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Elevated Distressed Communities Index (DCI) Score is associated with Progression of Below Knee Amputation to Above Knee Amputation in Vascular Patients

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Abstract

Introduction

Below-knee amputation (BKA) affects the quality of life, mobility, and independence of patients. BKAs result in better functional outcomes compared to above-knee amputations (AKA). The aim of this study is to determine the influence of socioeconomic disadvantage, as defined by the Area Deprivation Index (ADI) and Distressed Communities Index (DCI) on risk of progression from BKA to AKA among vascular surgery patients.

Methods

Patients with a history of PAD who underwent BKA from 2020-2024 at a single academic hospital were identified. Demographic data, medical comorbidities and indication for amputation were collected retrospectively. Area Deprivation Index (ADI) and Distressed Communities Index (DCI) were determined using 9-digit zip codes to assess patient’s neighborhood and level of socioeconomic disparity. Statistical analysis was conducted using Fisher’s exact test utilizing Prism software.

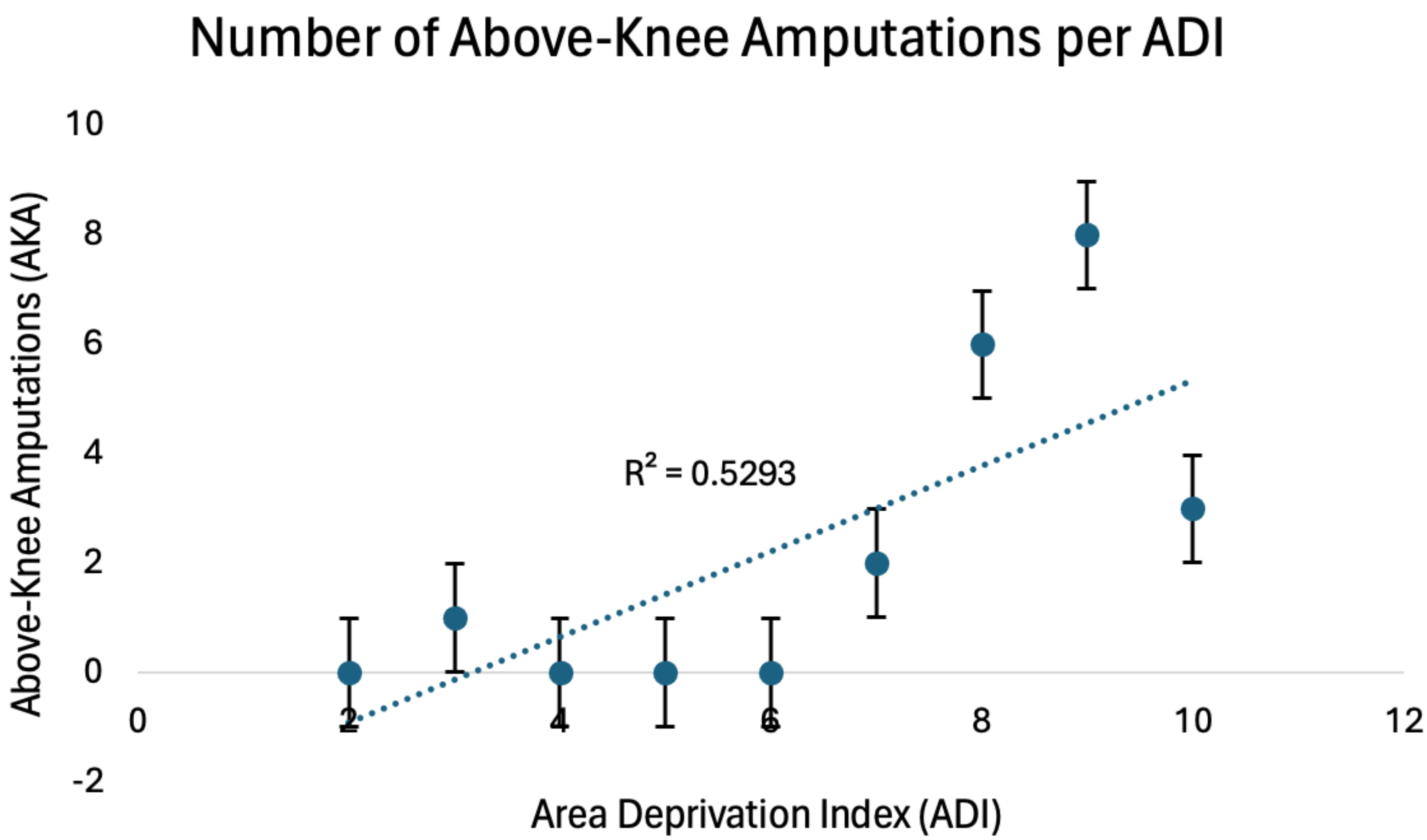
Results

- 171 patients (67 years +/- 12.8) underwent BKA during the study period. 112 (65.5%) were current or former smokers, 150 (87.7%) had hypertension, 132 (77%) had hyperlipidemia, and 96 (56.1%) had coronary artery disease. 22 patients (12.9%) required conversion of BKA to AKA after a mean of 138 days.
- A DCI score greater than 50, suggesting higher socioeconomic disadvantage, was predictive of a 4-fold increase in rate of AKA conversion (p = 0.03).
- Higher ADI trended towards a similar pattern but was not statistically significant. There was also a slight trend towards urgent/emergent BKAs being associated with conversion to AKA however this was also not statistically significant.

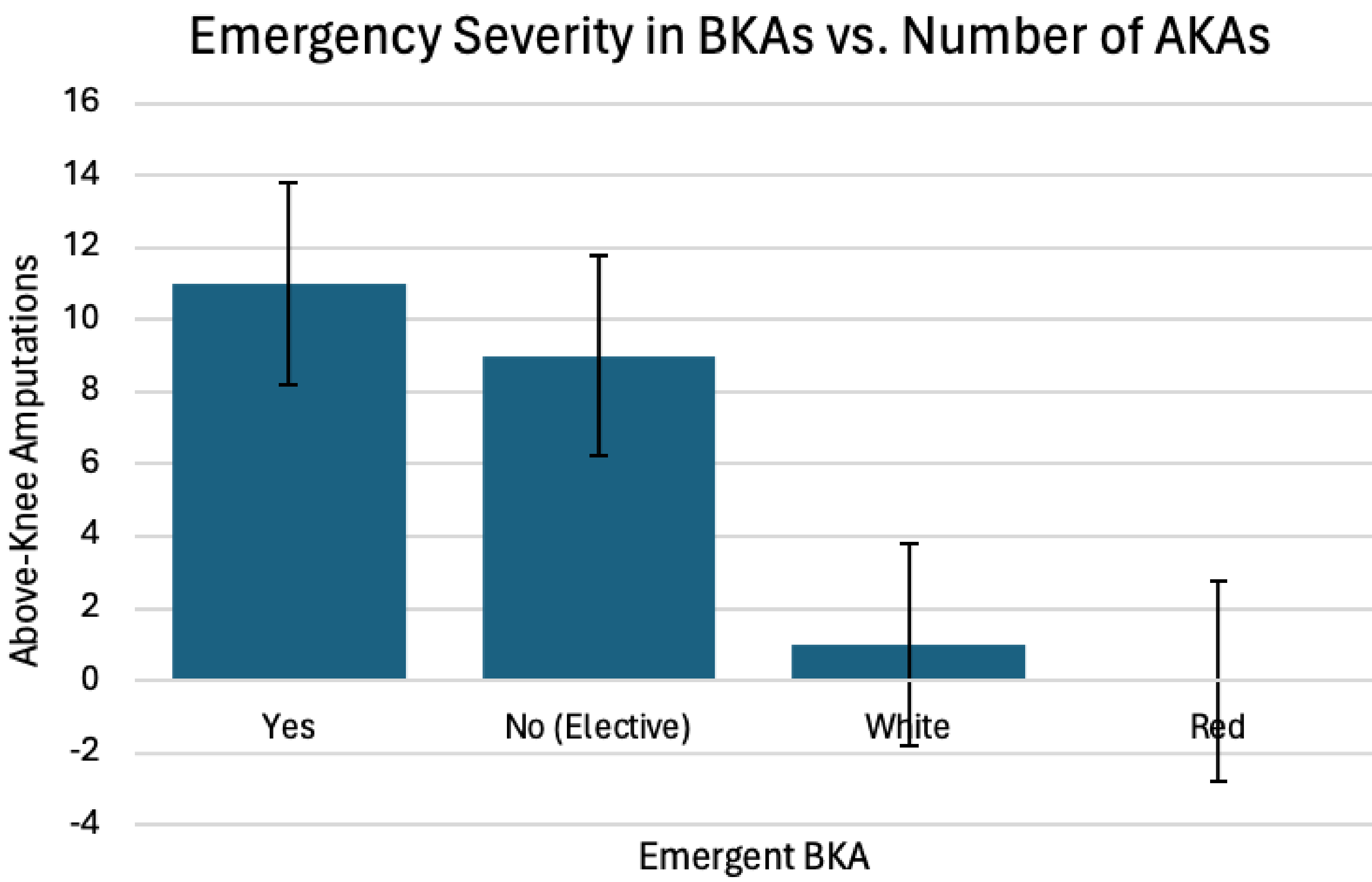
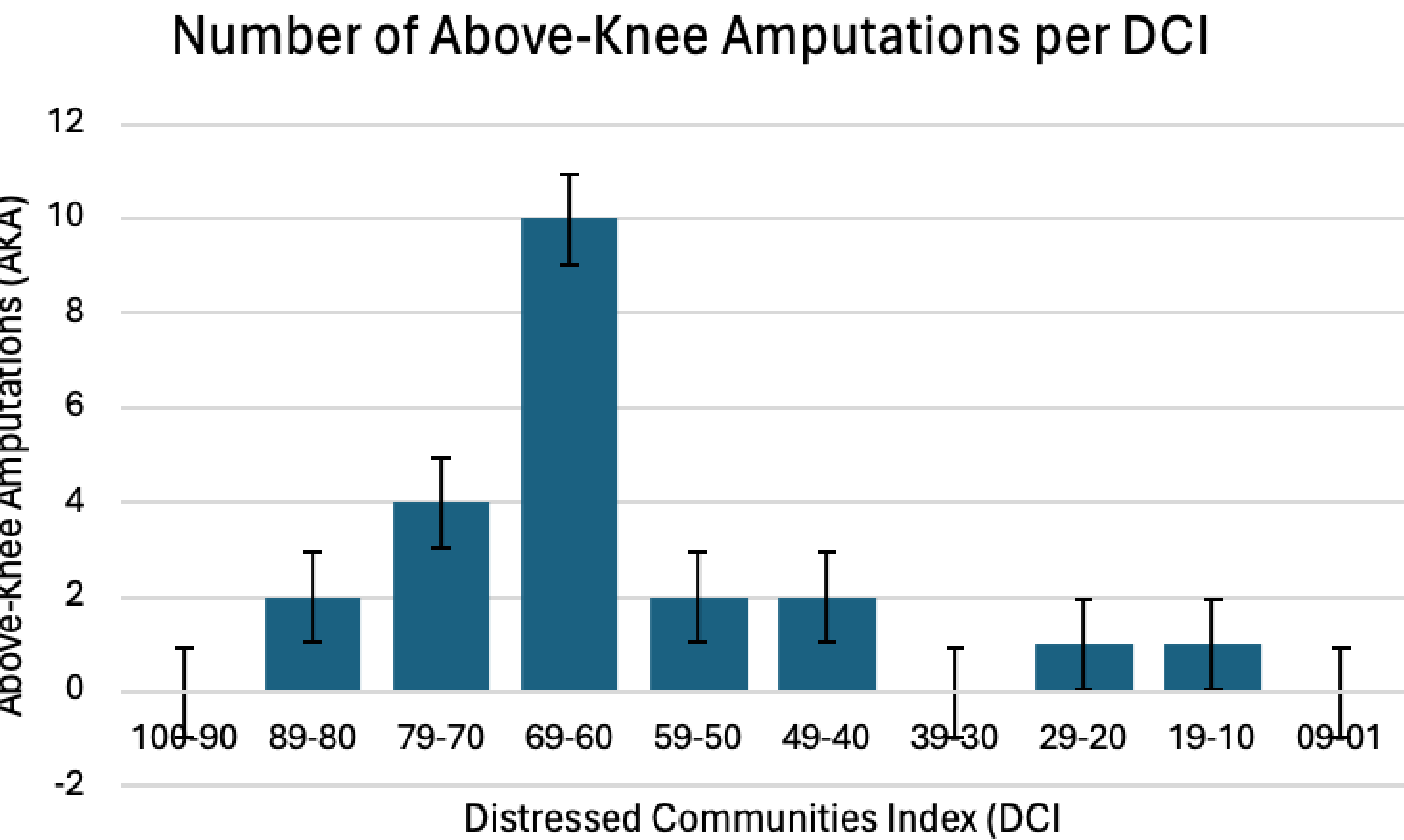
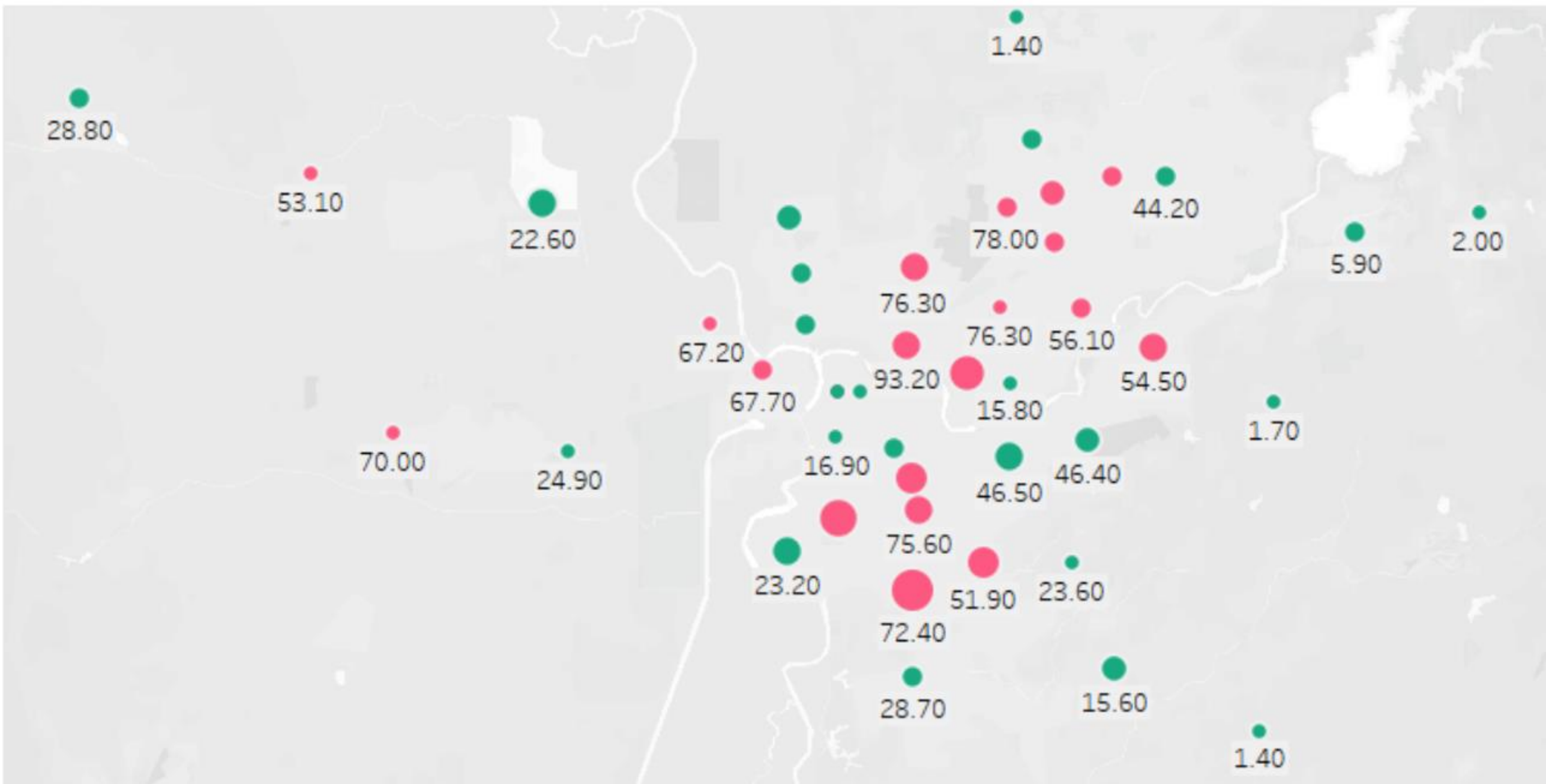
Conclusion

In this study, a DCI in the top 50% was associated with a significant increase in the risk of BKA to AKA conversion.

Results



DCI by City



Summary

- DCI in the top 50% was associated with a significant increase in the risk of BKA to AKA conversion.
- Higher frequency of AKAs in more disadvantaged areas, particularly in deciles 9 and 8, but not statistically significant.
- Slight positive trend towards urgent/emergent BKAs being associated with conversion to AKA, but not statistically significant.

Acknowledgements/References

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