods in themselves" because, while losses of these capacities narrow the range of potential aesthetic experiences, they do not preclude one from

enjoying *all* aesthetic phenomena so one can simply turn one's attention elsewhere. If one is unable to appreciate certain works of art—as in Matisse's *Blue Nude*—in the way a fully sighted person would, the colorblind person is capable of spending more time with other works of art in which color perception does not play as large a role—say, Picasso's color-limited *Guernica* (2020, 338). Similarly, they recommend that an anosmic who cannot fully appreciate wine can instead "enjoy the texture, warmth, and friability of a fresh baked baguette" (Muckler and Taylor, 2020, 338).

We find this argument unpersuasive. The point of the objective goods perspective is that different goods are not necessarily fungible, each one being a good in itself both categorically and in degree: "one's life goes better (a) the more one enjoys more of the goods on the list and (b) the greater degree one participates in those goods that one enjoys" (Muckler and Taylor 2020, 336). Inability to appreciate certain art works or smells to the same degree as those with normal perception renders individuals with colorblindness or anosmia unable to participate in some of the goods of aesthetic appreciation to the fullest degree and is thus clearly harmful, according to this view. This argument consequently seems to be inconsistent with the objective goods approach. One could equally say of any good on the list that loss of it is not harmful because one can focus on the other goods.

Muckler and Taylor also portray some of the supposed benefits of the corresponding functions as no longer beneficial in our environment, such as the benefit of smell of detecting rotten food or noxious substances. We will return to this point below and argue that these are still relevant benefits.

Muckler and Taylor's arguments that colorblindness and anosmia are not harmful on the desire-satisfaction and hedonistic perspectives of well-being are equally untenable. They acknowledge that desire fulfillment might be lessened, as in exclusion from a desired occupation due to a perceptual deficit, but simply offer the consolation that many people without these conditions also fail to attain their life goals, and so it is not all that important ("A young woman who aspires to be a fighter pilot might be crushed when she discovers her monochromatic vision disqualifies her from chasing her dreams . . . Nevertheless, life is full of disappointments for everyone, so this specific liability is not the most important one" [Muckler and Taylor, 2020, 338]). Their dismissal of the importance of the achievement of major life aspirations seems a plain violation of the desire-satisfaction view of well-being. With regard to hedonistic accounts of well-being, they again argue that one can simply go elsewhere for gratification: "any loss of hedonic opportunity owing to being unable to see or smell can be compensated by pursuing other hedonic opportunities elsewhere" (Muckler and Taylor, 2020, 339). Yet, every limitation on possible avenues of pleasure is a significant lowering of the hedonic options over a lifetime. If this argument were sound, then people would happily switch without preference between perceptual deficits and lack of perceptual deficits, yet few would do so. Muckler and Taylor

thus fail to demonstrate that, on the philosophical views of well-being that they cite, colorblindness and lack of smell do not alter well-being and thus are not harmful.

Technical theories of harm aside, Muckler and Taylor's argument that loss of color or smell perception is harmless is prima facie implausible. Commonsensically, savoring the smell of food or flowers and enjoying the colors of autumn or an impressionist painting can be among the great pleasures in life, whatever other pleasures one has at one's disposal. The nonsubstitutability of such pleasures is evidenced by the fact that many people who have the means and opportunity expend great energy and resources to experience these pleasures, even though they have available to them all the alternative pleasures described by Muckler and Taylor.

