Original Article

The multiplicity and situationality of enacting 'ethnicity' in Dutch health research articles

Alana Helberg-Proctor^{a,*}, Anja Krumeich^a, Agnes Meershoek^a and Klasien Horstman^a

^aDepartment of Health, Ethics and Society, CAPHRI Care and Public Health Research Institute, Maastricht University, PO Box 616, 6200 MD Maastricht, The Netherlands.

E-mails: a.helberg-proctor@maastrichtuniversity.nl; a.krumeich@maastrichtuniversity.nl; a.meershoek@maastrichtuniversity.nl; k.horstman@maastrichtuniversity.nl;

*Corresponding author.

Abstract Previous research has problematised the diversity of conceptualisations and operationalisations of ethnicity within health research and the field of Ethnicity and Health. In this article, we explore how practices in health research and the field of Ethnicity and Health themselves contribute to the enactment of different versions of ethnicity. Using a qualitative content analysis of contemporary peer-reviewed Dutch biomedical and health research, we identified various dynamics in research practices and the research situation, which are relevant to understanding the enactment of multiple versions of ethnicity and specific ethnic and racial categories in health research in the Netherlands. Specifically, we discuss the production of academic publications and the manner in which researchers must establish the premises for ethnicity-specific health research; the organisation and ethnic and racial labelling of the data; and the discussion of new research findings in comparison with previous ethnicity-specific research. Ultimately, our analysis illustrates that, in health research and publications, ethnicity and its relation to health are not simply discovered or found; rather we discuss how the manner in which ethnicity and specific categories of ethnicity are enacted is contingent upon these everyday dynamics of research practices and the specific research situation in which research takes place.

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Introduction

Much has been written about the complexity of ethnicity and how to attend to this complexity in health research (Bradby, 2003; Bhopal and Donaldson, 1998; Bhopal, 2004, 2007; Mir *et al*, 2013; Kaplan and Bennett, 2003; Stronks *et al*, 2013). Many scholars in the field of Ethnicity and Health point to the complexity of the concept of 'ethnicity' and

the diversity of conceptualisations, operationalisations, and categorisations of ethnicity used in health research (Bradby, 2003; Lee, 2009; Bhopal, 2007). Agyemang *et al.* (2005), for instance, explain:

Ethnicity is a multidimensional concept, which is being used frequently in medical research. It is neither simple nor consistent. It comprises one or more of the following: shared origins or social background; shared culture or tradition that are distinctive, maintained between generations, and lead to a sense of identity and group; and a common language or religious tradition. The characteristics that define ethnicity are, however, not fixed and may change over time, which makes ethnicity difficult to measure and use in research. The concept of ethnicity encapsulates cultural, behavioural and environmental factors that increase the risk of disease; hence, it is crucial in epidemiology and public health. (Agyemang *et al.*, 2005, p. 1014)

In the field of Ethnicity and Health, discussions on what ethnicity is have focused on how best to conceptualise and capture the complex nature of all the different facets that comprise the ethnicity of different groups. In other academic fields in the Social Sciences and Humanities, however, more fundamental reflection has taken place about this concept (Jenkins, 2008). These scholars argue that, although the complex nature of ethnicity is recognised in the conceptualisations that focus on the different 'facets' of ethnicity, in such a conceptualization, ethnicity is still seen as a characteristic *inherent* to ethnic groups and people. Scholars in the Social Sciences and Humanities have problematised such notions of ethnicity as characteristics inherent to ethnic groups, preferring to view ethnicity as socially produced (Jenkins, 2008). Ethnicity thus remains an essentially contested concept, and its relevance to health similarly remains a debated subject. Scholars in Science and Technology Studies (STS), sociology and anthropology have shown how specifically scientific research not only describes and aims to understand and unravel possible relationships between ethnicity, race and health, but also shapes and reifies these very objects in doing so (Fullwiley, 2007a, b; M'charek, 2013; Rose, 2009; Fujimura and Rajagopalan, 2011; Fujimura *et al.*, 2008; Epstein, 2007; Duster, 2015; Montoya, 2007). Inspired by this line of scholarship, in this paper, we apply a practice-centred analytical framework in order to study how scientific practices in biomedical and health research shape ethnicity in the Netherlands; specifically, we investigate how the dynamics of specific research practices are relevant to understanding *situational* and *multiple* enactments of ethnicity.

Researching ethnicity in the context of health

Previous analyses of ethnicity in health research have pointed to the inconsistency and diversity of the conceptualisations, operationalisations, and categorisations of ethnicity in biomedical health research (Bradby, 2003; Lee, 2009; Bhopal and Donaldson, 1998; Kabad *et al.*, 2012). For instance, from a content analysis of biomedical publications, Lee (2009) found that many authors neither define ethnicity or race adequately, nor do many of them provide explanations for the ethnic or racial differences they have found (see also Comstock *et al.*, 2004). Often this lack of consistency is described as a problem in need of fixing in order to improve the comparability of research results. As such, various scholars have offered a

variety of methodological guidelines and prescriptions to improve the scientific rigour and comparability of research (Mir *et al*, 2013; Nazroo, 2006), and some have even attempted to develop an internationally agreed-upon glossary of terms related to ethnicity and race (Bhopal and Donaldson, 1998; Bhopal, 2004). The use of standardised categories for ethnicity and race is often presented as offering such a solution to the noted diversity and inconsistency of conceptualisations, operationalisations, and categorisations of ethnicity in biomedical health research. Smart *et al*. for instance, point out that biomedical researchers rely upon and prefer to use standardised census categories when defining ethnicity because these categories provide portability and comparability within the standardised national context (Smart *et al*, 2008, p. 415). This preference for the use of official classification is not uncommon in the field of ethnicity and health (Karlsen and Nazroo, 2006, p. 27).

In the Netherlands, which is the site of the analysis presented in this paper, similar preferences for the use of official standardised national categories for ethnicity can be observed. In 1992, the Ministry of Internal Affairs introduced three criteria for categorising ethnicity: a person's country of birth, their mother's country of birth, and their father's country of birth. Today still, in the official national definition of the Central Bureau of Statistics of the Netherlands (CBS), a person's ethnicity is classified according to their country of birth and the country of birth of her or his parents (Alders, 2001). All countries of origin are sub-classified as Western or non-Western; the category non-Western includes persons born in or with at least one parent born in Turkey, Africa, Asia, or Latin America, and the category Western consists of person with a (parental) birthplace in Europe (excluding Turkey), North America, Oceania, Japan, and Indonesia, including the former Dutch East Indies (Alders, 2001). The terms 'non-Western' and 'Western,' were introduced officially into the Dutch ethnic-Categorisation system in 1999 (Keij, 2000). The official explanation states that the reason for including Europe (except for Turkey), North America, or Oceania in the category Western is based on "strong similarities" with regard to "socio-economic and cultural position" (Keij, 2000, p. 24). In addition, Japan and Indonesia were categorised as Western countries with the explanation from the Central Bureau of Statistics being that the social-economic and socio-cultural position of these groups was similar to the Dutch population (Keij, 2000, p. 24).

Health data in the Netherlands is often delivered on the basis of county-of-origin. Many health databases are made available to health researchers through the Central Bureau of Statistics of the Netherlands linked system StatLine, including: the Netherlands Hospital Discharge Register, the Netherlands Perinatal Registry, death certificates, the Netherlands Information Network of General Practitioners, the Health Occupations Register, data from insurers, data on home care and nursing home patients, and Dutch hospital and mental health data. These various databases can be linked through the municipal population registration using social security numbers, or a combination of the birth date, postal code, and sex. This linkage system allows researchers to collect additional demographic characteristics and information for each of the cases in the data set, such as country of origin, marital status, household characteristics, employment, social benefits, income, and education.

