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A German version of the GOHAI

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Abstract – *Objectives:* Translation, reliability analysis and validation of a German version of the Geriatric/General Oral Health Assessment Index (GOHAI) was the aim of this study. *Methods:* Translation was performed by a forward–backward process. Validity was assessed as convergent validity in comparison with another self-perceived assessment of oral health (OHIP-14) and as group validity ($n = 218$; mean age 73 years). Reliability was proved in terms of internal consistency, inter-item and item-scale correlations, and stability (test–retest procedure; $n = 36$; mean age 77 years). The responsiveness to change in oral health status was assessed by pre- and post-treatment comparison ($n = 21$; mean age 63 years). *Results:* A German version of the GOHAI is presented. Convergent validity was sufficient ($r = -0.76$ compared with OHIP-14); group validity could be demonstrated for self-perceived need for treatment, chewing problems, number of own teeth, caries lesions present and dental status. The internal consistency was high (Cronbach's alpha $= 0.92$) as were inter-item and item-scale correlations, for which good homogeneity of the index was apparent. The test–retest correlation for the summary score was $r = 0.84$, single item correlations ranged from $r = 0.36$ to $r = 0.89$. The GOHAI sum score increased significantly after patients received new dentures, indicating responsiveness of the GOHAI to clinical change in the expected direction. *Conclusions:* The German version of the GOHAI had sufficient reliability, validity and responsiveness to be used as measure of oral health-related quality of life in cross-sectional and longitudinal studies of the elderly.

Health is no longer seen solely as the absence of illness; ideally, health can be defined as the complete physiological, psychological and social well-being of a person (1). The concept of health-related quality of life (HRQoL) has been established, capturing not only clinical aspects but also the individual's perception of health which could be affected by a variety of factors; for example, the past experience of health or health-care systems (2, 3). HRQoL can be measured by using different questionnaires (4); however, oral health, as a part of health, is not sufficiently represented in measures of general HRQoL (5). Therefore, different questionnaires have been established for measuring, especially, the oral HRQoL (OHRQoL). Frequently used questionnaires are the Oral Health Impact Profile (OHIP) (6), the Oral Impacts on Daily Performance (OIDP) (7) and the well-established Geriatric/General Oral Health Assessment

Index (GOHAI) (8, 9) with translations into French (10), Chinese (11) and, recently, Swedish (12) language.

In common with that of other western countries, German society is an aging society (13). In older collectives, especially, a compact index for measuring OHRQoL is valuable, taking into consideration diminished ability to concentrate and reduced compliance. The existing German 49 item (plus 4 specific German items) version of the OHIP (14, 15) is a challenge for many elderly to complete. The OHIP-14 version (16) could be an alternative, it has been shown the OHIP-14 is not sufficiently sensitive to minor impairment of OHRQoL, because more participants have a score of zero in the OHIP-14 than in the GOHAI, which may compromise the ability of the OHIP-14 to detect within-subject changes (17).

The objective of this study was, therefore, to translate and validate a German version of the

GOHAI, especially in its original context for use with the elderly.

Materials and Methods

Participants

All participants received written information and, with exception of sample 2, for which data were collected anonymously, all signed an informed consent form. The study was approved by the local ethics committee of the university. A total of 275 participants were recruited from independent samples. The validity and internal consistency of the GOHAI was assessed in sample 1 (sample 1a and 1b). Sample 1a was recruited in a primary geriatric hospital. All patients 60 years or older who did not suffer from dementia according to their medical report, or from severe disease or infections, were asked to participate. Most of the participants of this sample were believed to have impaired general health, and dental problems were not believed to be of primary importance ($n = 126$). Sample 1b was recruited from patients with dental problems and/or need for new dentures of the prosthodontic department (age over 55 years). Here, dental problems were assumed to play a major role ($n = 92$). In a separate sample (sample 2) from the hospital ($n = 36$), the stability of the GOHAI was assessed (test–retest procedure) over a 1-week period. To assess the responsiveness of the GOHAI to changes in clinical data, sample 3 was recruited from patients of the clinical student course of the university (sample 3, $n = 21$). Patients receiving double-crown retained partial denture treatment completed the GOHAI twice: the first time before starting the treatment and the second time after placement of the dentures. The characteristics of the study samples are shown in Table 1.

