Interpreting ethnic inequalities in healthcare consumption: a conceptual framework for research

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Background: The increasing diversity of the Western-European population demands identification of potential ethnic healthcare inequities. We developed a framework that helps researchers in interpreting ethnic inequalities in healthcare consumption in equity terms. From this framework, we develop recommendations for the design of future studies.

Methods: The framework was developed by analysing three typical studies on ethnic inequalities in healthcare consumption with respect to the potential of interpreting their results as healthcare inequities.

Results: Analysing the effects of ethnic variations in healthcare consumption on health outcomes provides important clues about the presence of potential ethnic healthcare inequities. Interpretation of ethnic variations in healthcare consumption as potentially inequitable requires appropriate adjustment for medical need for healthcare, patient preferences and treatment adherence. Because of the central position of medical need, studies need to be disease-specific and based on standardized assessment of risk factors and disease characteristics. A longitudinal study design is necessary to prevent reverse causation.

Conclusion: The framework shows that ethnic inequalities in healthcare consumption can be justified if healthcare received meets the need for healthcare in all groups and is in accordance with informed patient preferences. It also shows that ethnic equality in healthcare consumption may hide healthcare inequities. We recommend further research on ethnic healthcare inequities using multi-ethnic cohort designs combined with linkage to healthcare registries. We also recommend research to identify clinically relevant ethnic differences in disease profiles and optimization of treatment regimens.

Introduction

Modern developed societies aim to ensure equal opportunities for health, independently of one’s ethnic background. The ‘capabilities approach’ of Sen and Nussbaum provides a moral foundation for policies to reach this.1,2 Conceived as equal opportunities to achieve health, this capability principle requires that every individual has the real opportunity to be as healthy as possible. This ideal has not yet been realized. To address the health disadvantage of ethnic minority groups, a detailed insight into the factors and mechanisms shaping the health disadvantage of ethnic minority groups is warranted.

Ethnic inequities in healthcare, either in accessibility or quality, constitute a possible explanation for the health disadvantage of ethnic minority populations. Healthcare is deemed accessible if there are no financial, geographical, time, or cultural barriers to healthcare consumption. High quality of care means safe, effective, efficient, timely and patient-centred care.3 Equity of care—defined
as equal access and quality across population subgroups—is a
distinct performance indicator for any healthcare system.\textsuperscript{3–5} The
increasing ethnic diversity of the population of Western Europe
requires an analysis of ethnic healthcare equity. For example, 11% of
the current population of the Netherlands is of non-Western
ethnic origin, with an estimated increase to 16% by 2050. In
Amsterdam and other major Dutch cities, 35% of the population
has a non-Western ethnic background.

The international research literature on ethnic inequity in care can
be confusing because of lack of a standardized nomenclature. In the
United States, ‘ethnic disparity’ is a common term that reflects
shortfalls in care for specific ethnic groups. Following the Institute
of Medicine (IOM) definition, healthcare disparities are differences
in healthcare received by different groups that are not due to differ-
ences in the underlying healthcare needs or preferences of members
of the groups.\textsuperscript{6,7} In European literature, ‘inequality’ and ‘inequity’
are common terms. In this article, we use ethnic healthcare
inequality as a purely descriptive term for a difference in care con-
sumption between ethnic groups.

Healthcare inequity points to ethnic differences in care consump-
tion that are unjustified, implying explicit choices about what
inequalities are justifiable. In this article, we follow Whitehead,
who defined healthcare equity as equal care for equal need,
resulting in equal care consumption given equal need.\textsuperscript{8} The
concept of ‘need’ has been heavily discussed in the literature.
Culyer argued that ill health is insufficient to define need and
proposed ‘capacity to benefit’. Ill health represents a need for
healthcare only if there is an available supply of an effective
healthcare intervention.\textsuperscript{9} The IOM report (2003) used health
status indicators to evaluate the equity of the US healthcare
system in treating clinically comparable groups similarly, although
ethnic differences in health status may have systematic historical and
structural causes. However, equity of the current health system needs
to address current health status of the population.\textsuperscript{7}