The Dutch 'country-of-origin' system is considered to be objective, stable, and uniform for the purposes of conducting health research (Stronks *et al*, 2009):

The idea behind the country of birth classification is that, given its objective and stable character, it allows for a uniform identification of groups, which promotes the comparability of study results. (Stronks *et al*, 2009, p. 4)

Various scholars, however, have warned that these standardising systems have consequences both for society and for science (Epstein, 2007; Smart *et al*, 2008). Smart *et al*, for instance, warn that the adoption of census categories into biomedical research can have significant consequences, because the routine and widely accepted use of them might erode awareness of their sociopolitical status and subsequently naturalise or geneticise these census categories (Smart *et al*, 2008, pp. 417–418). In her important publication, *Describing Ethnicity in Health Research*, Bradby argues that attention to the complexity of ethnicity, through detailed descriptions in health research and by relating ethnicity to other variables (such as socioeconomic groups, gender, religion, and family structure), will make the non-universality of the concept of ethnicity “difficult to ignore”, thus “rendering it of limited use in making comparison through time or across cultures” (Bradby, 2003, p. 11). In line with this current discussion, in this article, we analyse the *multiplicity* of ethnicity, and specifically ask whether this multiplicity renders research conducted even within the same timeframe and context of limited use in terms of comparability. Our analysis seeks to shed new light on the repeated finding that ethnicity is conceptualised and operationalised in many different ways in health research. Specifically, we do not simply assume that ethnicity ‘means’ different things to different researchers in different context; rather we seek to elucidate the research practices and dynamics through which ethnicity is ‘made to be’ in different ways in health research. The framework involved in this analysis is informed by two specific lines of research within the field of STS – attending to scientific *practices* and to the *situatedness* of these practices (Mol, 2002; Montoya, 2007; M’charek, 2013; Shim *et al*, 2014).

Praxiographic approaches (Mol, 2002) analyse how objects (of science) are enacted in practices, and specifically examine how multiple versions of objects are present and co-exist in different practices. Importantly, from a praxiographic perspective, multiplicity is not considered a problem in need of fixing, but rather as an inescapable ontological outcome of practices. Such an approach can reveal how scientific practices produce multiple enactments of ethnicity and categories of ethnicity in health research. For instance, from this approach, M’charek (2013) argues that biological race is not a singular object that can be found in the body itself, but rather that multiple versions of race are enacted through different practices. In medical practice, M’charek, for instance, illustrates how physicians and care providers can enact race in different ways in their daily practices. In the case M’charek discussed, she shows how, for the same child, race is enacted in one instance through the linkage of skin colour (which was perceived as being too pale), the shape of her palmar crease, and the skin colour of the parents, to epidemiological knowledge and the suspicion of Down’s syndrome in another instance. Through this process, race becomes medically relevant to diagnostic and preventive practices. In a different instance of medical practice, namely the prescription of vitamin K, the same child is advised to be given a higher dosage of vitamin K, a recommendation that is in line with the dosages given to children with “very dark skin” (M’charek, 2013, p. 427):

Whereas Aziza's color was regarded as "too pale" in the hospital and taken as an indication of "abnormalities" hidden in her body, in the practice of vitamin intake her color was interpreted as "very dark." To be more precise, in this practice, not hers but her mother's color was taken as a marker and interpreted as a risk for vitamin D deficiency.

It goes without saying that the hospital physicians were following protocols aimed at the proper diagnosis of a newborn. My aim is not to cast aspersions but to show how race can become medically relevant in diagnostic and preventive practices. This example makes clear that race does not necessarily materialize in a person's body, but also in the relations established between different bodies. (M'charek, 2013, p. 427)

M'charek thus shows how race does not materialise "in the body", but rather through the practices which establish relations between a variety of entities, including bodies (M'charek, 2013, p. 434). Similarly, in her work on the category "population" in forensic DNA practices, M'charek (2000) demonstrates how an examination of practices can provide insights into the role that science and technology play in the multiple ways of doing population. She contends that these different versions of population are technologically assisted and are produced differently through diverse forensic practices. A praxiographic focus thus facilitates the understanding that multiple versions of objects do not per se constitute different perspectives on a singular object, but are, rather, different ways of doing the object in practice (Mol, 2002; M'charek, 2013).

A second line of research has emerged from STS analyses of ethnicity and race in biomedical, health, and genomics research – namely *situationality* (Shim *et al*, 2014; Montoya, 2007; Epstein, 2010; Helberg-Proctor *et al*, 2016). Scientific practices involved in research on race and ethnicity in health and genomics have been shown to be situated in and shaped by various specific national, sociopolitical, and historical contexts (Hinterberger, 2012; Epstein, 2010; Tsai, 2010; Olarte Sierra and Díaz Del Castillo Hernández, 2014). These national, sociopolitical, and historical contexts shape the ways in which ethnicity and race are enacted in research by prescribing, for example, the (official) categories which must be used in research – a process referred to as "categorical alignment" (Epstein, 2007) – or by defining which groups are and are not considered to be ethnic and racial minorities (Gissis, 2008; Helberg-Proctor *et al*, 2016, 2017; Proctor *et al*, 2011). Scientific practices involved in research on race and ethnicity in health and genomics have also been shown to be situated in the specific dynamics of a "research situation" (Shim *et al*, 2014), whereby dynamics unique to a specific research situation, such as the availability of data and sufficient sample sizes per ethnic and or racial group and the specific aims of a project, shape the manner in which ethnicity and race are enacted (Shim *et al*, 2014; Helberg-Proctor *et al*, 2016). Recently, Shim *et al*. (2014) have shown how, in gene-interaction research, ethnic and racial homogeneity and heterogeneity are not inherent qualities or characteristics of populations: Rather, the ethnic and racial homogeneity and heterogeneity of populations is "situationally constructed" in research practices that are dependent on the specific research situation. This "situational invocation and production of racial and ethnic homogeneity and heterogeneity" was observed in the recruitment, enrolment, and consideration of the study population (Shim *et al*, 2014, p. 587). For instance, one of the examples Shim *et al*. discuss is a study of

prostate cancer disparities. The previous exclusion of African-Americans from prostate cancer research in the United States led to the undertaking of prostate cancer research that specifically targeted African-Americans. The specific focus of this research aim (namely to study African-Americans) impacted the recruitment processes that followed and influenced the productions of racial “homogeneity” that emerged in this research situation:

In this example, African-Americans are seen as relatively unproblematic in terms of their homogeneity as a categorical group. In order to maximize recruitment and sample size, African-Americans were considered – at least in this situation – to be homogeneous enough for the purposes of studying prostate cancer disparities. (Shim *et al.*, 2014, p. 588)

In line with this approach, Santos *et al.* (2015) discuss how factors related to the transnational nature of research and the “political economy” of publications shape the research situation of particular research practices. For example, because miscegenation is a distinctive and central element in the common narrative of biological formation of the population in Brazilian studies into pharmacogenomics, Brazilian practices related to pharmacogenomics tend to work towards the “demolecularization of race”, whereby research is de-racialised by virtue of the fact that the researchers attend to genetic admixture as a continuous variable (as opposed to considering it in relation to categorical racial groups). However, when in the context of participation in international research consortiums the samples collected in Brazil travel to a new research situation of transnational research and academic publication, race and specific racial categories (Black, Asian, and White) are re-enacted as categorical racial entities through the research practices in transnational pharmacogenomics research (Santos *et al.*, 2015, p. 60-63). Thus, when the context and research situation change, the enactment of race and ethnicity and specific categories of race and ethnicity based the same samples can thus also shift.

