

Developing a New Cognitive-Impairment Measure for Korean Cancer Patients

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What we learned

- The impact of cancer and its treatment on cognitive impairment has become a focus for oncology research and practice.
- To identify and manage cognitive impairment, practical brief instruments are needed.
- The Brief Perceived Cognitive-Impairment Scale, developed in Korean, is a valid and reliable instrument.

Background

- Practical brief measures are needed for clinicians and researchers to identify and to effectively manage cognitive impairment in cancer patients.

Purpose

- The purpose of the study was to develop and to evaluate the reliability (i.e., internal consistency reliability) and validity (i.e., factorial, convergent, concurrent, and known-group validity) of the Brief Perceived Cognitive Impairment Scale-Korean (BPCIS-K).

Method

- The BPCIS-K was constructed with 6 items evaluating key aspects of cognitive impairments occurring in cancer patients.
- A total of 249 cancer patients from a university hospital and a total of 120 healthy adults participated for evaluation.
- Cronbach's alpha, item-total correlations; Confirmatory factor analysis; Pearson's correlations with the Functional Assessment of Cancer Therapy-Cognitive Function (FACT-Cog), and the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F); *t* tests were tested.

Results

- The BPCIS-K has high internal consistency reliability. Cronbach's alpha was .92 and Item-total correlations ranged from .76 to .81.
- The scale is uni-dimensional in confirmatory factor analysis.
- The scale has a good convergent and concurrent validity as evidence by the high association with cognitive impairment measure ($r = -.91$) and moderate correlation with a fatigue measure ($r = -.52, p < .001$).
- In known-groups validity, cancer patients, female cancer patients, and patients undergoing treatment experienced more severe impairment than healthy subject, male patient, and patient waiting treatment ($p < .001, p = .05, p = .08$, respectively).

Table 1. Score Distribution and Internal Consistency Reliability in Cancer Patients (N = 249)

Item description	Score range	Mean	SD	Skewness	Kurtosis	Item-total corr	alpha if item is deleted
Item 1: poor concentration	0-4	0.81	0.94	1.23	1.32	0.76	0.91
Item 2: impaired memory	0-4	1.07	1.05	.87	0.17	0.77	0.91
Item 3: difficulty in decision making	0-4	0.83	0.99	1.08	0.52	0.78	0.91
Item 4: difficulty in forming multiple complex thought	0-4	1.09	1.12	.83	-0.08	0.76	0.91
Item 5: mental slowness in responding to others	0-4	0.78	0.97	1.26	1.10	0.81	0.91
Item 6: difficulty in adequate word finding and response	0-4	0.83	1.04	1.18	0.71	0.81	0.91
Total scale score	0-24	5.41	5.21	1.06	0.79		

Table 2. Known Group Validity

	Cancer patients n=249	Healthy controls n=120	T	Cancer patients		T
				Male n=101	Female n=148	
Total scale score M (SD)	5.41 (5.2)	3.62 (3.54)	3.85***	4.63 (4.58)	5.95 (5.55)	-1.97 (p = .05)

Note. ^a Missing data. Total score ranged from 0 to 24, anchor was: 0=never, 1=one a week, 2=2 or 3 times a week, 3=almost everyday; 4=several times a day. * $p < .05$, ** $p < .01$, *** $p < .001$. ^b item missing data were excluded.

Results

Table 3. Convergent and Concurrent Validity the Brief Perceived Cognitive Impairment Scale in Cancer Patients (N = 249)

	Pearson <i>r</i> with The FACT-cognitive impairment subscale	Pearson <i>r</i> with FACIT-Fatigue
Total Scale Score	-.91***	-.52***
Item 1: poor concentration	-.76***	-.50***
Item 2: impaired memory	-.78***	-.39***
Item 3: difficulty in decision making	-.75***	-.41***
Item 4: difficulty in forming multiple complex thought	-.72***	-.44***
Item 5: mental slowness in responding to others	-.81***	-.47***
Item 6: difficulty in adequate word finding and response	-.83***	-.45***

Note. Due to the list wise deletion, sample size varied, having smallest sample size 244 in correlation with the FACT-cognitive impairment subscale, *** $p < .001$.

Conclusion

The Brief Perceived Cognitive Impairment Scale-Korean is a valid and reliable measure to assess cognitive impairment for cancer patients, particularly in concentration, memory and executive function

Reference

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