English version of the GOHAI

The English GOHAI has 12 items in three hypothetical dimensions (physical function, psychosocial function and pain and/or discomfort). For each of the 12 items participants can respond to experience in the last 3 months on a Likert-type scale (1 = always; 2 = often; 3 = sometimes; 4 = seldom; 5 = never). Two different scores of the GOHAI can be calculated. For the scores, some answers have to be inverted (items 3, 5 and 7). The additive score (ADD-GOHAI) is a sum score, ranging from 12 to 60 (high scores indicate few problems). The simple count score (SC-GOHAI) is a count of the items with the responses 'sometimes', 'often' and 'always' and ranges from 0 to 12 (12 indicates poor oral health).

Translation process (forward–backward translation)

A forward translation was performed by a bilingual professional translator, whose first language was German. This version was revised and scrutinized for specific dental terms by clinicians of the Department of Prosthodontics of the university.

Table 1. Sample characteristics

Sample	n	Age	Gender	Data	Type of investigation
(1)					
(a) Cross-sectional sample of short-term hospitalized elderly; primary general health problems	126	Mean 76.5, SD 8.8, range 60–94	32% men ($n = 40$)	Interview	Convergent and group validity, internal consistency and item analysis
(b) Cross-sectional sample of patients seeking prosthodontic treatment or advice; primary dental-associated problems	92	Mean 67.7, SD 6.2, range 55–83	52% men ($n = 48$)	Self-administered	
(2)					
Longitudinal sample of short-term hospitalized elderly with a stay of one week or longer	36	Mean 76.8, SD 8.5, range 56–94	31% men ($n = 11$)	Interview	Test–retest reliability (stability)
(3)					
Longitudinal sample of patients before and after treatment with partial removable denture	21	Mean 63.1, SD 7.7, range 50–81	52% men ($n = 11$)	Self-administered	Responsiveness

This version was back-translated into English by a bilingual professional translator whose first language was English. The original English version, the back-translated version and the German version were revised by three professional translators and scrutinized for changes in sense.

Data

With the exception of sample 2, for all subjects dental status was recorded by a dentist. Dental status, number of own teeth and number of teeth with caries lesions were clinically assessed. The subjects were also asked to provide the information: age, gender, general health (assessed on a five-point Likert-scale from 'very poor' to 'very good'), oral health (assessed on a five point Likert-scale from 'very poor' to 'very good'), satisfaction with oral situation (dichotomously) and chewing problems (present or not). In addition, for sample 1a, OHIP-14 was extracted from OHIP-49 whereas sample 1b completed OHIP-14.

Statistical methods

Missing values in GOHAI

If more than one answer was missing (>10% of the questions), then the questionnaire was not used ($n = 3$ in sample 1a, $n = 5$ in sample 1b). If only one answer was missing, the missing value was replaced by multiple linear regression analysis. Therefore, for each item, a regression equation was developed based on the complete data set, treating it as the criterion variable and using all other items as predictors. Individual missing values in one item were then replaced by the predicted value of the criterion by inserting the values of all other items into the regression equation. This method is seen superior to simple listwise or pairwise data deletion or mean substitution (18).

Descriptives, item analysis and reliability

Percentage answer frequencies of the GOHAI items and descriptives of the ADD- and SC-GOHAI scores were calculated.

Internal consistency was assessed using Cronbach's alpha (19) and split-half reliability (20). Inter-item and item-scale correlations were also calculated (Spearman correlation coefficients). Because the English version of the GOHAI is believed to cover three hypothetical dimensions, cluster analysis was performed to highlight the validity of the construct. Cluster analysis is an exploratory data-analysis tool for revealing associations and structure in data. Unlike factor analysis, cluster analysis does not require normal distribution of the data. Hierarchical cluster analysis was performed using Ward's method (21) (clusters represented by their centres with maximum differences between centres of different clusters and minimum distance between the elements of one cluster). The cluster solution is displayed using a dendrogram.

