Language Skills of Adults and Adolescents with Cleft Lip and/or Palate: A Scoping Review

Molly Pettitt\* (m.pettitt2@ncl.ac.uk) 220186041. MSLS Speech and Language Sciences Supervised and supported by Dr Stephanie van Eeden

#### FUNDED BY

**National Institute for** NIHR **Health and Care Research**  This study/project is funded by the NIHR (NIHR304401). The views expressed are those of the author and not necessarily those of the NIHR or the Department of Health and Social Care.

## Introduction

Cleft lip and/or palate (CL/P) occurs when the lip and/or the roof of the mouth do not fully close together during development. This can cause difficulties with eating, drinking and speech. CL/P can occur as part of an additional syndromic diagnosis, but in about 70% of cases occurs in isolation.

Research into the cognitive skills of children with nonsyndromic CL/P (NSCL/P) shows a pattern of lower language skills unrelated to syndromic diagnoses or hearing impairments (van Eeden & Stringer, 2020).

Children with CL/P struggle more with reading comprehension (Lancaster et al, 2022) and have lower language skills (Lancaster et al, 2020) than their peers, therefore potentially impacting academic achievement.

Despite growing research in a paediatric population, it is not clear whether language difficulties continue into adulthood in individuals with CL/P. This leads to a lack of knowledge and clinical support for adults and adolescents with both CL/P and language disorders.

## Aims and Objectives

### To report:

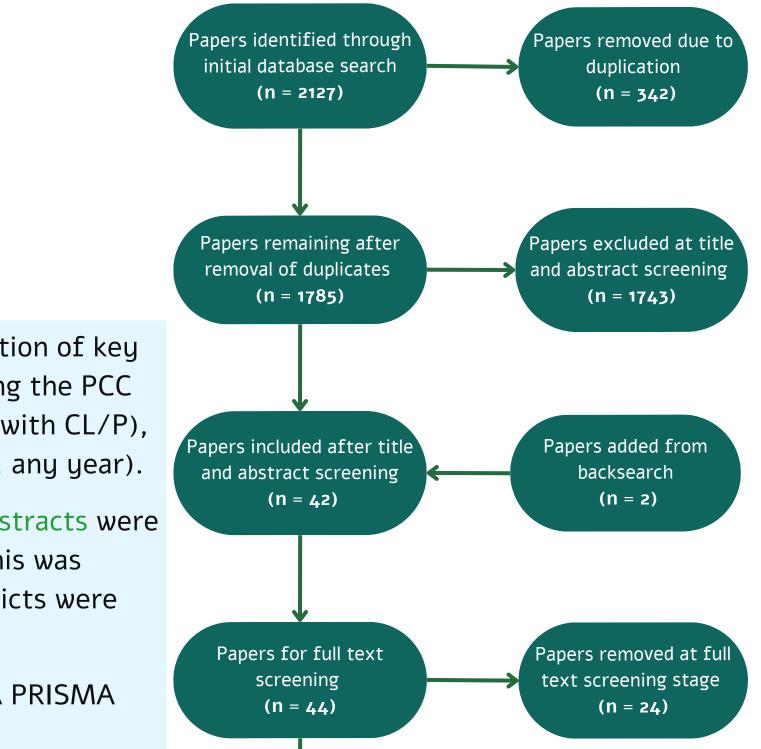
- The quantity of research in this area
- The variety of this research
- And the outcomes of this research

## Methodology

Relevant databases were searched using a combination of key words. These were broken down into subtopics using the PCC framework (Peters et al, 2021): Population (adults with CL/P), concept (language skills) and context (any country, any year).

After duplicate papers were removed, titles and abstracts were screened. Irrelevant papers were then excluded. This was completed separately by two researchers and conflicts were discussed and resolved.

Further papers were excluded at full text screen. A PRISMA diagram of the process can be seen in Fig. 1.

