ORIGINAL ARTICLE

French version of the Functional Assessment of Cancer Therapy–Cognitive Function (FACT-Cog) version 3

F. Joly · M. Lange · O. Rigal · H. Correia · B. Giffard · J. L. Beaumont · S. Clisant · L. Wagner

Abstract

Purpose Impairment of cognitive function, a common complaint in patients receiving chemotherapy, is usually measured through neuropsychological tests. Patient self-evaluation of cognitive difficulties is an important complement to those tests. The Functional Assessment of Cancer Therapy–Cognitive Function (FACT-Cog) is a self-report questionnaire with potential to be used in standard clinical practice as a tool for evaluating patient's cognitive function before, during, and after chemotherapy. The purpose of our study was to conduct linguistic validation of the French version of the FACT-Cog.

Methods Both qualitative and quantitative methods were used in this study. After undergoing a rigorous translation methodology, the French FACT-Cog version was pretested in France with 35 cancer patients undergoing chemotherapy treatment. Interviews were conducted with all patients to ascertain their understanding of each item. The validation of the final version was conducted among 63 cancer patients, and sociodemographic information was collected as well as brief measure of cognitive function and depression score.

Results Patient comments obtained through the cognitive debriefing interviews indicated that patients understand the French FACT-Cog items as they are intended and that the measure is culturally appropriate. Internal consistency reliability of the subscales, evaluated using Cronbach's coefficient alpha, was high for all four subscales: *Perceived Cognitive Impairments*=0.93, *Impact On QOL*=0.85, *Comments From Others*=0.70, and *Perceived Cognitive Abilities*=0.89. All item-total correlations for each subscale were greater than 0.20, and most were greater than 0.50.

Conclusions Results from this study effectively demonstrate that the French FACT-Cog is a reliable instrument for the self-reporting of cognitive abilities in patients undergoing chemotherapy.

F. Joly · M. Lange
Département d'oncologie médicale, Unité de Recherche Clinique,
Centre François Baclesse,
Caen, France

F. Joly (✉)
CHU Côte de Nacre et Centre François Baclesse,
BP 5026, 3 Avenue Général Harris,
14076 Caen Cedex 05, France
e-mail: f.joly@baclesse.fr

M. Lange · B. Giffard
U1077 Inserm-EPHE, Université de Caen Basse-Normandie,
Caen, France

O. Rigal
Département d'oncologie médicale, Centre Henri-Becquerel,
Rouen, France

H. Correia · J. L. Beaumont · L. Wagner
Department of Medical Social Sciences, Feinberg
School of Medicine, Northwestern University,
Chicago, IL, USA

S. Clisant
Unité de Recherche Clinique, Centre Oscar Lambret,
Lille, France

Introduction

Impairment of cognitive function is a common complaint in patients receiving chemotherapy. Often, these cognitive complaints consist of impaired ability to remember, concentrate, and think also referred to as chemo brain or chemo fog [1]. These cognitive complaints negatively impact the patient's quality of life and make it difficult for the patient to resume normal daily activities. The impact of treatment on cognitive function is a recent research and evaluation domain. Studies in this domain have utilized neuropsychological tests focused principally on episodic memory (verbal and visual modalities), executive functions, and information processing speed [2, 3].

An accurate patient self-evaluation of cognitive difficulties is equally important and complements the neuropsychological tests. In fact, there is not always a correlation between results obtained from neuropsychological tests which evaluate objectively cognitive problems and those obtained through self-report questionnaires which evaluate the patient's "subjective" impressions of the cognitive problems [4]. The cognitive impairment of these patients is generally mild, this absence of correlation may be partly explained by the lack of sensitivity of some neuropsychological tests used in the studies. Objective and subjective evaluations appear to complement each other the latter being particularly important to the understanding of the patient's quality of life [5].

In this context, understanding and measuring the cognitive difficulties expressed by the patients themselves becomes paramount. Currently, however, there are very few simple, fast, and accurate patient self-report tools adapted to standard clinical practice that permit an accurate evaluation before, during, and after chemotherapy.