Test–retest reliability was assessed for sample 2. Participants completed the GOHAI twice, with 1 week in between. It was assumed that no large changes in their dental status or oral health occurred during this time and, therefore, high stability should be observed. The single-rater intraclass correlation coefficient (ICC) was used.

Validity

The convergent validity describes how closely a measure is related to other measures of the same content. It was assessed by using the Spearman correlation coefficient in conjunction with the OHIP-14 summary score, the Kruskal–Wallis test for self-perceived oral health (categorical) and the Mann–Whitney U-test for the item satisfied/unsatisfied with oral situation (dichotomous).

Group validity describes the ability of the instrument to distinguish between the groups which were assumed to differ in the scale scores because of the absence/presence (or different extent) of a trait. It was assumed that a lower GOAHI score (impaired self–perceived oral health) is related to presence of chewing problems, dry mouth and the self-reported need for dental treatment (Mann–Whitney U-tests). Subjects with few of their own teeth and with teeth with caries lesions were expected to have lower GOHAI scores, assessed by using the Spearman correlation coefficient and Mann–Whitney U-test. Differences between the groups of dental status (participants having only their own teeth and no removable dentures were assumed to have the best OHRQoL) were compared using the Kruskal–Wallis test.

Responsiveness

The responsiveness of the GOHAI to changes in oral health was tested for sample 3. All participants were treated in the student course with double-crown retained partial dentures. The participants filled out the GOHAI before the beginning of the treatment and after the end of the treatment. The reference time in the follow-up GOHAI was the time after placement of the new dentures, which could differ

from 2 to 4 weeks. The change was assessed using Wilcoxon test for dependent samples.

The level of significance was set at alpha $= 0.05$. All statistics were performed using SPSS Version 13.0 (SPSS Inc., Chicago, IL, USA).

Results

Descriptives

Table 2 shows the answer proportions of the GOHAI items for sample 1. The items trouble biting and worried/concerned about teeth/dentures showed lowest frequency of no impairment, limit contacts and swallow comfortable were mostly reported with no impairment at all. As expected, greater impairment was observed for sample 1b (mostly dental problems).

The median ADD-GOHAI score was 53 (25%-percentile: 45, 75%-percentile: 57, range: 18–60), the median SC-GOHAI was 2 (25%-percentile: 0, 75%-percentile: 5, range: 0–12). Neither score was normally distributed.

Self-perceived general health was significantly associated with ADD-GOHAI for sample 1b ($r = 0.24$; $P < 0.05$) but not for sample 1a ($r = 0.12$; $P > 0.05$).

Reliability and item analysis

Cronbach's alpha for the GOHAI for sample 1 was 0.92, the split half reliability was 0.88. The item-scale correlation was significant for all items and was always greater than $r = 0.46$ (Table 3). The inter-item correlation was 0.5 on average and ranged from 0.27 to 0.80. There was, therefore, high internal consistency and homogeneity between the items.

The test–retest analysis revealed high correlations for both ADD-GOHAI score ($r_{tt} = 0.84$) and SC-GOHAI score ($r_{tt} = 0.83$). The weakest correlation and, therefore, the poorest stability was found for limit social contacts ($r = 0.36$) and swallow comfortably ($r = 0.47$), the strongest correlation and, therefore, the best stability for use of medication ($r = 0.86$) and trouble speaking ($r = 0.89$) (Table 3).

Cluster analysis

Figure 1 shows the dendrogram obtained from cluster analysis. The closest connection between the two items was found for limited contact and eating with others, followed by limited contact and trouble speaking, and worried about teeth/dentures

and nervous/unconscious. In higher-level analysis, the connections between the items were not plausible anymore.

Validity

Convergent validity

Both GOHAI scores (ADD and SC) correlated significantly and in the same direction with the other self-perceived assessments of oral health (Table 4). An OHIP-14 sum score of 0 (indicating maximum OHRQoL) was found 1.5 times more often than the GOHAI ADD-score equivalent of 60, indicating the GOHAI enabled better differentiation for the less impaired.

