A Matter of Getting Used to It?

Doing Medical Science with Race in a Race-Cautious Country

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Abstract *This study investigates the contentious role of racial classifications in medical research in Germany. In contemporary Germany, discussions about race are approached with caution, and the German word 'Rasse' is considered taboo when referring to human groups. At the same time, racial classifications continue to be used in the field of medical research, primarily due to their undiminished popularity in the United States, which gives them global circulation via English as a lingua franca of science. This contributes to their ongoing disciplinary compatibility. Consequently, race remains a tacit yet enduring scientific concept in medical research institutions in Germany. Where controversies do occur in the field, they mostly center on terminological issues and how to avoid them; rarely do they go further. This study ideal-typically distinguishes between three medical actors and how they deal with these difficulties. Confronted with racial classifications in research, medical-science novices (1) are compelled to reconcile their learned social conventions with the scientific standards in their field of research, leading to terminological vagueness and conceptual uncertainty. Established researchers (2), by contrast, differ in understanding race either as a global biological observation schema or as a local schema of group differentiation whose use and meaning is nationally bound, while crossover researchers (3) point to the social risks of science working with racial classifications.*

Introduction

Syringomyelia, sarcoidosis, shigellosis: various fields of medicine use specific criteria, technical terms, and classification systems to distinguish among ailments they consider relevant. Because of this high degree of specialization, many diseases and patient groups are familiar to only a handful of experts and remain largely unfamiliar to physicians in other fields. Such specialized forms of sorting contrast starkly with commonly made *human distinctions* such as gender, age, or descent. Not only do all medical disciplines work with the latter type of categories; they also circulate outside and independently of medicine and science. Ubiquitous everyday categories for distinguishing between different people are characterized by their use in a wide variety of situations and social worlds.

This is precisely what makes them categories at all, distinguishing them from both ad hoc and seemingly arbitrary distinctions, on the one hand, and from disambiguated, precisely defined classifications that are predominantly of interest to experts, on the other (Hirschauer 2023). This article will engage with a differentiation schema—that of Rasse/race—that has long been a tangled mixture of both: that is to say, of an everyday category and a scientific classification which, over a long period, sought to find, and claimed that, a precise and systematic scientific distinction could be made between races. The matter, however, is even more complicated in Germany, as this schema in fact includes a third thing: a taboo. As such, it is avoided by both scientists and society at large. This does not mean that it has entirely disappeared; it hiding under the surface, as something known, but prohibited. This paper explores how medical scientists in Germany navigate the triple meaning of Rasse/race—as a scientific classification, a common descriptor of personal characteristics, and a taboo.

Given the social significance of everyday categories for distinguishing between different people, one might think—or wish—that the medical sciences would first clarify the implications of their own use of these categories. However, unlike sociology (Bourdieu 2002, 484–87, 2018; Wacquant 2022), these disciplines show little interest in reflecting on such categories as part of social orders and considering how they themselves coproduce and reify such classifying schemas by adopting them as people or population descriptors. The medical disciplines show little sensitivity in understanding such categories as expressions of social power and the relations comprising it, in noticing associated stereotypes, or in recognizing the blind spots that these observational schemas entail. The object of medical observation is the *sick individual* (Luhmann 1990, Gibson/Boiko 2012), not so much the *sick population* (Rose 2001), and even less so an innately antagonistic society (Marchart 2018), with its semantic struggles and social conflicts over distribution, recognition, and identity. Questions of power only come into view in the medical sciences when they contribute to identifying the risk factors for a particular disease in people who fall into a certain category of persons. The social effectiveness of the category itself, however, is left out of the equation.[1]

And yet: if there is one human classification whose use in the life sciences is controversial due to its negative social and historical significance, and that has even been largely rejected in anthropology, human genetics, and other life sciences, then it is that of Rasse/race. Genetic transitions between races are described as so fluid, gradual, and seamless[2] that the vast majority of human geneticists today no longer understand races as distinct groups, as useful units of analysis. As one research group, writing in *Science*, summarized: "[R]acial classifications do not make sense in terms of genetics" (Yudell et

1 The different conceptualizations of race or the different ways of dealing with racial classifications in medicine and epidemiology cannot be discussed in detail here. For a comparison of the two bioscientific disciplines, the works of Andrea zur Nieden et al. (in this volume) and zur Nieden (2025) provide a good reference. These are devoted to epidemiological studies with German participation, which were investigated as part of the same meta-study that also formed the basis of this article.

2 Frank B. Livingstone (1962) succinctly summarized that there are no genetically distinct human groups, but only genetic trait differences in the formula: "There are no races, there are only clines."

al. 2016, 565).[3] Classifying human collectives in terms of race is considered historically outdated, as it lacks any genetic correlate.[4] However, although scientific evidence today speaks clearly on this matter and the theory of the existence of races has been refuted, social knowledge, popular belief, and even their scientific application does not automatically dissolve as a result.

Authorities and researchers have reacted differently to the lack of genetic evidence. While in most parts of the world racial classifications have been abandoned altogether, in others race has come to be understood as a category of social affiliation that can be personally meaningful and ascribed to oneself and others. Such an understanding of race as a social force rather than a biological fact means that the responsibility for the correct racial classification of a person is no longer left to the natural scientist, but is placed in the hands of those who are the subjects of research. Since race has become a subjective criterion, today only the category claimed by individuals is considered valid. Race is now—at least in the United States—a personal category self-reported by individuals. As such, patients in medical studies are now asked to state which race they consider themselves belonging to. This procedure takes into account the conviction that there are no objectively valid racial characteristics that can be observed from the outside and grasps race as a genuine feature of identity, as a social identity.

At first glance, this subjective self-ascription shields the concept of race against an essentialist, even naturalizing conceptualization. At the same time, however, it becomes a precise, distinct classification (If, for a moment, one disregards the possibility, claimed by a growing number of people, of classifying themselves as mixed race or as members of two or more races). Moreover, as this article will also show, this change in classificatory authority does not prevent the further course of research from pretending that these categories are biologically discrete units.[5] And finally, the patient is not always consulted during the classification process; often it is a medical actor who silently determines a patient's race by means of a visual diagnosis. It may therefore be noted that the procedure of self-reporting has not only shifted, but even exacerbated, the trouble with race. While the classification has now officially been completely subjectivized the dataset, once collected, offers little protection to individuals against being objectified and instrumentalized as a point of data taken to represent a fact in the natural world.

Racial thought remains efficacious, albeit in different variants: as a suppressed, yet latent belief; as tacit conviction; as an identity that is ascribed or/and adopted; as discursive strategy; as a self-reported category documented in official or scientific reports;

3 In the same breath, however, human genetics has switched to ancestry analyses. However, the extent to which these replicate racial classification or use and confirm ethnic typologies is disputed. On the one hand, genetic ancestry research works with admixture analyses, i.e., it no longer assumes that pure types are to be found. On the other hand, it can be assumed that the historical existence of the latter is implied when talking about admixture. Cf. the work by Ricardo Gomes Moreira in this volume.

4 Recently emphasized by four German zoologists and life scientists in the "Jena Declaration" (Fischer et al. 2019).

5 Some studies even control for whether the self-reported race was stated correctly by comparing it to genetic information from the respondent. This was the case in one of the studies (Schenk et al. 2020) from our sample (see below).

and, last but not least, as a false belief or myth that must be fought against. Sociology, therefore, has not completely rejected the concept of race. Many sociologists argue that races still exist as *social facts* (Durkheim 1982, 50–59) or social constructs. In Max Weber's definition (1972, 237), races are a special case of ethnic groups. As ethnic groups, they exist insofar as they are believed to be real; they are communities of descent in which people subjectively believe. This belief gains social reality not only when other people are categorized and described as members of foreign races, but also when individuals use this external identification to describe themselves. The socially effective reality of imagined races begins where the belief in them has real consequences in action (Thomas and Thomas 1928), i.e., when Ego considers their own race or that of Alter in their actions. This approach of social constructionism, as taken by sociologists, is therefore primarily concerned with understanding race as a "social invention," an imaginary taken by individuals and communities as a basis for action.

This sociological concept of race can be extended in many directions. Loïc Wacquant, for instance, emphasizes the *illusory nature of race* by distinguishing it from other established social classifications. While other social classifications, he argues, in addition to their symbolic reality, have "a self-standing material foundation independent of cognition: class (the mode of production), gender (the mode of reproduction), age (the unfolding of biological life), citizenship and nationhood (affiliation with a state)" (2022, 74), race remains a mere cognitive construct, in short: an ideology. Yet, racial constructions categorically deny their own fictionality by consistently asserting themselves as eternal, natural entities. This rejection of any historicity of their own makes races special ethnic groups. Furthermore, Robert Brubaker warns against an improvident *groupism*—"the tendency to treat ethnic groups, nations, and races as substantial entities to which interests and agency can be attributed" (2002, 164). All too often, sociologists are still subject to this tendency. Races, however, remain merely cognitive categories; even if one often thinks and speaks of races as racial groups, there are no such real groups "behind" these categories. Cognizant of this fact, Adam Hochman even goes one logical step further than Weber, Wacquant, and Brubaker by casting doubt on the assumption of the social existence of ethnic groups in general. At most, he argues, it is "*racialized groups*—groups misunderstood to be races—[that] are real" (Hochman 2021, 459).

