A Framework for Social Justice Advocacy in Mathematics Education

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OUTLINE

1. Introduction to the Project
2. Limitations and Successes
3. Development of Support Mechanisms
4. Share Some Examples
5. Recent Developments
6. Future Work
INTRODUCTION TO PROJECT

Philando Castile

Alton Sterling
LIMITATIONS AND SUCCESSES

Limitations
a. Consistent faculty buy-in
b. Course Pairs
c. Integrating equity and policy into STEM classes

Successes:
d. More meaningful student work/experiences
e. Community engagement
f. Interdisciplinarity
DEVELOPMENT OF SUPPORT MECHANISMS

• Consistent communication
• Faculty orientations
• Data location/curation
• Contextual readings
• Community-submission for questions
• Course Pairings (Regression Analysis/Evidence-Based Policy)
• Institutional Repository
Characterizing Disparities in Police Lethal Force Based on Mental Illness Symptom Presentation

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Background

- 25% of people killed by police have MI, but annual prevalence is 18%.
- People with mental illness more likely to be holding a knife and be in their own homes when killed by police.
- When assessing threat through 4 categories of weapon type and yes/no attack status, average threat scores in 2018 are significantly different ($t = 2.89, df = 871, p-value = .005$).
- If many factors that influence officer perceptions of threat are considered, does this relationship hold true?

Data

- Sources: Washington Post Police Shootings Database, Fatal Encounters database, Local news.
- Collected variables are ranked, assigned point value, and collapsed into a single Threat Score value.

Threat Score = Weapon + Threat to Self/Others/Police + Brandished + Reason for Contact + Known History + Time + Location + Area Violent Crime Rate

- 1113 total observations: 850 without signs of MI, 263 with signs of MI.

Findings

<table>
<thead>
<tr>
<th></th>
<th>MI</th>
<th>No MI</th>
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<tbody>
<tr>
<td>Min</td>
<td>10.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Q1</td>
<td>78.0</td>
<td>37.0</td>
</tr>
<tr>
<td>Median</td>
<td>34.0</td>
<td>44.0</td>
</tr>
<tr>
<td>Mean</td>
<td>53.19</td>
<td>44.59</td>
</tr>
<tr>
<td>Median Absolute Deviation</td>
<td>41.0</td>
<td>52.0</td>
</tr>
<tr>
<td>Max</td>
<td>72.75</td>
<td>90.0</td>
</tr>
</tbody>
</table>

Independent Samples T-Test

- The mean Threat Score is significantly different between people who did and did not present signs of mental illness ($t = 11.61, df = 1111, p-value < .001$).
- This difference is both larger (20% less vs. 7% less) and more significant (p-value < .001 vs. p-value = .004) than in previous research.

Mann-Whitney-Wilcoxon Test

- The distribution of Threat Scores between the two groups is significantly different ($W = 164804, p-value < .001$).

Logistic Regression: People with MI have...

- 0.436 odds of having harmed police ($z = -3.46, p-value < .001$).
- 0.366 odds of having held the score ($z = -5.59, p-value < .001$).
- 1.496 odds of killed in daytime hours ($z = 1.07, p-value < .008$).
- 1.414 odds of killed in low-crime counties ($z = 2.20, p-value = .028$).
- No increased odds of having harmed others ($z = -1.30, p-value = 0.271$).

Crisis Indication

- 54% indicated, 46% not indicated

People who show signs of mental illness are killed by police under less threatening circumstances than people who don’t.

Conclusions

- Evidence continues to support the existence of disparities in the circumstances under which people are killed by police based on their mental health status.
- Police are made aware of mental health crises prior to contact over half the time, but this disparity persists.
- Universal de-escalation training, co-response teams, and other interventions would probably help reduce fatal outcomes for this population.

References & Acknowledgements


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What variables are associated with crime?
● Findings: high density housing, low income levels, lack of tree canopy cover
● Policy recommendations: allocate more police to those locations to prevent crime

Equity implications:
● We end up over-policing poor communities of color
● Nationally, the criminal justice system over-criminalizes poor communities of color
● Often using available data to analyze crime patterns reinforces structural racism
RECENT DEVELOPMENTS

- University-wide certificate program
- Infrastructure for gathering input from community partners
1. Future Work
   a. More community partners and tabling events
   b. Reproducible Toolkit
   c. Other ways to support students through methodological issues
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