Informed by the ways in which *enactment* and *situatedness* have been theorised and investigated in STS and in other methods of analyses relevant to the study of ethnicity and race, we explore how ethnicity is situationally enacted in biomedical and health-research practices in the Netherlands. Having previously examined and discussed how such research is situated and shaped by the larger Dutch national, sociopolitical, and historical contexts (Helberg-Proctor *et al.*, 2016, 2017), in this article we are interested in the research situations in which practices in the field of ethnicity and health in the Netherlands take place, and the ways in which the research situation might shape the enactment of ethnicity. Considering the repeated previous finding that ethnicity appears to be a diverse and inconsistent object in health research, we seek to investigate how research practices themselves might be implicated in this multiplicity. A growing body of scholarship pertaining to the practices involved in including race in health science, particularly in the United States, but also in Canada, various Latin American countries, and a few European countries is already available (Smart *et al.*, 2008; M'charek, 2013; Wailoo *et al.*, 2012; Duster, 2015; Wade *et al.*, 2014; Yanow *et al.*, 2016). In relation to Europe, however, where the concept of ethnicity is often used during the conduct of health research, the use of ethnicity and the production of scientific knowledge of ethnicity in relation to health remains largely underexplored from a critical perspective (M'charek, 2000, 2013; Krebbekx *et al.*, 2016; Yanow *et al.*, 2016; Smart *et al.*, 2008 are among few noted exceptions). Being among a very few number of studies to

examine specifically the concept of ethnicity in health research from a constructivist perspective in a European country, the analysis presented in this article provides novel insights in patterns of how ethnicity is being enacted in research practices. In the Netherlands, it is often stated that the concept of ‘race’ is not used in health research and care. For instance, in their publication *A doctor of the world. Ethnic diversity in medical practice* [Een arts van de wereld. Etnische diversiteit in de medische praktijk] Seeleman *et al.* (2012) state:

In tegenstelling tot bijvoorbeeld in de Verenigde Staten wordt in Nederland zelden onderscheid gemaakt naar ras [Translation: In contrast to, for example, the United States, in the Netherlands, distinctions according to race are seldom made]. (Seeleman *et al.*, 2012 [2005], p. 3)

In the extended wake of the Second World War, various European countries have sought to replace the concept of race with that of ethnicity, and to this day avoid the word ‘race’ in public policy and administration in Europe. As Lentin (2008) explains, there is a silence about race in Europe because it was effectively banished from publicly acceptable discourse after the Shoah, the Holocaust of the Second World War. Nevertheless, however, the analysis presented in this paper indicates that race remains a commonly used concept and organising principle in scientific health research in the Netherlands. These insights thus shed light on the question of how and why ethnicity as race keeps on being enacted. Namely, our analysis illuminates the role of scientific routines and conventions in re-producing racial categories and language in everyday scientific work – even in settings from which race has supposedly been expunged, such as the field of health research in the Netherlands.

Ethnicity in research publications

As we sought to analyse the enactment of ethnicity in a large number of research projects that took place over a number of years, we studied peer-reviewed biomedical and health-research publications. The production of the specific content of research articles and the publication of these articles has been shown to play a central role in biomedical and health research and knowledge production (Latour and Woolgar, 1979). This, because it is through publications that the outcomes of scientific practices in the form of statements, claims, knowledge, data, and facts presented in the content of research articles become mobile, and circulate. As described by Latour and Woolgar in 1979, the production of the content of academic publications is an integral process in scientific knowledge production and the construction of scientific facts:

The production of papers is acknowledged by participants as the main objective of their activity. The realisation of this objective necessitates a chain of writing operations from a result first scribbled on a sheet of paper and enthusiastically communicated to colleagues, to the final registering of published literature in the laboratory archives. The many intermediary stages (such as talks with slides, circulation of preprints, and so on) all concern literary production of one kind or another. It is thus necessary carefully to study the various processes of literary production which lead to the output

of papers. We shall do this in two ways. Firstly, we shall consider papers as objects in much the same way as manufactured goods. Secondly, we shall attempt to make sense of the content of papers. (Latour and Woolgar, 1979, p. 71)

The production of academic publications is thus an important research practice. In line with the praxiographic theoretical framework discussed above, in which scientific practices are seen as practices which enact objects of science in multiple ways, we approach the production of academic publications in the field of ethnicity and health as practices in which ethnicity is enacted in specific and multiple ways in the content of academic publications. Previous analyses of the use of the concepts of race and ethnicity in health research have often zoomed in on specific settings to provide fine-grained, case-study-specific insights. Although drawing on STS, this study is not an in-depth case study of ethnicity in relation to one specific setting: It does not focus on one specific laboratory, research project, or health research sub-field or topic. Rather, we examine a wide range of health research conducted in the Netherlands in order to find common patterns and dynamics related to how scientific health research in regard to ethnicity produces knowledge and facts about ethnicity.

Although the production of an academic publication is often thought of as a simple reporting of the results found in research, it has to be considered as a practice that is guided by scientific writing conventions, one that forces researchers to present the results of the research in a specific way and relate it to other publications. The research situation and specific practices involved in the production of the content of academic publications can be seen as being part of Latour's "black box", that is, a phenomenon by which the results of research are seen, but not the means and practices by which those results were arrived at (Latour, 1987, p. 2). Thus, what happens is that the everyday work done by scientists is obscured to produce an image of science as the discovery of facts, rather than the production of them. However, while in the production of scientific fact everyday practices and choices might be to black boxed, in biomedical and health research journals, researchers are required to narrate the premises underlying their research and to detail the methods and materials they used. In these narrations of the premises underlying specific research questions and the methods and materials used, interesting descriptions of the research situation and research practices relevant to the production of the content of academic publications and the enactments of ethnicity through these practices are detailed in academic publications. Thus, while conventional thinking might be that new facts and knowledge about ethnicity and health are uncovered and revealed through scientific research and recorded in scientific publications, we analyse the practices relevant to the production of the content of academic publications as detailed in these very academic publications to understand how these particular practices in health research enact the very object of their enquiry – ethnicity.

Methods

In this study we have used one main source to identify academic publications on ethnicity and health in the Netherlands, namely the PubMed database. This study was conducted in early 2013: We used the search terms "ethnicity" and "Netherlands" in all fields for the period from 1 January 2009 to 1 January 2012. This broad search generated 595 articles. To identify the articles on empirical biomedical and health research carried out in the

Netherlands that referred to ethnicity, the results were automatically sorted according to the relevance function contained in the PubMed database advanced search options, and then the results were organised according to year. A subsequent manual sorting yielded a total of 70 publications that fit our criteria of being empirical biomedical and public health research in that included references to ethnicity. All 70 articles were included in our analysis (see online Appendix 1 for a sample of these articles).

The articles were read and analysed in their entirety by the first author, and the interpretations of these data were discussed in depth during several rounds with the other authors. The articles were first organised according to year and then according to the categories used in relation to ethnicity. This generated two groups of articles for all 3 years – one group which used the official country-of-origin categories of the Central Bureau of Statistics of the Netherlands, and a second which used ‘racial’ categories in relation to ethnicity referring to terms such as White, non-White, Negroid/Black, and Asian. While the concept race is contested, and can mean many different things, when using the term ‘racial’ here we are referring to ideas about race, rooted in colonial histories, which divide humans into several ‘races’ (Caucasian/White, Negroid/African/Black, Mongoloid/Asian, and Indian/Native American) on the basis of shared features because of shared ‘ancestry’ (see also Wade, 2014, p. 592). Subsequently, the articles were analysed in accordance with seven criteria, all of which emerged during the first reading of the article as descriptions of research practices related to ethnicity: (1) the premises and rationale for including ethnicity; (2) how ethnicity was defined; (3) the ethnic categories used; (4) the criteria for inclusion and exclusion in various ethnic groupings; (5) the comparisons made to other ethnic or racial groups or categories; (6) the conclusions made referring to ethnicity; and (7) the discussion of these findings.

