

Why Are Patients Treated Differently?

A Conceptual Framework for Classifying Practice Variation in Medicine

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Introduction

- Navid Ghaffarzadegan, PhD candidate in Public Policy
- Decision and Policy Sciences
 - How people make decisions
 - How decisions influence government performance.
- Medical Decision Making, health policy implications
- Practice variation in Medicine
- Approach: Behavioral decision making

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Introduction

- The concept of practice variation
- Evidence: cesarean section surgeries, cancer diagnosis and treatments, cardiovascular care, pneumonia diagnosis, pediatric services, psychiatric services, etc.
- Public administration/policy relevance

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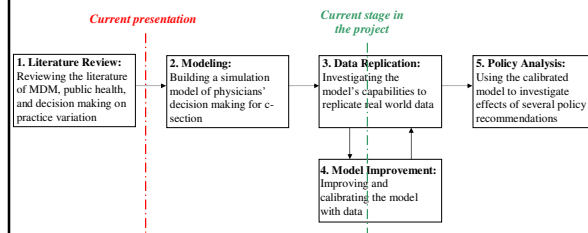
Introduction

- Common causes of practice variation
 - Disease characteristics.
 - Variation in finance structures.
 - Physician characteristics.
 - Patient characteristics.
 - Regional and organizational factors.
- These factors ultimately cause variation through **decision making factors**, thus it is important to understand cognitive limitations in medical decision making

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The practice variation project



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Problem Definition

- This study:
 - Focuses on decision making determinant of practice variation.
- Main questions:
 - How has practice variation been studied?
 - How can we make sense of the literature?
- Proposes an analytic framework of behavioral decision making determinants of practice variation.

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Methods

- Literature Review
- Searched PubMed for "practice variation," which identified 333 articles.
- Narrowed articles to those published in core medical journals.
- Supplemented our search with articles from a similar keyword search in PsychINFO and Google Scholar, and the Dartmouth Atlas of Health Care.
- Finally, we tracked key citations from the articles reviewed. Our final sample included 75 articles.

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Methods

- The open coding revealed two key findings:
 - First, several behavioral decision making phenomena play important roles in practice variation.
 - Second, there is a conceptual difference across studies of practice variation in how researchers categorize, describe, and study practice variation.

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Framework

Table (1): Different forms of practice variation among medically similar patients

	Within-physician	Between-physician
Within-patient	<p><i>Unreliability</i></p> <p>Inconsistency in how a physician diagnoses and treats a single patient over time.</p>	<p><i>Disagreement</i></p> <p>Different styles of practice and disagreement among physicians on how to diagnose and treat a specific case.</p>
Between-patient	<p><i>Bias</i></p> <p>Treating patients within a practice differently based on variation in patients' preferences, and/or physicians' bias toward a group of patients.</p>	<p><i>Interactive effects</i></p> <p>Different doctors treat different groups of patients with different preferences, and different groups of patients choose different doctors.</p>

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Within-Physician/Within-Patient Variation: Unreliability

- when physicians are inconsistent about decisions that they make for the same patient over time.
- The amount of unreliability may vary across physicians.
- Einhorn's study: Medical pathologists reviewing biopsy slides.
- Kirwan et al.: British rheumatologists reviewing patient vignettes.

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Within-Physician/Within-Patient Variation: Unreliability

- Unreliability is produced during two different stages of judgment:
 - information acquisition
 - information processing
- Importance of how information is represented and the ease of accessing critical pieces of information influence decision making accuracy.
- Initial judgment, confirmation bias (Kostopoulou et al. 2009).

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Between-physician/Within-patient Variation: Disagreement

- when different physicians vary in their diagnosis and treatment for a single patient.
- These studies control for patient characteristics.
- Way et al.: psychiatrists reviewing taped interviews of patients at urban psychiatric emergency services.
 - considerable disagreement.
 - Disagreement varies in diagnosing different diseases.

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Between-physician/Within-patient Variation: Disagreement

- Gonzalez-Vallejo et al.:
 - Acceptable level of agreement across pediatricians on their judgment of the probability of acute otitis media
 - low agreement on the type of antibiotic.
- Follow up study, Sorum et al.:
 - physicians place different weights on available information cues when making a diagnosis.
 - Have different decision making models to analyze data and recommend treatments.
 - No cross-national differences.