The available questionnaires are all in English and have not been validated in French. In order to account for cultural and linguistic differences between countries, it is essential to validate, in the target country, questionnaires that were originally developed in another language, like the Attentional Function Index [6] and the Questionnaire of Experienced Attention Deficits (FEDA) [7].

Among the existing instruments developed in English (USA), the Functional Assessment of Cancer Therapy–Cognitive Function (FACT-Cog) is a self-report measure to assess impairment of cognitive abilities and its impact on the patient's quality of life. Developed from interviews with expert clinicians and oncology patient focus groups, the FACT-Cog was also the first patient-reported outcomes measure evaluating cognitive impairment to be validated with cancer patients [8, 9]. This 37-item instrument allows patients to assess their memory, attention, concentration, language, and thinking abilities. It consists of four subscales; for each item of the *Perceived Cognitive Impairments* subscale (e.g., "I have had trouble concentrating") and the

Comments From Others subscale, the patient must indicate how often the situation occurred during the last 7 days, on a 5-point Likert scale (from 0 "never" to 4 "several times a day"). When rating their *Perceived Cognitive Abilities* and the *Impact On Quality Of Life* (QOL), patients must use a different 5-point Likert scale (from 0 "not at all" to 4 "very much"). The FACT-Cog takes into consideration the functional implications of cognitive impairment, the deficits observed by other people, the changes in cognitive function over time, and their impact on the patient's quality of life [9]. It is brief, easy to use, and can be completed by patients from different age groups and socioeconomic levels. This scale is suitable for patient self-assessment in the context of clinical practice, and it could also be a useful tool to evaluate self-reported cognitive disorders among elderly patients treated for cancer, who have not previously had neurological disorders. In order to be used with cancer patients in French-speaking countries, the FACT-Cog questionnaire was translated into French language following a rigorous translation methodology and then validated with French-speaking cancer patients in France.

Methods and materials

Development of the French translation

The FACT-Cog version 3 was translated using the standard Functional Assessment of Chronic Illness Therapy (FACIT) translation methodology. This iterative methodology was developed and validated to ensure that translations reflect conceptual equivalence with the source document and are rendered in language that is culturally acceptable and relevant for the target population [10–12].

The translation was obtained through several steps: first, two translators from different French-speaking countries provided independent forward translations. Then, a third French-speaking translator reconciled the forward versions either by choosing the best one, combining them, or suggesting a different translation. That reconciled version was then back-translated into English language by a native English-speaking translator without seeing the original source English version. The translation coordinator compared source and back-translated English versions to identify discrepancies which could indicate a problem in French translation. This step is designed to ensure content and semantic equivalence of the translated version and results in a preliminary assessment of harmonization between the languages. The item history was subsequently reviewed by three independent reviewers from French-speaking countries, who selected or proposed the most appropriate translation and provided feedback on issues brought up previously in the item history. Finally, the designated French Language coordinator made a decision on the

provisional version of the translation. The translated items were then pretested in France.

Pretesting phase

The French FACT-Cog was initially pretested with 35 cancer patients in France. Any adult cancer patient undergoing chemotherapy or having received at least two cycles of chemotherapy in the last 6 months was eligible to participate. Patients were also required to read and speak French (native language), be at least 18 years old, and give written informed consent. There were no restrictions with regard to type of cancer or its stage of evolution.

Patients were asked to fill out the questionnaire on their own and were subsequently interviewed by the clinician. The interview was conducted using a script compatible with the principles proposed by Willis [13]. The interview started with general retrospective questions eliciting respondent feedback about item comprehensibility, relevance, and whether any item was offensive. Patients were then asked to explain in their own words the meaning of items, words, or concepts. Each item on the FACT-Cog questionnaire was evaluated by five patients. This pretesting procedure is another step in ensuring that the item meanings are equivalent after translation and across individuals. The patient comments were compiled in a Pilot Testing Report (PTR) to facilitate analysis and evaluated by the French language coordinator. The translation was revised as needed.

During pre-testing in France, the scale developers in the USA added a new section of 4-items (*Comments for Others*) to the English FACT-Cog questionnaire. That section was also translated following the same rigorous methodology outlined above. It was then added to the version of the French FACT-Cog questionnaire that had been revised as a result of the first pre-test. The complete French version was administered to the additional patients, thus allowing for a retest even if on a very small scale.

