

# 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
- Do physicians discriminate with respect to the ethnicity and age of their patients and colleagues?
- 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 held 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 medical tests, and further data regarding the patient and the participant

# Design

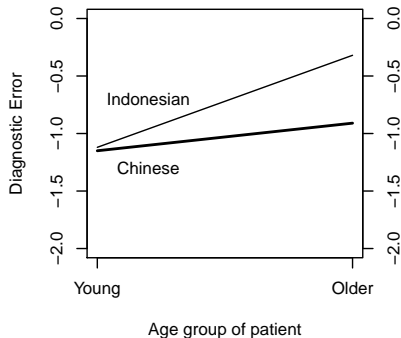
## 2. Part – At the end of the questionnaire

- ▶ 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 Semarang (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)

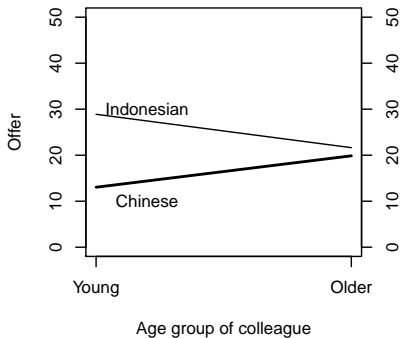
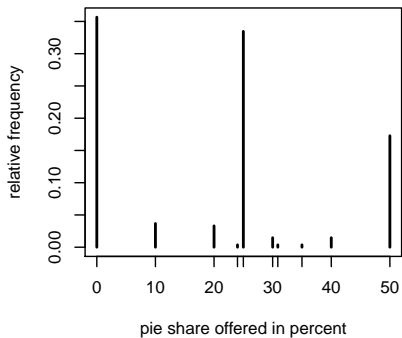
## Diagnostic decision quality is lower if the patient is Chinese, it improves for older patients



- ▶ 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



- ▶ There is no sig. difference between older Chinese and Indonesian colleagues ( $p=0.61$ ).
- ▶ The increase in offers to older Chinese 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
- ▶ ...