Group validity

Table 4 shows the results from the group validity analyses. A significant association was found between a higher SC-GOHAI score (lower ADD-GOHAI score) and self-perceived need for dental treatment, chewing problems, number of own teeth (when having at least one own tooth), kind of denture, and having at least one tooth with caries. No significant association was found with dry mouth.

Responsiveness

The ADD-GOHAI scores after provision of new removable partial dentures were significantly higher than the scores before treatment (Wilcoxon test for dependent samples $Z = -2.9$ $P = 0.004$). The median was 41 before treatment (25%–percentile: 32.5; 75%–percentile: 46) and 53 after (25%–percentile: 41.5; 75%–percentile: 56.5) after. After the intervention 57% of the subjects had an ADD-GOHAI score of 50 or higher compared with 14% before. The ADD-score therefore changed in the expected direction.

Discussion

Study limitations

A cross cultural validation of an OHRQoL instrument is especially important when there are major differences between the cultures. For example, items relating to sexual habits could be used in western societies but may be inappropriate for others or tooth less may be from different importance to OHRQoL in different cultures. Those cultural differences could occur even in one country, regarding for example groups of immigrants (22). The original GOHAI was designed for the use in a western society and, therefore, only a

Table 2. Item responses (proportions) and German items ($n = 218$)

During the past three month (In den vergangenen drei Monaten…)	Sample	Always (sehr oft)	Often (oft)	Sometimes (ab und zu)	Seldom (selten)	Never (nie)
How often did you limit the kinds or amounts of food you eat because of problems with your teeth or dentures? (Wie oft haben Sie den Genuss von Art und Menge von Nahrungs- mitteln eingeschränkt aufgrund von Problemen mit Ihren Zähnen oder Ihrer Zahnprothese?)	Sample 1	5.5	7.8	13.3	19.7	53.7
	Sample 1a	3.2	4.8	8.7	21.4	61.9
	Sample 1b	8.7	11.9	19.6	17.4	42.4
How often have you trouble biting or chewing any kinds of food, such as firm meat or apples? (Wie oft hatten Sie Schwierigkeiten beim Beißen oder Kauen von Nahrungsmitteln, wie zum Beispiel festem Fleisch oder Äpfeln?)	Sample 1	13.8	10.6	21.6	21.9	32.1
	Sample 1a	14.3	7.1	16.7	23.8	38.1
	Sample 1b	13	15.2	28.3	19.6	23.9
How often were you able to swallow comfortably? (Wie oft konnten Sie problemlos schlucken?)	Sample 1	70.2	17	5.5	4.1	3.2
	Sample 1a	81.7	9.5	5.6	2.4	0.8
	Sample 1b	54.4	27.2	5.4	6.5	6.5
How often have your teeth or dentures prevented you from speaking the way you wanted? (Wie oft konnten Sie wegen Ihrer Zähne oder Ihrer Zahnprothese nicht so sprechen wie Sie wollten?)	Sample 1	3.2	6.4	8.7	15.6	66.1
	Sample 1a	1.6	4	7.9	7.1	79.4
	Sample 1b	5.4	9.8	9.8	27.2	47.8
How often were you able to eat anything without feeling discomfort? (Wie oft konnten Sie ohne Beschwerden alles essen?)	Sample 1	50.3	29.4	8.3	7.3	4.7
	Sample 1a	57.1	29.4	4.0	6.3	3.2
	Sample 1b	42.4	29.3	14.1	8.7	5.5
How often did you limit contacts with people because of the condition of your teeth or dentures? (Wie oft haben Sie den Kontakt zu anderen Personen gemieden wegen des Zustands Ihrer Zähne oder Ihrer Zahnprothese?)	Sample 1	2.8	3.2	4.6	12.4	77.0
	Sample 1a	2.4	2.4	2.4	6.3	86.5
	Sample 1b	3.3	4.3	7.6	20.7	64.1
How often were you pleased or happy with the looks of your teeth and gums, or dentures? Wie oft waren Sie zufrieden oder glücklich mit dem Aussehen Ihrer Zähne, des Zahnfleischs oder der Zahnprothese?)	Sample 1	48.6	26.1	6.4	12.8	5.9
	Sample 1a	65.1	20.6	2.4	9.5	2.4
	Sample 1b	26.1	33.7	11.9	17.4	10.9
How often did you use medication to relieve pain or discomfort from around your mouth? (Wie oft haben Sie Medikamente genommen, um Schmerzen oder Beschwerden im Mundbereich zu lindern?)	Sample 1	2.3	2.3	6.9	24.7	63.8
	Sample 1a	2.4	2.4	7.9	11.9	75.4
	Sample 1b	2.2	2.2	5.4	42.4	47.8
How often were you worried or concerned about the problems of your teeth, gums or dentures? (Wie oft haben Sie sich Sorgen um Ihre Zähne, Ihr Zahnfleisch oder Ihre Zahnprothese gemacht?)	Sample 1	11.5	12.8	17.4	13.8	44.5
	Sample 1a	4.8	7.1	7.1	14.3	66.7
	Sample 1b	20.7	20.7	31.5	13.0	14.1
How often did you feel nervous or self-conscious because of problems with your teeth, gums, or dentures?(Wie oft waren Sie nervös oder unsicher, weil Sie Probleme mit Ihren Zähnen, Ihrem Zahnfleisch oder Ihrer Zahnprothese hatten?)	Sample 1	6.4	9.6	11.5	21.1	51.4
	Sample 1a	2.4	7.1	5.6	15.9	69
	Sample 1b	11.9	13.0	19.6	28.3	27.2
How often did you feel uncomfortable eating in front of people because of problems with your teeth or dentures? (Wie oft fühlten Sie sich in Gegenwart anderer Personen beim Essen unwohl aufgrund von Problemen mit Ihren Zähnen oder Ihrer Zahnprothese?)	Sample 1	5.5	7.8	6.4	14.7	65.6
	Sample 1a	3.2	6.3	2.4	7.1	81.0
	Sample 1b	8.7	9.8	11.9	25.0	44.6
How often were your teeth or gums sensitive to hot, cold, or sweets? (Wie oft reagierten Ihre Zähne oder Ihr Zahnfleisch auf heiß, kalt oder süß empfindlich?)	Sample 1	4.1	5.0	21.6	23.9	45.4
	Sample 1a	1.6	4.8	16.7	17.5	59.4
	Sample 1b	7.6	5.4	28.3	32.6	26.1