We found that, in publications that categorised ethnicity according to the official country-of-origin groupings, two distinct patterns emerged – one pattern in which ethnicity was considered to be a strictly demographic statistical variable (where ethnicity is not defined, compared, or further discussed) and another category, in which, through definition, comparison to other ethnic groups and data, and further discussion of results, ethnicity was constructed as a complex and unique mosaic of related factors. Thus, based on our first two rounds of analysis, three patterns emerged: namely ethnicity as a *demographic variable*, as *biological race*, and as a *mosaic* (see Figure 1).

Subsequently, all articles were re-read in light of these three patterns in order to further investigate how ethnicity is situationally enacted. Below, using examples from the articles that were analysed, we describe these three patterns and the research practices involved in each enactment of ethnicity. These examples were intentionally selected to illustrate the specific dynamics of research practices and the research situation that we found relevant to understanding how ethnicity is enacted in each of the three categories. Because one of our conclusions is that ethnicity as biological race and as a mosaic construction is enacted in *multiple* ways (often differing in each article or publication), these examples are not representative with regard to the exact manner in which they enact, or *do*, ethnicity. Rather, they work to illustrate the role played by some specific common dynamics (in the form of research practices and the research situation) relevant to the enactment of ethnicity in articles we analysed.

Figure 1: Emerging patterns for analysis.

Results

Ethnicity as a demographic variable

In this first group of publications, ethnicity is used as a demographic category with no definition, justification, or specific reason for its use being given other than the presence of previous demographic or epidemiological data. Ethnicity is not conceptualised at all, and we see it operationalised solely as a demographic descriptor and a statistical variable. In these publications, an association or correlation between ethnicity (in the form of a specific ethnic category) and the investigated health subject is statistically analysed, and the statistical results are reported. As a demographic variable, ethnicity is often included as a matter of routine, along with other independent variables. It is frequently included as a statistical dummy variable in regression analyses (in the form of a ‘yes-or-no’ variable: for example, non-Western ethnicity: yes or no). An example is the research by Van Der Cammen-Van Zijp *et al.* (2010). These authors set out to investigate whether differences exist in children’s endurance capacity with regard to exercise that can be correlated to various variables, including ethnic origin, socioeconomic status, age, body mass index, sports participation, school transportation patterns, and smoking habits. No specific premise or rationale is given for the inclusion of ethnicity, other than the authors’ note that their sample is “representative” of the Dutch population. In relation to the categorisation of ethnicity, the authors state that “[W]e classified ethnic origin using the definition of Statistics Netherlands [CBS] into “Dutch”, “Western background” or “non-Western” background” (Van Der Cammen-Van Zijp *et al.* 2010, p. 132). Subsequently, these ethnic categories were included in the linear regression and found not to be related, and no further discussion of ethnicity was presented in this example.

In addition to the inclusion of ethnicity as a matter of routine, it can be observed that ethnicity is also included when it is a known variable relevant to the health topic being investigated. In their case control study on the pathophysiology of upper gastrointestinal

symptoms, Bröker *et al.* (2009) cite previous research to state that there is a known relationship between dyspeptic complaints and ethnicity in general. The statement is made that “as dyspeptic complaints are known to be influenced by ethnic origin, in this case control study control patients were also matched on ethnicity” (Bröker *et al.*, 2009, p. 2). Subsequently, ethnic groups were defined “according to the official categories of the Central Bureau of Statistics as native Dutch, Western immigrant (that is, from Europe (excluding Turkey), North America, Oceania, Israel, Japan, or Indonesia) and non-Western immigrant (Turkey, Asia (excluding Japan and Indonesia), Central and South America, Africa)” (Bröker *et al.*, 2009, p. 2). The authors do not discuss or define ethnicity further, nor do they mention a possible causal association. This study analysed psychosocial co-morbidity, that is, it compared rates of psychological and social problems in patients with and without upper gastrointestinal (GI) symptoms. The authors mention ethnicity in the introduction and methods sections only, but they draw no ethnically specific conclusions at all.

Not much diversity was observed in how ethnicity was enacted as a demographic variable. The papers were similar in that they categorised ethnicity according to the official country-of-origin categories (Western or non-Western); these variables were included in the statistical analyses and, finally, the results were summarised as descriptions of prevalence and as statistical associations. One might state that this version of ethnicity is *empty*, given that it is devoid of any conceptual inscription; ethnicity is enacted solely in terms of standardised Dutch categories and is operationalised only in terms of demographic descriptors and statistical variables. Nevertheless, the use of ethnicity here as a risk indicator or known relevant variable is not without consequences – namely, that such epidemiological data can provide the premises for further ethnicity-specific research and policies.

Ethnicity as biological race

In our analysis of this second group of publications, we attend to how ethnicity is enacted as *biological race* in a surprisingly large number of publications. This is startling in that, unlike the country-of-origin and (non-)Western categories, racial categories are not included in the official Dutch categorisation system. Although researchers in this group define ethnicity as meaning country of origin or do not define it at all, ethnicity is also enacted as race through specific practices (Helberg-Proctor *et al.*, 2016). These practices include: the establishment of the premises underlying a specific research question; the transformation of the country-of-origin categories into racial categories (‘re-categorising and renaming’); the comparison of these newly formed racial groups to other racialised groups (‘likening and comparing’); and lastly, the attribution of the differences found between ethnic/racial groups to biological causes (‘biologising difference’).

Referring to previous research

From our analysis, we conclude that, in order to understand how ethnicity is enacted as biological race, it is first necessary to examine the process by which researchers establish the premises for their ethnicity-specific research. Generally, in order to establish the premises for their ethnicity-specific study researchers refer to previous research and, in doing so, they

often imply sameness between ethnic and racial groups in the cited research and the ethnic groups included in the project at hand (Helberg-Proctor *et al.*, 2016). An example of this can be found in the work of Wolma *et al.* (2009) on the relationship between ethnicity and large- and small-vessel disease within a hospital-based population. The authors build upon the hypothesis that large- and small-vessel disease is related to ethnicity, and refer specifically to previous research stating that White patients often present with large-vessel strokes and Black patients with small-vessel strokes. The activity of referring to previous research, in which racial categories were used, becomes the point at which race and specific racial categories enter into Dutch research projects in the 'Introduction' section of the research article, in which the premise for including ethnicity is established or a specific research question is formulated. For example, these authors state:

For the analyses of the present study, we first categorised ethnic groups into (i) White patients and (ii) non-White patients, according to previous studies on UK and US populations. In the second analysis, we distinguished (i) White patients (i.e. Caucasian), (ii) Black patients (i.e. Africans and Creoles), (iii) Asian patients (i.e. Indonesians, Hindustanis, Chinese, Pakistanis and Indies), and a category with (iv) the other ethnicities. (Wolma *et al.*, p. 523)

Although ethnicity is not specifically defined in the article above, the previous research referred to, which utilises specific racial categories, invokes the use of similar categories (White and non-White, of which the latter is also subsequently subdivided into Asian, Black, and other ethnicities), resulting in the specific enactment of ethnicity as race.

