

# Socioeconomic Disparities in Research Experience Participation: Bias in the Integrated Plastic Surgery Residency Match

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## Introduction

Integrated plastic surgery residency is increasingly competitive with a 61% match rate in 2023<sup>1</sup>

Match success is highly correlated with research productivity<sup>2, 3</sup>

Extended research experiences (ERE) are associated with greater match success<sup>3</sup>

ERE participation can incur out-of-pocket expenses, greater loan burden, and delays one's career

Racial disparities exist in ERE participation<sup>4</sup>, but no data on socioeconomic (SES) disparities

**Hypothesis: socioeconomic status of integrated plastic surgery residency applicants is correlated with their participation in an extended research experience**

## Methodology

Cross-sectional electronic survey

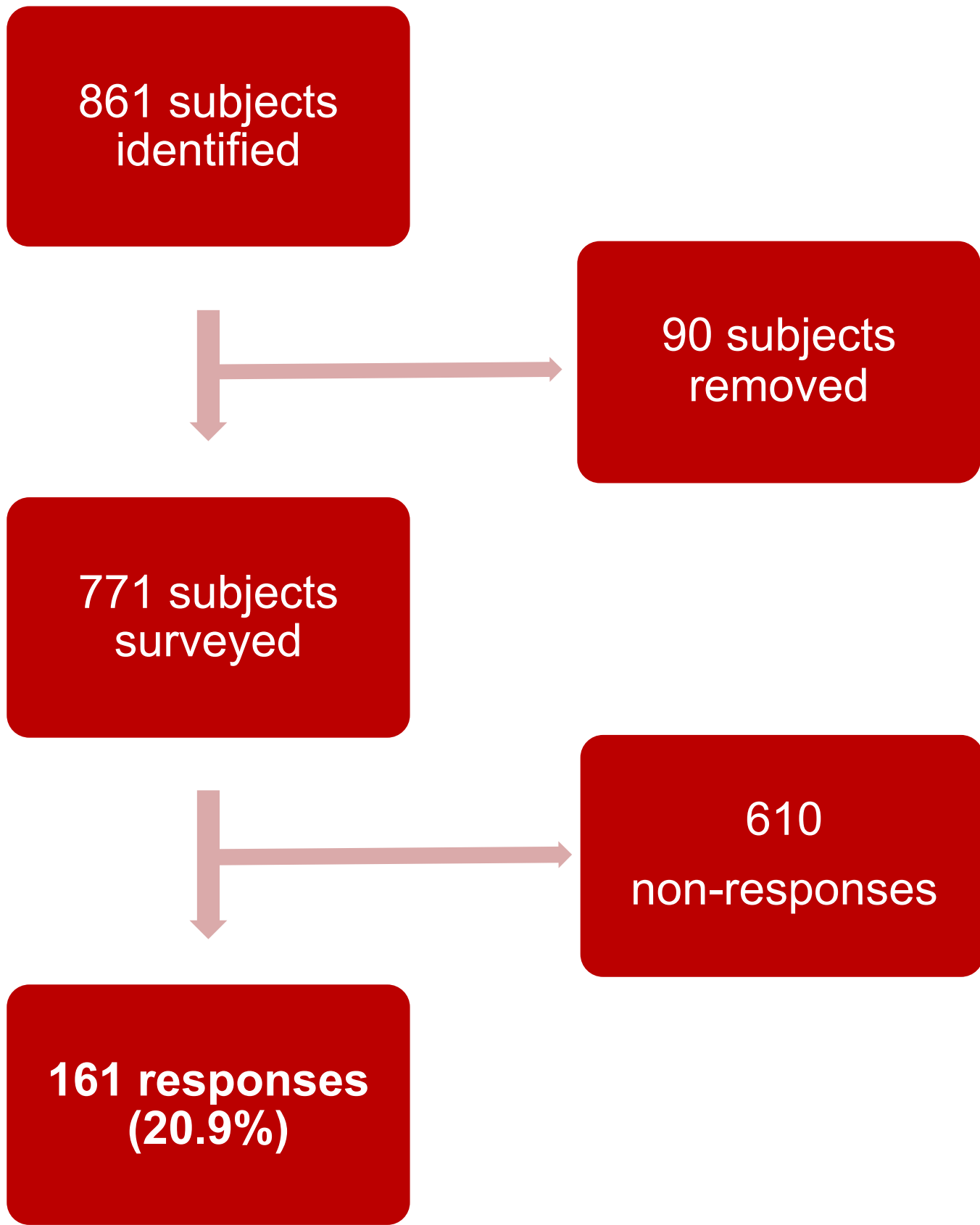
- Demographics
- Socioeconomic status (debt burden, parental education)
- Research experience and productivity
- Match outcomes

3 application cycles to U.S.-based integrated plastic surgery residencies (2019 – 2022)

Applicant list from 3 geographically-diverse institutions

- Midwest (The Ohio State University)
- Northeast (Yale University)
- West (UC San Diego)