"Today and in the future, not using the term race should be part of scientific decency."

Although sociology and human genetics share the same conviction—that there is no biological essence of race—these two disciplines take contradictory positions regarding the significance of races. Unlike human genetics, which can easily demand of its own discipline that "[t]oday and in the future, not using the term race should be part of scientific decency" (Fischer, 2019), sociology cannot treat races as scientifically insignificant—precisely because races are not socially insignificant. As long as racial classifications are an important and disputed part of social reality, sociology cannot comply with such a demand.

Both perspectives and approaches are scientifically justifiable; scientific misconception and societal efficacy are not mutually exclusive.[6] However, the lack of a genetic correlate does not mean that no biological differences can be statistically measured between the races. There are two main reasons for this. The first is methodological. Many medical studies commit a scaling error when they use racial classifications to statistically calculate genetic or phenotypic differences. A metric variable (human variance) is scaled nominally (race typology). If the scaling error is not recognized, significant differences can still be statistically claimed. Our study dealt with several research papers that demonstrate significant genetic differences between the races. These consider, for example, the shape of the skull, the eye, the skin, or the liver. All these studies forget that the sharp boundaries between the races are arbitrary. The second reason is not a methodological error but is due to the interaction of social inequality and health disparities. The social significance of everyday categories of personal identity is also expressed physically and therefore can be measured medically. The unequal distribution of resources, lifestyles, experiences of discrimination, and many other factors or conditions differ between people assigned to different everyday categories of personal identity and extend into the biology of the body; ultimately, this is also expressed in terms of health. This is undisputed; the only question is how much weight one sociodemographic category (e.g., socioeconomic status) has over another (e.g., ethnicity).[7]

How racial classifications are used does not only depend on the scientific conceptualization of race, but also on the very different ways in which these classifications are structured around the world. It is not just that different races are recognized in different countries and, correspondingly, that official classifications differ: Brazil, for example, identifies a race called *pardo,* loosely meaning brown or mixed race, the United States, on the other hand, does not have such a category, but allows people to be assigned to more than one race in surveys. Above all, however, in many parts of the world there are no racial classifications in use at all; in fact, the word race and racial classifications are socially ostracized in some countries (Morning and Maneri 2022). Many European nations, for instance, are regarded as or regard themselves as postracial, color-blind, or race-mute societies. Against the background of National Socialist atrocities during Germany's Third Reich, the idea of races existing is officially considered to be scientifically untenable, morally reprehensible, and politically dangerous. With this historical lesson in mind, race, or rather the respective translation, such as the German term Rasse, has become an "ugly word," a taboo, a term one doesn't say out loud, to explain the social world around oneself. International studies, should they resort to race to classify their

6 Strictly speaking, however, both positions overlook or deny the other. Sociologists must acknowledge that race is not only a political project, but has a biological dimension (M'charek 2023). A strict ontological self-limitation to "the social" obscures the view of the plural and overlapping modes of existence of race (e.g., Latour 2013, consider also Knorr-Cetina 1989). Geneticists, as well, take the easy way out, if they imagine that abandoning the genetic relevance of race also disposes of its social significance. Rather, they should ask themselves how much race is still contained in their concepts—for example (biogeographical) ancestry.

7 The significance of race as a social health factor is sometimes doubted, and class affiliation or socio-economic status is considered to be much more relevant. For the discussion in Germany, see Schenk 2016, 70–71. For more information on this topic, see the study by Krieger et al. 2005.

patients and subjects, are therefore faced with the fundamental challenge of having to deal with different taxonomies and acceptance levels depending on the social context.

This brief discussion has already made clear how fraught it might be to use of racial classifications in the life sciences. As Germany is considered a paradigmatic example of a *race-cautious* society[8], researchers working in Germany should be particularly affected by this issue. The German word for race, *Rasse*, is no longer viewed as a concept that can be legitimately applied to the categorization of people, whether socially or scientifically. The affirmative use of Rasse to describe groups of people has largely disappeared from everyday language, public usage[9], and life-science discourse (Lipphardt 2009; zur Nieden 2014; Mulinari and Bredström 2024a; DeZIM 2023, 193). Unlike in the United States, there are no regulations in Germany stipulating a distinction between races or ethnic groups in scientific studies. Nevertheless, our research group was able to identify racial terminology and racial assignments of patients or subjects in a series of medical science studies conducted in collaboration with German research institutions (Bartram et al. 2023).

This paper examines these medical studies from the perspective of the sociology of science. We begin with three questions: *Why do medical scientists in Germany conduct research with race? How do they deal with racial classifications? And what conflicts do they encounter in the research process?* We are particularly interested in the reasons researchers have, contrary to Germany's postracial self-image, for continuing to use racial classifications, and how they manage the balancing act between societal demands and the explicit use of racial categories in their research. How do they reconcile the medical-scientific meaning of race with the race-skeptical social context? Will the two usages remain, as Mulinari and Bredström (2024b, 327) with Annemarie Mol (2007) assume, "two divergent enactments of race" circulating and being cultivated separately in their own social spaces? As a scientific insistence on race existing next to a lived taboo? Or do medical scientists who are required to process both ways of meaning themselves harbor reservations? Have they observed tensions and conflicts? Is it even possible to recognize the contours of an arena in which members of this and other social worlds are struggling over the correct meaning and use of race?

8 In their recent study, Morning and Maneri (2022, 39) distinguish between race-conscious— "or 'realist' to its proponents" —and race-skeptical— "or perhaps 'cautious' to its adherents"—positions. I extend this distinction to differentiate between societies that officially use racial classifications and those which are "race-mute" (Jugert et al. 2022) and regard themselves as color-blind or postracial. Since, as we will see, a strong linguistic taboo has been established around the term *Rasse* (Chin 2017), Germany is an extreme case of a race-cautious society—at least on the level of discourse.

9 When the word *Rasse* is used, it is mainly found in historiographic studies or in connection with the question of whether the word *Rasse* should be removed from legal texts. The latter also shows that there are calls to remove the word from public use. Beyond this, it is completely unproblematic to talk about "Pferderassen" (horse breeds) and "Hundrassen" (dog breeds) and, in this context, about "reine Rassen" (pure breeds) and gemischte Rassen (mixed-breeds). The linguistic distinction between breeds and races, as it is made in English, is rather unfamiliar in the German context (Heintz 2024).

Method

At the heart of this paper are 17 interviews with scientists who were affiliated with German research institutions at the time of publication of a medical article that used a racial classification. These articles, published between 2019 and 2021, were identified within a metastudy that screened 546 research papers from all life science disciplines for the human classifications they apply (Bartram et al. 2023). For the present study, we selected only these 53 articles that used the terms "race" or "racial" in their study design and whose first or last author is affiliated in Germany to a medical department (this was our criterion for a medical paper).

The 53 studies included correspond to a complete survey of the three selected publication years for the aforementioned criteria.[10] We can assume that, for the period chosen, we have found almost all published medical studies in which researchers at German institutions worked using concepts of race. All of these studies were written in English and, thus, used the English term "race." No article applied the German term *Rasse*. Only four of these studies were conducted and coauthored by researchers who were all exclusively affiliated with German research institutions; all other articles were written by international teams.

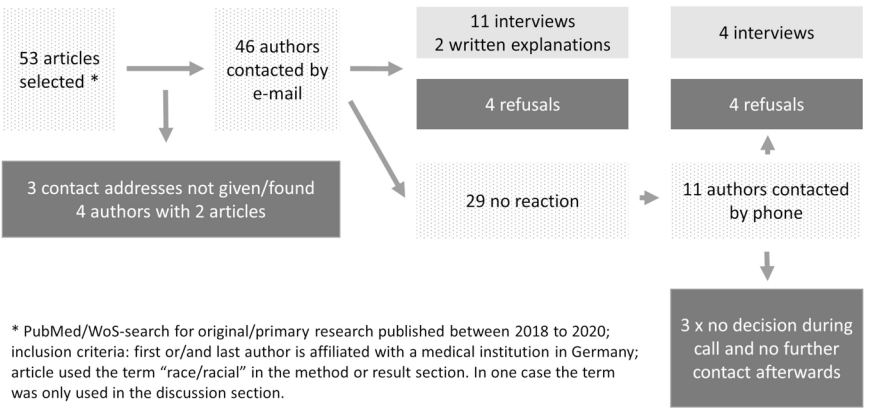
Table 1: Illustrative examples of classifications and categories used in the studies examined

Publication	Data source	System of racial classification	Race descriptors used in the study
Ankerst et al. 2018	primary data	N/A	Black or African American, Other, Unknown
Hardtke et al. 2018	primary data	Brazil census	White, Black, Brown
Hofmann et al. 2018	Osteoarthritis Initiative (OAI)	United States Office of Management and Budget (OMB) (assumed)	Caucasian, Other Non-white, African American
Kromrey et al. 2018	Study of Health in Pomerania (SHIP) + primary data	N/A	Caucasian
Suda et al. 2021	primary data	N/A	Caucasian, Asian
Trong et al. 2018	Human Connectome Project	OMB (assumed)	Asian, African American, Caucasian
Uhlig et al. 2020	US National Cancer Database (NCDB)	OMB	White, African American, Others

10 A list of these 53 articles is available on request.

Statistical analyses of this corpus provided a first impression of the scope of racial classification (tab. 1) and the factors contributing to its usage. However, they do not tell us much about the social context, the discussions within the research teams, and the motives that guided their decisions. For this, we subjected the medical articles to qualitative analyses of and conducted interviews and conversations with 17 authors (see figure 1 for our recruiting strategy). For the following analyses, it is of utmost importance to bear in mind that all the results we derived from the empirical data concern articles and researchers who have worked with racial classifications in recent studies. Thus, we cannot say anything about, for instance, scientists who decided against or never thought about working with race at all.

