Psychometric Properties of the Kiddy-KINDL in Children from 3 to 4 Years Old with Predominantly Migrant Backgrounds

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Aim

Disagreement of observer and child self-rating has been widely reported [1]; as a consequence several self-reported HRQoL instruments have been developed for children and adolescents. Reliable and valid information can be obtained from children of at least 5 years of age [2]. The *Kiddy-KINDL* (*KK*) [3] is a HRQoL measure for very young children (4 to 7 years old) which comprises the dimensions of the KINDL with half of the items and less response categories. Though not published, the authors stated the possibility to use it as a self-report measure in children from 3 years on. As there are no publications yet about its psychometric properties especially not in children with migration background, our aim was to test them in children between 3 and 5 years old.

Material and Methods

We used baseline data of a longitudinal study investigating the effects of musical and art training [6]. Self-reported HRQoL, obtained in an interview via the *KK*, was assessed in 207 children [98 boys, 109 girls; mean age 4.2 (SD 1.5)] with predominantly migrant backgrounds. *KK* values range from 0 to 100 with higher scores indicating better HRQoL. Analyses were the following:
➤ Percentage of missing values;
➤ **Reliability**: internal consistency was calculated with Cronbach's alpha, and split half reliability with Spearman–Brown formula. Two weeks test-retest reliability was measured with Intraclass Correlation Coefficient (ICC) in a subsample of 23 participants [9 boys, 14 girls; mean age 4 (SD 0.5)];
➤ **Validity**: With Confirmatory Factor Analysis (CFA) structural validity with Weighted Least Squares Estimation was estimated. A six-factor model of the *KK* as suggested for the original questionnaire was tested : Physical, Psychological, Self-steem, Family, Friends and Kindergarten [4]. To test convergent validity, information about the presence of illness and the *KK* Physical problems dimension were correlated. **Discriminant validity** was assessed with mean differences in the *KK* in groups (1. low performing and 2. high performing) in motor development (*WET*), holistic thinking (*K-ABC*) and visual perception and orientation (*FEW*). It was expected to find differences between groups with better HRQoL in those with high performing.

Results

In 70.5% of the participating families, one or both parents were born outside Germany. Mean HRQoL in all participants was 71.8 (16.3; Table 1), and overall missing values were 8.6% (Table 2).
Overall **Cronbach's alpha** was 0.71. The alpha for the dimensions ranged from 0.54 to 0.70 with the exception of the Psychological dimension (Table 2). **Spearman-Brown correlation** showed a split half reliability of 0.8. **Test-retest** for overall score was 0.83.
CFA required deletion of the Psychological dimension as items q3 and q4 showed no correlation (Figure 1). The Physical dimension couldn't be specified, therefore a factor loading of 0.8 was fixed. The Goodness of Fit was good (Figure 1). **Convergent validity** was good showing a Spearman's correlation of 0.5 (p=0.01) between high values on physical problems and the presence of illness. Results of **discriminant validity** testing differentiated groups for motor development (*WET*) and holistic thinking (*K-ABC)* were consisent with a priori hypothesis(p=0.01), but not for visual perception and orientation (*FEW*).

Table 2. Missing values; internal consistency compared with the original *.

	Missing values	Cronbach's alpha Kiddy-KINDL	Cronbach's alpha KINDL
Physical	8.5 %	0.67	0.59
Psychological	8.5 %	0.06	0.59
Self-Steem	10 %	0.54	0.68
Family	8.2 %	0.70	0.72
Friends	8.2 %	0.69	0.53
School	9 %	0.65	0.53
Overall	8.6 %	0.71	0.82

Note: * The original version is the KINDL with 24 items.

Table 1. Descriptive statistics of the study sample (overall population N=207).

	Mean [%] (SD)
Children Variables Age	4.2 (1.5)
Kiddy-KINDL	71.8 (16.3)
Kids been born in Germany	[96.9%]
Family Variables Families with migrant background	[58.5%]
Mixed families with migrant background	[11.9%]
Families with non migrant backgrounds	[29.5%]
Higher degree occupations*	[15.5%]
Professionals, skilled non manual workers	[19.3%]
Skilled manual workers	[25.1%]
Unskilled workers	[3.9%]
Unemployed	[7.7%]

Note: * Socio-economic category based on the level of education and the current profession of the father.

