Difference or delay? A comparison of Bayley-III Cognition item scores of young children with and without developmental disabilities

Linda Visser⁎, Carla Vlaskamp, Cornelius Emde, Selma A.J. Ruiter, Marieke E. Timmerman

ARTICLE INFO

Keywords:
Developmental disabilities
Young children
Cognitive development
Developmental assessment
Differential item functioning

ABSTRACT

The “difference or delay paradigm” focuses on the question of whether children with developmental disabilities (DD) develop in a way that is only delayed, compared to typically developing children, or also qualitatively different. The current study aimed to examine whether qualitative differences exist in cognitive development of young children with and without DD on the basis of item scores on the Dutch Bayley-III Cognition scale. Differential item functioning was identified for 15 of the 91 items. The presence of DD was related to a higher number of Guttman errors, hinting at more deviation in the order of skill development. An interaction between group (i.e., with or without DD) and developmental quotient appeared to predict the number of Guttman errors. DD was related to a higher number of Guttman errors for the whole range of developmental quotients; children with DD with a small developmental quotient had the highest number. Combined, the results mean that qualitative differences in development are not to be excluded, especially in cases of severe developmental disabilities. When using the Bayley-III in daily practice, the possibility needs to be taken into account that the instruments’ assumption of a fixed order in skill development does not hold.

What this paper adds?

Within the “difference or delay paradigm”, “delay” means that persons with developmental disabilities (DD) develop cognitive skills in the same order as persons without DD, but at a slower rate and with a lower ceiling. “Difference” means that, in addition to the delay, there are qualitative differences in development, for example in the order in which skills develop. The discussion has not yet been solved, but differences can clearly not be excluded.

Standardised developmental assessment instruments assume consistency between children’s order of skill development. If “difference” appears the case, this assumption does not hold, which yields problems for the tests’ validity. The assumption, however, has

⁎ Corresponding author.

E-mail addresses: Linda.Visser@dipf.de (L. Visser), C.Vlaskamp@rug.nl (C. Vlaskamp), c.emde@me.com (C. Emde), Selma.Ruiter@dekinderacademie.com (S.A.J. Ruiter), M.E.Timmerman@rug.nl (M.E. Timmerman).

http://dx.doi.org/10.1016/j.ridd.2017.09.022

Received 9 March 2017; Received in revised form 26 September 2017; Accepted 29 September 2017

0891-4222/ © 2017 Elsevier Ltd. All rights reserved.
never been studied for the Bayley-III, a high standard developmental assessment instrument that is widely used to assess children with DD. The current study aimed to do this by comparing the Cognition scores of young children with and without DD. We found Differential item functioning between the groups. The score patterns of children with DD with a low developmental quotient appeared to deviate the most from the expected order of skill development. In case of developmental quotients approaching the normal range, the deviation was still larger for children with DD than without DD. The results indicate that caution is needed when assessing children with DD with low developmental quotients with the Bayley-III: the tests’ assumptions might not be valid, causing the risk of overestimating skills below the basal and missing skills above the ceiling.

1. Introduction

Is the development of children with developmental disabilities only delayed compared to children with a typical development, or also qualitatively different? This is the focus of the “difference or delay paradigm”, which has originated in the literature in the late 1970s and still remains unsolved.

Weisz and Zigler (1979) have formulated the “similar sequence hypothesis”, which states that persons with intellectual disability (ID) develop cognitive skills in the same order as persons without ID, but at a slower rate and with a lower ceiling. Their literature review included studies using Piagetian tasks with diverse target groups, including persons with profound ID. The results support the similar sequence hypothesis for persons with ID, both with and without organic causes.

A review including studies with information-processing tasks (Weiss, Weisz, & Bromfield, 1986) showed completely different results: persons with ID performed worse on the tasks than persons without ID matched on cognitive developmental level, especially in the higher level ranges. Performance was especially impaired for discrimination and memory tasks. This difference in performance in some tasks, but not others, hints at qualitative differences and does thus not support the similar sequence hypothesis.