Figure 1: Participant recruitment strategy



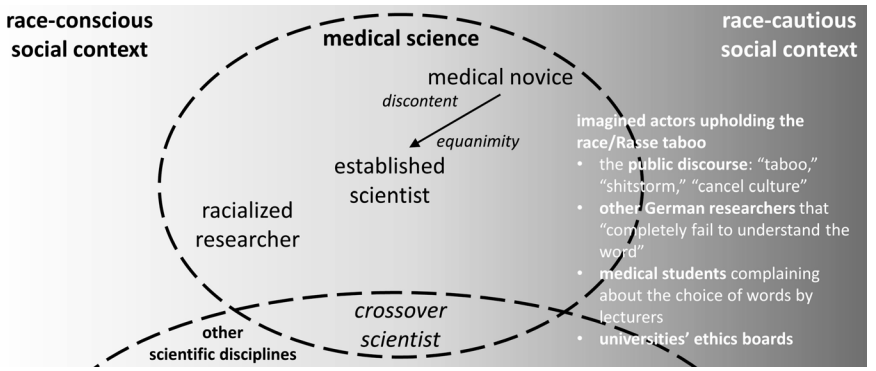
The analysis was carried out using grounded theory and took a highly inductive approach to the formation of codes and concepts. Relations among codes worked out were initially traced using Juliet Corbin's and Anselm Strauss's coding paradigm (1990, 96). The core phenomenon in our study was "approaching the delicate category *Rasse*/race in medical research," to which other codes were placed in relation as causal conditions (e.g., motives, aims); contextual conditions (e.g., social context: race-cautious society); intervening conditions (e.g., field role, social world position); strategies (e.g., word substitution, justification, voice); and consequences (e.g., affirmation, accustoming, conflicts, concerns). In developing our theoretical framework, we constructed four ideal types (Kelle/Kluge 2010). Each ideal type is tightly linked to the role of the interviewee in the scientific field. We therefore distinguish the (1) the *medical novice* from (2) the *established medical scientist* and (3) the interdisciplinary *crossover scientist*. A fourth type is a special case that is largely independent of its role in the scientific field. Due to its significance for our study, it is presented as a further type: (4) the *racialized researcher*. Each ideal type is distinguished by a specific configuration of the five coded dimensions. These are: (I) scientific role, motives and research agency; (II) approach to the Rasse/race distinction; (III) self-positioning towards/in the racial classification (figure 3); (IV) conceptualization of race; (V) science–society relationship.

For further systematization and theory building, we mapped these four types and other actors mentioned by the interviewees within the social worlds and social contexts involved (figure 2). This method is based on Adele Clarke's arena mapping (Clarke, Friese, and Washburn 2018). Arenas are shared discourse spaces in which "various issues are debated, negotiated, fought out, forced and manipulated" (Strauss 1978, 124). Social arenas are not only the locus of small, isolated quarrels. The controversies found within them reflect divergent interests, political positions, and various perspectives with which specific groups, organizations, or entire social worlds who are mobilized on behalf of specific causes generally identify (Clarke 1990). In this respect, arenas are never quiet places, but always places of voice (Star and Strauss 1999). The concept of the noisy arena thus stands in a certain contradiction to the assumed race-muteness of German society.[11] At the end of the article, we address the question of the extent to which the field we examined is actually part of an arena.

Finally, it is important to point out a methodological-theoretical reflection that arose in the course of arena mapping. It concerns the uncertain status of social contexts. For the sake of simplicity, social contexts could be understood as separate social worlds. Similarities between worlds and contexts certainly exist; however, contexts are far more difficult to distinguish from other contexts, as well as from social worlds: Where does a national or sociocultural context begin and where does it end? Where does the postracial self-conception that many European countries are said to have border on other, on different self-conceptions? For Strauss (1978, 122), every social world is characterized by a "primary activity" that is performed in specific locations, often set up precisely for this activity, and with the help of dedicated technologies. The research work of medical scientists, for example, takes place predominantly in laboratories and university clinics, where they have access to specialized instruments they need for their specific fields of medicine. In close reference to this notion of social worlds, but with a stronger emphasis on the formation of latent "naturalizations," Bowker and Star (1999, 294) speak of social worlds as "communities of practice." Both Strauss's, and Bowker's and Star's, focus on a primary activity precludes the conceptualization of national, Western European, or other cultural contexts as social worlds. Nor do we find it helpful to think of contexts as social worlds. Rather, we argue that social worlds do not, as social world/arena maps graphically suggest, exist in a vacuum, but are embedded in (multiple) social contexts that vary according to time and place. Due to their lack of expertise and technical specialization, social contexts are less than social worlds. But at the same time, they are more than them, because they are more heterogeneous and boundless than the latter. Though the boundaries of social worlds are not carved in stone and are drawn and fostered by their members (Gieryn 1983), they prove to be much sharper than those of a cultural area.

11 Similarly, the public debate over the value and meaning of the term *Rasse* in German law, which has been going on for several years, refers to both the arena and the taboo. Some are calling for the word Rasse to be removed from legal texts. It is used there to formulate a general protection against racial discrimination. The main argument here is that the very mention of the term grants it a reality that it does not possess. The public controversy therefore also reveals a strategic expansion of the conceptual taboo.

Figure 2: Social world map from the perspective of scientists having worked with race in their medical research



How Novices, Established Researchers, and Crossover Scientists Approach Racial Classifications

The results presented below are divided into three sections, each of which focuses on one of the identified types and the way they typically deal with racial classifications. In the first two sections, the (3.1) *discontent of medical novices* with race is contrasted with the (3.2) *equanimity of established medical scientists*. Of the 17 authors we interviewed, 6 have been working in research for more than 10 years. They are senior physicians or professors of medicine aged between 42 and 65 who, as *physician-scientists*, occupy the intersection of medicine and science. They represent the medical researcher establishment, not only because of their extensive research experience and their leading position in the field, but also because racial classifications represent a heuristic for them with which they work largely naturally and matter-of-factly.

According to Howard Becker (1966), the establishment can also be described as *entrepreneurs*, as they are particularly committed to their world, are actively engaged in it, and group themselves around its center. In this position, they in turn mobilize those around them (Clarke 2012, 86), including doctoral students and interns/resident doctors. The latter constitute a second group of interviewees who represent the medical novitiate. As novices, the interviewees are dependent on the established researchers, as the latter guide them, support them throughout their careers, promote them, evaluate them, hire them, etc. Four of the interviewees largely correspond to the type of medical novice. On the one hand, they are characterized by their early to mid-career phase at the time of publication (doctorate completed, postdoctoral (*Habilitation*) degree not yet taken or not considered). For some of them, the time spent in an academic institution remains a brief stopover on the way to becoming practicing physicians. This career phase corresponds to the comparatively young age of the novices at the time of their interviews (≤ 37 years). Central to our study is the novice's characteristic discontent with race. Compared to the established scientist, the medical novice has not become habituated to the customs of medical science, at least as far as the matter-of-fact handling of race is concerned. Unlike

in the case of the established scientists, racial classifications are not proven or familiar instruments for the novice. So far, they have mainly known race and Rasse as discredited and dangerous terms.

While ten interviewees could be considered to largely represent one of these two types, two of the medical scientists interviewed cannot be clearly categorized. One is discussed in subsection (3.1.2) *Loyalty and Voice*, the other in (3.2.2) *Race in the Lab: Research and Identity*. These sections show how different the relationship between scientist and racial classification can be in terms of self-positioning, motive, and aim of research. The final section of the main part (3.3) *Crossover Scientists: Science and Society describes a third type of scientist.* Crossover researchers work in scientific disciplines outside medical science and have no basic medical training. However, they conduct research as part of medical-science teams and sometimes contribute views on race and racial classifications from their own fields. The way they approach race emphasizes the social responsibility of science.

The Novices' Discontent with Race

The interviews clearly show how differently racial classifications are dealt with, depending on whether the interviewees are medical novices or established medical researchers. For many young interviewees, the work that brought them to our attention was conducted as part of their doctoral studies or shortly afterwards. During this phase of academic socialization, they often conducted research abroad, belonged to an international project group, or had access to US medical databases. It was in this context that they came into contact with racial classification for the first time. In the interviews, they look back on this situation and describe how the initial contact caused them discomfort and irritation. Dr. Robin (a 35-year-old junior physician[12], para. 86) said, "the term *race*[13] also initially struck me as negative. And I had to work on understanding it first." In some cases, the discomfort persists to this day: "As I said, I always feel uncomfortable using the word *race* because it is so closely related to the German *Rasse*[12] in terms of terminology. I find that extremely difficult, especially for me as a German" (Dr. Müller, physician, 35, para. 22). At the end of the acquisition phase, race did not become a natural concept of medical science for every novice. Some interviewees stated that they still had difficulties with it at the time of the interview.

