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Rethinking medicalization: unequal relations, hegemonic medicalization, and the medicalizing dividend

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Abstract

Medicalization is an important theory that has been subject to numerous debates. Drawing on three varied datasets, we forward a relational approach to medicalization that responds to critiques while aiming to reinvigorate the theory with new concepts and questions. In contrast to prior process-based work, our relational approach argues that medicalization is best understood as an action or activity undertaken by specific groups or actors. We further suggest that unequal relations characterize medicalization. Specifically, we argue that 1) groups or actors receive a benefit from participating in medicalization, which we call the medicalizing dividend and, 2) an actor/group occupies a hegemonic position in medicalizing relations, reaping the largest dividend and constraining other actors. While we assert that pharmaceutical companies are currently hegemonic, we argue that their hegemony is not indefinite. We discuss how our approach facilitates links between medicalization and other theories, while outlining future steps for medicalization research.

Keywords Medicalization · Pharmaceuticalization · Biomedicalization · Relational Sociology · Hegemony · Health

What we see as "health" and "illness" have undergone substantial changes. Universal and near-universal experiences, such as sadness, fear of public speaking, aging, and dying are increasingly becoming the targets of medical attention (Conrad, 2005; Lane, 2007; Livne, 2019). Social problems, such as violence, substance use, and poverty have all been framed as medical issues (Buffel et al., 2017; Halfmann, 2019; Hatch, 2019). Medical interventions are also positioned as solutions to personal and

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social problems (Abraham, 2010; Bell, 2024; Bell & Figert, 2012; Clarke et al., 2010; Conrad & Waggoner, 2017; Davis, 2020; Showalter, 2019).

Theories of medicalization (Conrad, 2005; Conrad & Barker, 2010; Conrad & Schneider, 2010), biomedicalization (Clarke et al., 2010), and pharmaceuticalization (Abraham, 2010; Busfield, 2006; Williams et al., 2011) aim to explain the expanding reach of health, illness, and medicine. These theories forward different accounts of what is driving medical expansion. In some cases, physicians are seen as working on expanding their professional influence, in others, concepts like "political economy," "biotechnology," or "technoscientization" drive medicalization, while corporations – particularly pharmaceutical corporations – are perceived as the catalysts of medical expansion (e.g., Clarke et al., 2010; Conrad, 2005, 2006).

In this paper, we argue that pharmaceutical companies dominate medicalization.[1] Suggesting that pharmaceutical companies are central players in medicalization is not new (see Abraham, 2010; Bell & Figert, 2012; Busfield, 2006, 2017; Clarke et al., 2010; Conrad, 2005; Davis, 2020; Williams et al., 2011). Instead, our paper's contribution is forwarding a framework for medicalization research that, 1) draws together observations from previous theories and studies, 2) provides a relational analysis of medicalization that is contrastive with prior process-based accounts, 3) addresses many of the critiques of medicalization theory, and 4) provides new concepts for understanding medicalization and analyzing medicalization in relation to other forms of power, authority, and oppression.

Our relational approach to medicalization offers an alternative to the explicitly process-based approaches that characterize other theories (e.g., Conrad, 2005). By relational, we mean seeing social phenomena as active, dynamic, and unfolding within the relations of actors and groups (Emirbayer, 1997). In this sense, we view medicalization as the product of dynamic relations between sets of actors, each with their interests, constraints, and agency. Rather than adjudicating between different processes (e.g., the five processes of biomedicalization) or arguing that some process "drives" medicalization, we focus on how various actors are enmeshed in relations of medicalization. Rather than a disembodied process, we assert that medicalization is a verb – an action that specific groups and actors undertake.

By taking a relational approach, our analysis emphasizes the numerous actors, such as patients, scientists, and pharma companies participating in medicalization. Building on prior process-based work that examines medicalization as a form of social control, our relational approach allows us to examine the unequal relations between the medialized and medicalizers. In contrast to such work, our approach also facilitates analyses of the unequal relations between medicalizers, such as their uneven influence over shaping interactions and the systems that enable medicalization.

[1] We will use the term "medicalization" to refer to the broad phenomenon of the expanding domain of health, medicine, and illness. We will use the term "medicalization theory" to refer to Conrad's work. For brevity, we position medicalization theory, biomedicalization theory, and pharmaceuticalization theory as all explaining the phenomenon of medicalization.

We also provide a relational definition of medicalization. While Conrad (2007) defines medicalization as the "process" by which something is "made medical" (p.5), we define medicalization as an activity undertaken by an individual, group, or organization that expands the domain of health, medicine, and/or illness. That is, while Conrad's work examines the process by which something moves from non-medical to medical, we position medicalization as an activity and accomplishment of specific actors, attending most specifically to medicalization as a verb, as well as an outcome. Following Clarke and colleagues (2010), we use "health" because we see medicalization as relevant to both pathology and health optimization. Following Conrad (2005) and Conrad & Schneider (2010), we use the term "domain" to emphasize that medicalization occurs in many ways, including definitional, jurisdictional, and treatment expansion. A key assertion of our relational approach is that, because medicalization is an activity that unfolds within a set of relations, the interests, actions, and aims of different participants in medicalization might or might not align. We further argue that these relations will be unequal, such that some groups can exercise more authority and receive more benefits from medicalization than others. As we will elaborate on in the discussion, considering the unequal relations of medicalization also ties the theory to other conceptualizations of power and oppression (Collins, 1990), as medicalization can be used to target and control marginalized groups (e.g., women, people of color, see Bell, 1987; Brubaker, 2007; Fish, 2022; Hatch, 2019; Kempner, 2014; Ramey, 2018; Sweet, 2015).

To advance our relational framework, we introduce two new concepts. First, we will argue that an actor or group can occupy a hegemonic position in relation to medicalization. In our argument, hegemony is characterized by asserting control over how medicalization is deployed, constraining other actors, and disproportionately benefitting from medicalization. As with other discussions of hegemony (see Collins, 1990; Connell, 1995; Gramsci, 2011), dominance can be achieved through fiat, control of rules and institutions, and punishment. Likewise, hegemony is not complete domination and can be contested. We contend that pharmaceutical companies currently occupy this hegemonic position, but their continued hegemony is far from secure. Social control, discussed at length by Conrad (e.g., 2007), is one (of many) aspects of such hegemony.

Second, we argue that groups or actors participating in medicalization receive a benefit, which we refer to as a medicalizing dividend. For instance, scientists who develop new medical products can receive a medicalizing dividend through publications, accumulating proprietary knowledge, or prestige. We claim that all groups participating in medicalization receive a dividend, but the hegemonic group or actor receives the greatest dividend. We suggest that hegemony is partially characterized by receiving the most substantial medicalizing dividend, as the hegemonic group can steer healthcare organizations and interactions such that their dividend is maximized.

To make our argument, we draw on both previous literature and our empirical work, specifically: 1) ethnographic observations of a palliative cancer unit housed at a research university, 2) in-depth, semi-structured interviews with professionals involved in researching and treating psychiatric or neurological conditions and, 3) ethnographic observations of a neuropsychiatric laboratory and three major

psychiatric conferences. We use this data to demonstrate the utility of our relational approach and to develop the concepts of hegemonic medicalization and the medicalizing dividend. Further differentiating our position from other work and building on prior analyses of hegemony (Connell, 1995; Yang, 2020), we argue in the discussion that pharmaceutical hegemony is also contingent and open to contestation.

Theories of medical expansion

Many researchers have examined the expanding domain of health, medicine, and illness (e.g., Abbott, 1988; Foucault, 1973; Freidson, 1988; Rose, 2007; Rosenberg, 2002). In this paper, we will focus explicitly on theories of medicalization, biomedicalization, and pharmaceuticalization. Conrad's (e.g., 2005) work on medicalization is particularly influential. In earlier work, Conrad (e.g., 1975) argues that physicians primarily drive medicalization as they seek to expand their professional authority. As Conrad argues, medicalization progresses in three ways: 1) expanding the definition of medical problems, 2) expanding the application of medical treatments, and 3) expanding the jurisdiction of medical professionals.

Despite its influence, medicalization theory has been critiqued for overemphasizing the power of physicians and providing static, deterministic, and post-hoc analyses (e.g., Davis, 2006; Dingwall, 2006; Strong, 1979). For instance, critics suggest that medicalization analyses overwhelmingly focus on issues that have already become medicalized, while positioning medicalization as an irresistible force. Conrad (2005) revised his medicalization theory in response to such critiques. Conrad's revision argues that medicalization is primarily about definitional expansion, that physicians are no longer key drivers of medicalization, and that biotechnology, consumers, and managed care organizations are the new "engines" of medicalization.

