

# Assessment of Quality of Life in Young Children with a Computer Assisted Touch Screen Program (CAT-Screen<sup>®</sup>)

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## 1. Introduction

Most self administered quality of life instruments for children use paper pencil forms which are difficult to administer to young children or those, who can't read or write. For this reason, an age-appropriate computer-assisted-touch-screen (CAT-Screen) program has been developed. Items are presented by two animated animals (cat and dog) visually and acoustically. For the instrument to be a research tool, scoring is produced and printed out by the computer.

## 2. Objectives

The study aimed at comparing the reliability, validity and feasibility of the computer (CAT-Screen) vs. paper pencil version (KINDL<sup>®</sup>). The revised KINDL QoL questionnaire was developed to assess generic and disease specific QoL in two age groups (6-12, 13-17 years old).

## 3. Design and Study Sample

In the cross sectional study 72 school children completed the revised 24 item Kindl QoL questionnaire paper pencil version and the animated CAT-screen computer version of the Kindl as part of a routine health reporting. All children filled in both versions in randomized presentation order. Subsequently they completed an evaluation interview to judge feasibility of the CAT-Screen instrument.

### sociodemographic characteristics

	all	children (age 6-12)	adolescents (age 13-16)
n of cases	72	46	26
age	mean 11.2	9.3	14.5
girls	n (%) 43 (59.7)	18	11
boys	n (%) 29 (40.3)	28	15

Mean age of the children was 11.2 years, 40 % were male.

## 4. Results

### Reliability

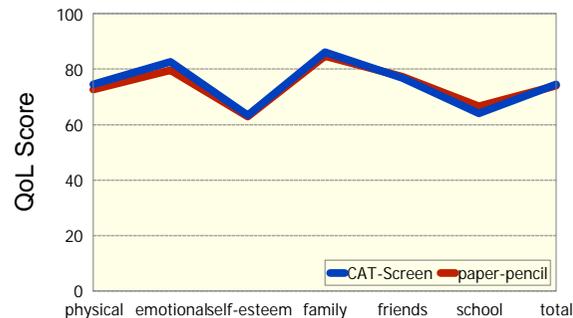
Cronbach's  $\alpha$  paper-pencil vs. CAT-Screen version

scale	items	paper-pencil		CAT-Screen	
		mean (sd)	$\alpha$	mean (sd)	$\alpha$
physical	4	72.57 (18.52)	.65	74.59 (16.91)	.52
emotional	4	79.55 (12.25)	.26	82.57 (14.90)	.57
self-esteem	4	62.79 (20.81)	.70	63.28 (21.57)	.69
family	4	84.82 (14.84)	.62	86.16 (15.19)	.69
friends	4	77.39 (17.12)	.49	76.90 (19.71)	.67
school	4	66.60 (21.56)	.63	64.04 (21.68)	.62
<b>total</b>	<b>24</b>	<b>74.06 (11.87)</b>	<b>.81</b>	<b>74.61 (12.39)</b>	<b>.83</b>

Cronbach's  $\alpha$  for both versions in total score was satisfactory, reaching  $\alpha=.81$  for the paper-pencil and  $\alpha=.83$  for the computer assisted version in the total score.

### QoL-Rating

Paper-Pencil vs. CAT-Screen Version  
 standardized scale scores



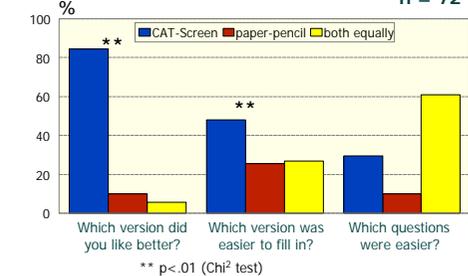
all differences are not significant

QoL ratings in CAT-screen did not differ from the paper pencil version (t-Test). Correlation between total scale scores of both versions was  $r=.81$ .

### •Feasibility

Completion time varied across modes, especially in the younger age group, mainly because the computer program provides animated comic sequences between the subscales. The mean completion time for CAT-Screen was 16 min. (18 min. for children, 12 min. for adolescents), and for the paper pencil version mean completion time was 8 min. (9 min. for children, 6 min. for adolescents). The difference in completion time was significant:  $t(58)=-12.95$ ,  $p<.001$ .

### Evaluation of questionnaire versions



Despite an extended completion time, children and adolescents enjoyed filling in the computer program more than the paper pencil form. All children were highly motivated and interested to fill in CAT-screen. All but one answered to the question "Would you fill in CAT-Screen again?" with yes. They were able to understand and finish it without help.

## 5. Conclusions

CAT-screen is a practicable and well accepted computer animated instrument to measure HrQoL even in small children not able to read or write. QoL rating assessed with the computer program remains stable compared to traditional assessment. The computer program can easily be used to document HrQoL by pediatricians or in health reporting.