

## CLINICAL STUDIES / ETUDE CLINIQUES

## GROSS MOTOR FUNCTION CLASSIFICATION SYSTEM FAMILY QUESTIONNAIRE: VALIDATING YORUBA-NIGERIAN VERSION

## FONCTION MOTRICE PRINCIPALE: CLASSIFICATION A L'AIDE D'UN QUESTIONNAIRE NIGERIAN-YORUBA

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**Key words:** Cerebral Palsy, Gross Motor Function, Yoruba.

## ABSTRACT

**Background**

Assessment of the functional abilities of children with cerebral palsy would be more reliable if care givers are included. An instrument commonly used for assessing functional abilities in CP by their caregivers is the Gross Motor Function Classification System Family Questionnaire. No Nigerian Version of this instrument is currently available; hence this study was designed to evaluate the criterion- related validity of the Yoruba (Nigerian) version of the GMFCSFQ among care givers of children with cerebral palsy.

**Method**

Fifteen primary caregivers of children with CP, who are fluent in speaking, reading, and writing both English and Yoruba Languages, were purposively sampled from among those bringing their children or wards for physiotherapy at the University College Hospital Nigeria and involved in this study. The participants completed within one week interval, the English and Yoruba versions of the GMFCSFQ by choosing one of the five ordinal levels corresponding to the gross motor function of their children. Spearman's correlation coefficient was used to examine the relationship between the scores from the English and the Yoruba versions of the instrument. Significant level was set at  $\alpha=0.05$ .

**Results**

A strong positive and significant correlation was obtained between the English and Yoruba Versions of the GMFCSFQ ( $\rho=0.89$ ,  $p=0.00$ ).

**Conclusion**

This suggests that the Yoruba version of the GMFCSFQ is a valid version of the original (English) version. It could therefore be used to gather information about the gross motor function of children with cerebral palsy from their family members or caregivers among Yoruba speaking people of West Africa and in Diaspora.

## INTRODUCTION

Cerebral palsy (CP) is a group of disorders of the development of movement and posture causing activity limitations that are attributed to non-progressive disturbances that occur in the developing foetal or infant brain [2]. Thorough assessment is necessary prior to making decisions on management goals and planning of intervention for children with cerebral palsy. Assessing gross motor function of children with cerebral palsy is central to the effective management of these children.

Previously, the assessment of functional ability in children with cerebral palsy was considered the exclusive responsibility of health care providers; however the importance of incorporating caregivers into the assessment of their children health conditions is increasingly being recognized. Rosenbaum [14] advocated the necessity of including parents in the assessment of children with cerebral palsy and delivering therapeutic services within a framework that espouses family-centered services. Such services can afford both caregivers and professionals the opportunity to work together in a partnership that provide better leverage and understanding of the child's problems in a more effective way over the traditional rehabilitation programme, which is usually directed or wholly handled by the health care provider. In order to achieve this goal of providing family-centered services, the professional is required to enter into partnership with families and recognize parents as the experts in the assessment of their children's functional abilities and needs [7]. It therefore becomes important to include care givers in the process of the assessment of functional abilities in children with cerebral palsy.

The Gross motor Function Measure, Alberta Infant Motor Scale, Gross Motor Function Classification System are examples of health professional-administered measures for assessing children with cerebral palsy. Significantly the emerging importance of incorporating caregivers into the assessment of children with cerebral palsy has led to the development of the Gross Motor Function Classification System into a family questionnaire version which is administrable among the care givers [8].

Gross Motor Function Classification System Family Questionnaire (GMFCSFQ) was developed by Morris et al, [7] with the aim of finding a reliable, valid and inexpensive way to gather gross motor function data for children with cerebral palsy from their family. An acceptable high interclass reliability index (ICC= 0.94) between the professionals' and the families assessment of the gross motor function of children with cerebral palsy was reported in a Canadian study [8]. Despite the acceptable psychometric properties of GMFCSFQ, there is still a dearth of literature on the use or adaptation of the GMFCSFQ compared to the mother instrument (GMFCS) that has been extensively utilized in studies, translated into various languages and psychometric properties evaluated [6]. Incorporating the use of the GMFCSFQ into the assessment of children with cerebral palsy may yield better results in terms of integrating caregivers into the management of children with cerebral palsy.