In addition to Conrad's work, other researchers have contributed to medicalization theory. For example, Halfmann (2019) argues that medicalization can occur at various levels, including discourse, practice, and identity. While Davis (2020) explains how medicalization is tied to science, Showalter (2019) illustrates how medicalization processes can be incomplete or uneven, while Reid (2023), as well as Newhart and Dolphin (2018), demonstrate the incomplete medicalization of cannabis use, as it has alternated between being medicalized, demedicalized, and partially medicalized. Additionally, work by Hoppe (2014) demonstrates how issues can become demedicalized, while research by Barker & Galardi (2015) details contestations over (de)medicalization. We position our framework as a medicalization theory and, as such, are indebted to such work. Expanding on prior work, we contend that our relational approach responds to critiques that medicalization is post-hoc and deterministic by focusing on actors and the unequal relations between them. Our approach differs from previous approaches that focus on processes and/or "engines" of medicalization (e.g., Conrad, 2005), with these processes and engines being a mix of practices, concepts, epistemologies, and groups. Instead, Our relational approach centers on actors, their relationships, and how they influence the organization, persistence, and accomplishment of medicalization. In our formulation, medicalization is not an amorphous process but an activity done by some actor or group.

Biomedicalization theory (Clarke et al., 2010) is positioned as an alternative framework to medicalization theory. As Clarke and colleagues argue, since the mid-1980s, a social transformation has occurred such that we have moved from a medicalization process to a biomedicalization process. Five subprocesses characterize biomedicalization: 1) political and economic shifts; 2) a growing focus on risk and surveillance; 3) the technoscientization of medicine; 4) transformations in biomedical knowledge; and 5) transformations of identities. The authors argue that biomedicalization is driven by the expanding influence of science and economics on health. Given our focus on pharmaceutical companies, we share Clarke and colleagues' focus on corporate influence. In addition to moving from processes to relations, a key difference between biomedicalization and our approach is our emphasis on the inequalities between different medicalizers. For instance, in both theories, scientists and corporate boards are important. Still, we argue below that the former has become subordinate to the latter, as pharmaceutical companies work to align scientists' activities with their interests (see also Busfield, 2006). For example, we show how pharmaceutical companies hire scientists to "rig" the FDA approval process, while much of scientists' career capital depends on aligning with pharmaceutical interests.

Lastly, pharmaceuticalization theory is positioned as an alternative to both medicalization and biomedicalization theories. Pharmaceuticalization theory asserts that pharmaceutical companies primarily drive the expanding domain of health, illness, and medicine. As Abraham (2009) argues, pharmaceuticalization is "the process by which social, behavioral, or bodily conditions are treated or deemed in need of treatment with medical drugs, by doctors or patients" (934). Abraham further argues that pharmaceuticalization is a distinct process from medicalization, as already medicalized problems can still undergo pharmaceuticalization. At the same time, pharmaceuticalization is also different from biomedicalization, as evidenced by pharmaceutical companies spending considerably more on advertising than on research and development. As Williams and colleagues (2011) further argue, pharmaceuticalization is a set of heterogeneous micro and macro processes by which pharmaceutical interests colonize and redefine health. Busfield (2006) likewise argues that pharmaceutical companies drive medicalizing processes and that scientists/physicians have largely ceded their role of policing pharmaceutical products. In addition to pharmaceuticalization theory, other researchers have argued that pharma influences the practice of medicine (particularly psychiatry, see Lakoff 2005), and that medicalization now functions to "grease the wheel" for hegemonic pharma companies (Sismondo, 2018).

Aligned with pharmaceuticalization theory, we see pharmaceutical companies as dominating medicalization. In contrast to this theory, we do not view pharmaceutical companies or other actors as occupying a differentiated position in medicalizing relations. Instead, we see pharmaceutical companies as currently hegemonic within medicalizing relations, asserting the most influence over other actors and reaping the largest dividends from medicalization. As our approach focuses on relations rather than processes, it also makes no commitments to the defined roles of any specific group, whether that is pharmaceutical companies (Abraham, 2010), scientists (Clarke et al., 2010), or physicians (Conrad, 1975). Other actors and groups can, and

have, occupied a hegemonic position in medicalizing relations. Indeed, in our discussion, we suggest that big technology companies (e.g., Apple, Google) are likely to usurp hegemony from pharmaceutical companies in the future. An outcome that our theory is well-positioned to anticipate, describe, and explain, given its focus on the contingent, unequal, contested dynamics of medicalization.

All three theories are helpful, influential, and highlight broad micro and macro processes that shape the expanding influence of medicine. Considering all three theories in contrast to our approach, each of the three is explicitly positioned as a process-based theory.[2] Here, we depart from these theories, drawing on Emirbayer's (1997) critique that process-based approaches tend to treat processes "as self-acting entities in many concrete instances of social inquiry," which obscures that actions are completed by groups or individuals (p. 285).

Although process-based approaches can illuminate how something is "made medical" (Conrad, 2007), we argue they have three areas that can be elaborated and extended by a relational approach. First, they often describe medicalization as driven by abstract processes, such that "political economy" (Clarke et al., 2010) or "managed care" might be "engines" of medicalization (Conrad, 2005). Rather than engines, our relational approach focuses on the drivers—i.e., scientists, policymakers, patients, and corporations. Second, because these processes are often abstract, they can omit relations and tensions between different aspects of medicalization. For instance, Clarke and colleagues (2010) detail five biomedicalizing processes, Conrad (2005) describes three "engines" of medicalization, and pharmaceuticalization (Abraham, 2010) details how pharma drives health and illness, but they do not emphasize the conflict, cooperation, and hierarchies between these processes/engines, which is central in a relational approach. From a relational approach, our concern is not how people are steered or dominated by processes but how people work to drive medicalization. Third, while actors and activity can be components of these process-based approaches (e.g., claims-making/claims makers and moral entrepreneurs), our relational approach explicitly centers the actors and agents of medicalization, emphasizing how agents accomplish medicalization above process-based analyses.

Taken together, we suggest our framework is better positioned to respond to critiques that medicalization research is post-hoc or deterministic because agents rather than abstract processes populate a relational approach. Looking at medicalization as an accomplishment of actors is both accurate and useful, as centering actors reveals how medicalization is dynamic, networked, and stratified. In our view, a relational approach can explain the outcomes of medicalization (e.g., how actors make something medical), how medicalization is "steered" (e.g., how scientists, physicians, or managed care executives work to expand their influence), why agents participate in medicalization (e.g., to receive a dividend), inequalities between medicalizers (e.g., concerning hegemony), changes to medicalization (e.g., changes to the hegemonic order), and how medicalization is contested or resisted. While we assert the advantages of our relational approach, we do not position such claims as diminishing

[2] See (Abraham 2010:604; Clarke et al., 2003:162; Conrad 2007:4–5).

previous work, and our formulation is indebted to prior theorizations.[3] Nonetheless, we do assert that medicalization is best understood as a relational phenomenon that is dynamic, active, and unequal.

Methods

Research design

This project combines three distinct datasets. The first is the first author's 17-month ethnographic study of a leading American neuropsychiatric laboratory and three psychiatric conferences. The second is the first author's 78 in-depth interviews with health professionals specializing in psychiatric or neurological disorders. The final is the second author's 24-month ethnographic study of an American cancer clinic, which includes audio recordings of 85 clinical interactions (see also Table 1).

Similar to prior research that combines multiple studies (see Hesse-Biber & Johnson 2015 for a review), we carefully considered the fit between these three datasets. In contrast to many other multi and mixed-methods studies, our projects share a qualitative methodology, and two are ethnographic. All three projects shared similar epistemological and axiological features, along with parallel methodological strategies (e.g., each project's research aim was to understand the social world under study rather than collecting data to test a hypothesis). As such, all three datasets yielded context-rich data specifically meant to understand the social world from the perspectives and actions of our participants. Since our data came from methodologically aligned studies, we did not have to reconcile different "hypothesis development processes" or "conceptual and interpretative frameworks" (Mertens & Tarsilla 2015 p. 428). As such, our data integration did not have to be translated into a common analytic language, which is more common in studies that combine quantitative and qualitative data.

We also draw heavily on Becker's (2014) analogical reasoning, specifically his assertions about the analytical and theoretical utility of comparing cases from different projects. Likewise, we are influenced by Becker & Faulkner's (2013) approach towards "thinking together," wherein analysis is not the product of one researcher or dataset but the outcome of comparing and collaborating between researchers. In our specific case, we used our datasets to "think together" about medicalization theory. Combining our datasets allows our analyses to speak to more cases, open the "black boxes" of social life (Becker, 2014) and identify relations that are salient across different medicalizing contexts (e.g. cancer care and psychiatric care).

