## **Critical Review:**

What effect does being in a neonatal intensive care unit (NICU) have on a child's speech and language development?

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This critical review appraises literature examining the effects of a neonatal intensive care unit (NICU) environment on the speech and language development of children. The three articles reviewed in this paper include one cohort study, one cross-sectional cohort study and one survey research study. Results of this critical review revealed useful findings regarding the impact of the NICU environment on speech and language outcomes. However, no absolute conclusions can be made due to the challenges and limitations of research.

### Introduction

In the past, many studies investigated factors associated with deficits in the speech and language skills of children who once required neonatal intensive care (NIC). Variables include gestational age, birth weight, comorbidities, and the postnatal environment (Vohr, 2013). The primary focus of the current paper is on the effects of the neonatal intensive care unit (NICU) environment on the speech and language development of children.

In the NICU, infants are bombarded with unfamiliar noises and sights

# Selection Criteria

The articles selected for this paper were not restricted in terms of the year of publication or location of the study. The papers included in this review investigated the effects of the NICU environment on the speech and language development of infants.

## Data Collection

The literature search resulted in three articles: one cohort study (Level 2b), one cross-sectional cohort study (Level 2b) and one survey research study (Level 4). The level of evidence of these studies was determined by analysis of the study designs according to Archibald (2014) as adapted from: Oxford Center for Evidence-based Medicine Levels of Evidence (2009) and NHMRC additional levels of evidence and grades for recommendations for developers of guidelines (2009).

## Results

Caskey, Stephens, Tucker, and Vohr (2011) studied th(2011)

nonlinguistic development using a survey research study design with parents of 382 preterm children

reliant on parent reports. Hence, the reliability of these results is uncertain. Contradictory findings in the studies reviewed may be explained by the different factors the studies analyzed. Caskey et al. (2011) studied both speech and non-speech occurrences in the NICU. However, Stromswold and Sheffield's study (2004) was directed to NICU environmental noises, alarms, and light levels, and did not account for the prevalence of adult language. Therefore, it is unknown as to whether improved language outcomes found by Stromsworld and Sheffield (2004) were due to incidences of unrecorded adult language or the NICU environment.

In this area of research, variability in the case history of participants poses a great challenge to the gathering of a representative and homogeneous population. For example, many infants differ in levels of prematurity, comorbidities, birth complications, birth weight, and family background, all of which can influence speech and language outcomes. Hence, it is difficult to decipher whether language outcomes are due to the NICU environment infants are experiencing or individual characteristics.

Many studies in this area are also limited by the

## References

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