Validation phase

The validation study was conducted through collaboration between three cancer centers in Caen, Rouen, and Lille, France. All patients gave their written informed consent to the study, which was approved by the local ethics committees. The inclusion of patients in the validation study followed the same eligibility criteria as for the linguistic validation pretest. Any adult cancer patient undergoing chemotherapy or having received at least two cycles of chemotherapy in the last 6 months was eligible to participate. Participants had to be fluent in French. In addition, patient exclusion criteria were identified: major cognitive impairments assessed with the Mini-Mental State Examination (MMSE; for patients aged 50 and more) [14], history of severe psychiatric or mental health problems (like mood disorders: depression, dysthymia, bipolar disorders…; anxiety: PTSD, panic attack, generalized anxiety disorder…; schizophrenia and others psychotic disorders…), current severe depression assessed with the Hamilton Depression Rating Scale (HDRS) [15], permanent addictive pathology, or chronic painful illnesses with chronic morphine treatment.

Sixty-three cancer patients, aged 35 to 80 years were recruited during their outpatient chemotherapy clinic at the day care hospital. Most patients had been diagnosed with breast cancer. Other cancers included the cecum, Hodgkin's, lung, myeloma, ORL, ovary, peritoneum, prostate, rectum, sigmoid, and Waldenstrom. Patients were undergoing chemotherapy or had received at least two cycles of chemotherapy in the last 6 months. After being informed of the details of the study and agreeing to participate, patients completed a form with questions regarding their education level, their previous medical history, and medications for chronic conditions. The MMSE [14], a brief measure of cognitive function, was administered to patients aged 50 and more, and those with a score under 27/30 were excluded from the study. Depression was assessed with the Hamilton Depression Rating Scale (HDRS) [15]. The MMSE and the HDRS were only administered to a subset of participants (respectively $n=46$ and $n=25$). Finally, eligible patients were asked to complete the FACT-Cog questionnaire (see Table 1 and Appendix 1 for the French version). Time to fill in is about 5 min.

Statistical analysis

Negatively worded items (e.g., "My thinking has been slow") were reverse scored prior to summing items for the subscale scores, such that a higher score represents better functioning or quality of life (the scoring key for all items was reversed except those in the *Perceived Cognitive Abilities* section). Scoring for the FACT-Cog (version 3) includes calculation of four subscales for the French version like for the English version: *Perceived Cognitive Impairments* (20 items; score range 0–72), *Impact On QOL* (4 items; score range 0–16), *Comments From Others* (4 items; score range 0–16), and *Perceived Cognitive Abilities* (9 items; score range 0–28). Two of the 20 perceived cognitive impairments items and two of the 9 perceived cognitive abilities items are not currently scored under the FACT-Cog scoring algorithm because these four items, related to multitasking, were added to the English FACT-Cog after the collection of validation data and have not yet been validated and incorporated into the scoring algorithm. Internal consistency reliability of the subscales was evaluated using Cronbach's coefficient alpha. Cronbach's

Table 1 FACT-Cog (version 3)