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Between-physician/Within-patient Variation: Disagreement

- Epstein and Nicholson (2009): c-section surgery.
 - variation in risk adjusted cesarean surgery rate in New York and Florida.
 - Residency programs a minimal explanation.
 - More variation within an area.
 - 30% of variation in risk-adjusted cesarean rates is due to non-observable physician related factors.
 - Do not converge over time to a community norm or standard.

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Within-Physician/Between-Patient Variation: Bias

- when a single physician performs different practices for medically similar patients.
- Discrimination?
- Physicians may consider patients' demographic characteristics in their diagnostic and treatment decisions.
- For example, the prevalence of type II diabetes is 50% higher among non-Hispanic blacks, compared to non-Hispanic whites.

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Within-Physician/Between-Patient Variation: Bias

- Racial minorities higher preference for end-of-life treatments.
- The IOM reviewed the evidence for bias and disparities in different diseases and health care services.
 - Uncertainties (e.g., communication problems),
 - Decision making biases.
 - Increase awareness.

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Between-Physician/Between-Patient Variation: Interactive Effects

- Tape et al.: emergency department physicians at three sites (Illinois, Nebraska, Virginia) diagnose pneumonia.
 - Physicians at each site use clinical findings differently
 - they do so in a way that is consistent with the best possible decision in their location.
- Within a region, different physicians may not treat similar patients.
 - Heterogeneous distributions of patients across doctors.
- Insurance providers add to heterogeneity of patient distribution.

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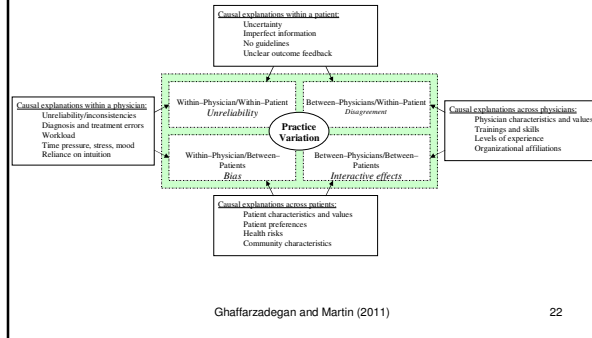
Between-Physician/Between-Patient Variation: Interactive Effects

- Different doctors treat different groups of patients with different preferences, and different groups of patients choose different doctors.
- Building a cognitive reference class: consists of patients that they treat in their daily practices.
- Patients → cognitive reference → style of practice → Patients

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Causal Mechanisms



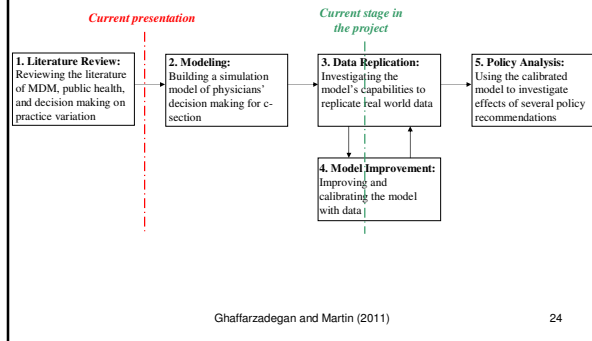
Discussions

- Desired versus undesired forms of practice variation
- Policy tools to reduce undesired practice variation
- Avenues for Future Research

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Future works



Conclusion

- From a behavioral decision making perspective, there are four conceptually distinct forms of practice variation: *unreliability*, *disagreement*, *bias*, and *interactive effects*.
- Practice variation is undesired when it is not based on patients' preferences or on evidence about differential disease burden across populations. That can happen in the first three forms of practice variation (*unreliability*, *disagreement*, and *bias*).

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Conclusion

- Practice variation in the form of *interactive effects* can be a natural response of physicians who adapt to their patient population.
- Policies should address undesired forms of practice variation, while allowing practice variation to occur when appropriate.

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Thanks!

- Email: navidg@gmail.com
- The paper is available online:
– <http://navidg.com/research.htm>

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