

Adaptation and validation of the Dementia Knowledge and Dementia Attitude Scales in German Sign Language: Results from the DeSign Project*

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INTRODUCTION

The prevalence of dementia is rising at an alarming rate on a global scale. It is presumed that this also applies to the Deaf community, despite the absence of diagnostic tools for this group. The lack of effective communication between Deaf individuals and the general public often results in a lack of awareness and understanding about dementia among the Deaf community. There is presently no validated instrument in sign language that assesses knowledge, attitudes, and confidence in caring for people with dementia.

OBJECTIVE

The objective of this study is to adapt and validate the Dementia Knowledge Assessment Scale (DKAS), the Dementia Attitude Scale (DAS), and the Confidence in Dementia Scale (CODE) in German Sign Language.

METHODS

The DKAS-D, DAS-D, and CODE-D were adapted into German Sign Language (DGS) using a collaborative translation process involving Deaf and hearing bilingual signers.

A convenience sample of 205 individuals was recruited via an online platform.

All participants answered the DKAS-DGS and DAS-DGS, while a subsample answered additionally the CODE-DGS (n= 160).

The psychometric properties of the tools were validated through an assessment of their reliability (internal consistency, structural validity, known-group analysis) and an item analysis for the DKAS-DGS.

RESULTS

The internal reliability was found to be acceptable to good for all scales. The four-factor structure could be confirmed for the DKAS-DGS with an acceptable model fit after the removal of five items. For the DAS-DGS, the two-factor structure required revision, with four items removed to improve model fit, while the one-factor model of the CODE-DGS demonstrated good model fit. Known-group analyses confirmed construct validity, with participants who had dementia experience scoring significantly higher across all scales.

The item-level analysis of the DKAS-DGS revealed high rates of non-response and floor effects for items involving a combination of theoretical knowledge, abstract terminology, false statements, and negation.

Table 1. Internal Consistency

Scale	Cronbach's α	McDonald's ω	Subscale Summary ^a
DKAS-DGS ¹	0.855	0.851	F1 ($\alpha = 0.646$, $\omega = 0.658$)
			F2 ($\alpha = 0.624$, $\omega = 0.612$)
			F3 ($\alpha = 0.766$, $\omega = 0.767$)
			F4 ($\alpha = 0.606$, $\omega = 0.618$)
DKAS20-DGS ²	0.844	0.839	F1 ($\alpha = 0.621$, $\omega = 0.629$)
			F2 ($\alpha = 0.439$, $\omega = 0.437$)
			F3 ($\alpha = 0.766$, $\omega = 0.767$)
			F4 ($\alpha = 0.616$, $\omega = 0.625$)
DAS-DGS ³	0.806	0.775	F1 ($\alpha = 0.727$, $\omega = 0.707$)
			F2 ($\alpha = 0.835$, $\omega = 0.833$)
DAS16-DGS ⁴	0.821	0.802	F1 ($\alpha = 0.730$, $\omega = 0.715$)
CODE-DGS ⁵	0.849	0.846	F2 ($\alpha = 0.835$, $\omega = 0.833$)

Table 2. Item Difficulty, Error Rate and Ignorance of the DKAS-DGS (Full sample and subgroups)

Group	Item difficulty ¹ (%; SD ^a)	Item error rate ² (%; SD)	Item ignorance ³ (%; SD)
Full Sample	52.7% (20.88)	22.3% (12.02)	25.0% (24.72)
Experienced with PwD	60.0% (15.00)	26.4% (10.05)	13.6% (13.47)
No Experience with PwD	51.4% (21.57)	21.5% (12.22)	27.1% (25.76)