Item ID	Item	Response options
Perceived Cognitive Impairments		
CogA1	I have had trouble forming thoughts	
CogA3	My thinking has been slow	
CogC7	I have had trouble concentrating	
CogM9	I have had trouble finding my way to a familiar place	
CogM10	I have had trouble remembering where I put things, like my keys or my wallet	
CogM12	I have had trouble remembering new information, like phone numbers or simple instructions	
CogV13	I have had trouble recalling the name of an object while talking to someone	
CogV15	I have had trouble finding the right word(s) to express myself	
CogV16	I have used the wrong word when I referred to an object	
CogV17b	I have had trouble saying what I mean in conversations with others	Frequency (never, about once a week, two to three times a week, nearly every day, several times a day)
CogF19	I have walked into a room and forgotten what I meant to get or do there	
CogF23	I have had to work really hard to pay attention, or I would make a mistake	
CogF24	I have forgotten names of people soon after being introduced	
CogF25	My reactions in everyday situations have been slow	
CogC31	I have had to work harder than usual to keep track of what I was doing	
CogC32	My thinking has been slower than usual	
CogC33a	I have had to work harder than usual to express myself clearly	
CogC33c	I have had to use written lists more often than usual so I would not forget things	
CogMT1	I have trouble keeping track of what I am doing if I am interrupted	
CogMT2	I have trouble shifting back and forth between different activities that require thinking	
Comments From Others		
CogO1	Other people have told me I seemed to have trouble remembering information	
CogO2	Other people have told me I seemed to have trouble speaking clearly	
CogO3	Other people have told me I seemed to have trouble thinking clearly	
CogO4	Other people have told me I seemed confused	
Perceived Cognitive Abilities		
CogPC1	I have been able to concentrate	
CogPV1	I have been able to bring to mind words that I wanted to use while talking to someone	
CogPM1	I have been able to remember things, like where I left my keys or wallet	
CogPM2	I have been able to remember to do things, like take medicine or buy something I needed	
CogPF1	I am able to pay attention and keep track of what I am doing without extra effort	Intensity (not at all, a little bit, somewhat, quite a bit, very much)
CogPCH1	My mind is as sharp as it has always been	
CogPCH2	My memory is as good as it has always been	
CogPMT1	I am able to shift back and forth between two activities that require thinking	
CogPMT2	I am able to keep track of what I am doing, even if I am interrupted	
Impact On Quality Of Life		
CogQ35	I have been upset about these problems	
CogQ37	These problems have interfered with my ability to work	
CogQ38	These problems have interfered with my ability to do things I enjoy	
CogQ41	These problems have interfered with the quality of my life	

coefficient alphas of 0.7 or greater are generally considered to be acceptable for group comparisons. Item-total correlations, corrected for overlap, were examined to identify any problem items. Pearson's correlation coefficients were calculated to evaluate the associations between FACT-Cog scores and age, education, MMSE, and Hamilton Depression Rating Scale scores. A p value of <0.05 was considered significant. The sample size of

63 patients provides precision of correlation coefficients of ±0.12 to 0.20, depending on the true value of the correlation.

Results

Pretesting

In general, patients reported that the FACT-Cog is easy to understand and does not have irrelevant or offensive questions. A couple of patients mentioned some difficulty understanding "forming thoughts." Three items and the instructions required modifications to the translation in order to improve comprehensibility and to ensure equivalence with the English source (see Table 2).

Reliability and validity

Characteristics of the cancer patient sample are summarized in Table 3. Patients had a mean age of 58.6 years (SD=11.9) with 36 % being 65 or older, 68 % were female, 60 % having breast cancer, and 49 % of patients having metastatic disease. Most patients had less than 12 years of schooling (76 %). Mean of the Hamilton Depression Rating Scale scores was 5.7 (SD=2.8). Internal consistency was high for all four subscales: *Perceived Cognitive Impairments*= 0.93, *Impact On QOL*=0.85, *Comments From Others*=0.70, and *Perceived Cognitive Abilities*=0.89. All item-total correlations for each subscale were greater than 0.20, and most were greater than 0.50 (Table 4). Two items stand out for low item-total correlations: CogV16 (r=0.21) and CogO1 (r=0.32). Descriptive statistics for the FACT-Cog subscale

scores are presented in Table 5. The means of the subscales were 56.8 (SD=11.2) for *Perceived Cognitive Impairments*, 11.7 (SD=4.2) for *Impact On QOL*, 15.1 (SD=1.4) for *Comments From Others*, and 18.2 (SD= 5.2) for *Perceived Cognitive Abilities*. Correlations between FACT-Cog subscale scores and age, years of schooling, MMSE, and Hamilton depression scores were all 0.30 or less (Table 6).

Discussion

The purpose of this study was to validate the French version of the FACT-Cog questionnaire. This objective was met through the use of qualitative and quantitative research methods. The translation was obtained through a rigorous multistep process (FACIT translation methodology), which incorporated the input of translators from various French-speaking countries to produce one universal French language version. The translated version was then pilot-tested in France, and cognitive debriefing interviews were conducted with 35 cancer patients, for the purpose of linguistic validation of the French FACT-Cog in this country.