The initial irritation derives from the proximity of the word "race" to the German *Rasse*. For the novice, both words are "closely related"; one term triggers associations with the other. In particular, race is associated "with our National Socialist past" (Dr. Müller physician, 35, para. 82). Moreover, race is not only a "classification, but also a hierarchy" (ibid, para. 36) of groups of people. It asserts a natural order that is given among people. It is this "incredibly negative connotation" (ibid., pos. 36) of *Rasse* that is invoked by the term race and is perceived as unpleasant. Morning and Maneri (2022, 85–101) found almost identical associations in their study of Italian students; their American interviewees did not have these.

12 To increase anonymity, the ages of interviewees are all rounded to the next multiple of five.

13 Note: Whenever the word race or *Rasse a*ppears in the interviews, it is left untranslated.

Many interviewees find it audibly difficult to pronounce Rasse, especially when it is expressed for the first time in the interview, which was always left for the interviewee to do. In addition to short breaks, aposiopesis, and filler sounds, apologetic interjections also herald the term and at the same time defuse its use by performatively bracketing the breach of language taboo:

> "um, uh (.) yeah, you aren't allowed to, you—I believe—don't say *Rasse* anymore, right?" (Dr. Juli, 40, para. 10)
> "um, how, how d-. What do you call it now? There's no longer a term for *Rasse*, something, like, I don't even know the PC [= politically correct] term." (Prof. Kreh, 55, para. 43)"in the literature, that, yes, race, you don't really want to say *Rasse* as a German" (Dr. Müller, 35, para. 10)

The concept of cognitive dissonance can be used to explain the exact grounds of this discontent. Cognitive dissonance describes an inner discomfort that is caused by two conflicting elements of knowledge in an individual (Harmon-Jones and Mills 2019). Therefore, it is about more than just a bad feeling associated with a certain term. The negative connotation of Rasse that the use of "race" evokes only explains half of the novices' discontent. The other half is due to the liberal use of race by other researchers or in medical databases. As "race" is treated as a self-evident and, at first glance, unproblematic scientific classification in international research groups and databases, it stands alongside other terms such as "age," "class," or "sex" on an equal footing. In the interviews, however, its use in non-German contexts does not provoke disgust or rejection; it is not interpreted as a breach of a taboo. Rather, the novices are troubled by the contradiction they experience between their own feelings and their absence in others: "I just realized that the use of the word is totally normal, including to stratify the analyses. I didn't have the feeling that it was a controversial topic there [in the United States], at least in the study group. That would be the case here for sure. Here in Germany, it would already start with just collecting data on *Rasse*." (Dr. Müller, physician, 35, para. 50)

For cognitive dissonance to occur, a further step is eventually required, with which the mere observation of different usage patterns acquires meaning for one's own behavior. Only when internalized beliefs come into conflict with new, alternative action guidelines does this ultimately arouse cognitive dissonance (Harmon-Jones and Mills 2019, 13). Now one not only *knows* that one's own values and feelings are in conflict with a different, foreign standard of behavior, but one is also forced to *choose* between these two—and what's more, to use terms and concepts that one's own behavioral repertoire did not previously include or permit. In this situation, a tension arises between two incompatible behavioral expectations. This is where the theory of cognitive dissonance can be applied, asking how the resulting psychological tension can be reduced. How can a consistent self-image be kept in view of the inconsistency between (old) attitude and (new) behavior?

Workaround Strategies

So, how do novices deal with the demands placed on them? The answer can primarily be found in the publications of the researchers we interviewed. Scientific publications contain and document a large number of decisions. These can no longer be reversed by

the authors, but they can be explained, defended, or critically appraised—for instance, in the interviews we held with the authors. One younger author we approached declined to be interviewed, referring to her own lack of expertise on this issue.

A common solution to deal with the conflicting requirements is to switch from the term "race" to "ethnicity." When asked about this modification, which was not consistently implemented in the publication, one interviewee described the internal conflict behind it and the way it was dealt with in the publication, which in retrospect she disqualified as inconsistent:

> Well, I changed to ethnicity, yes. I think at some point…, I thought that this thing about race was a bit too…, but this is inconsistent, of course, so I have to…, I wouldn't do that anymore; so, if the database says to call it Black and White, then of course you should just call it Black and White, because then you're basically the least vulnerable, because it's no longer your own formulation, right? (Dr. Juli, physician, 40, para. 48)

The cognitive dissonance is expressed in the search for expression, and even more clearly in the rapidly changing weighing up of arguments (yes, but, I have to, I would now). The novice is struggling with her terminological deviation and sees it as a scientifically inconsistent view of the usage in the database. Even if she does not express it directly, the motives of her action are nonetheless clear: "this thing about race" ("*das mit dem Race*") was "a bit too…" In doing so, the interviewee distances herself from the term by means of singularization ("this") and objectification ("thing"). Secondly, by using the adverbial "a bit too…" she shows that "race" in some way falls short of or oversteps the bounds of appropriateness or acceptability, with a more precise adjectival determination in this case left hanging. Either way, there is something excessive about "race." In her eyes, "ethnicity" would be the measured, socially palatable alternative.

She pays for the decision she made to refrain from using the term race, which was correct in terms of her own value system, by making herself scientifically vulnerable. At the end of a series of aborted sentences, she, a novice, arrives at the view that retaining the given term race is the less risky communication strategy, because that way the choice of word cannot be attributed to her. In the subsequent paragraphs, however, the interviewee defends her use of race independently of this. Throughout the interview, she weighs different terms against each other, first stressing "the difficulty of talking about *race* in German" (Dr. Juli, para. 34), but then commenting rather dismissively that "ethnicity" is just "a pretty word." Finally, she returns to the use of the term "race" and its German translation as *Rasse*: "Well, it doesn't help much to avoid saying things. Um, yeah, maybe it's more um…, yeah more… I … I mean I have a real problem with it. It's really hard." (Dr. Juli, 40, para. 38).

Later we will see that established medical scientists separate the scientific use of racial classifications more sharply from its moral-political dimension. In the case of Dr. Juli, these two meanings have not (yet) been divorced from each other, and there is no clear dividing line. This may have led to the publication occasionally switching from the touchy term race to the less controversial term ethnicity, or at least this is what the explanations in the quoted excerpt suggest. In retrospect, she criticizes her own usage as inconsistent from a scientific point of view. But even if the switching is not without

contradiction, it can be understood as an early attempt to deal with the inner conflict. At first glance, this maneuvering may not appear to be a viable long-term solution. But similar to ignoring, suppressing, and then forgetting the experienced inner conflict, it offers a workaround for cognitive dissonance (Festinger 1957).

When race has become completely replaced by other terms, the terminological workaround can certainly be said to have become a strategy of purification. Frank Reeves (1983) speaks of "sanitary coding." It can be assumed that some publications simply replaced the term "race" with the alternative designation "ethnic group." In these cases, the reader might not notice the change has been made (and consequently these publications were successfully hidden from our search strategy and could not be examined for this study.) Other interviewees reported that they translated race as ethnicity when required to for German abstracts, or completely dispensed with generic terms such as ethnicity, race, or *Rasse* and only mentioned the categories of classification. The latter represents a third strategy of terminological displacement, which still speaks of Whites, Asians, Caucasians, or other typical categories for race, but no longer identifies the classificatory system.

Loyalty and Voice

None of the young scholars officially expressed their uneasiness in their research team or discussed it with their professors. However, the topic was not raised by other research group members either. The novices often saw themselves as learners, they joined established research groups as newcomers or saw their doctoral topics as "commissioned work" given to them by the principal investigator (physician, 35, para. 48). In Hirschman's words (1970), they remained *loyal*. In no case was it the novice themselves who decided to use the racial classification in the study. Consequently, their research agency may be characterized as weak: "So the topic was given by the boss: 'We want to do a paper on race. And then we did it. So, there wasn't actually much discussion (laughs)" (ibid., para. 20).

Between the ideal-typical medical novice and the established researcher, there are individual actors in our sample who cannot be clearly assigned to one side or the other. They demonstrate various transitional phenomena between the two statuses. This includes the only case in which a German physician, Dr. Muske, explicitly questioned the use of race within the research group. It demonstrates that the likelihood of an individual protesting is closely linked to their academic position. As the study coordinator, Dr. Muske is not only in a position to do so, but she is explicitly expected to choose the voice option (Hirschman 1970) and critically contribute her moral and epistemological irritation:

> I had several conversations on the phone in which I said I didn't understand what is behind these [racial] classifications or distinctions in [country]. And then [the international research colleague] said it would be quite normal in [her country], it would be like that. […] That would be generally valid. And then we said, well, it's her population, she is familiar with it, and she introduced these descriptions. And then we sort of bowed to that and said, if she assures us that this is the case, then we'll do it. In Germany, it would always be a bit more problematic to use the word *race*. (Dr. Muske, 50, para. 14)

Unlike the novice, who remains loyal, the scientist is able to resolve her cognitive dissonance by delegating her professional authority. She fulfilled her responsibility by expressing her misgivings and ensuring that the classification was accepted in the country where the data was collected. In the end, even the explicitly voiced discontent does not lead to an intervention in the research design.