The definition of equity as equal care for equal need is coherent
with Aristotle’s conceptualization of ‘horizontal’ and ‘vertical’
equity. Horizontal equity means equal care for equal need (‘treat
like as like’), whereas vertical equity requires care to be unequal if
need is unequal (‘treat unlike as unlike’).\textsuperscript{10} Until now there has been
little focus on vertical healthcare inequity; most research has focused
on horizontal ethnic equity, assuming ethnic equality in need.\textsuperscript{11}
Ethnicity-specific differences in disease and treatment, such as
different treatment of hypertension in people originating from
West-Africa, constitute an application of the concept of vertical
equity. However, a lot is unknown about these differences, and
not all existing knowledge has been incorporated in professional
guidelines. Research to identify ethnic differences in disease
profiles and optimizing treatment regimens is recommended.

Studies on healthcare inequity have often relied on analysis of
ethnic inequalities in healthcare consumption. However, not all
ethnic inequalities in healthcare consumption represent inequities,
whereas equal care consumption may hide ethnic inequities in care:
the care consumption by the majority is not the gold standard. We
developed a framework to help researchers in their interpretation of

### Three Types of Studies

We propose to classify empirical studies that analysed ethnic
inequalities in healthcare consumption in three groups:

(i) Studies that document ethnic differences in healthcare
consumption.

(ii) Studies that document ethnic differences in healthcare con-
sumption, complemented by a comparison across ethnic
groups of care delivered with guideline-recommended care.

(iii) As (ii), but with additional analysis of the association between
ethnic variations in quality of care delivered and health
outcomes.

An example of the first type is Stronks et al.,\textsuperscript{12} who analysed
consumption of healthcare services by ethnic origin using linked
health insurance and health survey data for a general population
sample (see table 1 for characteristics of the study population).
Country-of-birth criteria were used to define ethnicity. After
controlling for age and sex, general practitioner (GP) care consump-
tion was significantly higher among most immigrant groups
compared with the ethnic Dutch, whereas hospital admission rate
and use of specialist services such as physiotherapy were not signi-
cantly different. Self-rated general health was significantly worse
in the Moroccan and Turkish groups, but adding this variable to the
statistical model did not account for the differences in care utiliza-
tion, nor did socio-economic status indicators.

Can the differences in healthcare consumption as observed in this
study be interpreted as ethnic healthcare inequities? We see two
drawbacks. First, adjustment for ethnic variations in medical need
was performed using self-rated general health. Second, the conse-
quences of the observed differences in healthcare consumption for
health outcomes could not be analysed.

Goddard and Smith\textsuperscript{13} illustrated the importance of appropriate
conceptualization of need. Self-rated general health data do not
represent the presence or severity of pathology or disease. It is a
measure of subjective (or perceived) health, and can be viewed
as the driving variable for healthcare-seeking behaviour.\textsuperscript{14} In the ana-
lysis of the match between need for healthcare and care consump-
tion, professionally defined need (i.e., a professional judgement
about people’s health status and their need for medical care,
rather referred to as ‘medical need’) variables are superior.\textsuperscript{14} This
requires detailed data on disease severity, and disease-specific studies
are considered more meaningful.\textsuperscript{14} Additionally, reverse causation
may have occurred in this study: subjects may have reported good
health because of healthcare consumption. The observation that
items on self-rated health are prone to cross-ethnic variations in
interpretation further limits its usefulness in the analysis of ethnic
inequity in care.\textsuperscript{15} Stronks et al.\textsuperscript{12} themselves acknowledged that