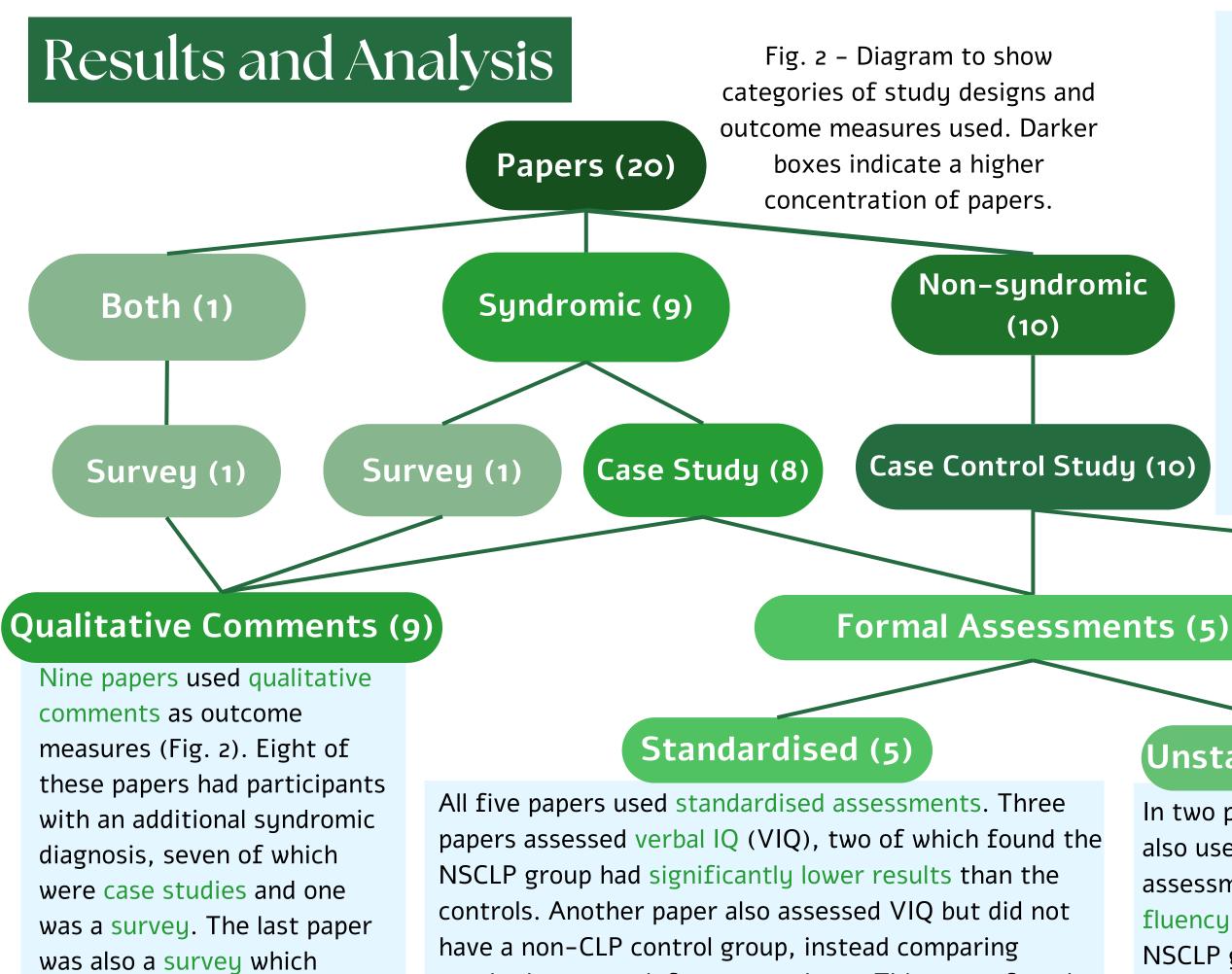




We recorded key study features (year, country, study type), participant characteristics (number, sex, age, cleft type, socioeconomic status, syndromic diagnosis), results found and the outcome measures used.

Papers for final data collection (n = 20)

Fig. 1 – PRISMA diagram



There were 20 papers available for final data analysis. Only three papers were published prior to 2000 demonstrating some increased interest in this topic in recent years.

The majority of papers were from North America and the UK, where English is the majority language. However the language spoken by participants was not explicitly reported in any study. Socioeconomic status was also an underreported participant characteristic, stated in only 24% of papers.

We excluded studies involving participants under the age of 16. All case studies reported participant age, with a total range between them of 16 to 46 and a mean of 23. Just over half (55%) of case control studies reported a mean age of participants and 63% reported an age range.

have a non-CLP control group, instead comparing results between cleft types and sex. This paper found that VIQ was significantly lower in the cleft only group as compared to the CLP group. One paper used a rapid naming assessment, in which the NSCLP group again had significantly lower results than controls. This paper also found that these scores inversely correlated to the size of the participants superior temporal plane. One syndromic case study used a standardised assessment which indicated the participant had below average language skills.

## Unstandardised (3)

In two papers, researchers also used unstandardised assessments. One used a fluency task in which the NSCLP group named significantly less words in three minutes than the control group. The other paper analysed a spontaneous speech sample in which the NSCLP group used significantly shorter responses and less variation in word types.

Brain Imaging Studies (7)

Seven papers were case control studies which used brain imaging techniques to investigate language skills of adults with NSCLP. One of these papers also used formal assessments, and found that the NSCLP group had a larger neural region which was inversely proportional to results on these IQ and language assessments.

All but one of these papers found neural differences in the NSCLP group. Six papers observed lower activity in language regions of the NSCLP group compared to a non CL/P group.

included both syndromic and non-syndromic participants.

All these papers only referred briefly to participants language skills, for example noting absent, delayed or limited language.

# Conclusion

One paper noted that alternative neural areas were active in language tasks, suggesting a compensatory network may be being used. The one exception to differing neural functioning was a post therapy group, therefore similar neural functioning was expected as a result of the treatment.

- More robust research is needed from a broader range of backgrounds.
- The limited evidence found in this study suggests that language difficulties are ongoing into adulthood within this population.
- 40% of studies found were single case studies, only reporting qualitative comments as outcome measures.

#### References

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