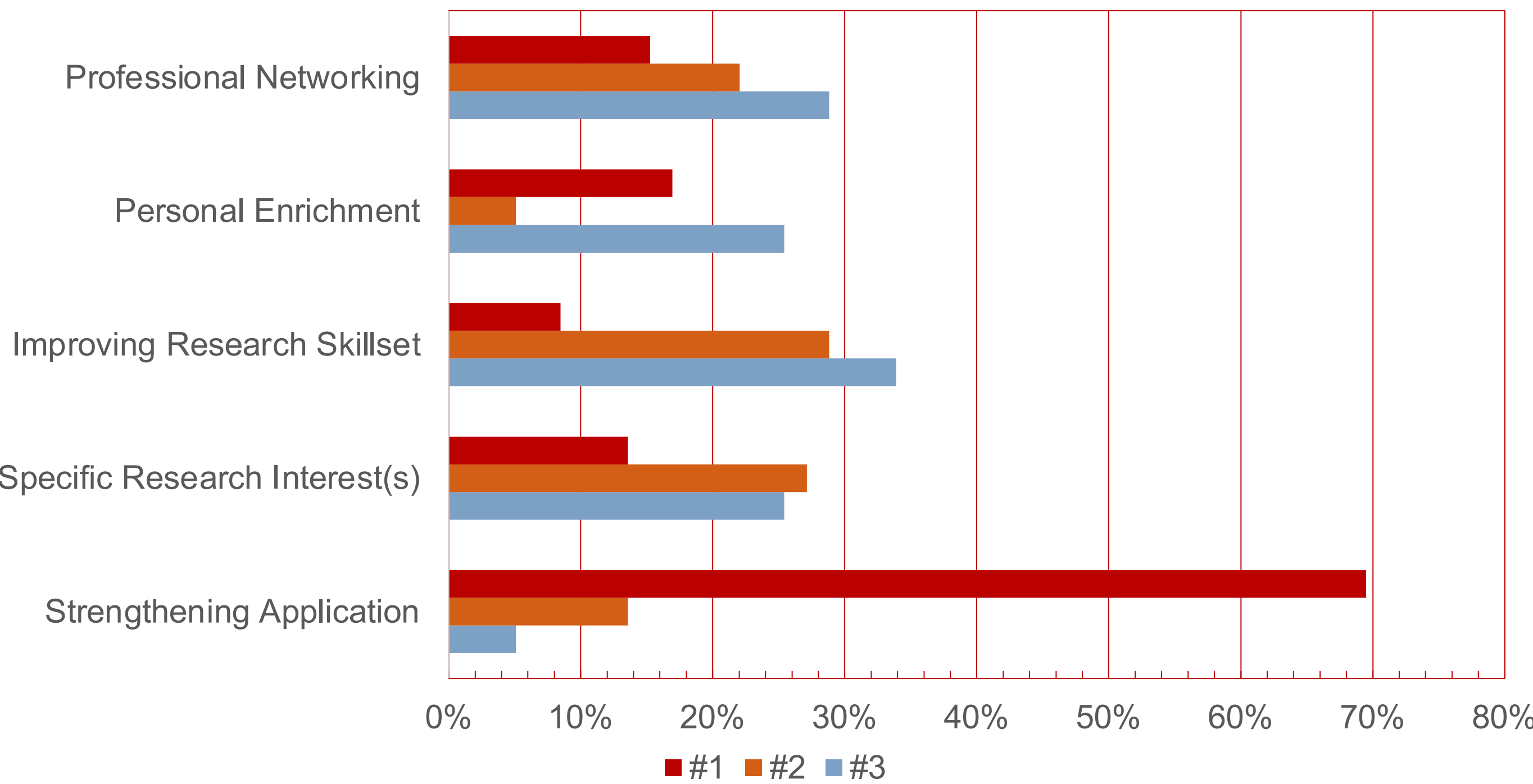
## Results



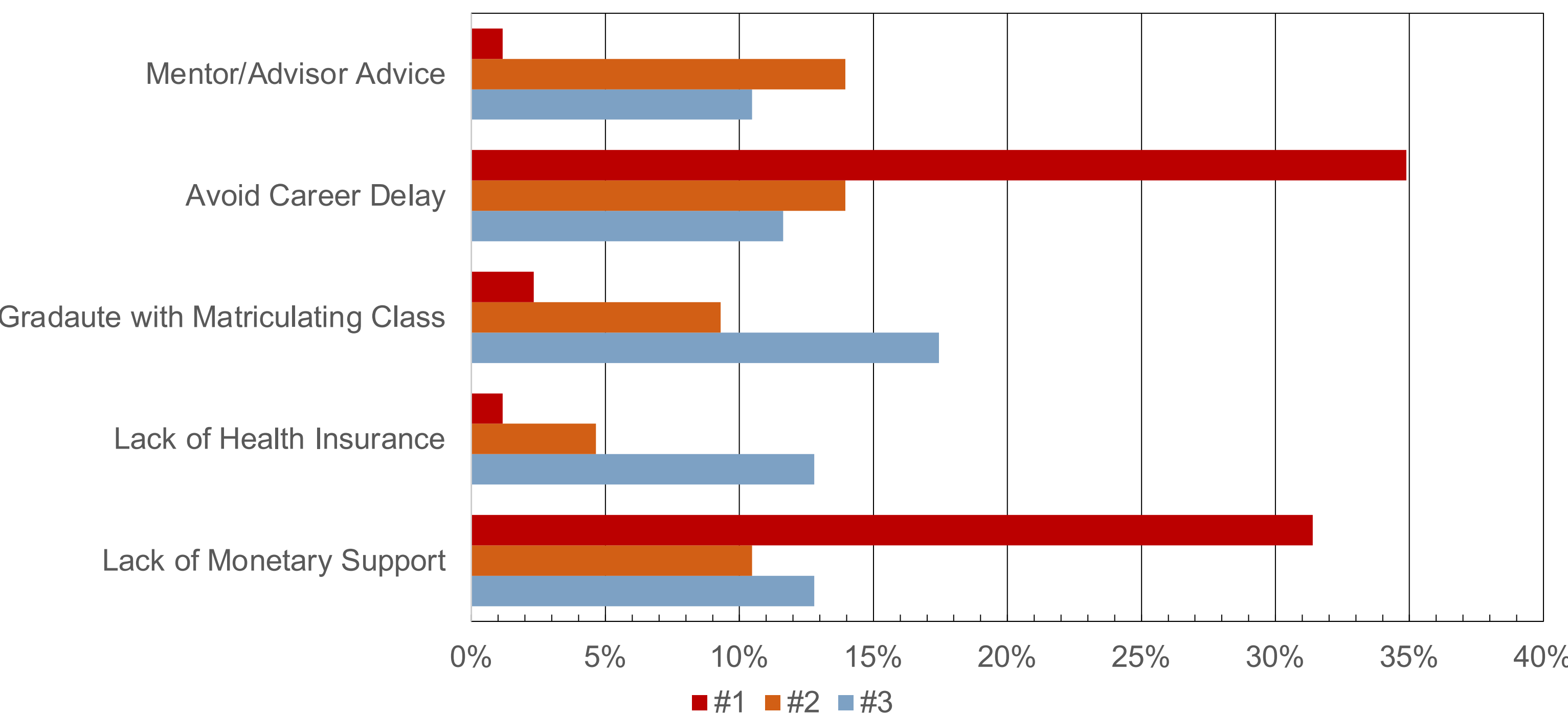
| Survey Respondent Demographics (n = 161) |                            |       |                           |         |
|------------------------------------------|----------------------------|-------|---------------------------|---------|
| Category                                 | Subcategory                | Total | ERE participants (n = 59) | p-value |
|                                          |                            | %     | %                         |         |
| Medical School Region                    | Northeast                  | 23.3  | 58.8                      | 0.019   |
|                                          | Midwest                    | 24.5  | 31.6                      |         |
|                                          | South                      | 30.8  | 30.4                      |         |
|                                          | West                       | 11.9  | 38.9                      |         |
| Parents' Highest Educational Attainment  | High school diploma or GED | 11.0  | 31.3                      | 0.053   |
|                                          | Associate's degree         | 5.5   | 50.0                      |         |
|                                          | Bachelor's degree          | 23.4  | 29.4                      |         |
|                                          | Master's degree            | 20.7  | 30.0                      |         |
|                                          | Professional graduate      | 21.4  | 45.2                      |         |
|                                          | Doctorate                  | 17.9  | 65.4                      |         |
| Match Outcomes                           | Matched                    | 78.2  | 85.5                      | 0.104   |

| Extended Research Experience Characteristics (n = 59) |                                 |                 |
|-------------------------------------------------------|---------------------------------|-----------------|
| Category                                              | %                               | Median [IQR]    |