A strength of our approach is that it permits us to follow medicalizing relations across multiple contexts (e.g., conditions and professional groups). Indeed, the paper partly originates from our early discussions about our respective projects, wherein

[3] In the light of the recent passing of both Adele Clarke and Peter Conrad, we want to state that our ideas are very much indebted to their work in this area, which anticipated and has been exceptionally influential on our own thinking, as well as the that of many others.

Table 1 Three Datasets

Author	Context	Design/Method	Dataset
First author, Project 1	American Neuropsychiatric Laboratory Meetings of the American Psychiatric Association and Society of Biological Psychiatry	Ethnography • Ethnographic observations • Ethnographic interviews	17 Months of Laboratory Observations Observations of 81 Conference Presentations Ethnographic interviews with Lab Members and Conference Attendees
First author, Project 2	Health Professionals in Canada and the United States	Interviews • Semi-structured interviews with open ended questions	78 Interviews with Health Professionals
Second author, Project 3	American Cancer Clinic at a University Hospital	Ethnography • Ethnographic observations • Ethnographic interviews • Recordings of clinical visits	24 Months of Observations of Clinical Visits Recordings of 85 Clinical Visits (65 patients, 48 family members, 18 health professionals)

we noted that pharmaceutical companies appeared to "induce" professionals and patients to participate in research, despite the different foci of our projects. Finding examples of inducements across all three projects gave us an early sign that our datasets might have the right "fit" for data integration (Fetters et al., 2013). Likewise, by combining and analyzing our projects, we can discuss different aspects of medicalization (e.g., research, clinical care) and the medicalization of different issues (e.g., mental illness, physical illness). By integrating and comparing our datasets, we also identified instances wherein findings from one project could confirm or support the findings from another (Fetters et al., 2013), which lends our analyses greater credibility (Lincoln & Guba 1985; Nowell et al., 2017). We have also described these datasets in our previous publications (see [redacted for peer review]). All our data collection activities received ethics board approval.

Data analysis

We pooled the raw, uncoded data from our three projects and re-coded them again collectively using analytic abduction as our approach (Tavory & Timmermans, 2014). Emphasizing our approach to "thinking together," we did not align our collective dataset with codes previously used in our individual projects. Although some codes re-emerged, we aimed to approach the combined dataset as a "new" project. Given our abductive approach, we did not select our datasets or cases to test a new medicalization theory. Instead, an abductive approach encourages researchers to consider how their data is new or surprising in light of theory or how data might challenge established theory (Tavory & Timmermans, 2014; Timmermans & Tavory, 2012). This paper focuses on how our data is surprising or novel in light of medicalization theories (Clarke et al., 2010; Conrad, 1975, 2005). Specifically, we found that no particular medicalization theory was an ideal fit for our data, which led to our efforts to refine such theories. While we find medialization theories useful for our work, we also sought to combine the various insights from these theories in this analysis. The result is our relational approach to medicalization, which focuses on the unequal relations between different medicalizers and the hegemonic position that pharmaceutical companies currently occupy.

Our analytic procedure started with a search for diverse and theoretically surprising cases. Following abductive approaches to coding, we were less concerned with saturation and instead interested in gathering data that informed our interest in medicalization (Vila-Henninger et al., 2024). As cases were grouped by similar features, those groupings grew large enough to be examined by medicalization theories. In our initial attempts to explain our data using established theories, we identified useful features that bound together data across projects; these features became some of the codes that helped us familiarize (i.e., code) ourselves with our new dataset. We developed our codes by using some of the features we noticed when compiling our dataset and leveraging established theories to examine our growing dataset (Tavory & Timmermans, 2014; Vila-Henninger et al. 2024). Part of our analytic process also included examining the strength of codes across each institutional context and between different participants (Thompson, 2022). The distinctions between different

participants (groups) and institutional context led us to notice that some of the medicalization theories we used to inform some of our codes could not explain what we were seeing, such as how differences in the incentives for each group, and the various ways these inducements were structured (e.g., how they were obtained and who controlled them). We used this process throughout the coding, concept, and theme generation stages.

Limitations

Our study has limitations. First, the health professionals we study are also involved in research, and we did not examine a setting that only provides clinical care. Second, our data predominately relates to neurological diseases, psychiatric disorders, and cancer. While these are common disorders, pharmaceutical companies influence upon different conditions, and the medicalization of different conditions might vary (e.g., orphan diseases). Third, our analyses combine the data we collected in both Canada and the United States, and despite their different healthcare systems, we documented pharmaceutical influence in both regions. Due to space considerations, we have not completed a country comparison here. That said, we expect our approach to be relevant to analyses of different contexts, and future research could instead consider how different political contexts might influence how medicalization unfolds (see Halfmann, 2019 for an example). Fourth, considerable medicalization research focuses on the medicalization of social problems (e.g., Conrad, 2005). Although we do not focus on the medicalization of social problems here, we anticipate that our approach is useful for studying such cases of medicalization. Lastly, as we develop in our discussion, hegemony might unfold differently in different contexts, and future studies could challenge or extend the framework we provide here.

Findings

We present our findings in two parts: 1) we discuss how groups who participate in medicalization collect a medicalizing dividend and argue that pharmaceutical companies command the largest dividend, 2) we demonstrate the hegemony of pharmaceutical companies, as they constrain other actors in terms of regulations, logistics, taxonomies, and interactions.

The medicalizing dividend

In this section, we show what groups and actors get from medicalization. We argue that emphasizing how groups benefit from medicalization not only helps explain how and why medicalization is maintained and accomplished but counters critiques that medicalization is static, deterministic, or an unrelenting force that is applied to unwitting subjects. Focusing on benefits also populates medicalization analyses with actors that have interests and mitigates positioning medicalization

as a disembodied process. As such, we establish that medicalization provides benefits, which we refer to as the medicalizing dividend. While many groups receive a medicalizing dividend, we argue that the hegemonic group receives the largest medicalizing dividend. In the current configuration of medicalizing relations, we maintain that pharmaceutical companies occupy this hegemonic position.

We argue that detailing how groups benefit from medicalization is key for explaining how and why medicalization unfolds. We further suggest that a relational approach highlights the benefits of medicalization, which are often left implied or obscured in process-based approaches. For example, while Conrad (2005) lists "consumers" as a new engine of medicalization, he says little about why consumers pursue medicalization. Conrad's examples, which include plastic surgery, adult ADHD, and sadness/depression, note that consumers seek out medical products and diagnoses but states that pharmaceutical companies, the media, or the internet are responsible for cultivating consumer demand. While direct-to-consumer advertising facilitates how people participate in medicalization, such a description also eliminates individual agency. By situating people as passively influenced by medicalizing processes, we lose sight of how they are active players in medicalizing relations.

We suggest that consumers, like all groups who advance medicalization, do so because they receive benefits – or a dividend – from medicalization. Consumers receive a medicalizing dividend in many ways. For example, people receive affordances from the sick role (Parsons, 1951), while people pursuing a diagnosis, or patient groups who are seeking medical recognition of a condition, receive access to medical resources (Brown, 1987; Callon & Rabeharisoa, 2003; Jutel, 2009; Pickersgill, 2024). People might gain attention and engagement on social media by discussing illnesses or self-diagnosing (e.g., Alper et al., 2023).

Our data also shows consumers receiving dividends from medicalization, such as the benefits they receive from treatments. Judy, a lung cancer patient we observed, and her husband Ron, have just been told by their doctor that her treatments are no longer working and Judy's cancer has metastasized. Judy and Ron ask if "it is worth looking for the next therapy," aiming to move from "standard" treatments to experimental medicine and clinical trials. Their doctor responds in the affirmative, saying that they could "move beyond" their current treatment and there are "other potential options" to explore. These options involve more biopsies, scans, and "definitely would be in a clinical trial setting." Although pharmaceutical companies benefit from people like Judy, we argue that she demonstrates how consumers also receive a dividend from medicalization (i.e., treatment expansion), as Judy and her husband are directly involved in "upscaling" her treatment from standard to experimental. Their decision is particularly salient because such treatment expansion is tied to medicalization (e.g., Conrad, 2005), while death and palliation are becoming both increasingly medicalized and costly (Livne, 2019), such that palliative patients are consuming additional and novel interventions. This example likewise demonstrates the pragmatic benefits consumers receive from medicalization, as Judy explicitly seeks to extend her life. At the same time, patients in other contexts might use medicalization to improve performance, mitigate perceived symptoms, or access resources.

As with consumers, health professionals receive a medicalizing dividend, which is also evident throughout the literature. For instance, professionals gain authority by expanding their jurisdiction (Abbott, 1988) and increasing their compensation by seeing more patients per day (Smith, 2014). While Conrad (2005) argues physicians are no longer central to medicalization, we suggest that focusing on dividends reveals they are still active participants, even if they no longer dictate the terms of medicalizing relations.