(Re)categorising and (re)naming: Likening and comparing

Our analysis indicates that ethnicity, when enacted as race, is generally categorised according to the official country-of-origin system first, and then is re-categorised and renamed into the various racial categories, such as Black, White, non-White, Caucasian, non-Caucasian, and Asian. We identified two ways that this can be done – either the authors explain why and how they have categorised the original country-of-origin categories into the new racial categories, or they do this without providing any explanation for the new categories. For example, in their research on gene polymorphisms associated with high blood pressure in an ethnicity- and gender-specific manner, Hahntow *et al.* (2009) conducted research using an existing database (SUNSET), in which ethnicity was determined on the basis of self-reporting (Helberg-Proctor *et al.*, 2016). When the details in the methods section were examined, we learned that, indeed, in the original database, participants were grouped according to self-reported country-of-origin category (Dutch and Surinamese). However, these two groups were then re-categorised into three new groups: Black Suriname, South Asian Surinamese, and White Dutch. And finally, these authors refer to the categories Black, White, and South Asian, of which the former are then likened to African-Americans and the latter to White Americans. Furthermore, related to the re-categorised and renamed of the country-of-origin categories into the various racial categories. In this article, "Black" is used synonymously with "Creole", which is specifically defined as "a mix of African, European and other ethnic groups"; "White" ethnicity in this instance entails being born in the Netherlands to parents who were also born in the Netherlands (Hahntow *et al.*, 2009, p. 81); and lastly, the "Asian" ethnicity refers to self-identified "Hindustanis" born in Suriname

(Hahntow *et al*, 2009, p. 81). Interestingly, the authors note that “subjects who could not unequivocally be assigned to one of the three ethnic groups” were excluded from the study (Hahntow *et al*, 2009, p. 81). This exclusion criterion indicates that these categories are perceived to be able to be unequivocally assigned to research subjects. In this example of the transformation of the original country-of-origin categories into racial categories some ethnicities are specifically defined, such as “Black/Creole” as “a mix of African, European and other ethnic groups”, while other ethnicities referred to in the article, such as “White”, are not defined beyond the country of birth (Hahntow *et al*, 2009, p. 81). Nevertheless, in this example, specific inclusion criteria are given for all the ethnic categories that are used. In other instances, researchers re-categorise the country-of-origin groups, but do not provide information as to how this occurs nor do they define the new categories.

For instance, in their article, Van Leeuwen *et al.* (2010) set out to better identify pregnant women at increased risk for gestational diabetes mellitus (GDM) so that a clinical prediction model could be developed. On the basis of literature from the American Diabetes Association, the researchers identified the following risk factors for GDM that were to be included in the model: maternal age over 25 years; a body mass index (BMI) above 30 kg/m²; a previous macrosomic baby (> 4500 kg); previous GDM; a first-degree relative with diabetes; and an “ethnic origin with a high prevalence of diabetes” (Van Leeuwen *et al*, 2010, p. 96). The term “ethnic origin” was used and ethnicity was reported to have been based on “self-reporting” during the intake of participants. The authors state that they intended to evaluate the associations between various country-of-origin categories and the occurrence of GDM. However, as the number of women in the various country-of-origin categories was too small for statistical analysis, the researchers differentiated instead only between Caucasians and non-Caucasians. No definition or conceptualisation of the categories Caucasian or non-Caucasian was provided, nor was any information given on how the eight country-of-origin ethnic categories had been divided into the categories Caucasian and non-Caucasian (Van Leeuwen *et al*, 2010).

These two examples illustrate that a second research practice involved in the enactment of ethnicity as race in the production of academic articles, is the re-categorisation and renaming of ethnic groups (in regard to previous research) and the comparison to other racialised groups.

Drawing conclusions and biologising difference

A third research practice relevant to the enactment of ethnicity as race involves the making of ethnicity-specific conclusions in research articles. For example, in the “Results” section of the article by Van Leeuwen *et al.* discussed above, the authors conclude that ethnicity is one of the independent predictors of gestational diabetes mellitus (GDM) in this cohort of women; in the “Discussion” section, the authors note that, specifically because of how ethnicity was included in their GDM risk prediction model (as Caucasians and non-Caucasians), their prediction model is applicable to identifying women at risk for GDM in the “general” population of pregnant woman:

Although the risk scoring system used by Caliskan *et al.* might have slightly higher accuracy measures, the scoring system was developed using data from women of Turkish origin only, thereby ignoring the influence of ethnicity on the development of

GDM, and decreasing the applicability of the scoring system to other populations. In the present study, we accounted for the influence of ethnicity, making our prediction model more applicable to the general population of pregnant women. (Van Leeuwen *et al.*, 2010, p.73)

Another example of racialised ethnicity-specific conclusions being made can be found in the work of Kuijper *et al.* (2010). In this research on the frequency distribution of polymorphisms in the follicle-stimulating hormone (FSHR) receptor gene, the authors seek to “determine the frequency distribution of FSHR polymorphisms at position 680 of exon 10 within a large group of women with fertility problems from different ethnic backgrounds” (Kuijper *et al.*, 2010, p. 588), and state that they have distinguished five ethnic groups in their study population, namely Caucasian, Asian, Hindustani, Creole, and Mediterranean (Kuijper *et al.*, 2010, p. 589). These specific ethnic categories are not defined; no inclusion or exclusion criteria for these categories are provided; and no information is given on how the Dutch country-of-origin categories relate to these five categories. Nonetheless, the authors conclude, among other results:

The results indicate unmistakably that a significantly lower number of Asian women have a Ser680Ser FSHR variant and a significantly higher number have an Asn680Asn variant, compared with Caucasians and Mediterraneans. (Kuijper *et al.*, 2010, p. 591)

The women included in this study visited the Reproductive Medicine Unit of the Obstetrics and Gynaecology department at the VU University Medical Center in Amsterdam. This aspect of the research situation is relevant because the Nederlandse Vereniging voor Obstetrie en Gynaecologie (the Dutch Organisation for Obstetrics and Gynaecology) is part of the Netherlands Perinatal Registry (PRN), which collects medical data on all perinatal care in the Netherlands. The forms used for the PRN registry require a patient's ethnicity to be categorised as Dutch, Other European, Asian, Hindustani, Creole, Mediterranean, and Others, with the “Mediterranean” category described as including women who are “Turkish” and “Moroccan” (Stichting Perinatale Registratie Nederland, 2013, p. 23). Thus, although in the final publication by Kuijper *et al.*, the ethnic categories used are not defined or otherwise described (we can only assume that they refer to the PRN-form categories), “Caucasian”, “Mediterranean”, and “Asian”) are, nevertheless, enacted as racialised and geneticised ethnic categories with “unmistakable” genetic differences (Kuijper *et al.*, 2010, p. 591).

Multiplicity

A comparison between the article by Hahntow *et al.* (2009) discussed above and another article using the same SUNSET database provides specific insights into the *multiplicity* of ethnicity and distinct ethnicities. The manner in which these different enactments occur are, in fact, highly specific to one particular research project or publication. Using the same SUNSET database as Hahntow *et al.* (2009), De Munter *et al.* (2010) studied the relationship of total physical activity, along with its intensity and duration, with HDL and triglycerides. To this end, the original self-reported country-of-origin categories (Dutch and Surinamese) from the SUNSET database were transformed into the ethnicities of Dutch, Hindustani-Surinamese, and African-Surinamese, thus differing from the ethnic categories

Black, White, and South Asian in Hahntow *et al.* This makes clear that the ethnicity assigned to the study population is not *stable* across different studies using the same database at the same research institution and during the same time period (in this case the University of Amsterdam Academic Medical Center).

