# Adaptation and validation of the early feeding skills assessment scale (EFS): A statistical validation study with Portuguese preterm infants

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**Introduction:** The decision to introduce oral feeding in premature infants was previously triggered by the child's weight, post-conceptional age, physiological stability and health status. For a long time this method of evaluation continued to be our guide in planning the oral feeding programme. Nowadays, however, we have access to instruments which through observational assessment can tell us when the time is right to begin oral feeding as well as monitoring the child's reaction, during the feed process.

**Objectives:** There are still many questions related to various aspects of nutrition, translating into different actions between Neonatal Intensive Care Units (NICU) and even between the same NICU. Thus, it is clear the need for an instrument of evaluation that can be applied uniformly to all services at the national level. The aim of this study is the cultural adaptation and statistical validation of the EFS for Portuguese preterm infants.

**Methodology:** We made educational workshops in 16 neonatal units to train the observers to apply the EFS. We had the collaboration of 8 neonatal units (n=698 feeding observations). All of them had signed authorization from parents and the Ethic/Research Hospital boards. EFS assessment instrument is a 28 items (each consists of three/four statements) observational measure of oral feeding skill and identifies areas of infant feeding strength and areas in which the infant requires support to accomplish safe and effective feeding. The translated version was applied as an observation scale via website.

**Results:** The data was analyzed with SPSS-IBM and Mplus version 20th and 6th. The scale was submitted to an analysis of content validity, item discriminant power. Construct validity, criterion validity and reliability. Sensibility was evaluated from the Median (Me), skewness (sk), Kurtosis (Ku). Values of the 28 items in dimensions: "Ability to Maintain Engagement in Feeding" (CMM), (it1-it3), "Ability to Organize Oral-Motor Functioning", (COFO), (it4-it10), "Ability to Coordinate Swallowing", (CCD), (it11-it16), "Ability to Maintain Physiologic Stability", (CMEF), (it17-it28). The validity of the model was evaluated with a confirmatory factor analysis (goodness of fit indices c $\chi^2$/df, CFI, TLI, RMSEA, P (rmsa$\leq$ 0.05)). Items 1, 14, 21, 22, 27 with hight values of skeuness and kurtosis (sk >2 e Ku>7). The dimension CMM and COFO dimensions don't have validity. Three items (CMM-it1, COFO-it10, CMEF-1t28) with very low weights factorial (respectively $\lambda$ =0.210, $\lambda$ =0.317, $\lambda$=0.456). The model has no good adjustment [$\chi^2$/df=23.854; CFI=0.890; TLI=0.879, RMSEA=0.062, P (rmsa$\leq$ 0.05).

**Conclusions:** The model didn't show a good adjustment which at a later stage we will remove three items that presented factorial low weights and make a new adjustment. If the indices of adjustment improve, we will propose that in neonatology units, nurses and other health professionals use the EFS - Portuguese version with 25 items. EFS can be used by nurses to document changes in oral feeding skill and to adjust the feeding plan and enhance clinical feeding practice by nurses in the neonatal intensive care unit and developed feeding interventions with families of young preterm infants.

**Palavras-chave:** scale, reliability, validity, oral feeding, premature.

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