FUNCTIONAL VISION ASSESSMENT IN YOUNG CHILDREN WITH VISUAL IMPAIRMENT: A FOCUS ON MANUAL SKILLS

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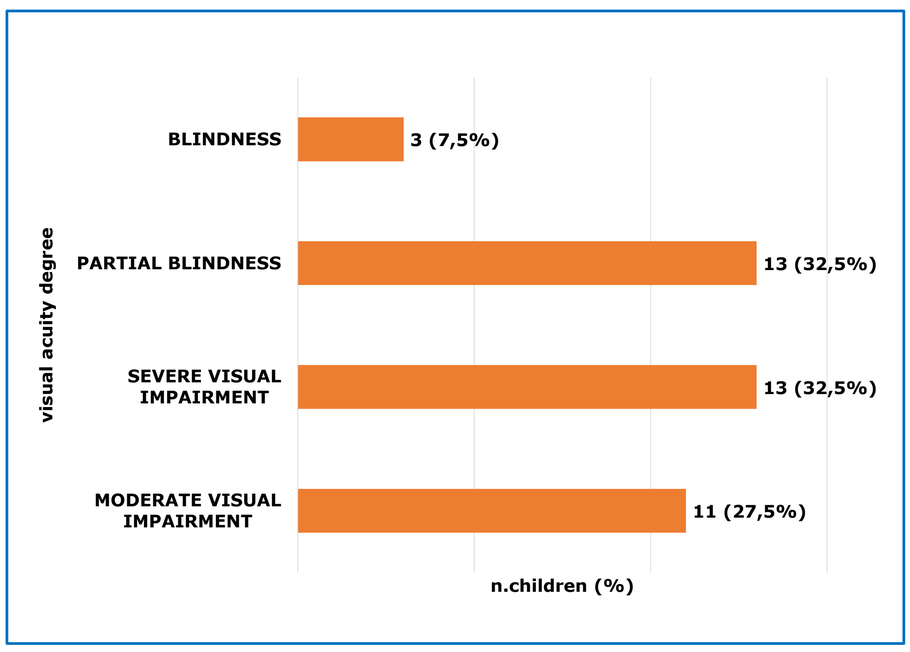
INTRODUCTION

The therapists of the Robert Hollman Foundation (RHF), during the decades of their long experience, designed a dedicated tool for Functional Visual Assessment (RHF-FVA) for children with visual impairment in order to develop customized re-habilitative care paths. The aim of this tool is to define the child's functional profile in order to identify which priorities, adaptations and strategies can support them to better express their potentiality in visual day-to-day activities. Here we propose our first step of application of this tool, focusing on hand-eye coordination and visual fine motor skills in young children.



Tab. 1 Categorization of participants according to the degrees of visual acuity (Cat 1-6, ICD 11)

FUNCTIONAL VISION ASSESSMENT	
DATE	
COMPILED BY	
FIRST NAME	
SURNAME	
DATE OF BIRTH	
ACTUAL AGE	
GENERAL DIAGNOSIS	
HAND-EYE COORDINATION	PRESENT
	ABSENT
FINE MOTOR SKILLS	TRANSITIVE GESTURES
	INTRANSITIVE GESTURES
	BASIC ABILITIES
	CONSTRUCTIVE ABILITIES

Tab. 2 Extract of RHF - VFA

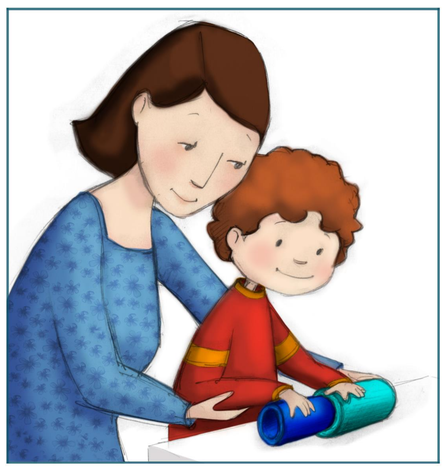
PARTICIPANTS and METHODS

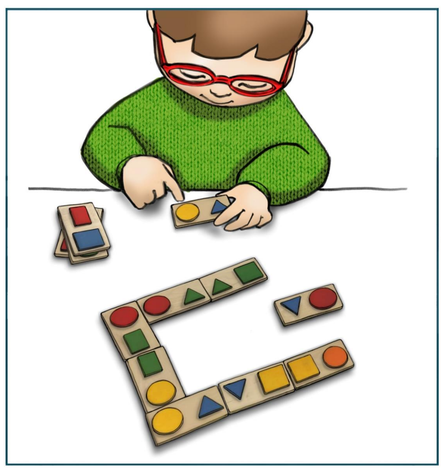
40 children (males 25=62%), aged 0-5 years, Mdn=22months (IQR 16-32), with a diagnosis of visual impairment, with and without associated disabilities, were evaluated with the RHF-FVA by therapists, from November 2022 to the end of January 2023.

RESULTS

The analysis of the skills showed a statistical positive association between visual acuity and hand-eye coordination (OR=2.39; 95% IC: 1.25-4.44; p=0.008) and between visual acuity and basic fine motor skills (OR=1.93; 95% IC1.24-3.00; p=0.004), which confirm the qualitative observations of the therapists and support scientific evidence on the influence of visual impairment on manual skills.

VARIABLE Y	VARIABLE X	ODDSRATIO	CI.95	P-VALUE
HAND-EYE COORDINATION	VISUAL ACUITY	2.36	[1.25;4.44]	**0.008**
TRANSITIVE GESTURES		1.24	[0.92;1.68]	0.161
INTRANSITIVE GESTURES		1.29	[0.94;1.77]	0.122
BASIC ABILITIES		1.93	[1.24;3.00]	**0.004**
CONSTRUCTIVE ABILITIES		1.31	[0.94;1.82]	0.107





CONCLUSION and RELEVANCE

These preliminary results confirm the empirical observations of the RHF therapists and suggest that this Functional Visual Assessment might be used to early detect and monitor visuo-motor skills in children with visual impairment.

The relevance of the study is that this tool allows the therapists to better design an individualized re-habilitative activity programme taking into consideration also the association between visual acuity and fine motor skills.

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