Health professionals and scientists play an active and important role in many medicalization theories (e.g., Busfield, 2006; Clarke et al., 2010). Professionals can receive considerable prestige and capital from medicalization, such as developing a new diagnostic category, intervention, or product. For example, Dr. Marsha Linehan, who created a new talk therapy, has received over 80,000 citations and commands substantial speaking fees (Allamericanspeakers.com, 2023). Dr. Becking, a psychologist in our study, commands similarly hefty speaking fees, which funded staff positions in his laboratory. Likewise, Dr. Matthews, a neurologist, tells us that such benefits influenced how he directed his career. While he initially studied Huntington Disease, he now focuses on congenital indifference to pain. His career pivot was informed by the potential to develop "novel pathways for drug treatment," adding:

> What happens is these patients don't feel pain. So, you can put a knife through them, you can burn them, and they don't feel pain. They feel everything else. They feel touch, they feel pressure, they're otherwise completely normal. And so we said to ourselves, this was our hypothesis, if we could find this gene, this would be an incredibly lucrative opportunity because it's very specific for pain… And we now have a drug that's in late-stage clinical development.

In this sense, medicalization provides clear and transparent benefits. Professionals like Drs. Linehan and Matthews benefit in terms of both symbolic and economic capital from developing interventions, which can create new markets as they are applied to neglected conditions, numerous problems, and/or a substantial number of prospective patients.

Dr. Matthews' shift from studying an orphan disease to chronic pain evidences our claims that medicalization can be tied to larger power relations and inequalities. Here, the combination of medicalization and a capitalist healthcare system results in a marginalized patient population losing a neurologist to the study of chronic pain, which has a considerably larger market. Moreover, this neurologist is also exploiting the physiology of another marginalized patient population, as he studies them not to alleviate their suffering but to commodify their genome.

As we argue, medicalization does not simply provide health professionals with instrumental benefits but also affective benefits. We documented numerous instances wherein health professionals advocated for additional or more costly treatments because they think such treatments would extend and improve patients' lives. In the example of Judy's cancer presented above, her physician is advancing medicalization but – independent of any financial and research benefits he might receive – is also doing this to slow Judy's metastatic lung cancer. Similarly, we observed numerous psychiatrists who argued that giving people anti-psychotic medications *before* they develop a psychotic disorder (e.g., schizophrenia) would be good for them, as

it would prevent or lessen the emergence of a psychotic illness. Medicalization, then is not simply nefarious and instrumental, as part of the appeal of medicalization to professionals is that it is seen as a means to improve people's lives.[4]

There are a host of non-pharmaceutical companies that reap dividends from medicalization (Clarke et al., 2010; Conrad, 2005). Many companies benefited from the medicalization of daily life that resulted from COVID-19 and associated restrictions, as evidenced by the Biden Administration's purchase of USD 400 million worth of face masks (Diamond & LeBlac, 2022). Likewise, UnitedHealth Group, the largest health insurance company in America (by membership), generates considerable revenue and has 1.3 million physicians and 6500 hospitals in its network (Kissell, 2024). Similarly, the use of imaging machines was ubiquitous across our datasets, as people with cancer, Huntington disease, and mental illness all received imaging. Companies are generating considerable revenue from imaging machines, which can cost both professionals and patients hundreds of dollars per session, while the machines themselves can cost upwards of hundreds of thousands of dollars (Joyce, 2008). Such companies receive a dividend from medicalization when imaging is tied to additional uses, positioned as part of standardized care in some jurisdictions, or used to identify novel conditions (e.g., attenuated psychosis syndrome).

While all these groups (e.g., consumers, physicians, scientists, and healthcare companies) receive a medicalizing dividend, we maintain that pharmaceutical companies receive the most substantial dividend. Although we argue that pharmaceutical companies receive the largest medicalization dividend, in contrast to pharmaceuticalization theory, we do not argue that they alone "drive" medicalization or that medicalization is a process dominated by pharmaceutical companies. The other actors we have discussed are non-trivial players in medicalization, even if pharmaceutical companies receive the most substantial dividend.

One way we can see how pharmaceutical companies receive the largest dividend is by considering the tremendous amounts of wealth they amass (Gabe et al., 2015; Ledley et al., 2020; Whitacre, 2024). While companies like UnitedHealth generate more revenue, pharmaceutical companies enjoy higher profit margins, with Pfizer and Eli Lilly having net profit margins that are approximately double those of UnitedHealth (Satija et al., 2024). Additionally, unlike many other healthcare companies (e.g., UnitedHealth), pharmaceutical companies are global and not bound to specific regions.

We further argue that pharmaceutical companies receive the largest medicalizing dividend because they receive "passive income" from the medicalizing efforts of other groups. When consumers fight for access to treatments, when physicians expand their jurisdictions, and when scientists develop a new product, pharmaceutical companies also benefit. Indeed, pharma can also receive a passive dividend from medicalizing activities that have costs for other groups, such as when physicians are compelled to address social problems (Strong, 1979). This passive income emphasizes the benefits of applying a relational

[4] We further suggest that seeing medicalization as beneficial or positive is why some researchers stress the importance of delineating between "medicalization" and "over medicalization" (Kaczmarek 2019).

approach to medicalization, as it demonstrates that while all groups might work to expand medicalization, and receive benefits from medicalization, the medicalizing actions of others can doubly enrich pharmaceutical companies. As such, we maintain that inequalities in medicalizing dividends also indicate who occupies a hegemonic role in medicalization, as such a group receives the most benefit from medicalization.

The ability of pharma to receive passive income from the dividends received by other medicalizers is most directly demonstrated in an interview we completed with Dr. Crickson, a geneticist. As he tells us:

> Pharmaceutical companies will spend millions in developing the therapeutics and will have the patents and the legal rights to kind of make that money back in terms of selling that therapeutic. But the initial pouring of funds into the research, there is a lot of funds that are required to do brain clinical studies or even do the studies I'm doing. Often you have to have collaborators that are in industry – that are pharmaceutical companies – that will, if they think that your work is promising, will contribute financially to you being able to carry out your research.

This quote, alongside the one from Dr. Matthews (above), reveals how pharma is positioned to be the biggest winner from other actors' medicalizing efforts. Physicians might reap financial benefits from developing novel drugs, whether in the form of a share of the profit or investments from pharma. Nonetheless, as Dr. Crickson observes, pharma companies are set to receive the largest rewards, as they seek to own patent and legal rights to novel therapeutics. Here, it is true that such professionals and scientists receive direct incentives for medicalization, but pharma nonetheless profits from their profits and reaps the lion's share of the gains.

We further argue that pharma companies receive a "passive dividend" from the face-to-face interactions between patients and professionals, as well as the everyday routine work of health professionals. Here, we build on Goffman's (1983) argument that interactions have an order in their own right but are "loosely coupled" to larger social phenomena that can be external to a specific interaction. Specifically, even when pharma companies are not directly present, they reap dividends from other medicalizers and the interactions between them.

In our dataset, many patients could receive what they perceived to be considerable honoraria (e.g., hundreds of dollars), as well as per diems and travel reimbursement for participating in research. Researchers are keenly aware of the appeal of such resources, with one telling us they tried to "bump up" incentives to people facing "financial challenges" to ensure they were "motivated" to participate in research. Reflective of the hegemonic position of pharmaceutical companies, even when patients benefit from treatment (e.g., Judy, discussed above), pharmaceutical companies also benefit. For instance, people might receive a host of benefits from substance-use dependence treatments, but so do the pharmaceutical companies that develop products to address issues like opioid dependence (e.g., Naltrexone, Bupropion, or Disulfiram). Indeed, given the pharmaceutical industry's connections to the opioid epidemic (discussed below), they benefit here both from the problem and interventions to address that problem.

Likewise, other people participated in research to "give back" and for the "greater good" (see also Healy, 2006). As part of a discussion on seeing trials as "giving back," one cancer patient states:

> Doctor: I will definitely tell you about what options are available in terms of clinical trials.
> Mark: I owe some debt to society since I've spent 45 years in the animal research business doing preclinical studies. So, uh, yeah.
> Doctor: Well, we'll just focus on you. I don't, I don't know if I need you to repay any debts.

While Mark's doctor tells him he might benefit from the trial medication, Mark also suggests that he has a "debt to society" that he can repay by participating in clinical trials. Although Mark's doctor disagrees with this framing, Mark and similar participants nonetheless situate altruism as one reason to participate in experimental medicine.

