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The 360^{0}CHILD-profile, a reliable and valid tool to visualize integral child-information

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ABSTRACT

A 360^{0}Child-profile, with theoretically ordered, integral child-information visualized in one image, is designed by the Dutch preventive Child and Youth Health Care (CYHC). The introduction of this new data/information carrier gives an important incentive to enhance a transformation towards personalized health care for children and adolescents by supporting the complex medical thought process of CYHCmedical doctors (MD's). This information tool aims to effectively estimate child's functioning, detect emerging health problems and inform parents and caregivers.

This pilot study evaluated aspects of inter- and intra-rater reliability and concurrent validity of the 360^{0}Child-profile when used by MD's to estimate functioning and needed intervention of 4-year-old children. After the development process, in January 2015, 360^{0}Child-profiles (n = 26) were assessed by MD's, in the Netherlands. Each MD assessed two Childprofiles twice and was matched to another MD receiving exactly the same two profiles. The paired scores and rater's scores of both time-points were compared. Rater's scores also were compared with the 26 reference tests scores.

Reliability results showed Intraclass correlation coefficients between 0.71 and 0.82 (overall functioning), Cohen's kappa's between 0.61 and 0.80 (psychosocial functioning) and 0.46–0.47 (needed intervention). Validity results showed a Spearman's correlation coefficient of 0.78 (overall functioning), Cohen's kappa's of 0.43 and 0.77 (psychosocial functioning) and 0.52 (needed intervention).

In conclusion, in some domains, acceptable results regarding reliability and validity are found for the visualization of integral childinformation used by CYHC-MD's to assess child-functioning after only a short training. The 360^{0}Child-profile's value on tracking change in functioning and decision-making on intervention needs further exploration.

1. Introduction

A transformation of the current conventional health care, with treatment after a diagnosis ("find it and fix it") to a predictive and personalized health care ("predict it and personalize it") is needed (Doove et al., 2013; Snyderman and Langheier, 2006). Substantial burden and irreversible damage, present at time of diagnosis, can be prevented by tracking health and early intervention in the evolution of disease (Snyderman and Yoediono, 2006; Auffray et al., 2010). Preventive Child and Youth Health Care (CYHC), with surveillance of individual children's health, is focused on early detection and management of symptoms. However, still a shift is needed towards a more predictive and personalized health care.

To enhance this paradigm shift in practice it is important to understand the continuous multidimensional interactions between biological-genetic vulnerability and many environmental factors, which determine health and functioning (Sameroff, 2010). The CYHC collects information on child's health, biological-genetic vulnerability and environment. However, theoretical ordering is needed to make the individually unique and complex pathogenic processes accessible and tangible (Doove et al., 2013).

A 360^{0}Child-profile (Fig. 1), based on the "International Classification of Functioning, Disability and Health for Children and Youth" (ICF-CY), is designed within the Dutch CYHC.

On this newly developed child-profile, the child-information, already registered in the Electronic Medical Dossier (EMD) from birth by the CYHC, is ordered and visualized on one digital image.

The ICF-CY, based on the integrated Bio-Psycho-Social model of

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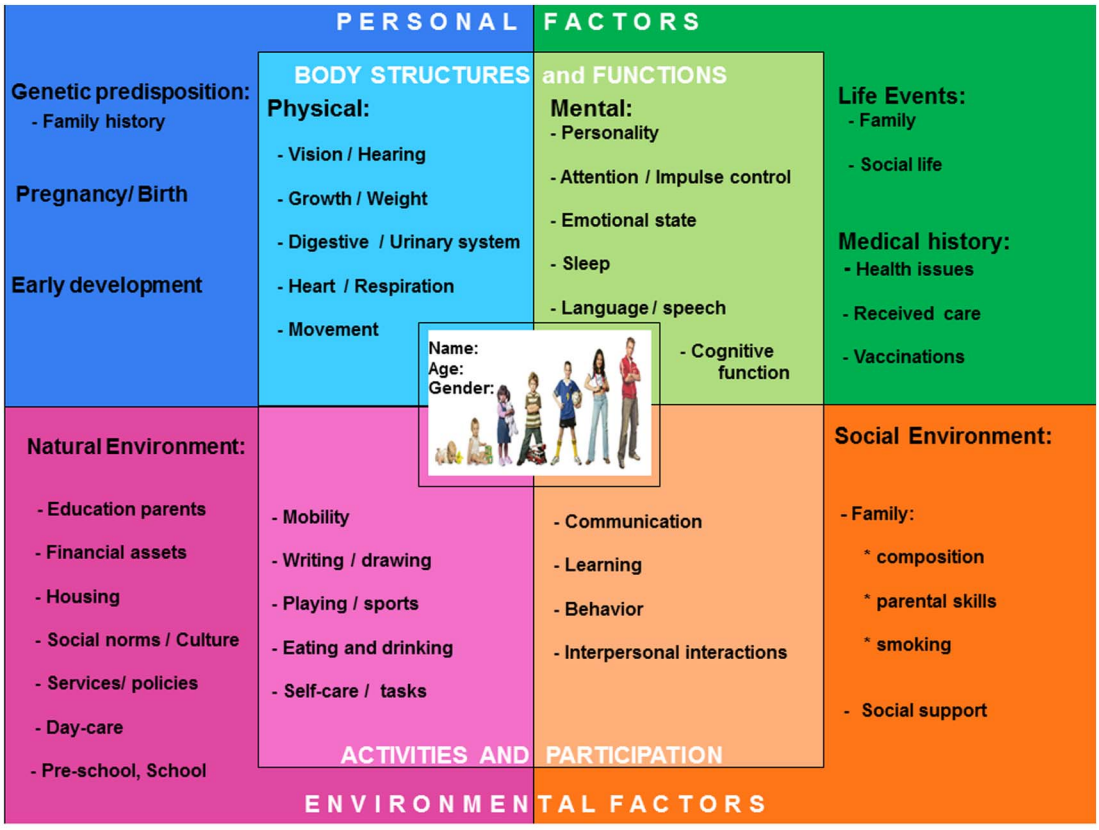
a