Race as a Diffuse Concept

In the course of their work, many of the young researchers have learned that race is a variable that can render statistically significant differences in the outcome of a study visible (whether this relates to incidence, severity, the course of a disease, a treatment decision, etc.). However, this does not yet clarify what these differences are due to and why differentiation by race shows differences. When we asked these researchers about this, the meaning of race remained open and diffuse. On the one hand, as one novice emphasizes, race is bound to correlate "through a more or less systematic disadvantage in the US with low income, with poorer insurance and thus presumably also with a poorer […] outcome." Race is thus used as a proxy to capture exposure to "systemic racism" (Lett et al. 2022), which is expressed in the form of adverse results on several levels. On the other hand, according to the same interviewee, "race simply also has direct genetic effects" (Dr. Müller, physician, 35, para. 24 and 48) and is therefore also used as a proxy for genetic differences (Root 2003). The different medical outcomes of different racial groups can be read as the result of cultural habits or social structures, but there is also the possibility that they reflect genetic differences. After outlining a similar list, in which she cites first the "genetic component" and second the "poorer insurance status, lower income, lower education," a young physician concludes: "So, it's a bit diffusely multifactorial as to why this variable [= race] is important. But I think these two reasons are among the most important (Ms. Robin physician, 35, para. 30)." In these studies, race is being transformed from an *explanans* into an *explanandum*. It is underdetermined and contains everything all at once. In this sense it comes very close to the broad concept of "population" (Reardon 2009, 34–36). Any attempt to answer the question of the nature of the differences that racial classification has made apparent becomes, in the same breath, a statement about the nature of race.

Beyond the significance of the classification for medical science, novices also point to the public significance of race in other social contexts—particularly, but not only, in the United States—in order to explain why studies from or about these countries should examine race effects. It is argued that these countries are "melting pots", i.e., societies with highly diverse populations. Germany, by contrast, is still seen as much more homogeneous. Moreover, some interviewees themselves distinguish between postracial and race-conscious societies: while "in Germany we simply don't have this history of dividing people up by race in this way; in America it is very, very much on people's minds" (Dr. Kurz, 35, para. 28). In principle, the concept is handled "more freely, more liberally in the US than here" (Dr. Berry, 40, para. 48). During research stays in the United States, one learns "that race can be used in a completely value-free way in some settings" (Dr. Robin, 33, para. 86). At these points in the interviews, the social context identified often blurs with the significance of the classification for the medical sciences. The distinction be-

tween meaning and use of the classification in society and in medical science is rarely rigorously maintained.

Several novices observed that medical science journals sometimes request or require their authors to record the race and/or ethnicity of their study subjects, with the aim of ensuring that studies are representative of the general population. This is, in other words, an *egalitarian* measure that seeks to ensure equal consideration and treatment by including a range of social groups, thus being able to take into account their (health-related) *differences* (Epstein 2010). In addition to the scientific interest in racial discrepancies, there is also a sense in which considering racial perspectives in a piece of work can raise its profile: "Additionally, it must also be said that it is important to the journals. So, of course we include it because we think it makes scientific sense, but, to put it bluntly, including it also sells well. I don't want to say that it's en vogue, but it's simply something that is incredibly important in the United States in particular" (Dr. Müller, 35, para. 24).

3.2 Scientific Equanimity or A Matter of Getting Used to It? Racial Classifications as a Region-Specific or Global Observation Schema

A difference in perspective is evident between medical novices and medical researchers with experience of race, first and foremost with regard to the position that German ethics committees are assumed to take in this matter. Novices tend to assume that ethics committees adopt and institutionally represent German skepticism towards race in their statements. One young physician interviewed at the beginning of our study expressed the opinion that a German "ethics committee would never let us collect a database that contains such blatant *Rassenklassifikationen* [racial classifications]" of the kind that are standard for US databases (Dr. Schmitt, physician, 35, para. 28). We ran with this suggestion and asked all subsequent interviewees for their views. Opinions differed greatly: while novices were willing to take the idea seriously and to weigh up the pros and cons, race-experienced researchers stated they found the very idea that ethics committees could reject a research project merely because it proposed to gather data on race "odd" (Prof. Karstens, 65, para. 62) and unlikely. The very possibility of such a decision, as raised by the question, was so irritating in some cases that concern was expressed that "the discussion in Germany is in danger of taking a major turn for the worse" (ibid., para. 60). Having used racial classifications in their studies for decades, established researchers emphasized that the collection of such data had never been criticized in the past. They would not expect this as long as the study and survey were reasonably justified and the German term *Rasse* was not used.

These contrasting views on the opinions of ethics committees regarding race make clear that in the transition from novice to race-experienced medical scientist a different, more tolerant view of racial classification emerges. Many established medical researchers who have been working with racial classifications for a long time routinely distinguish between race and Rasse by placing the former in the service of science and emphasizing the political dimension of the latter. One professor (Prof. Hausinger, 60, para. 42), for instance, emphasizes when asked about the meaning of the term *Rasse*:

> The question is, do you mean the term or do you mean the subject? As far as the term goes, we don't ask about *Rasse* in German, but about ethnic background or ethnicity. This is partly for political reasons, if you like. But we have to grasp the subject as such. In medicine, regardless of the subject area, we have to know for the reasons already mentioned whether someone has a sub-Saharan African genetic background, ethnic background, or a Native American background or, if you prefer, Indigenous and so on. That is a basic requirement for certain frequencies of diseases, side effects of diseases, comorbidity and so on. That is so essential that there is no discussion about it at all in medical research. These are recorded and named.

The clear distinction between term and topic takes into account the demands of both sides, namely, the German public and medical science. As a representative and spokesperson of his social world ("we"), the established researcher explains and represents the rules and principles that apply within it. For him, *Rasse* refers objectively to differences associated with descent or lineage whose relevance for and in medicine is undisputed; it would, he believes, be downright negligent not to pursue this topic scientifically. At the same time, for him *Rasse* cannot be used due to its politicization. Nevertheless, he argues, this is the only influence that society is allowed to exert on medical science here—only the choice of words is affected, not the scientific approach. The concealment strategies he mentions here are, then, similar to those described above. In German texts, he claims, one does not speak of *Rassen*, but of *Ethnien*; in English articles, however, the term "race" can be and is still used to designate the classification.

This internalized distinction shifts the locus of the dissonance from the conscience to the social realm. A physician who spent several years conducting research abroad describes how this reversed the difficulty she faced. While the use of racial classification was alien to her at first, she notes, and getting used to it presented a personal challenge, the same was now also true of the race-skepticism prevalent in Germany that she encountered after returning:

> I've realized that my time in the US has made me much more accustomed to recording race. It has become a matter of course. But in German, it's often difficult to find the right terminology. I once gave a lecture to students. It was about [medical topic]. And I said that *Schwarze* [Blacks] are more affected and that this is certainly also due to the fact that they come more frequently from socially deprived groups and that, for example, allergens and the like play a greater role in the household, but that there are probably also genetic factors. I explained this accordingly. And then I received an email from students […]. They felt it was racist that I mentioned a group that is more affected. So, there seems to be a completely different sensitivity here. And you have to be very careful what terms you use. There is no conventional concept. (Dr. Bosch, physician, 45, para. 49)

Dr. Bosch had moved beyond her initial discomfort. Conversely, however, her new self-conception, her new way of working, now clashes with the speech rules that apply in Germany, which her students are sensitive about transgressing. Similarly, another senior physician describes how she was "once really taken to task by a student during a lecture

because I had apparently and unconsciously not expressed myself correctly. That was extremely upsetting" (Dr. Schmitt, physician, 60, para. 47).

Both doctors are examples of established medical researchers who have been working with racial classifications for a long time—be it, as in the first case, because they conducted research in the United States for an extended period, or, as in the second case, because it has long been common practice in their medical field to classify phenotypic characteristics on the basis of race. For them, race and racial categories are no longer burdened by the semantic weight of the word *race*. In the interviews, medical researchers cognizant of race as a factor in their work have a medical-scientific concept of race and distinguish it from *Rasse*, which they consider to be a politically inacceptable and publicly unusable term. Younger physicians also quickly learn to distinguish between these two contexts of meaning, even though they still have vivid memories of their own discontent with race. Hence, they distinguish race from *Rasse*. At the same time, they are beginning to realize that the use of *race* is not welcomed in Germany, as the scientific value of the classification has not been disentangled from the negative political associations of *Rasse* here: "There are people who completely fail to understand this term [= race], because they are not involved in the scientific discussion that takes place in the United States or generally outside of Europe. They find that [= the term race] hard to swallow at a congress" (Dr. Robin, 35, pos. 48). Medical scientists do not necessarily learn to deal with racial classifications with equanimity during their own careers; this is acquired through research with racial classifications.

Race: A Global Human Classificatory Schema or a Regional Peculiarity?

Although researchers who have gained experience in working with the concept of race make a very sharp distinction between the political sphere and scientific applications, this commonality does not lead to a uniform use of racial classifications. Two forms of understanding and use can be observed. For one group of researchers, race remains a regionally defined concept that cannot be transferred to different social contexts; others, however, understand it as a globally applicable template, a global classification schema, though the American version has become the universal template[14]. For these researchers, racial classification is a schema suitable for observing the entire world. In the interview excerpt quoted above (Prof. Hausinger, 60, para. 42), we can recognize the ideal type of this view. As a rule, it goes hand in hand with the assumption that races will exhibit genetic differences.