Here and throughout their argument, Muckler and Taylor ignore what people with these conditions actually say. Here is an example from a news article:

> Nisha Pradhan is worried. The recent college graduate just turned 21 and plans to live on her own. But she's afraid she won't be able to stay safe. That's because Pradhan is anosmic—she isn't able to smell. She can't tell if milk is sour, or if she's burning something on the stove, or if there's a gas leak, and that worries her . . . "Now that I'm searching for ways or places to live as an independent person, I find more and more that the sense of smell is crucial to how we live our lives," Pradhan says . . . "[F]ood is very bland to me. I never feel full. I never feel a sense of contentment," Pradhan says. When socializing centers around eating, Pradhan says she sometimes feels left out . . . Pradhan wonders whether her anosmia has affected more than her appetite. She thinks it also may have affected her memory. Remember the smell of your elementary school cafeteria or the perfume of your first crush? That feeling—where a certain smell instantly takes you back—doesn't happen for Pradhan. And she's afraid it means parts of the past are missing . . . Her biggest concern right now is: "Can I really trust myself to live on my own?" At home in New Jersey, she's reinforcing her strategies for staying safe—double checking the stove and making sure the smoke alarms are working. (Heist, 2016)

Nisha is not alone in this. Dawn and Lloyd worried for their child, Abi, who, because of her anosmia, would not get hungry (Wilson, 2016); Alaina reports worrying about failing to perceive gas leaks and body odor (Leary, 2017); Katie misses being able to smell her children and has to have her five-year old smell the milk to see if it is off (Stark and Fiore, 2009); and Rebecca claims she has difficulty relating to people as a result of her anosmia (Conley, 2012). We are dubious that it will be helpful for Muckler and Taylor to explain to these people that anosmia is actually no problem at all because one can direct the conversation at dinner to other topics such as the texture and warmth of the food, and develop strategies to ensure one's welfare in the home. These individuals are aware of these options but still feel their condition negatively impacts their lives. In a comment that seems directed at Muckler and Taylor, Eric Holbrook, a physician at Massachusetts Eye

and Ear Infirmary at Harvard Medical School explains: "This seems mundane to people who can smell, but . . . these patients feel like they don't fit in at times" (Conley, 2012). Muckler and Taylor seem to be ignoring or redefining harm rather than evaluating whether harm is caused by these dysfunctions.

Medical Communities' and Researchers' Beliefs about Harm

In the end, Muckler and Taylor's argument regarding colorblindness and anosmia fails for reasons that go beyond any of the commonsense or technical philosophical considerations considered above. The failure of their argument is due to their having constructed a flawed test of the HDA's thesis. The HDA is an attempt to explain professional medical and lay shared judgments of disorder and nondisorder in terms of background beliefs about dysfunction and values. In testing the HDA's explanation of judgments of disorder and nondisorder, the test consists of whether the background beliefs about biological dysfunction and harm occur as predicted when there are judgments of disorder. Yet, Muckler and Taylor seem to think that the way to test the HDA is to report what they think about harm and then support the "disorder" judgment by evidence as to what the relevant medical community thinks about disorder:

> Having made the case that color blindness and anosmia are not harmful . . . It is worth noting that these particular conditions are systematically treated as disorders by the public health and medical research communities. For example, the CDC's Agency for Toxic Substance and Disease Registry (2008) warns that anosmia can be a long-term side effect of chemical poisoning, and the U.S. Food and Drug Administration (2009) has contraindicated the use of cold remedies when it has evidence that they damage olfactory function. With regard to color blindness, medical researchers have been investigating the treatment of monochromatic vision with the use of gene therapy in primates, and plans are being made for the application of this research to human beings (Aleccia, 2015). By spending public money to prevent and treat these conditions, the medical community does not merely regard these conditions as legitimate targets for therapeutic intervention but as *pathologies* . . . Anosmia and color blindness are dysfunctions and disorders, but they are not harmful. We can add them to the list of counterexamples to the harmful dysfunction account. (Muckler and Taylor, 2020, 339)

So, Muckler and Taylor first argue that colorblindness and anosmia are in fact harmless and then demonstrate that the medical and research communities consider these conditions disorders. However, the HDA attempts to capture the logic of disorder as it is used in the target community, not how a theoretically motivated antinormativist philosopher might spin the concept's components. Of course, a conceptual analysis typically relies on the intuitions of the philosopher, but only as a proxy for the community's judgments. Muckler and Taylor in effect construct an evidential chimera that combines their own beliefs about harmlessness with the relevant communities' disorder

attributions, which is irrelevant to the evaluation of the HDA. Given that the medical community clearly recognizes that colorblindness and anosmia are caused by dysfunctions, the questions that need to be answered to evaluate the HDA are (a) does the same medical community think that these conditions are disorders? and (b) if so, does the medical community think these conditions are harmful? If the medical community judges these dysfunctions to be disorders and harmless, then this would be a challenge to the normative component of the HDA.

