



Organizational Blind Spots

Assessing Evidence of Implicit Racial & Gender
Bias in the US Coast Guard

*Hanyu, Abhi, Brendan
(W241, Spring 2021)*

Background

OFFICE OF INSPECTOR GENERAL

The U.S. Coast Guard Academy Must Take Additional Steps to Better Address Allegations of Race-Based Harassment and Prevent Such Harassment on Campus



Homeland
Security

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Improving Gender Diversity in the U.S. Coast Guard

Identifying Barriers to Female Retention

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Primary Investigative Question

- **Research Question**

Do US Coast Guard officers demonstrate implicit bias when considering two resumes that suggest candidates of different gender and race?

- **Pilot Research Methodology**

*Administer an **Audit Study** with the UC Berkeley xLab that aims to answer this question via an online recruitment survey*

- **Final Research Methodology**

*Administer an **Audit Study** with the US Coast Guard Officer Corps that aims to answer this question via an email recruitment survey*



Please Consider...

- How to improve our multi factor design without reducing power?
- How to encourage participation in a restricted survey setting (privacy / restricted covariates)?
- What other metrics can be collected for granular outcome measurement?
- How to effectively communicate and administer policy changes in the US Coast Guard?

Experimental Design



Treatment

- Control vs Treatment

Control: Receive resumes **without** names

Treatment: Receive resumes **with** names

- Multi-factor compound treatment

Race/Gender	Male	Female
White	WM	WF
Black	BM	BF

- Between subject design

Participant shown multiple sets for comparison



Data

- Likert scale

Force comparison between 2 resumes to avoid personal baseline difference

- Covariate: strata, gender, age group

Avoid pinpointing respondent

Limited access to CG covariate information



Survey Design

- Resume summaries instead of real resumes

Reduce survey time in order to increase response rate

- No go back button

Reduce spillover effects

Resume Building

- How to pick names?

First Name: [Demographic Aspects of First Names](#), Scientific Data (Article Number: 180025 (2018))

Last Name: 1990 Census Surname Data

Race / Gender	Male	Female
White	Bradley Meyer	Kirsten Schmidt
Black	Reginald Washington	Gwendolyn Jackson

Why fixed names?

Avoid treatment explosion (power concerns / complexity)

Resume Building

- How to build a Resume Summary?

Requirement for promotion: 4 areas x 2 standards

Each resume satisfies 2 preferred and 2 minimum qualifications (randomly assigned)

Create similar skill sets for each section. Randomly assign skills and resume layouts to build resumes.

Area	Preferred		Minimum	
Professional Experience	Skill set A	Skill set B	Skill set A	Skill set B
Leadership Experience	Skill set A		Skill set A	
Highest Education Level	Skill set A	Skill set B	Skill set A	Skill set B
Professional Development	Skill set A	Skill set B	Skill set A	Skill set B

Control Resume Summary Set

Strongly Prefer Prefer Slightly Prefer No Preference Slightly Prefer Prefer Strongly Prefer

Your choice

[Redacted] @uscg.mil [Redacted] Boston, MA	
Recent Professional and Leadership Experience <ul style="list-style-type: none">• Division Chief - Sector Response (OT), received the Coast Guard Achievement Medal• Small Boat Station Commanding Officer (OT), received the Coast Guard Commendation Medal	Graduate Education <ul style="list-style-type: none">• Master's of Science in Computer Engineering, Carnegie Mellon University Professional Development <ul style="list-style-type: none">• Member at Large, Regional Chapter, National Naval Officers' Association

[Redacted] @uscg.mil [Redacted] New Orleans, LA	
Recent Professional and Leadership Experience <ul style="list-style-type: none">• Commanding Officer on 110 ft warship (OT), received the Coast Guard Achievement Medal (OT)• Department Head - Sector Logistics (ST), received the Coast Guard Commendation Medal	Graduate Education <ul style="list-style-type: none">• Master's of Science in Public Policy and Management, Carnegie Mellon University Professional Development <ul style="list-style-type: none">• Member at Large, Regional Chapter, Coast Guard Officers' Association

Handler is hidden in the beginning to avoid anchoring bias on preference score

Treatment Resume Summary Set

Strongly Prefer Prefer Slightly Prefer No Preference Slightly Prefer Prefer Strongly Prefer

Your choice

Bradley Meyer

bradley.meyer@uscg.mil | (510) 987-6543 | Alameda, CA

Recent Professional and Leadership Experience

- *Maritime Enforcement Policy Advisor at Coast Guard Headquarters (ST), received the CG Achievement Medal*
- *Small Boat Station Commanding Officer (OT), received the Coast Guard Commendation Medal*

Graduate Education

- *Master's of Science in Naval Architecture and Marine Engineering, University of Michigan*

Professional Development

- *Vice-Chairman, Regional Chapter, National Naval Officers' Association*

Reginald Washington

reginald.washington@uscg.mil | (617) 654-3219 | Boston, MA

Recent Professional and Leadership Experience

- *Division Chief - Sector Response (OT), received the Coast Guard Achievement Medal*
- *Small Boat Station Commanding Officer (OT), received the Coast Guard Commendation Medal*

