

Applicability and validity of the Amnestic Comparative Self-Assessment in adolescents

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Abstract

The Amnestic Comparative Self-Assessment (ACSA) is a sensitive, efficient, and economic instrument to assess overall quality of life in adult populations. The present study investigated the applicability of the ACSA in an adolescent sample and compares it to a measure of health-related quality of life, the Kiddo-Kindl. The sample comprised 92 adolescents (50 girls, 42 boys) aged 11-17 years (mean age: 13.67, standard deviation: 1.34). Of the investigated sample, $n=69$ (75%) completed the ACSA. No significant demographic differences were found between ACSA-respondents and non-respondents. The correlation of the Kiddo-Kindl and the ACSA was moderate ($r=0.50$). The Kiddo-Kindl subscales and the ACSA correlated between $r=0.07$ and 0.41 . The majority of adolescents are able to complete the ACSA, and its acceptance and validity are independent of age. Thus, future investigations could adopt the ACSA in adolescents to assess overall quality of life.

Introduction

The concept of quality of life [quality of life (QoL)] was established in the field of medicine in the 80's.¹ Until today, QoL has become a major outcome measure in clinical investigations.² However, a universally approved definition of QoL is lacking. An established approach to QoL was formulated by Bernheim, who defined QoL as *an individual and emergent construct, the resultant of a great many interactions, and of a different order than its contributing components*.³ Therefore, the assessment of overall QoL has to allow individuals to use their own internal standards and priorities as references. According to this definition, the Amnestic Comparative Self-Assessment [Amnestic Comparative Self-Assessment (ACSA)] uses a one-dimensional, self-anchoring scale.⁴ Its endpoints refer to the subject's best and worst times in life and his/her actual overall well-being is rated between these inter-

nal anchors. The ACSA has been employed in various adult samples, for example cancer patients,⁵ locked-in-syndrome patients,⁶ or organ donors.⁷ It has proven to be a sensitive measure, possessing greater sensitivity than conventional single-item measures of life satisfaction and happiness.^{8,9}

However, in children and adolescents, the ACSA has to our knowledge not yet been adopted. This may be because self-anchoring scales, like the ACSA, increase processing time and cause more drop-outs as compared to fixed-anchoring scales,¹⁰ or because completing the ACSA requires that a person has life experience, which sets the standard of comparison.¹¹ On the other hand, its use would enrich future epidemiological or clinical investigations, because it is a sensitive, efficient and economic instrument. Developmental processes in the course of adolescence strengthen the ability for abstract thinking and metacognitions.^{12,13} With increasing age, also the stability of the self-concept increases.¹⁴ Thus, adolescents may well be able to specify their overall QoL and complete the ACSA. In future research, the ACSA could be used as an alternative or in addition to the health-related approach to QoL, which is at present predominant in children and adolescents.¹⁵

Health-related quality of life [Health-related quality of life (HRQoL)] is defined as *a multi-dimensional construct pertaining to the physical, emotional, mental, social and behavioral components of wellbeing and function as perceived by the patients and/or observers*.¹⁶ It is measured by evaluating satisfaction with different domains of the construct.¹⁷ Thus, the assessment of HRQoL includes ratings on distinct subscales, which are considered relevant to QoL for the majority of a cultural group. However, we cannot know to what extent the HRQoL dimensions and their interactions contribute to an individual's overall QoL, because the weights of the distinct dimensions remain unknown and, therefore, immeasurable.³ By contrast, the ACSA bypasses biases due to cultural differences, peer-relativity, and social desirability, because individuals are required to integrate the multiple facets of QoL based on their personal life-experience. Peer-relativity and social desirability might affect QoL-measures that do not use internal standards as references especially in adolescents because, in this age-group, relations to others are of major importance.¹² Therefore, an instrument like the ACSA, which is not susceptible to external influences, would be of special value in adolescent samples. Due to its independence of cultural and social influences, the ACSA could be adopted in cross-cultural studies or for comparisons between adolescent populations who might differ in their external standards. We therefore consider the ACSA a convenient instrument, whose implementa-

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tion could make a valuable contribution to QoL research in adolescents.