Here, we assert that pharma companies are reaping a passive medicalizing dividend from other actors, even when they are not explicitly present in interactions. Regardless of whether participants are themselves receiving an instrumental (e.g., cash payments) or an affective dividend (e.g., altruism), pharma benefits from their participation in research. Indeed, pharma companies are reaping far greater financial benefits from participants than they receive in the form of honoraria, while arguably quite selfless acts – like Mark's effort to "give back to society" – also provide financial benefits for pharma companies. Even though patients and civil groups can steer research and influence pharmaceutical companies to deliver meaningful treatments (Callon & Rabeharisoa, 2003), pharma companies gain from those treatments and still reap the largest profits. For instance, patient groups directly influenced research that led to the development of the first HIV drug AZT (Epstein, 1996), but a pharmaceutical company generated hundreds of millions of dollars in profit from the drug and maintained a patent on it until 2005 (Cochrane, 2000; Hilts, 1989).

We argue that pharma companies also receive a passive dividend from professional interactions. Similar to patients like Mark, many professionals emphasize the altruistic side of their work. As one psychologist tells us, "people in academia aren't involved in research because it's what makes them the big bucks" and that many professionals could make better wages in the private sector. Here, as with patients, pharma companies receive a passive medicalizing dividend from professionals' interactions with patients and colleagues, as well as their willingness to be financially under-rewarded for the work they produce.

That said, professionals told us they were not only altruistic, but they, or their peers, also benefitted instrumentally from medicalization activities. Many professionals told us that research provided them with symbolic capital – in terms of expanding their CVs – that could, in turn, be used to secure financial and symbolic benefits, such as higher-paying and more prestigious jobs, research chairs, and greater influence. Participants told us they are willing to work long hours and "jump into action" for the sake of their research program and such benefits. Indeed, as Dr. Shaw, a psychiatrist, tells us, he and his peers are willing to make such sacrifices because "physicians who have academic careers" want "joint authorship on

publications and to share in grants to advance their academic positions." As with the cases above, pharma companies reap a passive income from professionals' interactions and their quest for academic capital. While academics receive the CV lines, pharma companies receive the revenue.

As a counterargument to our claims, we might consider that pharma companies invest large amounts of capital in many products that do not get to market. They might benefit significantly from some products but also face financial risks that are not comparable to those faced by professionals. However, they also receive tax deductions for research and development costs (BDO, 2021). Likewise, in the wake of regulations that limit pharmaceutical gifts to physicians, pharma companies also try to provide "bribes that are not considered bribes" (Elliott, 2010, p.63) by supporting physicians' research in the hopes of influencing their prescribing practices.

Our study participants similarly positioned research support as tied to pharma, suggesting that pharma companies' support can steer physicians' actions. As Dr. Monk, a psychiatrist, tells us, "they want to support your work because you write prescriptions. No matter how dumb your idea is, your study should be funded because you likely will write more prescriptions for their drug." In addition to securing intellectual property, incentivizing research is also a means for pharmaceutical companies to work around regulations against making financial contributions to physicians. Pharma companies might fail to benefit from some of the research activities of health professionals, but by supporting their research, they can nonetheless aim to benefit from their clinical activities.

Given the resources available to pharma companies, they are also well-positioned to reap dividends from other medicalizers in the later stages of medicalization and product development. For instance, cannabis has been legalized in many jurisdictions (see Reid, 2023, for a discussion of the medicalization of cannabis). While cannabis could function as an alternative to pharmaceutical products, pharma companies are buying companies that develop cannabis products, such as Pfizer's purchase of a biotech company that develops cannabinoid therapeutics, Johnson & Johnson's investment in Avicanna, and Novartis' investment in Tilray (Sabaghi, 2021). In these contexts, hegemonic medicalizers can minimize risks and costs while benefitting from other actors' medicalizing work.

Our analysis also suggests that those who provide work more central to the aims of the hegemonic group receive a larger dividend. In the present case, a group or individual closer to the "upstream" phases of medicalization, more tightly coupled to pharmaceutical companies, or less interchangeable from a pharmaceutical company's perspective receives a greater dividend. Thus, a patient in a randomized control clinical trial tends to secure less of the dividend than the scientists working with the pharmaceutical company to run the trial.

Although pharma receives the largest dividend, we also argue that these dividends differ in kind. Patients and research participants receive individual dividends – benefits from medicalization restricted to personal use. Professionals likewise receive individual dividends, but some are fungible and less transient than those received by patients and research participants. Completing a study allows a professional to publish research, which can accrue citations and symbolic capital, while allowing them to apply for additional funding or invest in lab infrastructure.

In contrast, pharmaceutical companies receive organizational dividends from medicalization, as they secure patents, products, and profits. These dividends are diffuse and fungible, as they pay for employees' labour, provide literal dividends to company shareholders, and support other company initiatives that advance medicalization, such as advertising establishing new markets and research and development to generate new products. Thus, not only do pharmaceutical companies receive a quantitatively larger dividend, but it is also qualitatively different, as it is diffuse, often fungible, and compounded by being reinvested into other medicalizing activities. Just as the wages received by employees and middle management in workplaces pale to the financial gains of owners and shareholders, so too do the gains of pharma companies eclipse the relatively meager gains secured by other actors.

Constraints

Hegemony is not just about resources but also control, coercion, and constraint (Collins, 1990; Connell, 1995; Gramsci, 2011). As we argue, examining how medicalizers constrain and coerce one another both populates medicalization theory with actors who have interests, aims, and agendas, while also countering critiques that medicalization is the result of some process (e.g., biotechnology, pharmaceuticalization) that can 'fatalistically' determine outcomes. We suggest that focusing on hegemony emphasizes both the complexity of medicalization and the many actors that participate in medicalization. In this section, we argue that pharmaceutical companies occupy a hegemonic position in medicalizing relations because they control many of the "rules of the medicalizing game," such that they can organize the actions of others. Specifically, we suggest pharmaceutical companies influence health regulations, logistics, taxonomies, and interactions.

Regulatory influence

Many researchers (e.g., Abraham, 2010; Barker, 2019; Clarke et al., 2010; Conrad, 2005) assert that pharmaceutical companies exercise considerable control over regulatory processes. As Busfield (2006) argues, post-approval studies, which provide a significant check on the quality of pharmaceutical products, are often limited in scope and challenging to conduct. As a result, it is difficult to remove a product from the market, and Busfield suggests that physicians have largely abdicated their role as regulators of pharmaceutical products.

Pharmaceutical companies also influence regulations through lobbying. A recent study focusing on U.S. lobbying expenditures found that between 1999 and 2018 the pharmaceutical and health products industry spent more on federal-level lobbying activities than any other industry (Wouters, 2020). These lobbyists specifically target senior legislators involved in drafting laws (Wouters, 2020). Demonstrative of the hegemony of pharmaceutical companies, these groups also lobby for regulations that negatively impact other medicalizers. For example, the Pharmaceutical Research Manufacturers of America (or PhRMA) are lobbying against "insurers

and middlemen" who they say have policies that "disproportionately impact communities of color" and they are "drivers of healthcare spending" (PHRMA.org n.d.). To that end, PhRMA argues that rebates to insurers should be limited and that they should not be able to "dictate" which medications patients receive. If successful, the outcome of such lobbying would decrease profits for other groups, while facilitating pharmaceutical corporations' ability to sell newer and more profitable products. To be sure, the insurance companies PhRMA critiques are also participating in and benefitting from medicalization. As we claim, PhRMA is trying to constrain medicalization so that it unfolds in a way that maximizes their benefits, even if that decreases the benefits received by other medicalizers.

In our data, such regulatory influence was considered an open secret and borderline joke. As a speaker at the annual meeting of the American Psychiatric Association states, "smarter pharma companies have design mavens" who "will get [them] FDA approval… which is the name of the game." A maven is a connoisseur, and a design maven is a connoisseur or expert in research design. As this speaker and others mention, design mavens are experts at creating studies that will "guarantee" the evidence necessary to meet FDA requirements. One example discussed by conference attendees was a faulty sham/placebo condition in trials for transcranial magnetic stimulation that drastically increased the likelihood that the treatment condition would show a demonstrable effect. By using such techniques, pharmaceutical companies make it considerably easier to receive FDA approval by purchasing expertise that can be used to game the system.

A medicalizers ability to influence regulators also indicates how medicalization is tied to larger power relations and inequalities. Here, organizations that ostensibly have a duty to protect patients and consumers have been captured by the companies they seek to regulate. As a result, pharmaceutical companies can change the rules of the game to facilitate their continued domination (Bourdieu, 1998). Such capture reveals how healthcare organizations and institutions, like many other institutions (e.g., education), might appear to be egalitarian but work to advance the interests of dominant and advantaged groups.

Logistical control

By logistics, we mean the infrastructure for developing and distributing medical products. As we suggest, pharmaceutical companies enjoy a near monopoly over logistics, which means they operate as an obligatory passage point (Callon, 1986) in medicalizing relations, as other groups participating in medicalizing must often align with their interests.

