Discrimination in medical diagnostics: Indonesia

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Motivation and Research Questions

- WEIRD (Western, educated, industrialized, rich, and democratic societies) sampling bias in social science research
- Cultural and demographic characteristics of a society and change like ageing and migration can influence the esteem of different groups ('The Old', 'migrants', ...)
- Physicians have a special responsibility: medical discrimination has direct and indirect adverse effects on patients' health
- $\rightarrow\,$ Do physicians discriminate with respect to the ethnicity and age of their patients and colleagues?
- $\rightarrow\,$ Is behavior in economic games predictive for behavior in other domains?



Related Literature

On physicians' discriminating behavior in diagnostics

- Schulman et. al., NEJM, 1999, The Effect of Race and Sex on Physicians' Recommendations for Cardiac Catheterization
 Discrimination in economic games
- Fershtman & Gneezy, QJE, 2001, Discrimination in a segmented society: An experimental approach
- Charness & Gneezy, JEBO, 2008 What's in a name? Anonymity and social distance in dictator and ultimatum games
- Dittrich et. al, 2013, Dynamic Repeated Random Dictatorship and Gender Discrimination

Lab and behavior in the 'real world' / external validity

Lewitt & List, JEP, 2007, What Do Laboratory Experiments Measuring Social Preferences Reveal about the Real World?



Hypotheses

Chinese immigrants are of high economic status, yet of low social esteem:

1. The ethnic minority, Chinese, will receive inferior medical attendance.

Indonesia is a demographically young society and 'The old' are hold in high esteem:

- 2. Older patients will receive superior medical attendance.
- 3. Discriminating behavior in economic games is predictive for the physicians' medical decision quality.



Design

- 1. Part
 - One video recorded interview is shown privately to a physician on a computer, depicting patients describing symptoms.
 - Participants also get some patient info: Age 37 or 57 years, Occupation: banker, some (identical) medical test results.
 - Unbeknown to the participants, there are 12 different videos in total with 4 different male actors, i.e. 3 videos for each actor:
 - ▶ 2 Actors are Indonesian, 2 are Chinese
 - There is a young and an older actor of each ethnicity
 - ► 3 different scripts (straight from the textbook): "Definite Angina", "Possible Angina", and "Non-Anginal Pain".
 - Participants fill in a survey asking for a diagnosis (multiple choice), recommendation for further medial tests, and further data regarding the patient and the participant



Design

- 2. Part At the end of the questionnaire
 - Participants are shown a photo of a 'colleague' that took part in the study earlier (one of the three actors not in the video shown to the participant).
 - Participant is asked to play a dictator game with the depicted colleague. Pie size is about 10 CHF.
 - Participant is asked to play an ultimatum game with the depicted colleague who was asked for an minimum acceptable offer (strategy method). Pie size is about 10 CHF.
 - Both decisions are paid.
 - ► The pie size of about 10 CHF is a substantial amount as the per capita GDP in Indonesia is only about 4300 CHF.



The sample

- 272 medical practitioner (internists) recruited in Indonesian hospitals in Jakarta and Semerang (with the help of the Indonesian Ministry of Health)
- ► 118 (43%) with Indonesian-Chinese ethnicity
- Mean Age: 35 years (ranges from junior doctors in their early 20s to senior / head physicians in their late 60s)



Diagnostic decision quality is lower if the patient is Chinese, it improves for older patients



- The difference between young patients of different ethnicity is not sig. (p=0.85)
- Decision quality improves for both, Indonesian (p<0.01) and Chinese (p=0.03), older patients. The difference between them is sig. (p<0.01).
- Older physicians (aged 50+) make better diagnostic decisions (0.52, p<0.01).
- Indonesian-Chinese physicians make better diagnostic decisions (0.21, p=0.01).



Dictator offers are lower if the colleague is Chinese



pie share offered in percent

Age group of colleague

- ► There is no sig. difference between older Chinese and Indonesian colleagues (p=0.61).
- ► The increase in offers to older Chinese is is sig. (p<0.01), the decrease in offers to older Indonesian is not sig. (p=0.07)
- ► Older participants (aged 50+) offer sig. more (+12, p<0.01)
- There is no effect of the decision maker's ethnicity and there are no further interaction effects.

Decisions in the two domains are related

- Preferential treatment of older patients (OR=2.4, p=0.02) and colleagues (OR=1.7, p=0.04) shows no systematic difference between decision domains (p=0.45)
- Adverse treatment of Chinese patients (OR=0.2, p<0.01) and colleagues (OR=0.4, p<0.01) is more pronounced in medical diagnostics (p<0.01)
- Interaction Age x Ethnicity is different between the two methods / decision domains.



Outlook

> ...

- Collect data in further countries with different demographic characteristics
- e.g., demographically 'aged' societies where the treatment of 'The old' may differ

Germany, Netherlands ... done.

cross check with patients' perceived discrimination