The results of the pretest demonstrated that French-speaking patients understand the FACT-Cog items as they are intended and that the measure is culturally appropriate. In general, patients reported no difficulty understanding the items and found them relevant to their situation. Based on patient feedback, wording revisions were made to three items and to the instructions to ensure conceptual equivalence between the French version and the English source.

Table 2 Improvements made to the French version after pretesting

Item	Item content	Issue and solution
Instruction	Below is a list of statements that other people with your condition have said are important.	"With your condition" was originally translated as "dans votre état de santé" (literally, "in your state of health"). Patients were asked to evaluate an alternative way of saying "with your condition" that would more closely convey the meaning of the source "ayant votre problème de santé" (literally, "having your health problem"). Patients preferred the latter as it made reference to having a condition rather than being in a certain condition.
CogA3	My thinking has been slow	The original translation of "thinking" as "processus de pensée" (literally, "process of thought/thinking") was considered by several patients to be too technical and even strange. It was revised to say "ma pensée" (a more literal, "my thinking").
Cog C32	My thinking has been slower than usual	Same as above.
CogQ35	I have been upset about these problems	"Upset" is a multidimensional concept, difficult to translate into other languages. Originally it was translated as "contrarié(e) et peiné(e)" (literally, troubled and saddened). Patients understood "contrarié(e)" as was intended by "upset", and found "peiné(e)" to be too negative. The translation of "upset" was revised to say only "contrarié(e)".

Table 3 Description of cancer patient sample (N=63)

	Number	Percentage (%)	Mean (SD)	Range
Female	43	68.2		
Diagnosis (n=1 unknown)				
Breast	37	59.7		
Colon	4	6.4		
Lymphoma	4	6.4		
Other[a]	17	27.4		
Years of schooling				
≤7 years	23	36.5		
Between 8 and 12 years (no high school degree)	25	39.7		
≥12 years	15	23.8		
Metastatic disease (n=2 unknown)	30	49.2		
Current chemotherapy	63	100		
Other previous chemotherapy (n=13 unknown)	20	40.0		
Current radiation	0	0		
Previous radiation (n=13 unknown)	13	26.0		
Age group, years				
35–49	16	25.4		
50–64	24	38.1		
65–80	23	36.5		
Age, years			58.6 (11.9)	36–79
Depression (HDRS, n=25)			5.7 (2.8)	0–10
MMSE (n=46)			28.6 (1.1)	27–30

[a] Other diagnoses included: cecum, Hodgkin's, lung, myeloma, ORL, ovary, peritoneum, prostate, rectum, sigmoid, Waldenstrom

Results suggest that the French FACT-Cog is a valid measure of self-reported cognitive function in cancer patients who have been exposed to chemotherapy treatment. These results are consistent with the previous research finding the English version of FACT-Cog questionnaire an effective tool to assess cognitive impairment [9]. The psychometric properties of the French FACT-Cog were established in 63 adult cancer patients undergoing chemotherapy or having received at least two cycles of chemotherapy in the last 6 months. Statistical analysis revealed good internal consistency of all subscales. The sample size was too small to conduct more advanced analyses such as confirmatory factor analysis or Rasch models. Most of the subjects (76 %) had less than 12 years of education, with 36 % having less than 7 years. Results indicated no correlation between formal education and the FACT-Cog scores (see Table 6). This result suggests that the French FACT-Cog is easy to understand, which is consistent with the qualitative data obtained during the pretest. Likewise, results indicated no correlation between the FACT-Cog scores and age. It would be useful to administer the FACT-Cog to a wider age range and to