One way that pharmaceutical companies control logistics is by creating rules that professionals and patients must follow if they want to access experimental drugs. While these drugs are research objects for professionals and treatments for patients, they are patented products for pharma companies. In the example below, Travis – a lung cancer patient, discusses treatment options with his oncologists. Travis expresses interest in a clinical trial his oncologists told him about during a previous

visit. His doctor explains how the trial is organized, as two clinical trial liaisons employed by a research group running the trial for the drug company enter the room:

> Doctor: [Name of trial liaison 1] and [name of trial liaison 2] are going to go through the details of this trial with a pretty fine-tooth comb. What we want to do is make sure you understand everything… about what we're doing. There's no secrets, okay? No one is trying to keep any secrets from you… Now this study has three arms, and one is a control arm, and it's not blinded. So, all along the way you'll know what you're getting… Sometimes we find out this study is not safe [for you]. The words we use is "not eligible." Really what it means is that it's not safe for one reason or another. And then we can't do it. And then you and I can talk about standard treatment, off-study. But provided we don't run into any barriers in regards to eligibility or safety, then in a week or two, does that sound fair?

Shortly after this exchange, the doctor leaves the clinic room, and the two liaisons go into greater detail about the trial. They explain the informed consent process, which is important to research ethics but, as we maintain, also helps tie research logistics to pharmaceutical interests. First, the consent process is also a contract that pharmaceutical companies use to protect themselves against legal action, as participants like Travis are asked to waive their rights to sue if they develop expected (and unexpected) side effects. These waivers are similar to those granted to the pharmaceutical companies that produced COVID-19 vaccinations (Largent et al., 2021; Mitchell et al., 2020).

Second, the consent process gets participants to think about their bodies and treatments in terms of the aims of pharmaceutical companies. The liaisons inform Travis about the effects and side-effects they want to track (e.g., watching for specific mutations, elevated or falling white blood cell counts, further metastasis, bleeding, extreme pain), setting the agenda and boundaries for medicalizing activities. Indeed, Travis and other participants are told how important it is to stay "on study," even if they receive the placebo. Likewise, if Travis is assigned the experimental drug, and his body starts to react in ways that deviate too far from guidelines set by the drug company, he will have to stop his participation – even if the medication is working. Here, both Travis and his doctor are socialized into thinking about Travis' health from the perspective of pharmaceutical interests. They are calibrated to think in terms of the next lab report, the next diagnostic scan, or the next physical exam, with a sensitivity towards what such data means for the pharmaceutical company and whether or not Travis will be permitted to stay in the study. Indeed, in contrast to arguments that research is "ghost-managed" by pharma companies (Sismondo, 2018), we suggest that the companies and their interests often directly influence medical research.

Indeed, we document numerous examples wherein drug companies discard participants because they are not producing the desired data. For instance, Dr. Blackwell tells a patient that this "new brain lesion [will] take you off study," while Dr. Souza tells another that some "bad news" from their scans means that their treatment must be put "on hold" and that they are "coming off study." In fact, we also observed cases where participants were experiencing positive responses to trial drugs but had

to "come off study" because their lab reports triggered an automatic withdrawal process. While Epstein (1996), as well as Callon and Rabeharisoa (2003), demonstrate how patients can challenge pharmaceutical research, we claim here that pharmaceutical companies nonetheless largely enjoy a logistical hegemony over medicalization. The regulations and rules tied to medicalization are set up to maximize profits and minimize the constraints on pharma companies.

Pharmaceutical companies' control over logistics was likewise evident in our interview with Dr. Monson, a high-ranking pharmaceutical scientist. Dr. Monson tells us that larger pharmaceutical companies have "huge amounts of money" outside of the United States and, rather than "bring it back home and pay taxes," they prefer to "buy foreign companies." Selectively buying foreign companies "often has a better return than our own R&D [research and development]" because it allows pharmaceutical companies to "increasingly export the risk of product development to small-scale startup companies." In this sense, pharmaceutical companies buy start-ups when they appear to have a "sure thing," avoiding many costs while maximizing profits. Furthermore, unlike their own activities, large pharmaceutical companies want start-ups to be "tightly regulated by governments" to improve quality control and increase the chances that they are buying an effective product. While Dr. Monson discusses this dynamic as it unfolds between big pharma companies and smaller labs and companies, big pharma companies take similar actions in other areas. For instance, Tilray, a Canadian cannabis company, signed an agreement with Novartis to globally distribute their products where cannabis has been legalized (Sabaghi, 2021).

Pharmaceutical companies' ability to exploit start-ups is tied to their control over the "logistical infrastructure." As Dr. Monson explained, pharmaceutical companies are the "only ones" who can make medication "at scale" and "distribute it across the world." In this context, smaller start-up companies depend on such a partnership to get their product to market. Here, Dr. Matthews – the neurologist we detailed above – might profit from developing a novel pain medication, but his ability to realize these profits will be tied to pharmaceutical collaboration.

Guiding medical taxonomy

We argue the hegemony of pharmaceutical companies is demonstrated by their influence over medical taxonomy. As previous research suggests, this relationship is particularly transparent in the context of psychiatry (Horwitz, 2020; Pickersgill, 2019; Sweet & Decoteau, 2018; Whooley, 2019). For instance, a study found that 95% of individuals writing one edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) had at least one financial association with the pharmaceutical industry (Cosgrove et al., 2006). Likewise, our participants openly stated that the DSM – sometimes referred to as the bible of psychiatry – is shaped by pharmaceutical companies:

> Another pressure [on the DSM] is indirect pressure from the pharmaceutical industry that influences [the editors] decision to invent entities for which medi-

> cation can be used to treat. [Such as] absurdities like dysphoric menstrual disorder (Dr. Lirette).

Dr. Lirette refers to premenstrual dysphoric disorder (PMDD), which became an official disorder with the release of DSM-5 (American Psychiatric Association, 2013). The condition has also been connected to the interests of Eli Lilly, who extended the life of their Prozac patent by rebranding the medication as the PMDD medication Sarafem (Bell & Figert, 2012) *before* it became an official DSM disorder. In this case, taxonomy changes to match pharma practices.

In addition to the DSM, in 2013 the National Institutes of Mental Health unveiled the Research and Domain Criteria Initiative (or RDoC). Officially, RDoC provides a means for facilitating genetic and neurobiological research in psychiatry (Pickersgill, 2019; Whooley, 2014). Such data might be used to rewrite or replace the DSM. However, at a meeting of the American Psychiatric Association, numerous speakers suggested that RDoC advanced pharmaceutical interests. Drs. Insel[5] and Cuthbert, two RDoC leaders, stated that RDoC was appealing because, compared to the DSM, it was "superior from a drug hunter's perspective." That is, while pharmaceutical companies already exercise considerable influence over the DSM, psychiatric taxonomy is undergoing potential revision to further align with their interests.

In another talk, Dr. Bilder states that the "[pharmaceutical] industry does not want to be bound by the DSM" and that "the FDA is happy to do whatever academics want" in terms of taxonomy. As he argues, RDoC provides academics with an opportunity to create a new taxonomy that is more aligned with pharmaceutical companies' interests. Indicative of hegemony (e.g., Burawoy, 2012; Connell, 1995), rather than strict and forceful coercion, pharmaceutical companies exercise considerable influence but also require assent from other groups. The FDA cedes the decision to academics, while Drs. Insel and Bilder lobby their colleagues on behalf of "drug hunters." These dynamics emphasize the utility of our relational approach. Psychiatrists or the FDA are not simply pawns being manipulated by pharmaceutical companies, they can actively steer how medicalization does or does not unfold. In this relational framework, power is continuous, not categorical, and even if the rules of the game favor pharma companies, other players are still meaningful. The outcome of this particular initiative is yet to be determined, as psychiatry still uses the DSM, and NIMH still advocates for RDoC.

Pharmaceutical companies also influence taxonomy outside of the context of mental illness. In the mid-1990s, the American Pain Society (APS) advocated for pain to be considered the "fifth vital sign," requesting that doctors assess all of their patients for pain during every visit (Campbell, 1996). By increasing assessments for pain, physicians are also increasing the potential market for pain medications, as these assessments mean that any potential consumers of pain medications are less likely to go undetected by physicians. That same year, Purdue Pharmaceutical began aggressively marketing OxyContin as a pain medication that was less likely to result in substance dependency (Helmore, 2018). As we now know, Purdue generated

[5] Speakers at conferences are not given pseudonyms.

massive profits from OxyContin, which they and many professionals knew was extremely addictive (Meier, 2018). A 2018 US Senate report argues that APS were "cheerleaders" for pharmaceutical companies, advocating for changes to the conceptualization and measurement of pain that benefited these companies (McGreal, 2019). The report suggests that APS and similar organizations were "captured" by pharmaceutical companies, with APS receiving more than USD 1 million from Purdue and other companies. It is generous to say that capturing APS took a fraction of Purdue's resources, as the payment APS received is 0.008% of the ~ USD 12 Billion the Slacker family (owners of Purdue) alone made from OxyContin (Sandler, 2019). We suggest that the relationship between Purdue, APS, and the labelling of pain as the "fifth vital sign" further demonstrates how pharmaceutical companies can influence medical taxonomy to advance their interests.