Figure 1. Results of the Confirmatory Factor Analysis of the Kiddy-KINDL.
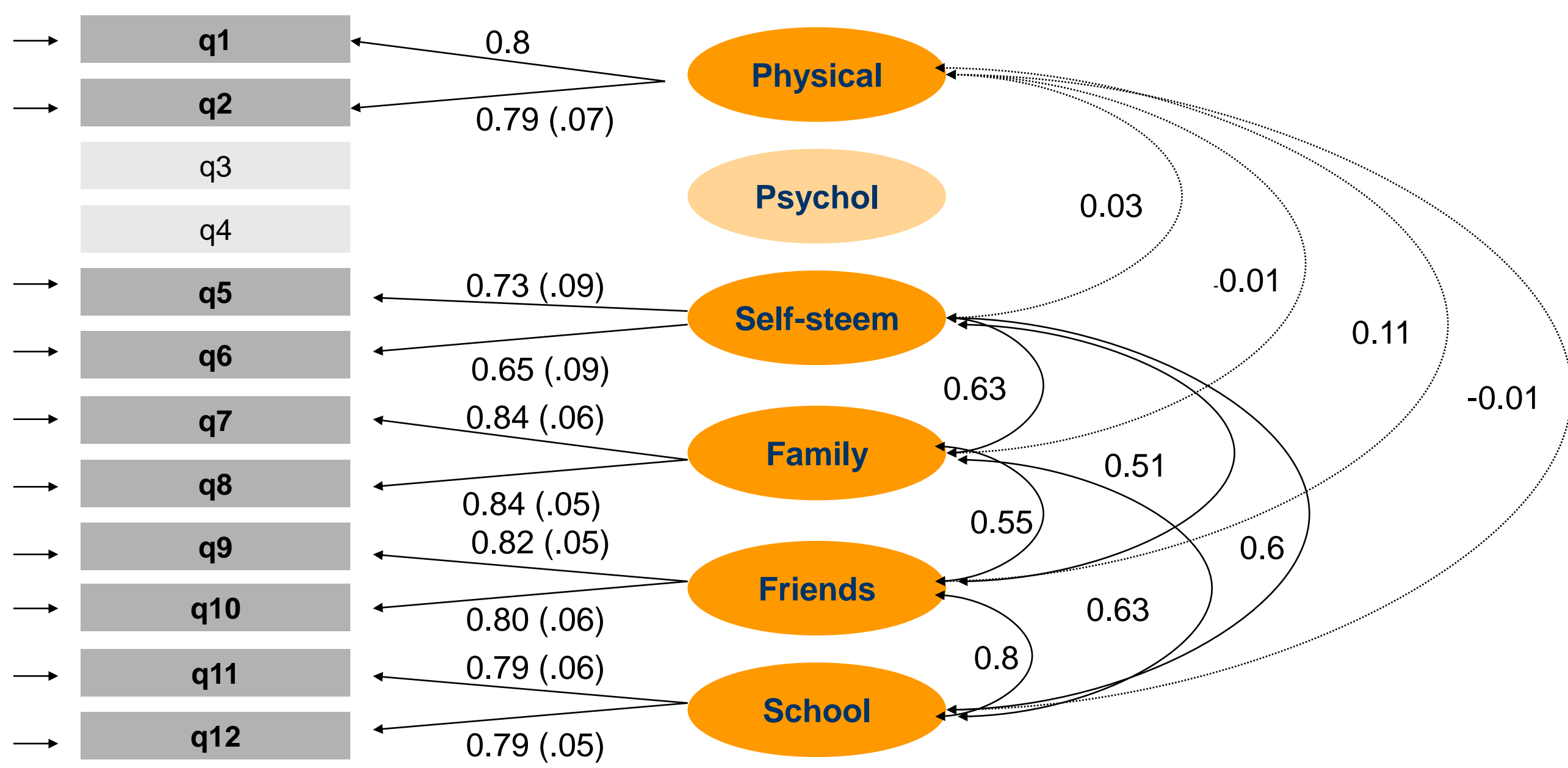
Note: CFI: 0.99 TLI: 0.98 RMSEA: 0.02.
Dashed lines indicate non-significant correlations.

Conclusions

This preliminary validation of the *KK* in very young children shows acceptable psychometric properties. In some cases internal consistency was better than in the original questionnaire, with the exception of the Psychological dimension. CFA and internal consistency results suggest a *KK* with 5 dimensions in this sample, indicating that the Psychological dimension is not appropriate for children at this age. Furthermore, problems to specify the model concerning Physical dimension indicate that two items per dimension may sometimes be too limited. Construct validity should be further tested with appropriate measures. In summary, the *KK* provides a reliable and valid self-reported instrument in very young children (3 to 5 years old) if the Psychological dimension is eliminated.

Supported by

References:
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