We grant Muckler and Taylor's premise that "these particular conditions are systematically treated as disorders by the public health and medical research communities" (2020, 339). The remaining question is whether the same organizations and research communities also consider these conditions harmless. The evidence is that in fact colorblindness and anosmia are generally acknowledged to be significantly harmful by those same medical organizations and researchers that consider them disorders, including those cited by Muckler and Taylor. Indeed, it seems that these conditions are taken seriously precisely because they are considered harmful.

Consider anosmia. The Director of the Office of Compliance at the FDA's (Food and Drug Administration) Center for Drug Evaluation and Research (CDER), Dr. Deborah Autor, commenting on the occurrence of anosmia as a side effect of a cold remedy, labeled the condition "disabling" and, echoing the first-hand reports we have already discussed, warned of the dangers of inability to detect gas leaks, fire, and spoiled food, to lose the pleasure of eating, and to be excluded from occupations where the sense of smell or taste is a critical component, all of which end up "adversely impacting their quality of life" (Food and Drug Administration, 2009, 3–4). Repeating Autor's comments almost verbatim, Dr. Charles Lee, a medical officer in CDER, added that the loss of the sense of smell is "serious," "potentially life threatening," and "life limiting" (Food and Drug Administration, 2009, 4–5). During a follow-up question period, it was noted that the company whose medication had caused anosmia had been sued, and the courts had agreed with the complainants that the loss of smell was a major harm, awarding multimillion-dollar damage judgments.

The National Institutes of Health states on its website that impaired sense of smell is a serious disorder, not only because the sense of smell warns us of fire, dangerous fumes, gas leaks, and spoiled food, but because impaired smell affects taste and so can severely affect one's eating habits.:

> Some may eat too little and lose weight while others may eat too much and gain weight. As food becomes less enjoyable, you might use too much salt to improve the taste. This can be a problem if you have or are at risk for certain medical conditions, such as high blood pressure or kidney disease. (The National Institutes of Health, 2017)

The harms of colorblindness are similarly of concern to the medical community. For example, in a guidance drafted for the pharmaceutical industry, the FDA points out that there are dangers to colorblind individuals if differences in the color of parts of a label are used to alert consumers to proper use of a medication (Food and Drug Administration, 2013).

We now turn from the medical community to Muckler and Taylor's claim that researchers consider anosmia and colorblindness harmless. To the contrary, in one study of anosmia, Lim et al. explain: "the ability to smell plays a crucial role in defining the quality of life" (2009, 1). They repeat the concerns expressed by anosmic sufferers and medical organizations—the danger of the inability to perceive noxious fumes, smoke, and food—before concluding: "Hence, even a small loss or alteration of smell can significantly disrupt one's quality of life" (Lim et al., 2009, 1).

Other researchers agree on the harmfulness of the condition. In an interview with ABC News, Dr. Robert Henkin, a neurologist and Director of the Taste and Smell Clinic in Washington, DC, said, "This is devastating. It colors their whole lifetime. When they eat something or smell something it smells distorted . . . It inhibits them from being able to eat or socialize" (Stark and Fiore, 2009). Dr. Beverly Cowart, another anosmia researcher, agrees, explaining the significance of the ability to smell for the enjoyment of eating:

> Your whole sense of food flavor is distorted and diminished . . . You can still taste the basic tastes which are sweet, salty, sour, bitter, and umami or savory. What you're missing are the sort of subtle distinctions, the difference between strawberry and banana; between chocolate and vanilla. (Heist, 2016)