Table 3. Items-scale correlation and test–retest-correlation for single items and scores

Item	Item-scale-correlation[a]	Test–retest-correlation[b]
Limit foods	0.73	0.60
Trouble biting, chewing	0.64	0.64
Swallow comfortably	0.53	0.47
Trouble speaking	0.61	0.89
Eat without discomfort	0.70	0.53
Limit social contacts	0.64	0.36
Pleased with appearance	0.64	0.60
Use of medication	0.50	0.86
Worry/concern	0.71	0.69
Nervous/self-conscious	0.77	0.50
Uncomfortable eating with people	0.73	0.79
Teeth or gums sensitive	0.46	0.50
ADD-score	–	0.84
SC-score	–	0.83

[a]Spearman correlation coefficient with attenuated ADD-score.
[b]Intraclass correlation coefficient.

forward–backward translation with committee review was performed in this study. This procedure is supported by the findings of John et al. who could show that their *de novo* development of a German OHIP version differed only in a few specific respects from the original OHIP version (14).

The participants were attending clinical settings. A community sample would presumably include a greater proportion of individuals with few or no impact which could be particularly important regarding that the GOHAI may have fewer floor effects (17). But these effects were also seen in the results of this sample showing the OHIP-14 resulted in 1.5 times more questionnaires with a score indicating no impairment.

Questionnaire

For the elderly, especially, there was a need for a compact measure of OHRQoL. A questionnaire of 49 items (plus 4 specific German items) like the German OHIP could be a challenge for many elderly, as the authors have experienced many times in other studies. There is a need for instruments for the increasing number of elderly measuring OHRQoL for public health care, in cross-sectional studies and for evaluating the success of clinical intervention. The GOHAI is intended to be a relatively short and compact measure. This could possibly improve the response rate and compliance of older study participants.