Studies between 1989 and 2008 have reported CP to have been the commonest condition managed at a neuro-peadiatric clinic in various parts of Nigeria [4, 9, 15, 12, 13,10]. The use of GMFCSFQ may be limited in Nigeria because the instrument is not available in any of the indigenous languages. This is of much significance in Southwestern Nigeria where our observations show that many of the care givers of patients attending hospitals do not comprehend English language, the original language of the instrument. Yoruba is one of the three major indigenous languages in Nigeria and it is predominantly spoken in the south western part of the country and worldwide by nearly 30 million people mainly of Nigeria, neighbouring Republic of Benin, Togo and some regions of Brazil in the Southern America. Other researchers have tried to translate various rehabilitation instruments into Yoruba Language in order to facilitate assessment and rehabilitation among the people that speak the language [1]. Thus, to effectively incorporate the care givers into assessment of gross motor function of children with cerebral palsy among the Yoruba speaking people, it is pertinent to develop a Yoruba Version of the GMFCSFQ and validate same for clinical and research purposes. The aim of this study was therefore to assess the criterion related validity of the Yoruba version of the GMFCSFQ among care givers of children with cerebral palsy in Nigeria.

## MATERIALS AND METHODS

### *Instrument*

The GMFCSFQ was developed by Morris et al [7] as a tool for describing the functional abilities of children with cerebral palsy on a five level ordinal scale. The GMFCSFQ has been used in studies involving caregivers of children with cerebral palsy in Canada [8] and the United Kingdom [7] respectively.

On this scale, children with CP at level 1 are those who can perform all activities of their normally developing age-matched peers (although with affected speed and quality of movement) whereas children at level 5 have difficulty controlling their head and trunk posture in most positions or achieving any voluntary control of movement. The GMFCSFQ scores are also based on four age bands: less than 2 years, 2-4 years, 4-6 years and from 6-12 years. The primary caregivers of the children with cerebral palsy uses this instrument to assess the motor function of their children by choosing one of the levels that corresponds to the child's functional ability.

The GMFCSFQ was translated from English to Yoruba Language by a linguistic expert from the Department of Linguistics, University of Ibadan, Nigeria. Copies of the translated version were given to three people who were not involved with the initial translation process and who are fluent in written, spoken and reading comprehension of both Yoruba and English languages, knowledgeable about both cultures, and expert in both the characteristics and the content measured on the instrument and the uses to which the assessment instrument will be put, for back translation to English language [1, 3]. Copies of the back-translated version were reviewed by an expert panel that included one of physiotherapists and Linguistic expert. The panelists had a consensus that the items on the Yoruba translated version reflected the same meaning as the original English version.

#### *Procedure*

Ethical approval of the University of Ibadan/University College Hospital Institution Review Committee was obtained for the study. In order to complete the criterion related validity of the Yoruba version, 15 primary caregivers of children with cerebral palsy aged between 1 and 12 years old were consecutively recruited from a total of 55 primary caregivers of children with cerebral palsy receiving physiotherapy at the University College Hospital, Ibadan and the Oni Memorial Children Hospital, Ring Road Ibadan over a six month period. The primary caregiver was defined as one of the father, mother, or a relative that has been actively involved with the management and care of the child in the preceding 12 months to the study and who understands both English and Yoruba languages. The participants were asked to complete the English and Yoruba versions of the GMFCSFQ by choosing one of the five ordinal levels corresponding to the gross motor function of their children. The two instruments were administered within a time interval of one week to the other. This time frame was chosen because it is expected that gross motor function is not likely to change within one week interval for the completion of the two versions [11].

#### *Data Analyses*

The obtained data was entered into statistical package of SPSS 2.0 version. Descriptive statistics was computed to describe the demographic characteristics of the care givers and children with cerebral palsy. The scores from the English (original) and the Yoruba versions were correlated using the Spearman's correlation co-efficient ( $\rho$ ) at 0.05 alpha.

## **RESULTS**

The characteristics of the children with cerebral palsy and their caregivers who were involved in the study are presented in table 1. A significantly positive correlation between the English and Yoruba versions of the GMFCSFQ ( $\rho=0.89$ ,  $p=0.00$ ) was observed as presented in table 2. Of the total number of caregivers who brought their children to the physiotherapy clinics where this study was carried out, majority of them (45%) understood Yoruba language alone, while 27% each understood English language alone and both English and Yoruba Languages respectively (Table 2).