The aim of the present study was to investigate the usability of the ACSA in adolescents and compare results to that of the Kiddo-Kindl, a validated and widely-used instrument specifically developed for 12- to 16-year-olds.^{18,19} We expected a moderately positive correlation between the two measures. This correlation should be consistently high in all age groups of the adolescent sample. According to the findings of van Acker and Theuns,¹⁰ who reported more drop-outs in self- as compared to fixed-anchoring scales, we expected response rates to the ACSA to be lower than those to the HRQoL-measure. ACSA-respondents and non-respondents were analyzed for systematic differences between each other in sex, age, educational level, and HRQoL.

Materials and Methods

The here presented data were collected in the context of a study about the association of sleep problems and HRQoL in German adolescents.²⁰ Study materials consisted of a covering

letter, a letter of agreement, questionnaires (see below), and the assessment of demographic variables (including age, sex, and type of school). Documents were distributed in schools, youth centers, and sports clubs by the experimenters. The parents of all participants gave written informed consent prior to taking part in the study. The study was conducted in accordance with our institution's ethical review committee and the standard ethical guidelines as defined by the Declaration of Helsinki (World Medical Association).

Amnestic Comparative Self-Assessment:⁴ The ASCA consists of one single item. Subjects are instructed to memorize the best and worst times in their lives and rate their actual overall well-being on an ordinal visual analog scale ranging from -5 to +5 in relation to their individual anchors.

Kiddo-Kindl:¹⁹ The Kiddo-Kindl questionnaire was constructed for children aged 12-16 years. It consists of 30 items assessing HRQoL on six subscales (physical well-being, emotional well-being, self-esteem, family, friends, and everyday functioning/school). Transformed scores for the total score and each subscale can be derived ranging from 0 to 100 on an interval scale. The empirical evaluation of the Kiddo-Kindl has shown good reliability, validity, and acceptance in adolescents.¹⁹

All analyses were conducted with SPSS Statistics 18 (IBM Deutschland GmbH, Ehningen). Independent samples *t*-tests and chi-square tests were conducted to compare ASCA-respondents and non-respondents. Since the ASCA is answered on an ordinal scale, reported correlations are Spearman-Rho coefficients or Spearman partial correlation, indicating convergent validity. Analyzing divergent validity, group differences between boys and girls were tested using independent samples *t*-test for the Kiddo-Kindl, and the non-parametric Mann-Whitney-U-test for differences in ASCA ratings.

Results

The sample comprised 92 adolescents (50 girls, 42 boys) aged 11-17 years ($M=13.67$, $SD=1.34$). Of the sample, $n=69$ participants (75%) completed the ASCA. ASCA-respondents and non-respondents did not differ significantly in age, sex, type of school or Kiddo-Kindl total score (Table 1). Frequencies of ASCA score (Figure 1) show a left skewed, platykurtic distribution (skewness: -0.76, excess kurtosis: -2.68).

The correlation of the Kiddo-Kindl total score ($M=70.78$, $SD=11.07$) and the ASCA rating ($MD=2.00$, Range=10) was medium ($r=0.50$). The correlation of the Kiddo-Kindl total score and the ASCA was still medium when controlled

for age (partial $r=0.53$). As depicted in Table 2, correlations of Kindl subscales and the ASCA varied between $r=0.07$, *ns* (everyday functioning/school) and $r=0.41$, $P<0.01$ (emotional well-being). Again, controlling for age did not significantly affect the correlation coefficients. In ASCA-respondents, Kiddo-Kindl total score differed significantly between boys ($M=74.02$, $SD=9.19$) and girls ($M=68.99$, $SD=11.78$, $t_{(67)}=-1.97$, $P=0.05$). Correspondingly, boys (mean rank: 39.51) also reported higher ASCA scores as compared to girls (mean rank: 30.61, Mann-Whitney-U=441.50, $P=0.06$).