Control over taxonomy also includes control over experience, identity, and access. That is, the actors or groups that control how a problem or issue is defined also control who does and who does not have a legitimate claim to a medical issue. Medical sociological research on gender and race has demonstrated that how problems are defined frequently marginalizes or invalidates the medical problems and issues faced by women and people of color (e.g., Bell, 1987). Similarly, critical work in disability and madness studies suggests that medical taxonomies can be used to dismiss someone's claims and experiences, or to silence and stigmatize (LeFrançois et al., 2013; Metzl, 2009). In all such cases, taxonomies can be leveraged to confer or deny medical resources. We argue that taxometric control is not just about control over definitions and medicalization but also evidences how medicalization links to other power relations and forms of inequality (Foucault, 2006).

Constraints and the interaction order

As we suggest above with dividends, such constraints also impact the interaction order of health care (Goffman, 1983; Turowetz, 2022), which pharmaceutical companies constrain even when they are not directly present. Specifically, the obligations that many actors encounter bind them to the interests of pharmaceutical companies.

As discussed above, although patients received honoraria or a sense of "giving back" from participating in research, they also encountered constraints. Many patients could only access some forms of care (e.g., novel drugs) if they agreed to participate in research. In other cases, patients are explicitly told they will receive "better care" if they join a research study, as they will be allowed to access the research resources of care facilities (e.g., neuroimaging devices, better availability for appointments, etc.). When asked about his practice of telling prospective patients that they would receive better care if they were part of his study, Dr. McCarthy, a psychiatrist, responds:

> It's tricky and also an ethical question. So, we have been very careful about that. We don't advertise that you'll get benefits from our research study. It's voluntary. But we do tell them that you will get a very fine grain assessment from the research protocol which we are unable to do clinically in a clinical setting.

This psychiatrist is studying people at risk of psychosis, and he informs potential participants that the only way he can "really" monitor their symptoms is if they enroll in his study. If they accept his "fine-grained assessment," he will be able to monitor and address their symptoms, while if they forgo participating in research, they might develop a condition like schizophrenia without warning and with decreased support. It would be quite easy to blame this psychiatrist for their seemingly predatory and unethical behavior. However, we suggest that his solicitation also reflects the realities of his context: his research program is genuinely better supported than clinical services and he is structurally prevented from letting patients who are not involved in research from accessing those resources. This was not the only such case in our data, where professionals had better quality research services that were literally physically adjacent to their clinical services. In this sense, his comment speaks to two streams of care – one that is well-resourced to advance pharma research and the other that is under-resourced and solely devoted to clinical care. Both patients and professionals can "choose" what system to engage with, but we assert that pharma companies constrain their actions and interactions, such that they tend to choose pharma and pharma can reap the benefits.

As with patients, professionals also report being obligated to participate in research. For some, social or occupational pressures kept them engaged in research, as professionals were subject to "publish or perish" constraints on their employment, as well as informal social pressure that stigmatizes those not producing research. More directly, many professionals state that their research activities heavily subsidized their clinical work, such that they would have difficulty providing the same standard of care if they did not have research funding. As one neurologist tells us:

> [Funding is] always a struggle and it's always going to be a struggle, I think. Unless funding mechanisms change. I think science currently is funded on excellence and you need to continually prove yourself. I think our clinic has been successful in continuing to keep going because we've continued to do good work. But it's a tough… It's tough. I mean there's just no security in this – either on the science side or on the clinic side. There will always be patients. But in order to keep up a top-rate clinical trial group, certainly from the research side, you've got to keep doing cutting-edge clinical trials. You have to continuously be involved. We fund to a certain degree… To be honest, we fund our whole clinic through our research… You know, we don't talk a lot about it but there are direct benefits to patient care that are provided because we have the research component.

Here, research is needed to maintain a clinic above a "bare bones operation," and ensure patients receive quality and cutting-edge care. As this neurologist and other participants noted, professionals can also be caught in a vicious cycle, continuously working to secure industry support to ensure they can maintain an adequate clinic. In this sense, some clinicians are like a medicalizing precariat since the insecurity of their resources ensures that they are continuously working towards the goals of pharma.

Many actors participate in medicalization. We establish that pharmaceutical companies are able to shape the choices and activities of other actors. Pharma companies

provide a logic, language, and organization of healthcare that is set up in their favor. This does not mean that other medicalizers lack agency or cannot resist pharmaceutical interests, but it does mean that, currently, pharmaceutical companies are largely able to write the rules of the game to reflect their interests.

Discussion

This paper provides a relational framework for understanding medicalization. Rather than only focusing on processes of expansion, a relational approach requires analysis of the multiple actors and groups that participate in medicalization, assessment of who benefits – and how much they benefit – from medicalization, the concordant and discordant interests of actors involved in medicalization, and how medicalizing relations are unequal, such that some actors exercise more constraint and receive more benefits than others. In our formulation, we see medicalization as a verb, an activity not produced by disembodied processes or engines but something that actors and groups accomplish. We argue that one actor or group occupies a hegemonic position in terms of medicalization, with pharmaceutical companies currently filling this position. We further argue that the hegemonic group will receive the most substantial dividends from medicalization, will receive "passive" medicalizing dividends from the actions of other medicalizing actors, and will influence institutions, taxonomies, regulations, and healthcare interactions. We suggest that our relational framework for medicalization provides new tools, perspectives, and concepts for understanding medicalization, demedicalization, and how medicalizing relations change over time.

Researchers forward many agents, engines, and drivers of medicalization (e.g., Abraham, 2010; Clarke et al., 2010; Conrad, 2005). In these treatments, various actors (e.g., physicians) or epistemologies (e.g., biotechnology) are positioned as driving the medicalization process. These arguments have merit, and we see our own framework as complementary. However, we do argue that medicalization is best understood as a set of relations between numerous groups and actors who have different interests, aims, and constraints and are unequal in terms of influence and authority. These relations are also temporally bound, as future political, economic, and social changes may alter each group's position and ability to exert influence in these relational matrices. Such a relational approach avoids committing to a particular engine or process. Instead, it views medicalization as a dynamic involving numerous actors, which also encourages examining power relations within medicalization.

Our argument that pharmaceutical companies are hegemonic is not to be confused with an assertion that pharmaceutical companies determine or dictate medicalization. As emphasized in our analysis, pharmaceutical companies are loosely coupled to the interaction order (Goffman, 1983) of clinical care, and their interests do not dictate or permeate all actions and decisions. Likewise, while pharmaceutical companies can influence medical taxonomy, we also emphasized how they had to appeal to physicians and researchers to shape taxonomy. Pharmaceutical companies can also face active resistance from other actors, as evidenced by the large fines levied against companies like Pfizer (US Justice Department, 2009) and the lawsuits

that led to the bankruptcy of Purdue Pharma, the makers of Oxycontin (Kruzel & Chung, 2023). In this case and in others, pharmaceutical companies can be subject to the authority of others, particularly those who wield power beyond the scope of medicalizing relations (e.g., governments). Nonetheless, the fact that a company like Pfizer can generate USD 50 Billion in revenue while receiving a historic fine of USD 2.3 Billion further demonstrates pharmaceutical hegemony.

Our framework emphasizes that medicalizing relations are fluid and dynamic. As with other conceptualizations of hegemony (Connell, 1995; Gramsci, 2011; Yang, 2020), hegemony today does not guarantee hegemony tomorrow. Indeed, one advantage of our approach is that it is well-positioned to explain changes in medicalization. For instance, many of Conrad's initial works (e.g., Conrad, 1975; Conrad & Schneider, 2010) argue that physicians dictate medicalization, labelling physicians like Benjamin Rush as the "father" of medicalization due to his expansive definition of insanity. As others assert (e.g., Clarke et al., 2010; Gabe et al., 2015), physicians no longer dominate medicalization. The professional authority of physicians has eroded over the last several decades (e.g., Clarke et al., 2010; Strong, 1979), and in many jurisdictions physicians now share prescribing power with other professionals (American Medical Association, 2017). Responding to critiques asserting that physicians did not dictate medicalization, Conrad (2005) claims that consumers, biotechnology, and managed care companies are now the "engines" that drive medicalization. However, as we suggest, changes in medicalization are just as important as who or what is seen to be "driving" medicalization. Here, the fall of physicians' relative influence is just as consequential as the rise of other medicalizers, which we suggest is best explained by employing a relational framework that attends to who benefits from medicalization and how actors can control medicalizing relations. From our framework, both physicians and pharmaceutical companies can "drive" medicalization, and what becomes consequential is not just that medicalization has new engines but how physicians – despite still serving as important gatekeepers in determining who does and does not receive a diagnosis and treatment – became beholden to another group.