| Participation                                         | 36.6                            |                 |
| Funding                                               | 70.2                            |                 |
| Relocation                                            | 50.9                            |                 |
| Timing                                                | Between year 3-4                | 52.6            |
| ERE Region                                            | Northeast                       | 40.4            |
|                                                       | Midwest                         | 15.8            |
|                                                       | South                           | 28.1            |
|                                                       | West                            | 5.3             |
| Satisfaction                                          | Somewhat to extremely satisfied | 87.8            |
| Productivity                                          | Published/Accepted Manuscripts  | 10 [5.0, 14.8]  |
|                                                       | Submitted Manuscripts           | 6 [3.5, 12.0]   |
|                                                       | Oral Presentations              | 5.5 [3.0, 10.0] |

Reason for Extended Research Experience Participation (n = 59)



Reason Against Extended Research Experience Participation (n = 86)



## Discussion

**Possible bias in ERE participation**

- Greater representation of Northeastern schools
- Greater parental educational achievement

Increasing emphasis on research productivity

- 2011: 8.1 abstracts, presentations, publications<sup>5</sup>
- 2022: 28.4 abstracts, presentations, publications<sup>6</sup>

Implement equity-focused programs<sup>9, 10</sup>

- Holistic review
- Plastic Surgery Research, Education, and Preparation Promoting Equity and Diversity

## Conclusion

**Socioeconomic status may influence research fellowship participation**

**Strive for equitable access to research opportunities**

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