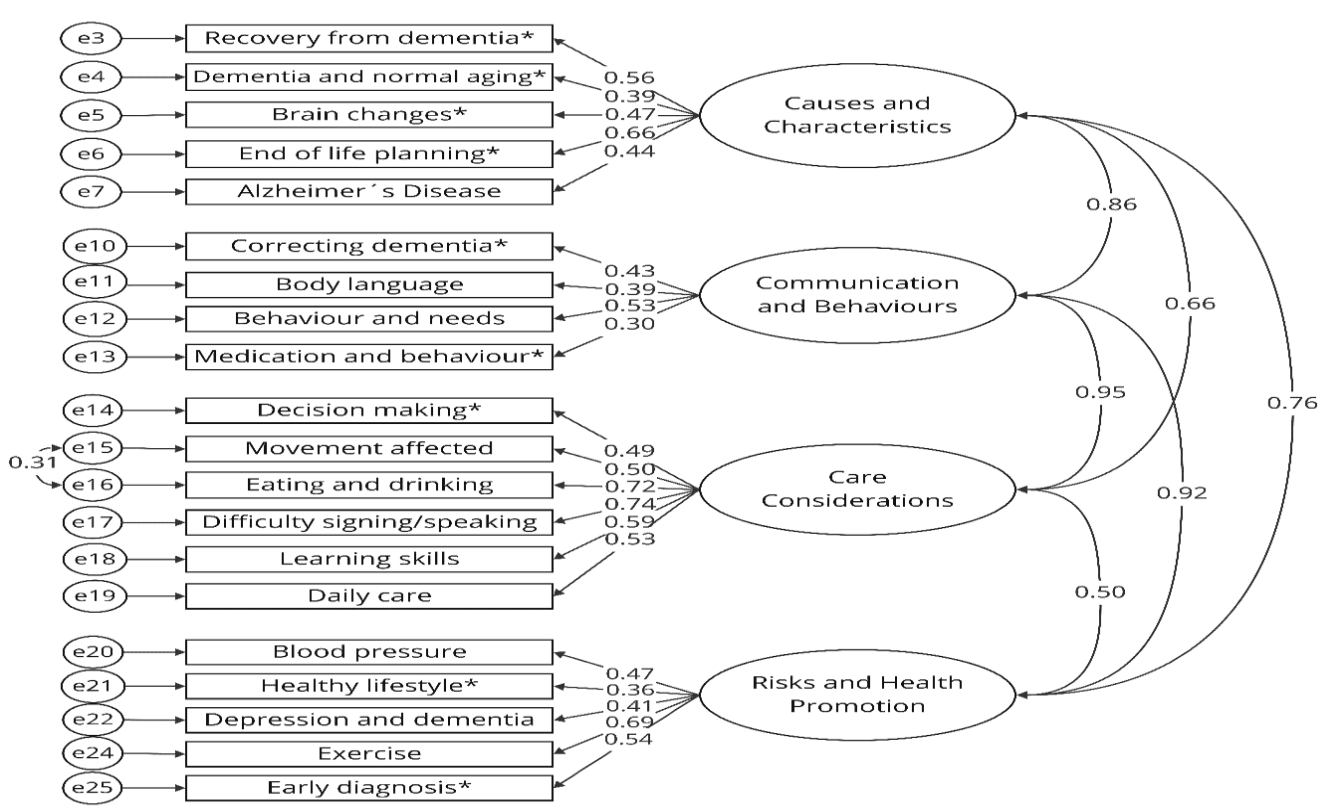


Figure 1. Confirmatory factor analysis of the DKAS-DGS without items 1, 2, 8, 9, and 23.

Standardized factor loadings are presented for each item. Items marked with an asterisk (*) are reverse-coded. All path coefficients are statistically significant ($p < 0.05$).