In contrast to critiques that medicalization theories are post-hoc and deterministic (e.g., (Davis, 2006; Dingwall, 2006), we suggest that one of the advantages of our relational framework is that it is well-positioned to describe and explain such changes to medicalization relations. Our framework asserts that a group will be hegemonic in medicalizing relations, but it is not dependent on pharmaceutical companies occupying this role. Instead, hegemony is characterized by the group that receives the most substantial medicalizing dividend, and who is able to influence institutions and interactions for their benefit.

Some of the most compelling work on medicalization details how medicalization can buttress or exacerbate social inequalities (Barker, 2011; Bell, 1987; Fish, 2022; Hatch, 2019; Kempner, 2014; Smith, 2014). Yet, issues of inequality and disadvantage are often not made explicit within medicalization theories. For instance, although Conrad does examine how medicine can be tied to social control, particularly in relation to deviance, he does not discuss or mention "inequality" in many of his most influential works (e.g., Conrad 1992, 2005, 2007). We assert that process-based approaches can diminish the critical potential of medicalization work that

engages with inequality, as it is people, not processes, that accomplish and maintain such inequalities. Specifically, we argue that a relational approach to medicalization changes how we perceive and explain it. Conceptualizing medicalization as a process or as discrete "engines" obscures tensions, dynamics, and power relations within medicalization, as well as between medicine and other aspects of society. By seeing medicalization in relational terms, we can emphasize how different groups interact, impact, and influence one another, and how medicalization unfolds within unequal relations. Specifically, viewing medicalization as unequal power relations facilitates connecting medicalization to other forms of authority and control. Here, our health becomes one of many intercepts in a matrix of oppression (Collins, 1990), with medical hegemony intersecting with other forms of power. From such a vantage point, Eli Lilly's rebranding of Prozac (Bell & Figert, 2012) is simultaneously tied to medicalization and gender-based oppression. Likewise, BiDil's (Kahn, 2012) marketing of a medication "specifically for African Americans" (BiDil.com, 2018), as well as pharmaceutical companies testing of products on incarcerated people (Hatch, 2019), evidences intersections between medical power, scientific racism, and the carceral state.

As we suggest, seeing medicalization as relational highlights such relationships between health and other forms of social power, tying medicalization to inequality and inequality to medicalization. In these contexts, hegemony in relation to medicalization is likely to align with other forms of hegemony, as the groups and actors that have the authority to shape our health are coupled with groups that constrain and control other facets of our lives. Here, the medicalizing dividend might compound other dividends and/or advantages. For example, the medicalization of women's experience with social inequalities benefits patriarchy by dismissing gendered disadvantages, while also generating revenues for pharmaceutical companies by medicalizing such disadvantages. Hegemonic medicalization is nested in other forms of social relations and power, amplifying and intersecting with other forms of oppression.

Looking forward

We may not have to wait long to observe a change in medicalizing hegemony as big technology companies increasingly focus on health (Sharon, 2018; Thomason, 2021). Apple, Google, Amazon, and other companies already have popular health products and, as noted in many analyses, have considerable non-health personal information, including location, credit scores, and social networks (Cochoy et al., 2020; Waldman, 2021; Zuboff, 2019). Furthermore, journalists and Wall Street analysts speculate that Apple or Microsoft might amplify their focus on health by purchasing an electronic medical records company, such as Epic Systems, which has electronic medical records for more than 250 million patients (Adams, 2021). Big technology companies could vertically integrate many aspects of healthcare while marketing to diverse audiences, such as how Google currently markets FitBit to consumers, genomic analyses to researchers, and Care Studio™ to physicians (Google Health n.d.). Similar to pharmaceutical companies, big technology companies have

a global reach but are also considerably larger and more profitable than pharmaceutical companies. Apple, as of our writing, is worth approximately five times as much as Eli Lilly, the largest pharmaceutical company (Saul, 2024). Moreover, while PhRMA is one of the highest spending lobbies in America, its expenditures are now dwarfed by the combination of just two big tech companies (Amazon and Meta, see OpenSecrets, 2023). Big tech companies might soon supplant pharmaceutical companies as the hegemonic group in medicalization, and just as other medicalizers currently have their interests shaped by pharma companies, pharma companies might soon find themselves beholden to the interests of big technology companies. In contrast to process-based approaches, we suggest that our relational framework provides the conceptual tools necessary to explain and describe such a potential change in medicalizing relations.

In addition to competition for the hegemonic position, we also argue that pharmaceutical companies encounter resistance to their hegemony. For instance, India has passed laws that permit the manufacture of generic versions of patented pharmaceuticals (Ahmad, 2005). Even though royalties must be paid to pharmaceutical companies under this legislation, such measures challenge the extent to which pharmaceutical interests can influence health care and medicalization. Likewise, patient/consumer groups challenge pharmaceutical companies through social movements and class action lawsuits, physicians resist pharmaceutical companies by critiquing their influence (Castillo & Braslow 2021; Frances, 2014), or by emphasizing the utility of pharmaceutical medications while undermining pharmaceutical business practices (Farmer, 2001). Placing these examples in dialogue with the paragraph above, we suggest that our framework can highlight resistance to hegemony in terms of contestation for the hegemonic position (i.e., medicalization is not challenged, but the hegemonic position is contested), as well as efforts to challenge the medicalizing efforts of the hegemonic actor or diminish the return that they might receive from medicalization (i.e., medicalization and hegemony can both be challenged).

The limitations of our study also evidence the potential for future research on pharmaceutical hegemony, contestation, and resistance. We leverage several empirical datasets, but our data cannot speak to all instances of medicalization. There might be contexts wherein pharmaceutical companies are beholden to other medicalizers or provide, rather than extract, a medicalizing dividend for other actors. Such cases would help demonstrate the potential limitations of hegemony, further outline the relational dynamics of medicalization – particularly in terms of cases of resistance and contestation, indicate settings/contexts wherein medicalizing relations unfold with alternative power relations, or evidence how pharmaceutical hegemony might be diminishing while the hegemony of another group/actor is ascending. In such cases, consistent with our approach to hegemony, we assert that an actor/group will constrain other medicalizers and extract a dividend from their activities, even if this actor/group is not pharmaceutical companies.

In terms of how medicalization unfolds, we suggest that medicalization develops with exceptional rapidity when medicalizing actors are aligned. When medicalizing actors are not aligned, medicalization will unfold slowly, with controversy, and potentially stall or stagnate. In this sense, cases of partial, ongoing, or incomplete medicalization are likely to be exceptionally important for illustrating

the contestations of medicalizing relations. We suggest that demedicalization (Barker & Galardi, 2015; Halfmann, 2012) will occur when the medicalization of an issue or phenomenon is no longer in the interests of a group, particularly the hegemonic group, when the medicalizing dividend for an issue or phenomenon begins to decrease, or when a group outside the scope of medicalizing relations (e.g., the legal system), begins to challenge medicalizers for professional authority over an issue or phenomenon (Medina & McCranie, 2011; Showalter, 2019). In particular, a group can be hegemonic in relation to medicalization but subordinate in relation to other actors or groups that might be working to demedicalize an experience or issue.

Our relational approach can help describe the consequences of transgressing hegemonic authority. Physicians, researchers, and patients who dismiss, avoid, or critique pharmaceutical companies are likely to be discredited and stigmatized. Similarly, non-adherence to the logic and rules that guide pharmaceutical research may result in being removed from a clinical trial pipeline, resulting in the forfeiting of the medicalizing dividend. Following our theory, these power relations should be asymmetrical, such that physicians or patients must muster considerably more resources to discredit a pharma company than a pharma company requires to discredit physicians and/or patient groups. We suggest that explanations of illness that do not align with the interests of the hegemonic group, such as how research on the social determinants of health does little to advance pharmaceutical interests, are likely to be either marginalized or translated into medicalizing terms. By translating, we mean activities like medicalizing social determinants of health by providing medical solutions to social problems (e.g., mindfulness products to alleviate social stress). If a healthcare product, approach, or perspective develops that is contrary to the interests of the hegemonic group, we anticipate that numerous medicalizing actors – including the hegemonic group – would mobilize considerable resources to suppress, appropriate, discredit, or marginalize such a development. Such mobilization would be partly oriented to actors protecting their current medicalizing dividend. In this context, we also anticipate that cases of complete demedicalization would be rare, costly, and challenging to achieve.

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Declarations

Conflict of interest The authors declare they have no conflicts of interest.

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