Researchers justify the use of genetically conceived race typologies with reference to their long-standing use within their discipline. One researcher, for example, sent us a foundational text in her field, showing that differentiation by race has long been common practice in her discipline, and, in her opinion, for good reason: the text argues that

14 Wacquant (1997, 224) argues that the US version of race nowadays "has been universalized as the template through which analyses of 'race' in all countries and epochs are to be conducted." Above all, he is concerned that the US version "is suffused with U.S. folk conceptions of 'race'" (ibid., see also: Morning/Maneri 2021, 46). That is not so much my point here. My observation is that the formal classification schema is often universalized and used as a template.

there are statistically significant anatomical differences between Asians, Europeans, and Africans that are important for surgery and treatment.

Neither the textbook nor the researcher contested the objectivity of the racial categories they used. Our efforts to break down this typological reasoning in a joint discussion, by pointing out the arbitrary boundaries the racial categories draw in a continuum of human variance, were unsuccessful. The researcher resisted abandoning these racial classifications, as she feared this would also reject statistically proven differences concerning certain parts of the human body. The individual types of the classificatory schema appear here to have become identified with genetic differences, even though there are other ways of determining the latter scientifically (for example, via ancestry classifications or genetic similarity (National Academies of Sciences, Engineering, and Medicine 2023, 197); methodically (for example, via trait differences, so-called clines); or via a separate, specific typification of body parts, completely independent of race or ancestry. Our questions and objections that these racial classifications are too coarse and arbitrary to capture genetic differences were not taken by the researcher as a compelling reason to discard them. Rather, it was—once again—the terminology that worried her, and to which she repeatedly referred. During the exchange, she asked us for suggestions of correct descriptors, pointing out that the terminology problem had been repeatedly discussed at her research institution and that the terms used for these categories had also led to conflicts with students in lectures.

The Caucasian Liver

Racial classifications can also be employed to link regional studies to the global discourse of specialists, thus making them part of a larger puzzle. The case of the Caucasian liver is especially striking here. A medical study involving 2,773 people from the region of Western Pomerania[15] determined the reference values for the liver volume of the sample—presented from the outset in the title, with a racialized description as a "Caucasian population." The use of this term was intended to signal that the significance of the study sample extends far beyond its local survey location.[16] The results of a single, locally defined sample are thus taken here to represent all Caucasians, though the article does not explain whether and how membership of this group was determined, nor who exactly the large group of Caucasians comprises. Yet, it should be noted, the population descriptor "Caucasian" has been widely criticized, both for its vagueness and for its origin in early racial typologies.[17] After using this term to enhance the significance of its sample as a representation of this "race," the study then juxtaposes the Caucasian liver to that of other

15 Against the historical background of the division of Pomerania, it is disconcerting that the study in its title refers to "Pomerania" as the study region and only later clarifies that its own sample is recruited from the Western Pomerania region. Western Pomerania is the much smaller part of Pomerania that lies in present-day Germany. Eastern Pomerania belongs to Poland. See https://mki.wisc.edu/library-archive/external-links/genealogy-and-heritage-societies/pomerania-pommern/.

16 Not for the first time, in fact. Heinemann et al. (1999) already addressed a similar topic with a similar title. The paper discussed here omits all mention of the previous study.

17 Physicians in Germany also point out the history and ambiguity of the term and call for the "Caucasian to finally be buried" (Meißner 2021).

races. Comparing surveys from other parts of the world, namely, Switzerland (identified as another Caucasian sample), China, and Japan, the authors conclude that "racial differences seem likely" (Kromrey et al. 2018, 35). The imprecise assignment of the sample and the identification of differences as racial illustrate the ease with which German research teams, even without international partners, apply racial classifications. Without any apparent reservations, the study uses racial terms to integrate its results into a schema that is assumed to be valid worldwide. In one blow, its recourse to racial classification multiplies the population represented in the study and establishes a relation to other world populations. Having measured not just a West Pomeranian, but the average Caucasian liver amplifies the study's visibility within its discipline and guarantees disciplinary compatibility, even as it also most likely overgeneralizes its local findings (Takezawa et al. 2014, 2). The publication gives no explanation for the observed differences between the races. In this, it reflects a wider tendency: genetic reasons are not ruled out and are usually assumed when race is understood as a global sorting scheme.

Race as a Regional Concept

Besides the version of race as a concept with worldwide validity, there are a number of medical studies that view racial classifications as tied to the social context in which the data was collected. It is not always obvious in such cases whether the authors actually preclude the transfer of the classification from a smaller area, e.g. Germany, to another regional context. However, there are at least two studies in our corpus in which race was understood as a place-based classification and was therefore not applied to the authors' own sample. In both studies, the authors exclude race as a global schema, yet it is still used (otherwise the case would not have been included in our study corpus). The first case has already been presented above. The researcher involved explicitly opposed the option of using racial classifications in Germany. Its use was only legitimate for one survey location where one participating researcher lived, who assured their German colleague that it was normal and uncontroversial to record details of race in that country.

The second study is different in nature. In the case of comparative studies among countries, researchers often face the question of whether and, if so, how they can compare different descent-based classification systems. In German studies and databases, patients or subjects are often grouped according to their "migration background"[18]. This leads to compatibility problems when comparing German and US datasets, because the two classifications—migration background and race/ethnicity—are fundamentally incomparable. Nevertheless, such comparisons are sometimes undertaken. In order to be able to compare the two datasets with regard to their descent-associated differences, an international diabetes research group transformed both classifications into a new binary category "ethnic minority" (DeSalvo et al. 2018). This makes it possible to compare the minorities in one national context with those in another and to show, for instance, whether

18 For an explanation of the concept of "migration background" *Migrationshintergrund*, which is in widespread use in Germany, cf. Will (2019) as well as the chapter by zur Nieden et al. in this volume. A number of major databases, such as the German Cancer Registry have so far avoided gathering any data on people's backgrounds, which means, that no comparisons can be made with other global databases in this respect.

a given disease affects a certain group more on one side of the Atlantic or the other. "Ethnic minority" here takes the form of a boundary object, making different things equal or comparable (Star 2010). Methodologically, this transformation is imprecise—the group categories cannot be easily ethnicized, nor can the groups chosen be generalized to constitute underprivileged minorities. That said, the transformation "works" in the sense that statistical tools, colleagues, and even reviewers make no objection. Such a procedure of transformation has been extended to other datasets from England and Wales, and to Australia, increasing the methodological problems noted above (Craig et al. 2017).

Both examples show, in their own way, that racial classifications do not need to be understood as "global templates," but can retain their local reference and still be effective. Researchers integrate them, but do not adopt them. This may lead to the development of controversial solutions, as researchers seek to harmonize their own datasets with those of others. Beyond this, recognizing a classification as context-bound makes it more difficult to justify differences between its categories in terms of genetic factors. This is still not completely impossible. However, if a classification is reserved for a certain social context but is considered inappropriate for others, its categories are interpreted more as social entities and less as groups with specific natural characteristics.

Race in the Lab: Research and Identity

In a remarkable ethnographic study, Duana Fullwiley (2008) uses the example of two laboratories specializing in medical genetics to show how analyses of ancestry and admixture can lead to the regeneticization of race. One observation she particularly emphasizes is that this is not exclusively the work of white researchers, let alone of committed racists. In the laboratories, she writes, she encountered "minority researchers" taking part in this research for identity-political reasons, "driven not by racist notions of human difference, but by a commitment to reduce health disparities and to include 'their' communities" (Fullwiley 2008, 695). To capture this diversity-sensitive turn towards greater recognition and representation of different social groups in medical research and treatment, which can be observed in the United States since the 1990s, Steven Epstein (2007) coined the term "inclusion-and-difference paradigm."

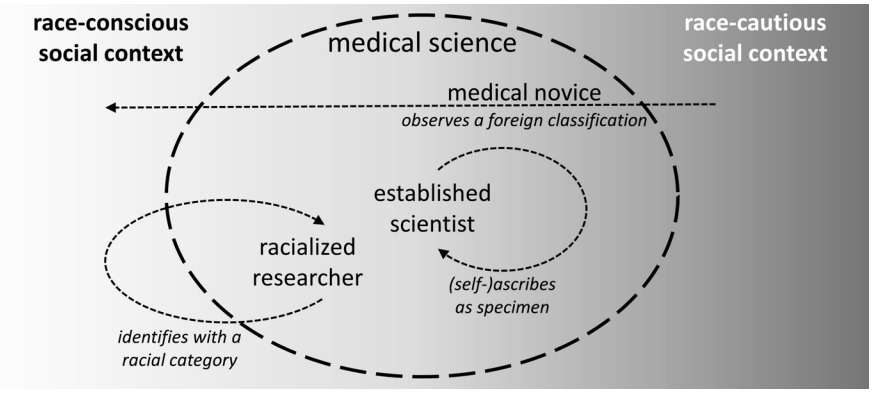
Likewise, in Fullwiley's study, we find a similar motive in the case of a physician who sees the need to draw attention to a particular physical characteristic of "his" descent group. According to this physician, who claims to draw his insights from experience in medical practice, the bodily proportions assumed in the medical literature generally reflect white, European norms. Since physicians use this information as a guide during surgery, he considers this to be a risk. It would be better, he argues, if surgeons took the patient's descent into account and adjusted their surgical intervention accordingly. To verify his hypothesis of a descent-associated physical difference, the researcher utilized a database containing the body profiles of various patients classified by their race. His analyses confirmed his hypothesis; significant differences between the races were found, ultimately leading him to recommend that operations affecting this part of the body be performed slightly differently depending on the patient's race. Racial differences in physique, in other words, should be taken into account.