Turning to research on colorblindness, Muckler and Taylor cite an article containing an interview with Professors Jay and Maureen Neitz, scientists at University of Wisconsin working with primates to understand and find a cure for colorblindness. Muckler and Taylor argue that, given public support for research on etiology and treatment, researchers and the agencies that fund them must consider colorblindness to be not only a dysfunction but also a medical disorder, and with this we agree. However, although Muckler and Taylor report the Neitzes' likely views on that disorder claim, they fail to mention anything about what the researchers think about the harmfulness of colorblindness. This is not because such information is lacking. In the very same article, the quoted scientists plainly express the view that colorblindness is a cause of significant harm:

> Most people think of colorblindness as an inconvenience or mild disability, mainly causing problems with unmatched shirts and socks. But the Neitzes say the condition can have profound impacts—limiting choices for education or careers, making driving dangerous, and forcing continual adaptation to a world geared for color vision. "There are an awful lot of people who feel like their life is ruined because they don't see color," said Jay Neitz, 61, the professor of ophthalmology who confirmed

in 1989 that dogs are colorblind, too. People may not qualify as commercial pilots, for instance, if they're colorblind. Other careers that can be limited include those of chefs, decorators, electricians and house painters, all of which require detailed color vision . . . "There's nobody with a black-and-white TV who, if you said, 'Would you like color TV?' wouldn't trade it," Jay Neitz said. (Aleccia, 2015)

Indeed, if color perception makes no net difference to pleasure, Muckler and Taylor seem to be in the uncomfortable position of having to explain why almost everyone chooses to buy more expensive color TVs. Whereas Muckler and Taylor suggest that colorblindness would affect employment only in exceptional occupations like fighter pilot, the researchers mention more common problematic occupations, from chefs to house painters. Clearly, the very sources—medical regulatory organizations and researchers—on which Muckler and Taylor rely to support their claim that anosmia and colorblindness are considered disorders, also consider these conditions to be harmful and thus disconfirm their argument and confirm the HDA. There is no evidence here of community or professional judgments of harmless medical disorders.

V. CONCLUSION

The attractions of naturalism are clear. Values are debatable and variable cross-culturally in ways that scientific facts are not. In a pluralistic society, value diversity threatens the stability of any concept that is value laden. Disputes about values—for example, whether values are objective or irrevocably culturally embedded—may complicate the often-intense debates over whether certain conditions should or should not be considered disorders.

The reason why naturalism seems so plausible is also clear. Both in research and in clinical work, the nuts and bolts of figuring out how things work or treating a problem brackets value concerns and relocates shared or presupposed values into the background, so that it is facts and theories and instrumental means to goals that become the focus. Thus, in medical research and clinical work value judgments often remain largely implicit, and purely factual aspects of these endeavors are in the foreground. The fact that these activities float in a sea of distinctions and classificatory decisions that themselves depend on prior value distinctions is mostly invisible.

Only when the usual processes break down and novel challenges arise—as they did in the debate over the diagnostic status of homosexuality, or with the discovery of commensal viruses—do the inherent value judgments emerge into explicit awareness. Yet even in routine diagnostic classification, harm judgments, although implicit, are essential to explaining the distinctions both professionals and laypeople routinely make between disorder and nondisorder, as our analyses of the proposed counterexamples put

forward by Muckler and Taylor have demonstrated. The biological dysfunction account of disorder is the leading naturalist account of medical disorder, but, as we have seen, this view fails to get even remotely close to explaining the intuitive judgments both laypeople and professionals commonly make, largely because the universe of dysfunctions extends well beyond any plausible domain of medical disorder.

There certainly remain important and perplexing issues about the value criterion for disorder that need to be addressed, but none of them call the value criterion into question as a necessary component of the concept of disorder. The "harm" judgment may be flexible and perhaps it cannot be made precise in the way philosophers would like. Nonetheless, the profession of medicine is a social artifact created to address certain conditions people care about, and this involves values along with science at the core of its classification system.

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