Systematic Review of the association between socio-economic status and survival in Adult Head and Neck Cancer

Review Question: For individuals from developed countries, does lower compared to higher socioeconomic status influence survival in Head and Neck Cancer (HANC)?

Searches

We will conduct a systematic search in the following databases: Pubmed/MEDLINE, Web of Knowledge, EBSCO Host and Scopus. We will use the MeSH terms outlined in appendix A. These were piloted prior to selection and comprise of specific head and neck cancers (HANCs), inequality terms and high-income comparator countries. We compare the United Kingdom with 19 other comparator nations (the first 15 members of the EU [apart from the UK], Australia, Canada, Norway, USA and New Zealand; EU15+). A similar set of countries has been used in previous benchmarking analyses for the UK (1) (See Appendix B).

The search terms for MEDLINE have been developed initially. Where possible, terms will be exploded to broaden the search. Terms will be added as keywords if they cannot be exploded or if the exploded terms are not relevant to the research question. Truncation and proximity operators will also be applied as necessary to broaden the search. For consistency, the exact same terms will be used for Scopus and Web of Science, however as the functionality of each database is different, the terms have been adapted for correct use in each.

We will augment our search by searching the reference lists of any studies selected for inclusion; and by searching for grey literature. We will do this by entering the terms “head and neck cancer”, “socioeconomic”, “social class” and “deprivation” into the Google internet search engine and Google Scholar search application and assessing the first 100 results including reports from cancer registries, HANC audit reports, published abstracts and theses. In a similar manner we will also search OpenGrey a repository for grey literature in Europe.

Restrictions:

We will restrict to publications using data from 1990 to present only. As social conditions change over time, this will ensure that publications are as relevant as possible to the present day. We will also restrict to publications available in English. Where available, filters for “human subjects” and “document type” will be applied to the database search results. These filters directly relate to the inclusion criteria.

Types of Study to be Included

We will include observational studies (cross-sectional, ecological, case-control, cohort (prospective and retrospective) reporting quantitative results and analysis of empirical data on association between socioeconomic status and survival for patients with HANC. This can be measured at individual or aggregate level by occupation, income, education, employment or measures of deprivation. Only studies conducted in EU15+ nations, publications written in or translated into English, reporting on human subjects and using data collected after 1989 will be included.
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Exclusion:

Studies not meeting the above criteria, including case studies, case series, literature reviews or studies, non-human or animal studies.

Condition or domain being studied

The impact of socioeconomic status on survival from HANC in high-income countries.

Collectively HANC is the 6\textsuperscript{th} most common cancer worldwide accounting for 550,000 new cases per annum and this figure is rising (2, 3). Despite this there have been virtually no improvements to survival over the past 3 decades (4). A disproportionate amount of the deaths will occur in the most deprived groups as HANC displays one of the largest socioeconomic disparities of all cancers (5).

Inequalities exist across the cancer continuum, covering evidence on differential exposure to risk factors by socio-economic status (SES) through to differential clinical and social consequences of having a cancer diagnosis (6). These inequalities have been extensively studied for HANC incidence (7). Yet there has been no systematic review of the evidence for the association of socioeconomic inequalities affecting survival outcomes in HANC. There are several individual studies examining the link between SES and survival from HANC cancer in general and or at specific subsites. All suggest there is a strong association between low SES and worse survival outcomes (5, 8-16). More specifically, Robertson et al, estimated that there was a 27\% greater risk of death from HANC if you are from the most deprived areas, compared to the least (5). Nutting et al, have suggested that recent improvements in survival from HANC are limited to the most affluent groups (17). The aim of this review is therefore to investigate whether lower compared to higher socioeconomic status influences survival outcomes in HANC.

Participants/Populations

Inclusion

1) Patients with a primary HANC
2) Age $\geq$ 16
3) EU15+ Countries

Exclusion

1) Locoregional recurrence of HANC
2) Secondary HANC
3) Nasopharyngeal, thyroid and oesophageal cancers
4) Populations in countries outside of Eu15+ countries
5) Paediatric Tumours

Intervention(s), Exposure(s)

The exposure of interest is lower socioeconomic status, measured at the individual or aggregate level by income, education, occupation, employment or deprivation.

Comparator(s)
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The comparator of interest is higher socioeconomic status, measured at the individual or aggregate level by income, education, occupation, employment or deprivation.

Outcome(s)

The primary outcome of interest will be measures of survival (e.g. overall survival, disease-specific survival, recurrence-free survival) in patients with HANC.

Data extraction selection and coding

Two authors will run the searches and collect the information required from the selected studies. Titles and abstracts will be screened independently by two authors to ensure consistency in the application of inclusion and exclusion criteria. Any discrepancies will be discussed and reviewed until an agreement is reached between both reviewers.

The full text for studies deemed relevant after title and abstract review will be sought and reviewed in the same way. All full text studies will be reviewed independently by two reviewers to ensure that they conform to the inclusion and exclusion criteria.

A standardised data extraction Excel spreadsheet will then be used to collate information and assess the quality of the paper. Extracted information will include: Year of publication, country, hypothesis, study design, level of analysis, sample size, age, recruitment period, SEI measured, HANC survival outcome(s), tool used to measure the outcome, covariates analyses, significant and non-significant results, conclusion, comments on quality an quality ratings.

Risk of bias (quality) assessment

Risk of bias and quality assessment will be conducted by two reviewers. Methodological quality of the included studies will be assessed using the Newcastle-Ottawa Scale and/or Cochrane risk of bias framework(18, 19). Any discrepancies identified will be discussed and reviewed by the review team.

Strategy for data synthesis

Where possible/appropriate, synthesis and meta-analysis of extracted data will be undertaken. Meta-analysis will be via the Mantel-Haenszel method using a fixed-effects model as default, unless significant heterogeneity is present, in which case a random-effects model will be used. Hazard ratios (HRs) will be calculated with 95% confidence intervals. A p value of <0.05 will be regarded as significant. Heterogeneity will be assessed using the I-squared statistic.

Analysis of subgroups or subsets

As this review will encompass various measures of SES we will explore the evidence in separate subgroups where applicable.

Dissemination Plans

1. Submission of Systematic Review Protocol for publication
2. Presentation of results at national and international meetings
3. Submission of systematic review in a peer-reviewed journal
Appendices

Appendix A: Medline search strategy

("Socioeconomic Factors"[Mesh] OR inequit* OR inequalit* OR disparit*) AND ("Head and Neck Neoplasms"[Mesh] OR "Carcinoma, squamous cell of head and neck" [Supplementary Concept] OR (head AND neck AND (cancer OR neoplasm OR carcinoma))) AND survival; limited to >1989, human, abstract available, English language

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Appendix B: List of the EU 15+ countries included in the study.

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References