Translation

In the German version, we used the German equivalent for 'very often' instead of 'always' in the original version of the GOHAI. When evaluating answers with a Likert scale-type format (e.g. never – seldom – sometimes – often – always), the distances between alternatives should be approximately the same size (23). 'Always' (German 'immer') is very strictly restricted to 'not a moment without' impairment, which could hardly be applied to some of the items over a 3-month period. The distance between the last but one and last alternatives seemed larger than those between the others, which could, therefore, lead to bias towards less impairment. It was decided to use 'very often' as the answer showing greatest impairment. In addition, for standardization of answer types, these alternatives are chosen because they are similar to the answers of the OHIP, which makes comparisons between the measurements more reliable.

Reliability

Internal consistency was high and comparable with that of other GOHAI versions (10–12). The test–retest reliability analysis performed in this study can only be regarded as a pilot investigation of reliability. For analysis of stability, it is important to investigate participants who did not experience important changes affecting OHRQoL. These are
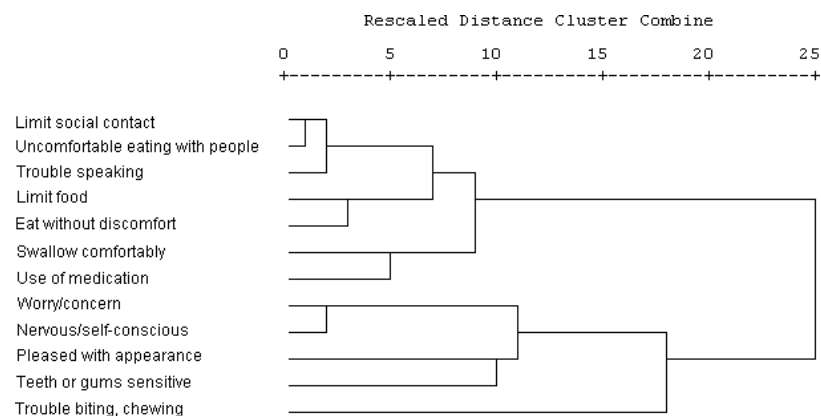

Fig. 1. Dendrogram using Ward method.

Table 4. Validity analysis

		ADD score			SC score	
	Test	Significance		Median	Significance	Median
Convergent validity						
OHIP-14 score ($n = 218$)	Spearman's rho	<0.001 (r = −0.76)		–	–	–
Satisfied with oral health						
Yes ($n = 137$)	U-test	<0.001 (Z = −9.1)		56	<0.001 (Z = −9.2)	1
No ($n = 81$)				44		5
Self-rated oral health						
Very good ($n = 4$)	Spearman's rho	<0.001 (r = 0.59)		–	<0.001 (r = −0.58)	–
Good ($n = 61$)						
Middle ($n = 73$)						
Bad ($n = 57$)						
Very bad ($n = 23$)						
Group validity						
Self-perceived need for dental treatment						
Yes ($n = 126$)	U-test	<0.001 (Z = −7.5)		47	0.001 (Z = −7.0)	3
No ($n = 92$)				57		1
Problems chewing						
Yes ($n = 72$)	U-test	<0.001 (Z = −8.3)		44	0.001 (Z = −8.4)	6
No ($n = 146$)				56		1
Dry mouth						
Yes ($n = 85$)	U-test	0.2 (Z = −1.3)		52	0.26 (Z = −1.1)	2
No ($n = 133$)				53		2
Number of teeth ($n = 165$, only subjects with at least one own tooth)	Spearman's rho	0.029 (r = 0.17)		–	0.058 (r = −0.15)	–
Kind of denture						
No removable dentures ($n = 62$)	Kruskal–Wallis	0.01 $\chi^2 = 11.4$ d.f. = 3		55	0.049 $\chi^2 = 7.9$ d.f. = 3	1
Removable partial dentures ($n = 93$)				49		2
Complete dentures ($n = 50$)				55.5		1
No dentures when edentulous ($n = 13$)				52		2
At least one tooth with caries						
Yes ($n = 86$)	U-test	0.004 (Z = −2.9)		48	0.005 (Z = −2.8)	3
No ($n = 79$)				55		1