Table 4 Item-total correlations for FACT-Cog subscales, corrected for overlap

Item[a]	Correlation with total
Perceived cognitive impairments	
CogA1	0.60
CogA3	0.64
CogC7	0.68
CogM9	0.49
CogM10	0.53
CogM12	0.64
CogV13	0.73
CogV15	0.77
CogV16	0.21
CogV17b	0.70
CogF19	0.65
CogF23	0.72
CogF24	0.40
CogF25	0.73
CogC31	0.69
CogC32	0.74
CogC33a	0.83
CogC33c	0.62
Impact on QOL	
CogQ35	0.59
CogQ37	0.79
CogQ38	0.66
CogQ41	0.74
Comments from others	
CogO1	0.32
CogO2	0.53
CogO3	0.70
CogO4	0.60
Perceived cognitive abilities	
CogPC1	0.57
CogPV1	0.69
CogPM1	0.66
CogPM2	0.72
CogPF1	0.77
CogPCH1	0.65
CogPCH2	0.83

[a] See Table 2 for item content

Table 5 FACT-Cog scores of cancer patients (N=63)

	Mean (SD)	Range
FACT-Cog perceived cognitive impairments (0–72)	56.8 (11.2)	26–72
FACT-Cog impact on QOL (0–16)	11.7 (4.2)	0–16
FACT-Cog comments from others (0–16)	15.1 (1.4)	11–16
FACT-Cog perceived cognitive abilities (0–28)	18.2 (5.2)	5–27

Table 6 FACT-Cog correlations with age, education, MMSE, and depression scores

	Age (n=63)	Education (n=63)	MMSE[a] (n=47)	Hamilton Depression Rating Scale (n=25)
FACT-Cog perceived cognitive impairments	0.12	−0.22	0.21	−0.27
FACT-Cog impact on QOL	0.11	0.06	0.21	0.05
FACT-Cog comments from others	0.14	0.10	0.23	−0.30
FACT-Cog Perceived Cognitive Abilities	−0.06	−0.23	0.16	−0.25

None of the correlations was statistically significant ($p > 0.05$)

[a] Among subjects ≥65 years old

determine if perceived cognitive function differs over the lifespan allowing us to determine whether scores should be adjusted for age in order to be interpreted. Furthermore, test–retest reliability, tests of item-discriminant validity (as part of multitrait scaling), and responsiveness of the FACT-Cog were not assessed in this study but are important test characteristics to measure in future study.

The availability of neuropsychological assessment results for comparison to perceived cognitive impairments and abilities would have strengthened this study. We do acknowledge that few studies have demonstrated an association between self-report and neuropsychological performance [4, 16]. Neuropsychological evaluation provides valuable information on cognitive function; however, this assessment approach has been criticized, given the lack of evidence supporting its ecological validity or ability to predict how a person will function in a real-world setting [17]. The use of measures that provide insight into problems patients experience in their day-to-day lives due to cognitive impairments has been recommended by an expert consensus panel [18]. Given that patient report serves this function, we argue that perceived cognitive function is a valuable endpoint in its own right.

In order to avoid the inclusion of people suffering from severe cognitive impairments unrelated to exposure to chemotherapy (e.g., dementia) and to minimize the correlation between depression and cognitive impairment, prospective participants were screened with the Mini-Mental State Examination and the Hamilton Depression Rating Scale (HDRS). The mean score on the MMSE was 28.6 (out of an acceptable range of 27–30) and for the HDRS was 5.7. These scores fall within normals limits, suggesting that the participants in this study were not suffering from dementia or depression of sufficient severity to affect cognition. For these patients, results indicated that there was little correlation between the FACT-Cog scores and the MMSE or HDRS scores.

Further, the FACT-Cog has the potential for yielding important information in longitudinal assessments of cancer patients' quality of life as it relates to cognitive abilities. Specifically, the FACT-Cog could lead to a greater understanding of a patient's perceived cognitive function in the context of cancer treatment over time [9]. Such understanding could lead to improved monitoring of cognitive impairment.

Future research perspectives

As a complement to the validation with cancer patients, the questionnaire will be administrated to healthy individuals, in order to establish norms for the comparison of perceived cognitive function in cancer patients treated with chemotherapy and the general population (with the same exclusion criteria than patients: major cognitive impairments, history of severe psychiatric or mental health problems, current severe depression, permanent addictive pathology, or chronic painful illnesses with chronic morphine treatment).