This multiplicity can also be observed within one research project, where the same researchers categorised and operationalised data from the same cohort study differently for various publications. These inconsistencies draw attention to the importance of taking into consideration the unique research situation on the enactment of ethnicity. For example, the cohort study participants from the Van Leeuwen *et al.* (2010) article discussed above are, in a different publication, recategorised from the original country-of-origin categories into the racial categories “Caucasian”, “Black”, “Asian”, and “Other” (instead of “Caucasian” and “non-Caucasian”, as in the first article discussed above) (Van Leeuwen *et al.*, 2009, 2010). Thus, the same data are categorised into different racialised groups in different publications by the same authors. From a praxiographic perspective and attending to the dynamics of the research situation, these variations can be understood in terms of the first two practices discussed above, namely the establishment of the premises for the research and the recategorising and renaming of the country-of-origin categories. In the first article by Van Leeuwen *et al.* (2010), the authors refer to a risk model developed by the American Diabetes Association (2009), in which an increased risk of developing this disease is attributed to “members of an ethnic/racial group with a high prevalence of diabetes (e.g. Hispanic American, Native American, Asian American, African American, and Pacific Islander)” (American Diabetes Association, 2009: S66), a phrase which is transformed by the authors into “non-Caucasian”, after they found that the individual country-of-origin ethnic groups were too small for any meaningful statistical analysis to take place. In the second article based on the same cohort study, the authors refer specifically to a different model developed by Naylor *et al.* (1997) in which the clinical risk groups are described as “Black”, “Asian”, and “Other”, with “White” being used as a reference group (Naylor *et al.*, 1997. in Van Leeuwen *et al.*, 2009). Referring to this particular model, Van Leeuwen *et al.* recategorise and rename the country-of-origin categories into “Caucasian”, “Black”, “Asian”, and “Other”, again without providing any information as to how the individual country-of-origin groupings were re-categorised (2009). Thus, different categorisations and the renaming of the data and participants from the same cohort study lead to the enactments of different racialised ethnic categories, depending on the dynamics of the research situation (here, needing a statistically significant sample size, and the specific categories used in previous research), even within the context of one research project by the same authors.

Ethnicity as unique mosaic of related factors

In the last group of publications we analysed, ethnicity is enacted as a combination of various related characteristics and themes. In this group of publications, authors define ethnicity as either meaning country of origin or do not define it at all, and adhere to the official country-of-origin and Western and non-Western categories. These articles usually start with a known ethnicity-related health risk, and then seek to further investigate the relationship between ethnicity and risk and prevalence. In doing so, many of these articles

tease out how various risks and disease-determinants are related to and might differ by ethnic group. Again, we see ethnicity in relation to health not simply as something that is *found* as a result of the research leading up to these articles, but rather as something that is enacted by specific practices applied during a specific research situation, the result of which is the production of a research article. Two particular research dynamics are central to the enactment of ethnicity as a unique mosaic of related factors: The first involves the stage at which the various facets of ethnicity are introduced and discussed in order to formulate a specific research question or hypothesis; the second includes the discussion of ethnicity-specific research results. Below, three illustrative examples are discussed.

In their research on diabetes risk factors among ethnic minorities, Ujcic-Voortman *et al.* (2009) state that they have defined ethnicity as self-reported country of birth. To introduce their research and the specific research question, the authors state that the prevalence of diabetes in Western societies is rapidly rising, and that “migrants” to Western societies in particular are at increased risk of diabetes. Here, the authors cite research on “African and Asian migrants” in the United States and the United Kingdom, groups that are stated to have a far higher prevalence of diabetes than the “indigenous population” (Ujcic Voortman *et al.*, 2009, p. 510). When examining the articles that are cited as research on “African and Asian migrants” by Ujcic-Voortman *et al.*, we observed that the articles refer to Caribbeans, West Africans, South Asian Hindus, and Muslims as “ethnic groups” in South London (Cappuccio *et al.*, 1997), and “African descendants” and “Hispanics” are referred to as “minorities” in the United States (LaRosa and Brown, 2005). Furthermore, in the article, the terms “ethnic minorities” and “migrants” are used interchangeably. The authors state that Turkish and Moroccan “migrants” are among the largest “ethnic minority” groups in Europe, and that diabetes may be more prevalent among this group; however, the recent information about these groups is scarce, and the sample sizes in previous research were relatively small (Ujcic-Voortman *et al.*, 2009, p. 511). Thus, these authors have set out to study the prevalence of diabetes among a “relatively large number of Turkish, Moroccan, and Dutch individuals” aged 55 and living in Amsterdam, the Netherlands (Ujcic-Voortman *et al.*, 2009, p. 511). In addition, the authors wanted to investigate differing determinants of diabetes in ethnic groups, and included differences in demographic and lifestyle factors in their analysis. In reporting their findings, the authors observe that the rates of diabetes in Turkish and Moroccan migrants were, respectively, two and three times higher than those in the indigenous Dutch population, and that diabetes occurred at younger ages among Turks, and especially among Moroccans. In presenting and discussing these results, they state that, after accounting for other known diabetes risk factors, such as low socioeconomic status and obesity, diabetes remained more frequent among Moroccan individuals, while the prevalence among Turkish individuals was higher, but not significantly different from that of the indigenous Dutch (reference) population (Ujcic-Voortman *et al.*, 2009, p. 514). Furthermore, compared with the Dutch reference group, the typical age of onset was found to be one decade younger for Turks and two decades younger for Moroccans (Ujcic-Voortman *et al.*, 2009, p. 514). Having established that the demographic and lifestyle variables included in the analyses did not explain all the differences between rates of diabetes among Moroccan migrants and the “indigenous” Dutch population, the authors suggested the following:

... [that] the fact that these demographic and lifestyle factors could not explain all of the ethnic differences in diabetes prevalence, indicates that other features such as genetic susceptibility, other endogenous factors or environmental factors may be responsible for the higher frequency of diabetes among Moroccan and Turkish migrants. (Ujcic-Voortman *et al*, 2009, p. 514)

In regard to other known endogenous factors, the authors state that variations in blood pressure and cholesterol levels were found between the ethnic groups, and that these might explain the differing prevalence of diabetes. Furthermore, seeking to understand the possible effects of migration on their findings of a relatively high prevalence of diabetes among Turks and Moroccans, the authors compare their results to data about Turks and Moroccans living in Turkey and Morocco. To this end, they find that, although the study results are comparable with regard to prevalence, the Turkish and Moroccans with diabetes living in Amsterdam were younger than those living in Turkey and Morocco, and thus diabetes prevalence among “migrants” is assessed as being “relatively high”. It is hypothesised that migration, which involves “adaptation to a Western lifestyle”, might play a role here. In addition, it is stated that the Turkish and Moroccan migrants in Amsterdam originated from rural areas and come from low socioeconomic backgrounds, a factor that increases their risk for diabetes (Ujcic-Voortman *et al*, 2009, p. 514).

Thus, in this article, ethnicity is enacted as a complex combination of various related characteristics and themes. By isolating various possible determinants related to ethnicity – including demographic and lifestyle factors and migration – a complex analysis has taken place and the discussion leads to the conclusion that the relevance of ethnicity to the prevalence of diabetes is related to migration to a Western society, possible shared genetic susceptibility, demographic and lifestyle factors, and other endogenous factors. Thus, while ethnicity is defined as self-reported “country of birth”, being “Turkish” or “Moroccan” in this article is enacted as referring to a “migrant”, that is, someone probably originating from a rural area in Turkey or Morocco and living in an urban area in Amsterdam. In this research project, “Turkish” and “Moroccan” ethnicity are thus enacted as a complicated mosaic of related factors.

