Physiological parameters of breast-feeding in pre-term and full-term infants with feeding disorders

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Background: Breastfeeding is the most effective technique of supplying nutrients to young infants for proper growth and development. This method uses a variety of instruments and procedures, but they all rely on factual observation. The purpose of the study was to describe physiological parameters of breast-feeding in pre-term and full-term infants with feeding disorders, in order to identify physiological manifestations of breast-feeding leading to feeding disorders in infants, as well as to determine the physiological differences of breast-feeding between preterm and full-term born infants.

Methods: This research was an observational, cross-sectional study. The study setting was the Feeding/ Swallowing Support Clinic, Ayati Center, Ragama. Fifty-three (n=53) breast feeding infants from 0-12 months were used for this quantitative research study to collect video recordings of breast-feeding sessions. The videos were recorded at the middle of the breast-feeding sessions and the duration was about two minutes. Twenty (20) videos were randomly selected for the Inter-rater reliability test. The physiological parameters were collected after analysing the videos. Quantitative data analysis was conducted using SPSS (version 26.0) software.

Results: We found excellent inter-rater reliability to obtain the selected set of physiological parameters of breast feeding in infants. Significant differences were reported in oxygen saturation measures (t=2.848, df =14.967, P=0.019), respiratory frequency (t=2.635, df=14.967, P=0.019) and changes in pulse rate (t= 2.933, df=50.967, P=0.005) during feeding between pre-term infants and term infants. Significantly higher oxygen saturation levels were reported in full-term infants compared to that of pre-term infants, which may indicate atypical suck-swallow-breathe coordination in pre-term infants. Pearson correlation test revealed that milk intake per feed significantly increased when the gestational age increased (r (52) = 0.444, P = <.001).

Conclusion: This study shows that understanding breast-feeding with objective parameters is feasible and reliable during clinical feeding assessment, with an innovative approach to incorporate video recorded data. These measures are easy-to-obtain and no additional cost is required. This method highlights the importance of understanding the unique suck-swallow-breathe coordination in breast-feeding infants. Further, the significant physiological differences of the breast-feeding mechanism between pre-term and full-term infants will help clinicians to understand whether a preterm infant is ready to be orally fed and to compare their suck-swallow skills over time and over intervention objectively.

Keywords: *Physiological parameters, Breast-feeding, Pre-term infants, Full term infants, Feeding disorders*