<table>
<thead>
<tr>
<th>Study</th>
<th>Study population</th>
<th>Design</th>
<th>Healthcare consumption</th>
<th>Need</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stronks et al., 2001</td>
<td>1422 ethnic Dutch, 139 Surinamese, 25 Antillean, 229 Moroccan, 85 Turkish inhabitants of Amsterdam</td>
<td>Cross-sectional</td>
<td>Registries</td>
<td>Self-rated health, self-reported chronic conditions</td>
<td>No</td>
</tr>
<tr>
<td>Fassaert et al., 2010</td>
<td>6413 GP patients with common mental disorders (CMD)</td>
<td>Prospective</td>
<td>Quality of CMD care indicators derived from registries</td>
<td>GP-recorded diagnosis of CMD professional diagnosis of diabetes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fischbacher et al., 2009</td>
<td>10509 patients with diabetes (including 176 South Asians)</td>
<td>Prospective</td>
<td>Quality of diabetes care indicators derived from registries</td>
<td>-</td>
<td>No</td>
</tr>
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</table>
adequate adjustment for residual ethnic variation in need requires additional information on medical need.

As the authors also acknowledged, additional analysis of the consequences of the ethnic differences in healthcare consumption found for health outcomes might have provided a clue about the potential inequity of these ethnic differences in healthcare consumption. If in this case equal specialist care consumption reflected an example of ‘unlike treated as like’, health outcomes would have been worse in the ethnic groups that were under-treated. However, no outcome data were available for this specific study.

An example of the second type of study is provided by Fassaert et al., who explored ethnic differences in indicators for quality of GP care for common mental disorders (CMD), see table 1. The authors’ choice of indicators for guideline adherence included at least five consultations in a specified period, prescription of psychotropic drugs, and/or referral to a mental health specialist (the choice of the indicators was limited by data availability from electronic medical records). Of these patients, 43% received adequate treatment according to these indicators. Only patients from Surinamese/Antillean descent were less likely to receive guideline-recommended care than the ethnic Dutch. Apart from low guideline adherence in general, this study thus provided evidence for ethnic variations in guideline adherence.

Studies of this type add information to studies that document ethnic differences in healthcare consumption (as in the first type of study, above). By comparing actual care consumption with guideline-recommended care, they add a new layer to the interpretation of healthcare consumption that introduces the opportunity to interpret care consumption data in terms of quality of care. Because medical practice guidelines are disease-specific, appropriateness of care consumption can only be judged in a disease-specific study.

Does this approach allow for conclusions on ethnic care inequity? This study was not hampered by some of the limitations of the first type of study. Medical need was analytically taken into account using a standardized diagnostic code as registered by the GP, which is an improvement when compared with patient self-assessment. Care consumption was measured subsequent to the diagnosis, and the interpretational layer of guideline adherence was added. However, it still lacked an analysis of the relationship between ethnic differences in professional guideline adherence and health outcomes of treatment, and the GP-recorded diagnosis of common mental disorders, as a proxy for medical need, contained no information on the severity of the disorder. Moreover, till now practice guidelines have often been based on the medical needs of the ethnic majority population. Guideline adherence is a valid starting point for analysing ethnic variations in quality of care, assuming ethnic equality in medical need. The confirmation or rejection of this assumption requires analysis of the effect of guideline-recommended care on health outcomes by ethnicity. And finally, there is evidence that some ethnic minorities tend to a lower consumption of standard mental health services because of a tendency to solve mood disorders by other means, such as seeking religious help. Such potential patient preferences for care that may result in ethnic differences in care consumption were not accounted for.

An example of the third type of study is Fischbacher et al., who used the Diabetes Audit and Research in Tayside, Scotland (DARTS) database to compare processes of care and diabetes outcomes between South Asians and the white majority population in 2003–04. The DARTS database contains details of all patients known to have diabetes in the region. In November 2003, the database contained 10,509 patients (176 South Asians) with type 2 diabetes living in Tayside. Similar to Fassaert et al., the study made use of comparisons of care consumed with guideline-recommended care. Analysis of ethnic variations in diabetes care consumption showed no significant differences between South Asians and non-South Asians in the recording of some guideline-recommended assessments (HbA1C, cholesterol, blood pressure, retinal screening), and showed statistically significant differences that were in favour of the South Asians for others [more recordings of structured clinical review, body mass index (BMI)]. In contrast to Fassaert et al., however, further analysis linked healthcare consumption to health outcomes. After confounder adjustment for age and sex, South Asians were statistically significantly more likely to have retinopathy (diabetes health outcome). Numbers for those with stroke, coronary bypass surgery and foot ulcers were too low for valid estimation of ethnic differences. Turning to intermediate outcomes of care, HbA1C levels were significantly worse in South Asians. The authors concluded that ethnic variations in diabetes health outcomes (indicator: retinopathy) and diabetes control (indicator: HbA1C) were present, despite equality in professional guideline adherence. In other words, diabetes health outcomes were worse in the South Asian group despite equal care.