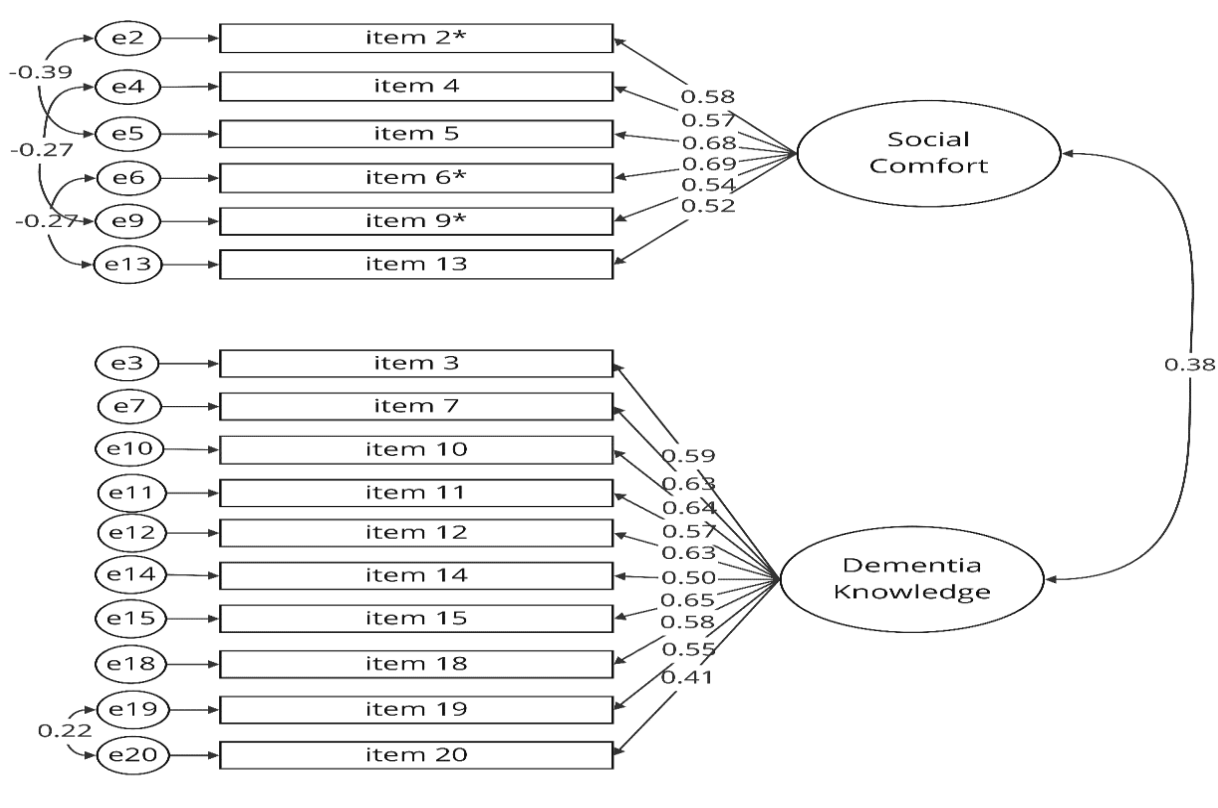


Figure 2. Confirmatory factor analysis of the DAS-DGS without items 1, 8, 16, and 17.

Standardized factor loadings are presented for each item. Items marked with an asterisk (*) are reverse-coded. All path coefficients are statistically significant ($p < 0.05$).

Table 3. Known-Group Analyses: Comparison of Outcome Measures by Experience With Dementia

Experience with dementia ¹	Yes (n=32)	No (n=173)	Test statistic	Effect size	Significance
ANCOVA ²	Mean (SD) ¹³	Mean (SD)	F ⁸	partial η^2 ⁹	p ¹⁰
DKAS-DGS ³	23.19 (8.09)	18.53 (8.91)	4.657	0.023	0.032
DKAS20-DGS ⁴	20.72 (6.66)	16.28 (7.73)	6.202	0.030	0.014
DAS-DGS ⁵	103.44 (13.51)	88.72 (12.27)	33.08	0.141	< 0.001
DAS16-DGS ⁶	85.31 (10.98)	73.99 (11.45)	22.34	0.100	< 0.001
Experience with dementia	Yes (n = 31)	No (n = 129)	Test statistic	Effect size	Significance
T-test	Mean (SD)	Mean (SD)	t ¹¹	d ¹²	p
CODE-DGS ⁷	28.42 (6.88)	20.60 (6.72)	5.79	1.158	< 0.001

Conclusion

The three scales are valid tools that can be used to evaluate dementia awareness seminars for the Deaf community in Germany.

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