It is the combination of two elements that initially puzzled both Fullwiley and us. Not only does it become apparent here that research into physical and/or genetic racial

differences can be a matter-of-fact subject of medical research today. The medical study continues to imply that racial typologies correspond to differences found in nature (Reardon 2009, 38–39). When quizzed by the interviewer, the physician conceded that the results show "rough differences using a rough classification" (Dr. Berry, 40, para. 14). And yet he also asserted that no other dataset was available. That said, the real surprise in Fullwiley's article, as in ours, is that these studies are promoted by researchers who refer to their own biographies, drawing on experiences of racialization, as one reason for conducting the study. The researchers report being othered or experiencing everyday racism, and they describe themselves as having a migration background or even: "having a different race, so to speak, born in Germany, born in [city], being socialized here, but every day I am asked by my patients whether I want to go back, and so on, things like that" (Dr. Berry, 40, para. 44). At the same time, however, these researchers reinforce racialized categories by biologizing them. Although, or precisely because, these researchers are regularly reminded of their difference, they are attentive to characteristics of descent groups ("theirs" and others), thereby genetically substantiating racial differences between "themselves," "others," and "Caucasians" in the same way that white researchers have done in the past. Historically, the assertion of natural racial differences for the "other races" has not had the advantage that is now being promised—quite the contrary. The scientific naturalization of racial differences has rather tended to legitimize devaluation, discrimination, and exploitation on the basis of race. It is therefore unsettling when racialized researchers today participate in a controversial scientific endeavor to which "their" races have historically fallen victim. The discomfort this provokes also reflects our own socialization in a country that sees itself as being postracial, as well as the difficulty of drawing a clear distinction between racialization and racism.

Researchers position themselves in different ways in relation to or within a self-applied system of racial classification (figure 3). In retrospect, three modes of affiliation can be identified in the field. Novices and physicians, in particular, tend to understand racial classifications as regional schemas and position themselves as (1) observers of a process of classification carried out by others. They do not assign themselves to a category within this system, but view the classification of human races as an element of a social context to which they do not belong, e.g., Brazilian or US society. Researchers who adopt race as a global observation schema, by contrast, see themselves and others as (2) biological specimens (Hirschauer 2017, 42–45) of a race. They can assign themselves to a category as a matter of fact, but for them personally this remains insignificant and ineffective in terms of their identity. Unlike the racialized researchers, they do not simultaneously see themselves as (3) members of a race, with a racial affiliation of which they are reminded in many situations.

Figure 3: Three modes of self-positioning towards/in the racial classification



Sociobiographical experiences of being different and academic research interests do not necessarily have to interact as described, however. They need not be related to each other at all. A second researcher with a similar background also spoke in his interview about his experiences of being othered, but did not relate this directly to his research findings. Instead, he emphasized the broad diversity within the research group at his institution. The study he published also examines a certain phenotypic difference between two races but comes to the conclusion that, although research has assumed a difference so far, it cannot be verified. He sums up: "Our mission, rather, is to standardize research protocols, to make them the same worldwide, to make results more comparable—and to say that things are probably not as different as we originally thought. It is, so to speak, a positive side effect of our research to be able to say that these differences that were assumed are perhaps not so relevant after all" (Prof. Garden, 45, para. 54).

Of course, the two cases considered here must be regarded on their own terms. No generalized statements can be derived from them as to the interaction between sociobiographical experiences, the experience of diversity, and the focus of research. Beyond this, however, it is possible to recognize what will be discussed again in detail in the last section. Neither of the two medical researchers who experience being racialized reports concerns in using racial classifications to study phenotypic differences. Neither the classification nor the results obtained by this means are problematic, as their study complies with scientific principles: Scientific standards were adhered to, even enhanced, the research was open-ended, and new knowledge was ultimately obtained. Against such a background of scientific rigor, it no longer matters whether genetic differences could be verified or falsified. While in one instance the therapeutic advantages and in another equality as a "positive side effect" are emphasized as benefits of the study, the question of the scientific appropriateness of the classification disappears.

Crossover Scientists: Science and Society

Alongside the novice and the established researcher, the crossover scientist represents a third ideal type. The name speaks for itself. Interviewees who represent this type (to various degrees) usually have no medical training but occupy the border area between

medicine and their own discipline. They include specialists such as epidemiologists and psychologists, and they conduct research on medical issues using the tools and theories of their own disciplines while working in medical science institutions and collaborating with medical researchers.

With regard to their approach to race, crossover scientists are characterized by two particular features. In addition to their (1) decisive rejection of an "essentialist interpretation" of race (Dr. Saleh, 40, para. 74), they (2) outline different dimensions of responsibility that emerge at the intersection of science and society and which also become evident in how they present themselves as scientists (to the subject).

Unlike medical novices and established researchers, crossover scientists emphasize their rejection of a scientific notion of race that describes genetically distinct groups of people. "Human races cannot be substantiated biologically. There's no indication of that." Races are understood as "racialized group[s]" as a historical product of social ascriptions, as a "social construct" (Dr. Fromme, 35, para. 72 and 94). Despite or precisely because of this clear definition of race as a collective idea, crossover scientists show themselves to be particularly challenged by the need to explain the possibility and consequences of any genetic differences between the races. The focus of the debate is less on the medical or scientific value of such a difference. Rather, the social consequences that such a difference would have are negotiated.

> Somehow the question looms over everything: Are we all the same or are there differences? And if there are differences, are they socially constructed or do they perhaps have very small genetic causes at the end of the day? Suppose we were to find out that a drug doesn't work for Asian women. […] How do you communicate that to the outside world without people getting the idea: "Oh, they've biologically uncovered a human *Rasse* after all," right? (ibid, para. 96)

Although race is understood to be a social construct, it is not ruled out that medically significant differences could have "very small genetic causes." The challenge, however, is not so much the empirical, scientific proof of genetic difference itself, but rather the question of how this can be correctly presented in terms of its significance for the public understanding of race. How can an understanding of race as a social construct be defended—this is the rhetorical question—against society when subtle biological differences threaten to undermine it? Can an understanding of race as a social fiction be maintained in society when medical or human genetic research results claim natural differences, even if only minimal ones? How much nature can the social construct tolerate? The concept of race as a social construct appears fragile if it can be shaken by research results and their incorrect reception. Science runs the risk of uncovering facts that are capable of reviving a sinister myth.

At this point, the weakness of a misinterpreted social constructionism becomes clear. Social constructionism does not determine which constructs are more real than others but rather analyses how social facts operate, how they are built and reproduced, and how they shape and sustain social relationships. Outside of sociology, however, the statement that race is a social construct is often understood to mean that it is not real. It is thus placed in opposition to the natural world—and faced with epistemic strength of science,

it can hardly win the contest. On the other hand, it is peculiar that limited statistical significance is ascribed the power to create the public impression that races are proven, but the strong *scientific* reservations against the biological evidence of distinct groups of people are not cited.

Rationalities of Scientific Responsibility

Concern about a revitalization of a supposedly anachronistic understanding of race is typical of the interdisciplinary crossover scientist, whereas medical professionals we interviewed rarely expressed such sentiments. One exception is the study coordinator who claimed that research results need to be screened how they could be interpreted by others inside and outside the scientific world. "In the end, it's about not providing a starting point for misuse of this data. […] You have to be careful that groups don't use your scientific results differently than you ever thought they would be used, right?" (Dr. Muske, 50, para. 78). In terms of a *reflexive rationality*, scientific responsibility here presupposes that researchers have "the ability to foresee the [social] consequences of their own practice" (Glerup and Horst 2014, 38). In our data sample, the concern about and anticipation of public misreading or deliberate instrumentalization of research results contrasts strongly with the emphasis on science as committed to the principle of a value-free approach. While the crossover scientist underlines the responsibility to foresee and prevent possible negative social consequences of one's own research with race, the other position reminds us of the importance of value-free science. This *demarcation rationality* is based on the assumption that science has its own professional code and structures of oversight, distinct from the rest of society; both enable responsible scientific action (ibid., 37).

The crux of the second position is the argument that an unbiased and objective view is the prerequisite for scientific value neutrality. One interviewee stressed this principle, expressed in different variations and strengths by the vast majority of interviewees, as a particularly important point. For him, the use of racial classifications is "not about any kind of valuation, right? It's about distinguishing between groups. And that could of course also be other groups. But it's not a value judgement. It's clearly about seeing a treatment option or creating an understanding of a disease. Yes, that is perhaps the most important point, do you understand?" (Prof. Kreh, 55, para. 65). Firstly, the quote reveals another rationality that is particularly important in the *medical* field as a means of justifying *scientific* action as responsible. It underlines the beneficial *contribution* of science to the fulfillment of social needs, e.g., the cure or prevention of disease. This rationality here complements that of demarcation. The latter expresses the researcher's conviction that a neutral, scientific use of classifications such as race is possible. While race is controversial and frowned upon in the social context in Germany, "the scientific application [of this or similar classifications] is on the safe and understandable side" (Prof. Hausinger, 60, para. 48).