## **DISCUSSION**

The validation phase of this study was carried out among the caregivers of children with cerebral palsy who are receiving care at a tertiary health and a secondary health facility. It is noteworthy that of the total 55 caregivers or the population of caregivers bringing their children for physiotherapy in the two hospitals during the 6-month study period, only 15(27.3%) were fluent in both English and Yoruba Languages, compared to 25 (45.5%) who comprehend Yoruba Language and 15 (27.3%) who understood only English language. This trend of language comprehension by the caregivers of children with cerebral palsy underscores the need for Yoruba version of GMFCSFQ. Yoruba is the indigenous language of the Yoruba people, which is one of the largest ethno-linguistic or ethnic groups in West Africa. The Yoruba people found predominantly in Nigeria, constitute approximately 21 percent of its total population [16,17] and around 30 million individuals throughout West Africa. Availability of the Yoruba version of the GMFCSFQ may therefore contribute immensely to the assessment and also management of children with cerebral palsy among the Yoruba speaking people of Nigeria.

The significantly positive correlation ( $\rho=0.89$ ,  $p=0.00$ ) observed between the Yoruba and English versions implies that the translated version is a true and valid representation of the original (English) version of the GMFCSFQ. The result of this study is in line with that obtained from similar studies on validation of instrument of rehabilitation which have been translated to Yoruba Language. Akinpelu et al [1] obtained a significant correlation of Participants' domain scores on the Yoruba translated version of World Health Organization Quality Of Life -BREF (WHOQOL-BREF) with those on its English version ( $r = 0.695-0.859$ ;  $p = 0.000$ ) and thus concluded that the Yoruba version is a valid translation of the English WHOQOL-BREF and may be used for assessing quality of life of stroke survivors in southwestern Nigeria. Odole and Akinpelu [10] also recorded a correlation coefficient of  $r = 0.67$ ,  $p = 0.000$ , in a study of the validity of the Hausa translated version of the Ibadan knee/hip osteoarthritis outcome measure and concluded that it is a valid version of the instrument and could thus be used among the Hausa speaking community of Nigeria. This present study obtained a correlation coefficient score of 0.89 thus making the translated version of the GMFCSFQ a valid instrument for classifying gross motor function by the Yoruba Speaking Caregivers of Children with Cerebral

Palsy.

Having a valid representation of the original version of the GMFCSFQ in the local language will afford the caregivers of a child with cerebral palsy the opportunity to understand and participate in the assessment, planning of treatment and therapeutic goal setting for their children. Hamzat and Fatudimu in a study carried out in 2008, found out that caregivers can assess their children as well as the health care professionals [4] and incorporating them in the assessment of their children will ensure a more comprehensive approach to assessment. Involving caregivers might go a long way in achieving the desired goal of integrating the family members into the assessment and care of children with cerebral palsy. This is particularly because the approach of involving family members or caregiver in the management of their children has been reported to yield a better outcome of treatment [13].

## CONCLUSION

From the findings of this study, it could be seen that the Yoruba translated version of the GMFCSFQ is a valid translation of the original English version and could therefore be used clinically or for research purpose in order to gather information about the gross motor function of children with cerebral palsy from their family members or caregivers.

**Conflit d'intérêt : Aucun**

**Table 1: Physical characteristics of children with CP and their Caregivers**

	n	%
Gender		
Male	9	60
Female	6	40
Type of CP (Tone)		
Spastic	10	66.7
Athetoid	4	26.7
Flaccid	3	6.7
Type of CP paralysis		
Quadriplegic	11	73.3
Hemiplegic	3	20.0
Diplegic	1	6.7
Distribution of Caregivers according to language Comprehension		
Yoruba only	25	45.0
English only	15	27.0
English and Yoruba	15	27.0

**Table 2: Spearman correlation between scores obtained in the Yoruba and English Versions of the GMFCSFQ (N=15)**

Spearman's rho	GMFCSFQ (English)	GMFCSFQ (Yoruba)
GMFCSFQ (English)	1.00	0.89
GMFCSFQ (Yoruba)	0.89	1.00
p	0.00	

GMFCSFQ- Gross Motor Function Classification System Family Questionnaire

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