Does this study design allow for conclusions on ethnic inequities in care? The typical added value of this type of study is found in the analysis of the impact of ethnic differences in care consumption on health outcomes. However, patients’ treatment preferences (e.g. for insulin treatment) were not analysed. The potential relevance of patient preferences in explaining ethnic differences in healthcare consumption is suggested by studies from the US and the UK that showed treatment differences by ethnicity for cardiovascular disease. Additionally, valid analysis of ethnic differences in diabetes treatment outcomes requires data on other patient determinants of health outcome, notably health behaviour (e.g. diet, exercise) and therapy adherence.

The finding of worse health outcomes despite equal care consumption in Fischbacher’s study may suggest ethnic differences in disease profile. The finding of no ethnic differences in intensity of treatment (in this specific study, the proportion treated with insulin) may in fact point to under-treatment of South Asian patients with diabetes, because in this case equal care resulted in unequal health outcomes. It is possible that patients with diabetes of South Asian origin have a higher need for healthcare and need a more extensive or different treatment regimen. The study presented could then be an example of equal healthcare consumption hiding ethnic inequity in care. However, as pointed out by Culyer (1995), this is only true when the more extensive or different treatment regimen is effective. Maybe diabetes outcome will be worse in this group, whatever good the treatment.

These three reports illustrate what additional information we need to label inequalities in healthcare consumption as inequities. Below, we propose a framework to facilitate this interpretation process.

Proposal: Framework for Interpreting Ethnic Variations in Healthcare Consumption

We propose a framework that combines and elaborates several existing models: Andersen’s behavioural model of determinants of healthcare consumption, its clinical specification by Rathore, and a model for implementing the IOM definition of inequities in mental healthcare. Associating ethnic variations in healthcare consumption with health outcomes provides clues about the presence of horizontal or vertical ethnic inequities in care. When simplified, it all fits into a 2 x 2 matrix (table 2). After adjustment for age and sex as confounders, further analysis is needed to identify a situation as potentially inequitable, taking the following factors into account:

(i) Medical need, approximated by disease severity. It requires careful conceptualization and standardized measurement, and, if relevant for the treatment indication, it needs to include co-morbidity. The central position of medical need in the interpretation of ethnic inequalities in care consumption requires disease-specific studies.

(ii) Patient factors that determine healthcare consumption, most notably treatment preferences. Ethnic groups may vary in their preferences for certain treatments. If ethnic variations in preferences for preventive or curative treatment choices are based
Table 2 Matrix for interpreting studies that compare healthcare consumption by ethnicity

| Ethnic inequalities in healthcare consumption | Present | Absent
<table>
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<tr>
<td>Present</td>
<td>‘Like treated as unlike’: potential inequity (A)</td>
<td>‘Unlike treated as unlike’: equity (B)</td>
</tr>
<tr>
<td>Absent</td>
<td>‘Unlike treated as like’: potential inequity (C)</td>
<td>‘Like treated as like’: equity (D)</td>
</tr>
</tbody>
</table>

a: Health outcomes are equal, or not worse in the ethnic group that received less care.
b: Adjusted for medical need, confounders and patient factors.

Cell A Like (= equal need) were treated as unlike: ethnic inequities in healthcare may be present (i.e. ethnic inequities in healthcare consumption that were not justified by medical need and led to ethnic inequalities in health outcomes).

Cell B Unlike (= unequal need) were treated as unlike: ethnic equity in healthcare. Ethnic inequities in healthcare consumption that did not lead to ethnic inequalities in health outcomes suggest that some ethnic groups consumed more care because that was necessary to produce equal health outcomes: unlike were correctly treated as unlike, which reflects appropriate ethnic targeting. There may be an alternative explanation if some ethnic groups received over-treatment that did not help to improve outcomes.