These rationalities are not mutually exclusive, although they are based on different approaches to dealing responsibly with race. The demarcation rationality relies on basic principles of scientific practice which, if adhered to, guarantee that racial classification can be applied responsibly in science. Science is advised to conduct *value-free* research, to be guided by "disinterested interest" (Bourdieu 1998, 27; my translation) and to not un-

necessarily mix and confuse value judgments and factual assessments (Weber 1904, 3); this detachment of research also grounds the right to freedom of research, which in turn benefits the progress of knowledge. "Research must be independent and must be allowed to deal with any topic. Dealing with something does not mean endorsing it—otherwise we would not be able to research many things—but learning to understand something better and finding explanations for it" (Prof. Hausinger, 60, para. 52). If normative value judgments were to set limits on science, many paths would be blocked. For the sake of its own interest in knowledge, science must operate independently of these. Admittedly, the idea that science ultimately benefits society as a whole (Merton 1974, 275–77) is also behind the guiding principle of a disinterested science that is subsequently pursued as purely as possible. However, this idea remains abstract and neither negotiates the concrete social effects of a given piece of research nor uses such effects to guide the direction of future research.

In a sense, the crossover scientist complicates the relationship between science and society, not seeing it as regulated solely by the principle of value freedom. This becomes clear in interactions in which the crossover scientists see themselves as entangled with society. For example, one interviewee toyed with the idea of creating a classification of descent-associated categories adapted to the German population. To do this, he explained, he would first conduct an open survey to find out which categories people in Germany would provide for themselves. "I wouldn't want to come in from the outside and suggest something" (Dr. Grabe, 35, para. 56). In the sense of a regionally specific schema, descent-associated differences are explicitly understood as social differences, which vary from society to society and cannot be presupposed. Another interviewee discusses the possibility of bringing about a deeper involvement of the research participants in the research process, simultaneously emphasizing how difficult it is to implement participatory concepts: "Some communities are also very active and have this slogan 'nothing about us without us.' They demand to be included in research about their group. And I think that's right, but at the same time I cannot implement it completely" (Dr. Grabe, 35, para. 108). In her view, existing research structures make little room for participatory research in medicine; her own academic socialization, the obstinacy and skepticism of research subjects, and the additional costs would make it difficult.

Finally, a heightened awareness of social issues also impacts the interpretation of research results. At the very least, the claim is formulated that the higher disease burden of individual social groups cannot be explained by individual irresponsibility. Health inequalities can no longer be thought of as the result of individual decisions and individualized as unhealthy actions that need to be corrected accordingly. Instead, it is important to recognize that "it is complex social contexts that lead to these differences and that this should also be taken into account when interpreting the results" (Dr. Grabe, 35, para. 42). Race has become one social structure among many and is no longer an individual disposition.

Discourse Limits instead of a Discourse Arena

A discourse arena in which the significance of race or racial classifications in medical science is negotiated can only be recognized to a very limited extent in the available empirical material. Debates on the nature of race or even on the scientific way of dealing with racial classifications are hardly ever held at German research institutes. It is the study's central finding that the German *Rasse* taboo blocks any extensive discussion. It prevents an open and fruitful debate about both the actual scientific importance, and the ontological quality, of race by channeling attention solely to the term and its normative affect. A primary concern of the interviewees is whether race can be used and how it can be correctly labeled. Such considerations are frequently expressed in the interviews, they, however, rarely played an explicit role in the research process. Furthermore, where conflicts do occur in the field, the situation is very simliar: these conflicts are about the term but do not dive deeper into the topic. In such situations, an indignation based on terminology is articulated, yet a thoroughgoing examination of underlying concepts does not take place. What race means, what racial differences are—and what they are not—remains largely unclear.

It is not surprising that medical novices in particular find dealing with racial classifications challenging. Prior to participating in the recent research examined here, and sometimes right up to the interview with us, they had no reason to question the *socially* dominant conviction that the existence of races is *scientifically* untenable, morally reprehensible, and politically dangerous. However, as they become aware of established racial classifications in their own scientific field, these firm convictions are challenged. The manifest contradiction between their habitual race-caution and the exigencies of science generates efforts to reduce the resulting tension via terminological vagueness. Many established researchers are also at odds with the word; at first, it is only appropriated to the extent that its use is permitted when referring to another society.

The novices' discontent with race takes place in their heads; an open debate on how race can or should be thought of in medical-biological terms is only just beginning to take place in Germany (Aikins et al. 2021, Gießelmann and Martin 2023, DeZIM 2023, 109–214). It remains a diffuse both/and category that can be used to suggest social, cultural, biological, and/or genetic reasons for medical findings. Anti-essentialist, gradualist arguments rejecting the idea of races as sharply definable biological and genetic groups are nowhere to be found, although they should be easily accessible to scientific thinking (Morning 2011: 113–117). Rather, one can speak of a great uncertainty about what race actually is.

The situation is different for many established researchers. Assuming that they too once had reservations when they first came into contact with the concept, they have now come to terms with it after several research contacts. They make a sharp distinction between the scientific field and the social context, between scientific and political utilization. At the center of the medical-scientific world, race has a recognized scientific role that is no longer morally irritating, and which is no longer subject to the German *Rasse* taboo. It has become a matter of scientific distinction and habituation. However, the comparison with the interdisciplinary crossover scientist shows that this is not an inevitable process. These researchers are not comfortable with racial classification, as they

do not subscribe to the scientific principle of value neutrality, but rather derive their concept of scientific responsibility in exchange with the social environment in which the scientific world is embedded. The crossover scientist remains concerned with the social consequences that medical work using racial classifications may have.

There are, however, two fundamentally different directions that can be taken after this first step. Either the acceptance of race as an established classification in medical science can be followed by a second distinction that delineates between different social contexts and the corresponding descent-related classifications (i.e., race/ethnicity in the United States, migration background in Germany, cultural and ethnic group in Australia, ethnic group in England/Wales etc.) and takes this distinction into account in its own studies. Or race can be universalized and adopted as a global schema for local samples, as well. Both paths bring problems of their own, which could only be discussed in part here. Yet, it is important to recognize that each imposes a certain interpretation that is distinct from the diffuse concept of race held by novices. If we take into account the social context of different classifications, then it is hardly plausible to link genetic differences back to racial classifications, in contrast to cases where the race schema is universalized.

The second important question that this study was looking to answer is that of "why?" Why do German research institutions continue to work with race? We have considered a number of motives over the preceding pages. The use of racial categories is mainly due to international research collaborations in which datasets from race-conscious contexts that permit this classification are studied. If studies additionally contribute a separate dataset from Germany, it is either integrated into the schema as a sample of a white/Caucasian race or a new super-schema is designed that incorporates the native dominant classification (i.e., migration background) and the racial classifications in a modified form (for instance, specifying "ethnic minorities"). Not considering the descent-related classification in view of its fundamental incomparability would have been a third possibility (which we did not discuss here due to our search strategy). Researchers, therefore, face important decisions, especially when working with international datasets. It is of great importance not to leave early researchers alone to manage the issues around race when they are required to conduct research using racial classifications in the context of achieving qualifications (when researching or studying abroad). A thorough understanding of compatibility issues, the conceptual schemas behind descent-related classifications (even that which is designated by "race" is not always the same) and the reasons why they are required to apply it should be ascertained. Otherwise, it is to be feared that the unspoken uncertainties will continue to translate into terminological strategies of concealment.

It is worth mentioning that some national research projects make use of racial classifications where there is no need to do so—where it is neither suggested by a medical database nor expected by an international research cooperation. Even today, race is still used as a tool to enable disciplinary compatibility. It creates links between new research and existing keywords, a body of work, and a set of assumptions within a given discipline, thus increasing visibility and the likelihood of reception by other researchers. A major reason for the use of racial classification systems (even where the sampling location is exclusively Germany) is therefore their global entrenchment and inertia. A system exists in which they act as stable reference categories. In this position, they continue to

fuel the myth that races are distinct genetic groups of people. Postcategorical solutions (gradients; or setting the focus on the phenotypic phenomenon of interest) still do not seem to be gaining acceptance.

Finally, racial classifications also arise because in recent years there have been individual and institutional efforts to include subjects and patients of all races in medical and other life science studies. Researchers at German research institutions also frequently work in line with the requirements of the U.S. Food and Drug Administration (FDA) or international medical science journals (although it should at least be possible to fulfill the requirements of journals using the German classification *migration background*). Racialized researchers in Germany also make a conscious effort to take different races into account in their studies. In terms of mere representation, this may initially seem unproblematic. However, such inclusion criteria are always about more than simply employing different social assignments. It is also always about making differences visible and being able to take them seriously in *medical* terms. Such biological racialization runs the risk of once again asserting races as substantial natural entities and setting false medical priorities (Rajagopalan and Fujimura 2012). These concerns must be taken very seriously—and they are likely to lead to proposals that reject the use of racial classifications in life science research in most cases (National Academies of Sciences, Engineering, and Medicine 2023). In Germany, however, the quiet vehemence of the taboo against *Rasse* complicates any discussion about the risks and opportunities of descent-related classifications, though it is urgently necessary. The question of when medical research using racial classifications leads to bad racializations—when it even reinforces old stereotypes and keeps them alive—cannot be answered with silence.

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