The next example discusses another instance of how researchers combine different features of ethnicity into a particular complex mosaic, which in turn works to enact specific versions of ethnicity. Van Vliet *et al*. (2009) set out to determine the prevalence of metabolic syndrome (MetS) among overweight and obese children in three major ethnic groups in the Netherlands, namely among individuals from the Dutch, Turkish, and Moroccan communities. The authors assert that the premise underlying this research is the global increase in obesity and its accompanying health risks. In terms of ethnicity, the authors stated that, besides data on overweight, little is known about cardio-metabolic risk factors in children among ethnic minorities in the Netherlands. The authors asserted that, compared to the inhabitants of their country of origin, immigrant groups often have an increased risk of developing cardiovascular disease, writing that:

For example, data on Japanese immigrants living in the United States indicate that a westernised lifestyle aggravates the risk factors for atherosclerosis and its progression. (Van Vliet *et al*, 2009, 8:2)

Oral glucose-tolerance tests, anthropometric parameters, and blood samples were used to determine metabolic syndrome and insulin resistance in relation to each ethnic group. In summarising their findings, the authors state, among other conclusions, that Turkish children show a significantly higher prevalence of cardio-metabolic risk factors relative to their peers of Moroccan descent. The authors discuss these results as follows:

Some of the differences found may be attributed to environmental factors, such as socio-economic status, lifestyle and diet. However, regarding differences in diet among ethnic groups, its influence may be questioned, due to the fact that both Moroccan and Turkish children have a diet which is more in line with the Dutch guidelines for a healthy diet than the conventional diet as consumed by Dutch native children. The latter does not support the finding that Turkish children have the most unfavourable cardiometabolic risk profile overall, but may account, at least in part, for the relatively low LDL-cholesterol levels in Turkish and Moroccan children. Adaptation of a Western lifestyle after migration is considered by some as major cause of overweight and development of other cardiometabolic risk factors, since the prevalence of these factors is often lower in the country of origin. At least this applies for Turkish adults, but surprisingly, in a cohort of two thousand Moroccan adults living in Morocco, the prevalence of dyslipidaemia and hypertension was respectively three and four fold with respect to Moroccans living in the Netherlands. (Van Vliet *et al*, 2009, 8:2)

Here again, a unique and complex mosaic of features that have been brought together in the introduction to the research and in the in-depth discussion of the results can be seen. Although ethnicity is not defined (it is only asserted to be based on the country of birth of the child's parents), it is enacted as a complex and dynamic effect of related facets, such as socioeconomic status, lifestyle, and diet. Interestingly however, this very complexity allows for the eventual *naturalisation* of ethnicity as a *genetically significant category*. This happens because, by isolating known and hypothesised determinants through comparison and reference to previous research (such as socioeconomic status, lifestyle and diet, and migration), these authors argue that "as shown previously, environmental factors can only partly explain differences found among racial groups, so it is likely that genetic profile plays a key role in expression of obesity related co-morbidities" (Van Vliet *et al*, 2009, 8:2). This conclusion is stated to be based on these authors' own findings that insulin resistance was differently associated with cardiometabolic risk factor per ethnic group in their study, along with similar findings from previous research on susceptibility genes for MetS. Interestingly, however, when taking a closer look at the previous research cited here to draw this conclusion, we see that the research was conducted in the United States, which used the categories "non-Hispanic white", "Hispanic", "African-American", and "Japanese-American" to identify susceptibility genes for the MetS (Edwards *et al*, 2008). Therefore, the previous study that is cited by the authors to establish that genetic differences exist between the Turkish, Moroccan and Dutch groups, actually uses a different racial and ethnic taxonomy, according to which the Turkish and Moroccan groups would very likely be seen

as “White” or “Caucasian”,¹ and thus would, with regard to genetic profile and susceptibility genes for the MetS, be viewed as *the same* as the Dutch reference group. This messiness of comparing new research findings to previous research from elsewhere leads to the simultaneous enactment of ethnicity as specifically *genetically significant*, while it is never defined explicitly beyond the definition of country of birth.

The last example shows how ethnicity is enacted as specific versions of (non-)Westernism. In the publication discussed below, which examines the relationship between gender, overweight, and energy-balance-related behaviours among adolescents, Van Der Horst *et al.* (2009) refer to previous studies in order to put forward the hypothesis that girls, adolescents from non-Western ethnic backgrounds, and adolescents attending vocational schools have a higher risk of overweight and obesity and of unfavourable energy-balance-related behaviours (EBRB, such as dietary, physical activity and screen-viewing behaviours) compared to boys, adolescents from Western ethnic backgrounds, and adolescents participating in higher-level education (Van Der Horst *et al.*, 2009, p. 374).

Because these authors defined ethnicity “according to the definition used by Statistics Netherlands”, they asserted that “[a]dolescents were considered to be from a Western ethnic background if both parents had been born in an European country, North America, Oceania, Indonesia or Japan” and that “[a]dolescents were considered to be from a non-Western ethnic background if one or both parents had been born in a non-Western country” (Van Der Horst *et al.*, 2009, p. 374). Although the authors begin by defining ethnicity “according to the definition used by Statistics Netherlands”, it can be seen that “non-Western” and “Western” are, in fact, enacted in a multiplicity of ways, even within this one publication. One version involves the categorisation of persons from North Americans as “Western”, and then another version, through the comparison and discussion of the research results, entails the categorisation of African-American and Hispanic females in North America as “non-Western”:

Examining gender by “ethnicity interaction effect” and subsequent stratified analyses showed that girls from non-Western ethnic backgrounds were more likely to be overweight or obese compared with boys from non-Western ethnic backgrounds and that they were more likely to engage in risk behaviours. These gender differences were not found for adolescents from Western ethnic backgrounds. This indicates that girls from non-Western ethnic backgrounds in particular are an important target group. The same pattern of higher overweight prevalence among non-Western female groups has also been found in the United States. Ethnicity overweight differences were greater among females, showing a higher overweight prevalence among African-American girls compared with boys. [...] These similarities in patterns are interesting, because the non-Western ethnic groups in the US are different from those in the Netherlands. Whereas in the US ethnic minority groups are African-American and Hispanic, in the Netherlands the most important ethnic minority groups are Turkish, Moroccan, Surinamese and Cape Verdean. (Van Der Horst *et al.*, 2009, p. 377)

1 As a census category in the United States, the “White” category includes respondents who reported the entries Caucasian or White; European entries, such as Irish, German, and Polish; Middle Eastern entries, such as Arab, Lebanese, and Palestinian; and North African entries, such as Algerian, Moroccan, and Egyptian (see <http://www.census.gov/prod/cen2010/briefs/c2010br-05.pdf>).

What “Western” or “non-Western” *is* is thus not simply a matter of *reality, fact, perspective* or *definition* – rather it is a matter of how these objects are enacted in different research practices (such as categorisation and comparison). The availability and specifics of previous research against which new results are compared and understood shape the research situation, and subsequently the specific enactment of these unique mosaics of ethnicity.

Conclusion

Using a praxiographic analytical framework, we analysed the multiplicity and situatedness of enactments of ethnicity in research practices described in academic publications. By carefully examining and analysing a large number of research publications, our study illuminates the role that specific scientific conventions play in producing academic publications and demonstrates that the dynamics of the research situation in which this occurs are relevant to the enactment of ethnicity in the Netherlands for the period we studied. Previous analyses of the use of the concepts of race and ethnicity in health research have often zoomed in on specific settings to provide fine-grained, case-study-specific insights. This study is not an in-depth case study of ethnicity in relation to one specific setting; it does not focus on one specific laboratory, research project, or health research sub-field or topic. Rather, we have chosen to examine a wide range of publications on health research conducted in the Netherlands. This was implemented in order to find common patterns and dynamics related to how scientific health research produces knowledge and facts about ethnicity in the context of health. In our analysis, we discuss three different research practices in the production of academic publications and dynamics relevant to the multiple and situated enactment of ethnicity: (1) The practice of *establishing premise* in academic publications and the related dynamics involved in referring to previous research, such as referring to other categorisations systems and the language used to describe for ethnicity and race outside of the local setting; (2) the organising and *ethnic labelling of data and groups* and the dynamics related to sample sizes and the sites of data collection (such as the forms used in specific clinical departments or for specific databases); and lastly, (3) the practice of *interpreting data and of comparing and discussing* research findings in relation to previous investigations.