Graduate Education

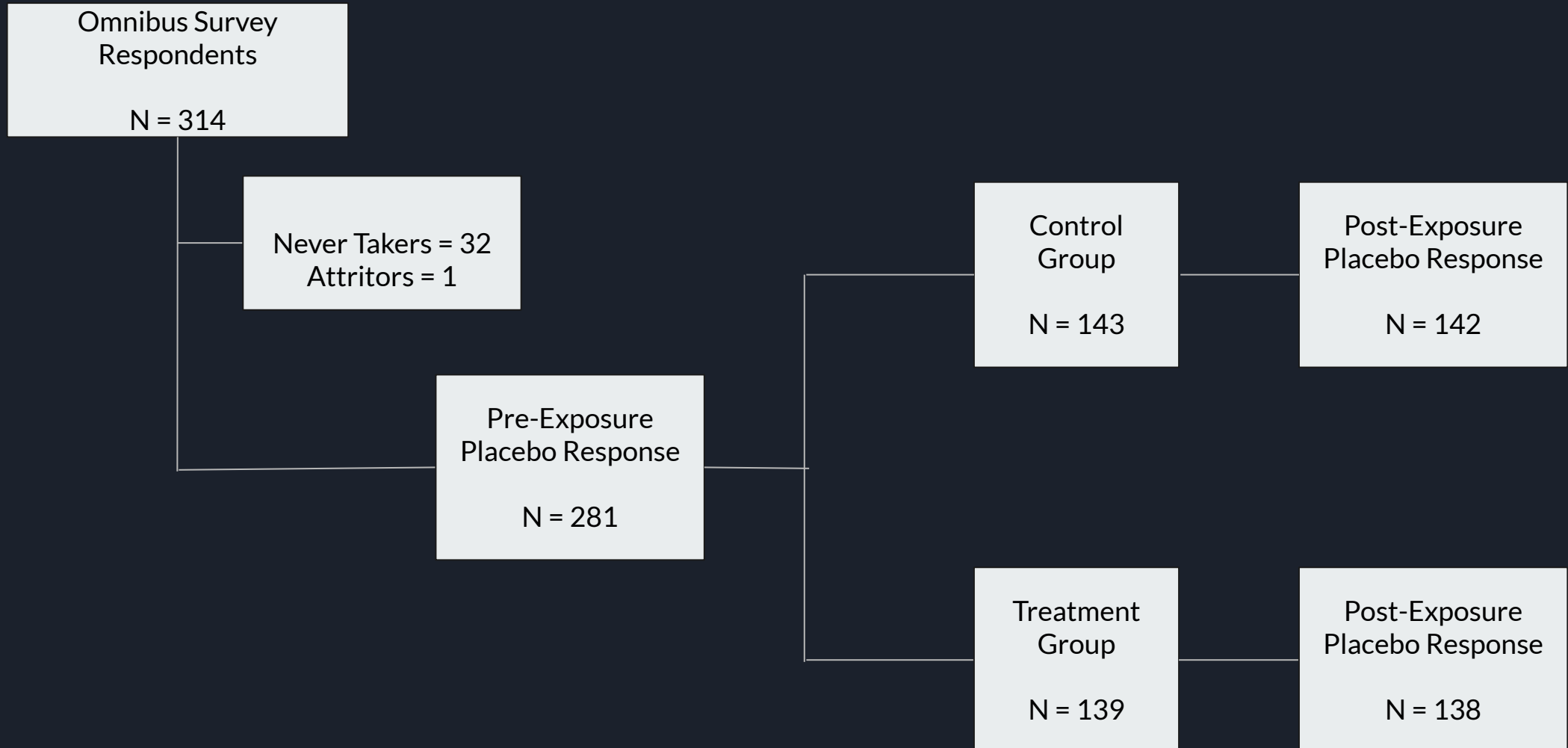
- *Master's of Science in Computer Engineering, Carnegie Mellon*

Professional Development

- *Member at Large, Regional Chapter, National Naval Officers' Association*

Handler is hidden in the beginning to avoid anchoring bias on preference score

Experimental Flow Diagram



Treatment Effect Calculation: DiD

Hypothetical Results



Group	Outcomes in Control (Only Resume Compared)	Outcomes in Treatment (Resume + Names Compared)	Diff in Diff = ATE
R1-WM, R2-WF	4	2	-2
R2-WF, R3-BM	3	4	1
R3-BM, R4-BF	4	5	1
R4-BF, R1-WM	4	6	2
R1-WM, R3-BM	4	1	-3
R2-WF, R4-BF	5	3	-2

Treatment Effect Calculation: Bias on Race



Group	Outcomes in Control (Only Resume Compared)	Outcomes in Treatment (Resume + Names Compared)	Diff in Diff = ATE
R1-WM, R2-WF	4	2	-2
R2-WF, R3-BM	3	4	1
R3-BM, R4-BF	4	5	1
R4-BF, R1-WM	4	6	2
R1-WM, R3-BM	4	1	-3
R2-WF, R4-BF	5	3	-2

-2.5



Experimental Improvements

- **Identify and reduce spillover effects between treatment doses**
 1. *Currently, we assume no anchoring bias within treatment subject*
 2. *We also assume non-interference between subjects (solution is to randomize set order)*
- **Increase scope of Experiment (for meaningful policy change)**
 1. *Add other races / job positions*
 2. *Add different quality / experiences in resume design*
- **Capture the true effect of white male vs the effect of “Bradley Meyer”**
 1. *Same goes for other treatment subjects*
 2. *Same goes for resume elements (college)*
 3. *Difficult to code up (encode “John Smith” and “Bradley Meyer” as WM)*
- **Add attention checks to ensure quality control on responses**
 1. *Which school did Bradley Meyer go to?*



Thank you for listening! Now let's discuss!

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