b

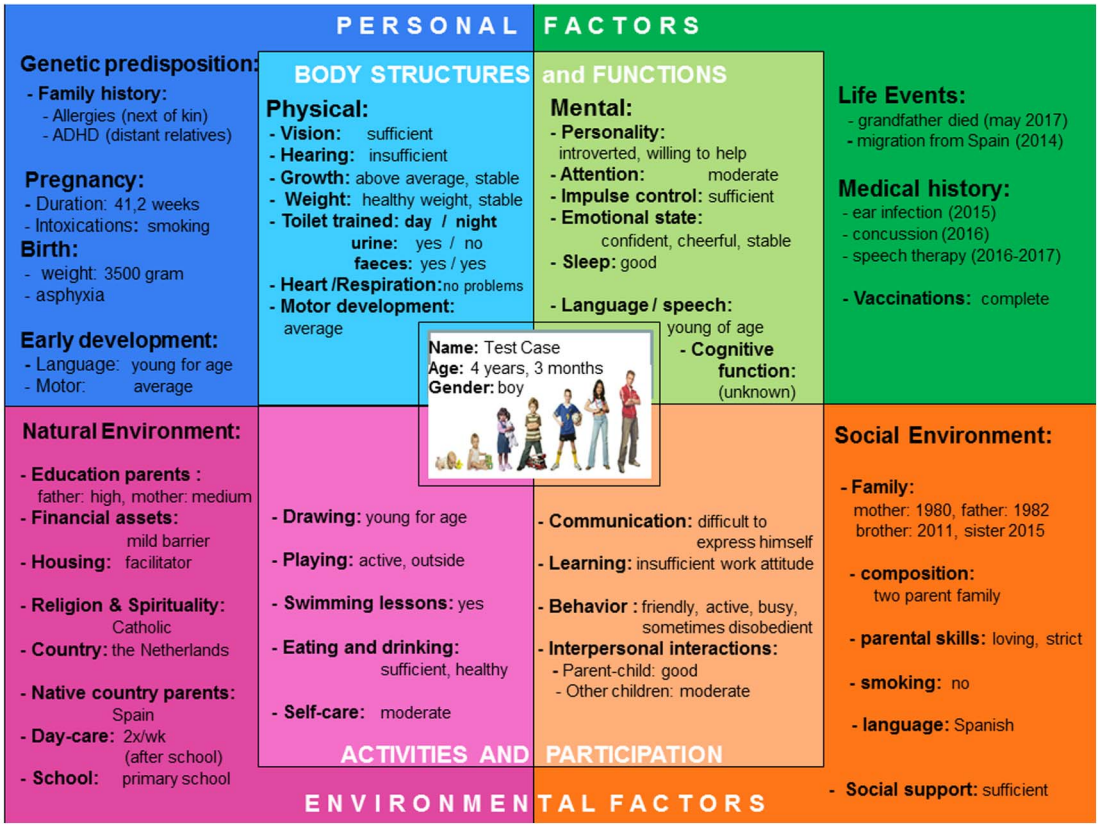


Fig. 1. a: The 360^0 CHILD-profile. b: example of a 360^0 CHILD-profile with information about a child.