The answer to the “difference or delay”-question could thus depend on the type of tasks studied. It could also depend on the age of the child, the specific domain studied, and the type of disorder underlying the ID (Hodapp & Burack, 1990). Development until infancy seems to be delayed, while later development seems to be qualitatively different. Biologically based domains tend to develop delayed, while those that are mainly influenced by the environment more often show qualitative differences (Hodapp & Burack, 1990). In terms of the type of disorder, specific genetic disorders are related to specific strengths and weaknesses (Dykens & Hodapp, 2001), which can lead to qualitative differences in development. Research results have shown qualitative differences in the developmental order and processes of children with Down syndrome (Hasan & Messer, 1997; Lauteslager, 2000; Morris, 1988; Wishart, 1993). Qualitative differences are also found outside the domain of ID and cognition, for example in the language (Pérez-Pereira and Conti-Ramsden, 1999) and motor development (Reimer, Cox, Boonstra, & Nijhuis-Van der Sanden, 2015) of children with blindness and premature birth (Van Braeckel et al., 2010).

Although many authors still conclude that the similar sequence hypothesis is mostly supported (Bennett-Gates & Zigler, 1998; Facon, 2008), especially in cases of familial as opposed to organically caused ID (Burack, Russo, Flores, Iarocci, & Zigler, 2012), research results hinting at qualitative differences in cognitive development are numerous. The sequence of development as well as the underlying processes can be different (Nabuzoka, 2008).

This raises questions regarding the use of standardised developmental assessment instruments for assessing children with ID. In daily practice, standardised developmental assessment instruments are used to diagnose developmental delay. Even though (criterion-referenced) instruments that are specifically developed for persons with ID exist (AAIDD, 2008; Buntinx & Schalock, 2010), standardised developmental assessment instruments are also applied to estimate the developmental level in children who have already been identified with ID or developmental disabilities.

In the current article, we focus on young children with Developmental Disabilities (DD), defined as “severe chronic disabilities that can be cognitive or physical or both” (AAIDD, 2017). ID thus falls under the umbrella term of DD (Schalock et al., 2010; AAIDD, 2017), which means that a person with ID always has DD, but a person with DD does not always have ID, although the overlap is large (AAIDD, 2017). The term DD is commonly used for children who are too young for more specific diagnoses to be identified. Due to the large overlap, children with DD are often diagnosed as having ID when they are older, which is usually around school age. The term DD is also used for describing disabilities which are broader than only intellectual, such as those including physical disabilities. A disability in one area (e.g., motor) can influence the development in other areas (e.g., cognitive) and possibly cause qualitative differences therein. This effect is strengthened by the large degree of interrelatedness of developmental areas in young children (Couturier & Tak, 2002), which is even more pronounced in cases of DD (Houwen, Visser, Van der Putten, & Vlaskamp, 2015). The construct of DD covers this complexity. The implication is that the possibility of qualitative differences in development needs to be taken into account in cases of DD, like in cases of ID.

The most widely used instrument for developmental assessment in young children with DD is the Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III; Bayley, 2006). It can be used for assessing the development up to a (developmental) age of 3½ years. The instrument is based on the assumption that children develop skills in a fixed order (e.g., “similar sequence”): The test items are ordered on the basis of their difficulty, determined by scores of children in the standardization sample, most of whom have a typical development. Test procedures are based on the assumption that this order is the same for all children: basal and ceiling rules determine which items are administered. It has not yet been studied to what extent this assumption holds in cases of DD.

The Bayley-III has mainly been evaluated for use with children born preterm (Reuner, Fields, Wittke, Löffrich, & Pietz, 2013; Spencer-Smith, Spittle, Lee, Doyle, & Anderson, 2015; Velikos et al., 2015) or with medical conditions (Acton et al., 2011; Hallioglu et al., 2015; Komur et al., 2013). These studies, as well as the technical manual of the Bayley-III (Van Baar, Steenis, Verhoeven, Hessen, 2014), describe the scores of the children on the Bayley-III. However, as Burack and colleagues (Burack et al., 2012, p. 5)
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات