Sociodemographic Analysis of Paediatric Out-of-Hospital Cardiac Arrest - A Systematic Review

INTRODUCTION

- Paediatric out-of-hospital cardiac arrest (POHCA) has an estimated incidence of 8 per 100,000 person-years.
- The outcomes are poor as only 6-10% of children survive.
- Shorter emergency medical service (EMS) response times, automated external defibrillator (AED) use, and bystander cardiopulmonary resuscitation (BCPR) increase likelihood of survival with neurologically favourable outcomes, yet recent evidence suggests inequities in the provision of these services.

OBJECTIVES

- We conducted a systematic review of the available evidence on sociodemographic factors associated with POHCA incidence, BCPR administration, AED use, and survival and neurological outcomes.

METHOD

- We searched MEDLINE, EMBASE, and Web of Science for primary research articles meeting our inclusion criteria.
- Data abstraction, extraction and risk of bias assessment were completed independently by a pair of reviewers.

RESULTS

<table>
<thead>
<tr>
<th>Author</th>
<th>Region</th>
<th>Study Design</th>
<th>Size</th>
<th>Sociodemographic Indicator</th>
<th>Outcome(s) reported</th>
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<tbody>
<tr>
<td>Cork 2020</td>
<td>USA</td>
<td>Cross-sectional</td>
<td>971</td>
<td>Race/Ethnicity, SES*</td>
<td>AED use, Survival, Neurological outcome</td>
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<td>Jayaram 2015</td>
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<td>Kendir 2021</td>
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<td>Cross-sectional</td>
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<td>Lee 2010</td>
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*SES: Socioeconomic Status (e.g. Income, education, employment status)

CONCLUSION

- US studies report differences in BCPR administration across different racial/ethnic groups.
- Potential link between SES and chain of survival; however, further research is needed to ascertain this finding.
- Limited literature emphasizes the need for further inquiry and increased standardization of outcome reporting to identify high-risk subgroups to target for public health intervention.

ACKNOWLEDGEMENTS

I would like to thank my supervisor Dr. Helen and Dr. Andrew for their continued support and trust. I would also like to thank Dr. Johnathan, Dr. Andrew and Mr. Johnathan for their support in writing and editing the research strategy.

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Table 1. Characteristics of included studies

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RESULTS

• POHCA incidence
  • 2/2 studies report disparities across racial/ethnic groups (NZ and Israel)

• BCPR administration
  • 2/2 studies report disparities across ethnic minorities (USA)
  • 1 study assessed disparities across different community education levels (S. Korea)
RESULTS

• AED administration
  • 2/3 studies report no significant disparities across different SES groups (USA)

• Survival
  • 6/7 studies report no significant differences across racial/ethnic groups
  • 2/6 studies report significant differences across SES groups
RESULTS

- Neurological outcome
  - 1/3 studies report significant differences across SES groups
  - 1/2 studies report significant differences across racial/ethnic groups
CONCLUSION

• US studies report differences in BCPR administration across different racial/ethnic groups

• Potential link between SES and chain of survival, however further research is needed to ascertain this finding

• Limited literature emphasizes the need for further inquiry and increased standardization of outcome reporting to identify high-risk subgroups to target for public health intervention
ACKNOWLEDGEMENTS

I would like to thank my supervisors Dr. Tijssen and Dr. Anderson for their continued guidance and support. I would also like to thank Darren Hamilton, Clinical Librarian Specialist at London Health Sciences Centre for his expertise in informing the search strategy.

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REFERENCES


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