not only changes in clinical data, many psychosocial factors can effect OHRQoL and may also change over time. It is, therefore, very difficult to find a group for which all these data are stable over a given period of time. In this study, data for individuals staying in the hospital for 1 week or longer were collected. For these, clinical dental status and need for treatment should be unchanged, although there could be change in oral health care in the different environment and in general health affecting self-perceived oral health. Nevertheless, the correlation between the GOHAI scores indicates sufficient stability despite the limitation of the study. As found in other reliability studies, GOHAI item 3 (swallow comfortably) showed low reliability. In the Chinese version, the reversed items were therefore negatively worded (11).

Because the frequencies of answers to the items were not normally distributed and high homogeneity of the German GOHAI appeared, it seemed infeasible to perform factor analysis. Cluster analysis was performed instead to identify items or groups of items with close connection. This revealed, for the lowest step, the close connections expected, for example, between the items relating to social contact, problems eating or pain/discomfort. In higher-level analysis, the connections were not plausible and the original hypothesized index construct with three dimensions could not be supported by the analysis. Because of the high internal consistency and the results from cluster analysis, it seems meaningful to interpret the German GOHAI as one scale.

Validity

The German version of the GOAHI was in good agreement with other measures of self-perceived OHRQoL and with the exception of having a dry mouth which could be identified as an influencing factor in other studies (24), group validity could be demonstrated for the validation group. We could describe clinical observations affecting the GOHAI score. In previous studies, different findings for the relationship between the GOHAI score and clinical observations have been reported, from strong correlations (10) to weak associations only (17). In contrast with other validation studies (12, 14), the clinical data were not self-reported but were recorded after examination by clinicians.

Responsiveness

The responsiveness was tested in small number of patients only but this group was homogeneous as all patients receiving the same treatment under comparable treatment conditions. The result suggests that the German GOHAI responds to changes in clinical factors, as expected.

In conclusion, the German version of the GOHAI index was shown to have sufficient reliability, validity and responsiveness. The index could therefore be used for assessing OHRQoL and for cross-sectional and longitudinal studies in the elderly.

Acknowledgements

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Appendix

Table 1.

German GOHAI
1. Wie oft haben Sie den Genuss von Art und Menge von Nahrungsmitteln eingeschränkt aufgrund von Problemen mit Ihren Zähnen oder Ihrer Zahnprothese?
2. Wie oft hatten Sie Schwierigkeiten beim Beißen oder Kauen von Nahrungsmitteln, wie zum Beispiel festem Fleisch oder Äpfeln?
3. Wie oft konnten Sie problemlos schlucken?
4. Wie oft konnten Sie wegen Ihrer Zähne oder Ihrer Zahnprothese nicht so sprechen wie Sie wollten?
5. Wie oft konnten Sie ohne Beschwerden alles essen?
6. Wie oft haben Sie den Kontakt zu anderen Personen gemieden wegen des Zustands Ihrer Zähne oder Ihrer Zahnprothese?
7. Wie oft waren Sie zufrieden oder glücklich mit dem Aussehen Ihrer Zähne, des Zahnfleischs oder der Zahnprothese?
8. Wie oft haben Sie Medikamente genommen, um Schmerzen oder Beschwerden im Mundbereich zu lindern?
9. Wie oft haben Sie sich Sorgen um Ihre Zähne, Ihr Zahnfleisch oder Ihre Zahnprothese gemacht?
10. Wie oft waren Sie nervös oder unsicher, weil Sie Probleme mit Ihren Zähnen, Ihrem Zahnfleisch oder Ihrer Zahnprothese hatten?
11. Wie oft fühlten Sie sich in Gegenwart anderer Personen beim Essen unwohl aufgrund von Problemen mit Ihren Zähnen oder Ihrer Zahnprothese?
12. Wie oft reagierten Ihre Zähne oder Ihr Zahnfleisch auf heiß, kalt oder süß empfindlich?