In terms of the process by which researchers establish the premises for their ethnicity-specific research in academic publications, our analysis indicates that the manner in which premises are established for a specific research question inscribes meaning to ethnicity and informs the specific ethnic categories and the related factors that are used. A research question that has been formulated on the basis of previous research and which refers to race and to specific racial categories will require the use of similar racial categories; here we see the important role that the research situation plays. When ethnicity is enacted as a mosaic, often the different relevant multifaceted determinants of this enactment of ethnicity are cited as being included on the basis of previous research. Secondly, we examined ‘(re)categorising and (re)naming’. The organising and ethnic labelling of data are necessary to conduct ethnicity-specific research and can be carried out in accordance with the official (Dutch) categorisation system; however, as shown in our analysis, many researchers resort, on a day-to-day basis, to using other unique and diverse systems to organise and ethnically label their

data. As a matter of course, groups are conflated, split up and renamed. For instance, different country-of-origin categories are combined and renamed into racial groups, such as Black, non-Caucasian, Asian and White. The same country-of-origin category can be enacted differently by splitting it up and renaming specific sub-groups, such as identifying all North-Americans as being Western and simultaneously defining African-Americans and Hispanics as being non-Western. And thirdly, we examined ‘comparing and concluding’. Through the process of interpreting data and of comparing and discussing current research findings in relation to previous investigations, ethnicity and specific ethnic categories are further enacted as unique versions of these objects (for instance, as being specifically biological, genetic, or related to a specific migration history).

Ultimately, our results here indicate that the production of research publications does not simply involve the registrations of knowledge and the facts about of ethnicity as found through scientific methods in the field or lab; rather, we have shown that research practices involved in the production of academic publications enact ethnicity and its relation to health in specific and multiple ways, depending on the research situation. It follows that, as Law (2004) tells us, “the argument is no longer that methods discover and depict realities. Instead, it is that they participate in the enactment of those realities” (Law, 2004, p. 45). The practices described in our analysis are not extreme or deviant from ‘normal research’, but represent ‘normal research’, and the everyday conventions of science, such as establishing the premises for one’s research, using statistically significant sample sizes, and comparing one’s results to previous studies. Therefore, we argue that the multiplicity of ethnicity in research is not a problem of bad science to be ‘solved’ though the standardisation of concepts of ethnicity, but rather as an important ontological reality of science to be considered when the outcomes of said science in the field of ethnicity and health are being used.

The perceived necessity of comparable research has led to the advice being given to researchers to use census and official categories for ethnicity in health research (Karlsen and Nazroo, 2006; Stronks *et al*, 2009), because such multiplicity is perceived as a problem. Our analysis, however, indicates that this multiplicity of ethnicity is the effect of research practices situated in everyday dynamics of the research situation. Therefore, it is part and parcel of the process of conducting scientific health research itself and thus cannot be solved. Moreover, our analysis indicates that the use of a standardised system, such as the country-of-origin system in the Netherlands, does not lead to uniformity nor comparability. Indeed, information used by researchers on the country of birth of the individual and the country of birth of the parents to determine the ethnicity of a person does not change and can be uniformly used. However, in relation to the everyday practices of health research, where ethnicity-specific questions need to be formulated; where ethnic groups need to be likened and compared to each other; where ethnic categories are re-categorised; and where results are discussed in multifaceted ways, the uniform country-of-origin categories are actually transformed into unique enactments of ethnicity.

While arguing that ethnicity is enacted in academic publications in a unique manner through different practices (depending on the dynamics of the research situation), we simultaneously provide insight into what we call a *praxiographic perpetuum mobile* of ethnicity. This expression articulates the manner in which, in the field of health research, the racial and ethnic language and categories are continuously reproduced because of the dependence on previous research on the present-day research practices. Moreover, we assert

that the enactments of ethnicity in current new research will go on to shape future studies through this self-perpetrating mobile by shaping the research situation in which these future investigations will take place. When theorising and examining the situatedness of scientific work and knowledge production through empirical work in STS, we assert that it is important to consider how current practices in science shape future research situations and the production of knowledge in the future. Current practices in science configure future research situations by providing a stock of previous research that will be used by researchers to establish the premises for their ethnicity-specific research. Previous praxiographic analyses in STS have taught us that multiple versions of objects do not per se constitute different perspectives on a singular object, but are, rather, different ways of 'doing' the object in practice (Mol, 2002; M'charek, 2013). Based on our analysis, we argue that these different ways of 'doing' ethnicity in scientific practices can be understood as shaped by the specific dynamics of the research situation in which these practices take place. Duster (2015) suggests that it is no longer sufficient to "stand along the side-lines and continue to cite the mantra that race and ethnicity are socially constructed"; rather, he urges that "social analysts go to the site of the production of knowledge, and closely examine the procedures, the domain assumptions of how race is being used in human molecular genetics" (p. 23). We have characterised and analysed the often taken-for-granted interdependency of past, present and future in scientific practices in the scientific convention of having to relate one's current research to previous research in one's field. Specifically, we argue that the enactment of ethnicity as race continues through research practices shaped by the dynamics of the research situation in which they occur, even in the context of the absence or even denial of the explicit use of 'race' in ethnicity and health research, as happens in the Netherlands.

Lastly, the enactment of ethnicity as a *demographic variable* and as *mosaic*, and the multiple enactments of specific ethnic groups and categories are also consequential. The enactment of ethnicity as an 'empty' demographic variable works to label certain groups and persons assigned to these groups as 'risk' groups, making these groups 'targets' for further research and for further public and clinical health interventions (Helberg-Proctor *et al*, 2016; Proctor *et al*, 2011). In subsequent research, the manner in which ethnicity is enacted as a complex mosaic of different determinants related to, for example, migration, behaviour, genetics and environments, has consequences for the specific foci of health interventions and the manner in which problems are constructed in public health programmes and policy (Helberg-Proctor *et al*, 2017; Proctor *et al*, 2011).

Attending to practices, we have made visible the manner in which ethnicity is enacted in multiple ways in Dutch health research. These different ways in which ethnicity and specific ethnic categories are enacted have consequences: They are not neutral nor are they innocent. Rather they interfere in the world people live in and how they experience those worlds. Therefore, enacting ethnicity and specific ethnic categories is *political* (Mol, 1999). Conducting health research on ethnicity is, and thus must be seen as, a political act.

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About the Authors

Alana Helberg-Proctor is an assistant professor in the Department of Health, Ethics and Society at Maastricht University. Her research interests include analysis of the use of ethnicity and race in health research, policy and care.

Anja Krumeich is a Medical Anthropologist and has worked extensively on topics including culture, ethnicity and health, mother-and-child health care, reproductive health, and occupational health. Her research combines insights from (Critical) Medical Anthropology and Science and Technology Studies with ethnographic and participatory research methodologies.

Agnes Meershoek is an associate professor in the Department of Health, Ethics and Society at CAPHRI Care and Public Health Research Institute at Maastricht University, the Netherlands. Her research focuses on participation, citizenship and professionalism in health care and work, with special attention to processes of social inclusion and social-exclusion.

Klasien Horstman is a professor of Philosophy of Public Health, Research school CAPHRI Care and Public Health Research Institute, Maastricht University, the Netherlands. Her research focuses on philosophical and sociological analyses of public health issues at the interface of science, technology and society.

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