Cell C Ethnic inequity in healthcare may be present: ethnic inequities in outcomes were present despite a pattern of healthcare use that is considered appropriate for a specific medical need (e.g. according to a practice guideline). This suggests ethnic differences in the extent to which patients from different ethnic backgrounds benefit from similar medical treatment, requiring ethnic targeting in the guideline.

Cell D Ethnic equity in healthcare: absence of ethnic inequalities in healthcare consumption and outcomes.

Box 1 Data collection requirements for equity interpretation of ethnic inequalities in healthcare consumption

- Condition-specific healthcare consumption (volume and type of care, by ethnicity)
- Disease severity characteristics (including co-morbid conditions)
- Health outcomes of care
- Patient determinants of care consumption: treatment preferences and levels of informed choice
- Patient behavioural determinants of health outcomes of care, including adherence to treatment recommendations

on informed decision-making, ethnic inequality in use of services may be justified, even if this results in variations in outcomes.6,7,22

(iii) Patient factors that determine health outcomes of care, most notably treatment adherence. Ethnic variations in adherence (e.g. adherence to prescribed medication, outpatient control frequency, lifestyle recommendations) may explain ethnic variations in health outcomes of care. However, we consider ethnic variations in health outcomes explained by ethnic variations in adherence as potential care inequities, unless patient behaviour is based on explicit and informed preferences not to follow a certain recommendation and does not reflect adverse living conditions.22

If ethnic inequalities in healthcare consumption have been identified as ethnic inequities in care by following the framework, subsequent analytical steps can be taken to disentangle potential contributing factors of these inequities. For example, attenuation or disappearance of inequities in healthcare consumption by ethnic group after statistical adjustment for socio-economic status suggests that these ethnic inequities in care reflect the same differences as in majority groups of comparable socio-economic status. Differentiation between ethnic and/or socio-economic causes of inequities in care provides clues for ways to solve the inequity problem at hand.22

Design Requirements for Future Studies

Because the data collection requirements implied by the interpretation framework are extensive (see Box 1 for a non-exhaustive listing), some pragmatism is required. Minimum requirements for adequate interpretation (see also, Cook et al., 201224) include disease-specific healthcare consumption data by ethnicity; data on disease characteristics and co-morbidity to take medical need into account (preferably based on standardized diagnostic assessment); data on health outcomes (if the available evidence is not yet sufficient to prove the ethnic equality of the effectiveness of the type of care under study); a longitudinal study design to prevent reverse causation; and data on age and sex as confounders. Standardization of measures of diseases characteristics, ethnicity and socio-economic status is needed, but difficult to achieve.23 A multi-ethnic cohort study would seem to be a promising study design in this respect. We agree with Bhopal, who suggested that data linkage may provide a powerful means to fill data gaps in research on ethnicity, and that this data source deserves to be explored further.24

Conclusion

The framework presented here allows for identification of the results of comparisons of healthcare consumption by ethnicity as reflecting potential ethnic healthcare inequities. The framework also acts as a guide to design future studies on ethnic healthcare inequities. Application of the framework in design and execution of future research on healthcare inequities will allow for substantiation of ethnic healthcare inequities and their relevance, and for identification of levers to counteract them.

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Key points

- Ethnic inequalities in healthcare consumption do not necessarily represent inequities that warrant action. Ethnic inequalities in healthcare consumption can be justified if healthcare received meets the need for healthcare in all groups. Ethnic equality in healthcare consumption may hide healthcare inequities.

- Associating ethnic variations in healthcare consumption with health outcomes provides clues about the presence of ethnic healthcare inequities.

- Medical need must be accounted for, which means that empirical studies need to be based on standardized measurements of disease characteristics.

- Patient preferences and adherence to therapy recommendations that explain ethnic inequalities in healthcare consumption and in health outcomes may represent equitable care if they are truly well-informed, and do not reflect adverse living conditions.

References