Discussion

The aim of the present study was to investigate the applicability of the ASCA in adolescents and to compare it to the Kiddo-Kindl, an established and well-evaluated measure of HRQoL. We could confirm our first hypothesis of a positive relationship between overall and health-related QoL: the correlation between the ASCA and the Kiddo-Kindl score was moderate and positive. This moderate correlation indicates common aspects captured by both measures, such as emotional and physical well-being, but also indicates differences, which are specifically obvious for the Kiddo-Kindl sub-

scale Everyday functioning. Given the holistic definition of overall QoL, the ASCA score correlated most highly with the total Kiddo-Kindl score. All separate subscales correlated similarly with the ASCA, suggesting that these domains contribute equally to the overall construct. The subscale Everyday functioning is an exception as it does not correlate with the ASCA. This scale mainly assesses school-related aspects, like interest in lessons or fear of bad marks. Apparently, these aspects were not associated with the overall QoL of adolescents in our sample. Furthermore, we confirmed our second hypothesis and found that the majority of adolescents are able to complete the ASCA. However, 25% of our sample refused to answer

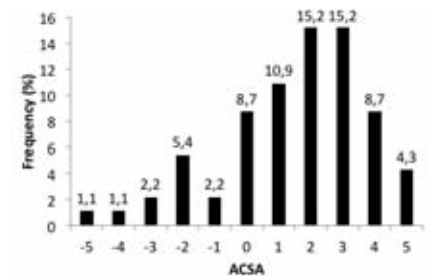


Figure 1. Answer frequencies for Amnestic comparative self-assessment in percent.

Table 1. Impacts of demographic variables on Amnestic Comparative Self-Assessment-response.

	ASCA respondents	ASCA non-respondents	Test statistics
Age (years)	$M=13.68$ ($SD=1.30$)	$M=13.65$ ($SD=1.50$)	$t_{(90)}=-0.09$, ns.
Sex			
Girls	$n=35$ (70.00%)	$n=15$ (30.00%)	$\chi^2_{(1)}=1.46$, ns.
Boys	$n=34$ (80.95%)	$n=8$ (19.05%)	
Type of school			
Gesamtschule*	$n=38$ (69.09%)	$n=17$ (30.91%)	$\chi^2_{(1)}=2.55$, ns.
Gymnasium°	$n=31$ (83.78%)	$n=6$ (16.22%)	
Kiddo-Kindl	$M=71.47$ ($SD=0.81$)	$M=68.30$ ($SD=11.74$)	$t_{(90)}=-1.19$, ns.

ASCA, Amnestic Comparative Self-Assessment; M, mean; SD, standard deviation; ns, not significant. *Equivalent to comprehensive school; °equivalent to grammar/prep school.

Table 2. Correlations of Kindl subscales and Amnestic Comparative Self-Assessment..

	Amnestic comparative self-assessment <i>r</i>	partial <i>r</i> (partial correlation controlled for age)
Physical well-being	0.32*	0.34*
Emotional well-being	0.41*	0.42*
Self-esteem	0.33*	0.36*
Family	0.40*	0.40*
Friends	0.33*	0.34*
Everyday functioning	0.07	0.09
Total	0.50*	0.53*

* $P<0.01$.

the ACSA. Five participants stated *Stupid question, I don't think and feel in those categories or ?*. But the reduced response rate cannot be considered a problem exclusively occurring in adolescents. Self-anchoring scales, like the ACSA, cause comparably elevated drop-out rates in adults (26.98%).²⁰ Thus, not only adolescents, but also adults have reduced response rates as compared to fixed-anchoring scales. ACSA-respondents and non-respondents did not differ in demographic variables or HRQoL. Therefore, acceptance of the ACSA did not depend on individual characteristics; not even on the participants' age. This is remarkable, because the study included adolescents from a broad age range (11-17 years), who were equally able to complete the ACSA.

However, several limitations to the validity of our results have to be considered. Firstly, the study material was not assessed in a standardized environment. Biases due to distractors or parental influence on adolescents' answers cannot be ruled out. Secondly, our sample was recruited in a large city and might not be representative for adolescents from less urbanized regions. Thirdly, the recruitment via public institutions might have caused a selection bias. Education and social integration are likely to be above average in our sample. Future investigations in larger representative samples would be desirable to further explore convergent and divergent validity of the ACSA in adolescents. Future research might also address the question of how completion rates could be increased. In this regard, the immediate presence of an experimenter or a modified, age-specific instruction may prove helpful.

To conclude, the ACSA is applicable in the majority of adolescents and can be used in future investigations to assess overall QoL, for example in epidemiological and cross-cultural surveys, clinical populations or as an outcome measure in intervention studies. Overall QoL correlates moderately positive with HRQoL and less positively with separate HRQoL scales. The ACSA is as well accepted in adolescents as other self-anchoring scales in adults, and acceptance and validity do not depend on age or other individual characteristics.

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