Conclusion

We have shown the reliability of a French translation of the FACT-Cog. Measuring patients' perceptions of their own cognitive difficulties is an important complement to the assessment of cognitive function with neuropsychological tests. The FACT-Cog is the only self-report measure specific to cancer patients' cognitive function that has been validated in French. Easy to administer and to understand, the French FACT-Cog has the potential to become a widely used tool in clinical settings, in French speaking countries facilitating the assessment of patients' cognitive function and the impact of cognitive impairment on their quality of life.

Conflict of interest None.

Appendix 1

Table 7 French FACT-Cog (version 3)

Item ID	Item	Possibilités de réponses
Déficiences cognitives perçues par le (la) patient(e)		
CogA1	J'ai eu du mal à construire mes pensées	
CogA3	Ma pensée a été lente	
CogC7	J'ai eu du mal à me concentrer	
CogM9	J'ai eu du mal à trouver mon chemin pour me rendre dans un endroit familier	
CogM10	J'ai eu du mal à me souvenir de l'endroit où j'avais mis des choses, comme mes clés ou mon portefeuille	
CogM12	J'ai eu du mal à me souvenir d'informations nouvelles, comme des numéros de téléphone ou des instructions simples	
CogV13	J'ai eu du mal à me rappeler du nom d'un objet alors que j'étais en train de parler à quelqu'un	
CogV15	J'ai eu du mal à trouver le(s) mot(s) juste(s) pour m'exprimer	
CogV16	J'ai utilisé un mauvais mot pour désigner un objet	
CogV17b	J'ai eu du mal à exprimer ce que je voulais dire dans mes conversations avec d'autres personnes	Fréquence (jamais, environ une fois par semaine, deux à trois fois par semaine, presque tous les jours, plusieurs fois par jour)
CogF19	Je suis entré(e) dans une pièce et j'ai oublié ce que j'avais l'intention d'y prendre ou d'y faire	
CogF23	J'ai dû faire de gros efforts pour être attentif(-ve), sinon je faisais des erreurs	
CogF24	J'ai oublié le nom de personnes peu de temps après qu'on me les ait présentées	
CogF25	Mes réactions dans des situations de la vie de tous les jours ont été lentes	
CogC31	J'ai dû faire plus d'efforts que d'habitude pour garder le fil de ce que je faisais	
CogC32	Ma pensée a été plus lente que d'habitude	
CogC33a	J'ai dû faire plus d'efforts que d'habitude pour m'exprimer clairement	
CogC33c	J'ai dû avoir recours à des listes écrites plus souvent que d'habitude pour ne pas oublier des choses	
CogMT1	J'ai du mal à garder le fil de ce que je fais si on m'interrompt	
CogMT2	J'ai du mal à faire des allers-retours entre différentes activités qui demandent de la réflexion	
Commentaires d'autres personnes		
CogO1	Des personnes m'ont dit que je semblais avoir du mal à me souvenir d'informations	
CogO2	Des personnes m'ont dit que je semblais avoir du mal à parler clairement	
CogO3	Des personnes m'ont dit que je semblais avoir du mal à penser clairement	
CogO4	Des personnes m'ont dit que je semblais avoir l'esprit confus	
Aptitudes cognitives perçues		
CogPC1	J'ai été capable de me concentrer	
CogPV1	J'ai été capable de trouver les mots que je voulais utiliser en parlant à quelqu'un	
CogPM1	J'ai été capable de me souvenir de choses, comme de l'endroit où j'avais laissé mes clés ou mon portefeuille	
CogPM2	J'ai été capable de me souvenir de faire des choses, comme prendre mes médicaments ou acheter ce dont j'avais besoin	
CogPF1	Je suis capable d'être attentif(-ive) et de garder le fil de ce que je suis en train de faire sans effort supplémentaire	Intensité (pas du tout, un peu, moyennement, beaucoup, énormément)
CogPCH1	Mon esprit est aussi vif qu'il l'a toujours été	
CogPCH2	Ma mémoire est aussi bonne qu'elle l'a toujours été	
CogPMT1	Je suis capable de faire des allers-retours entre deux activités qui demandent de la réflexion	

Table 7 (continued)

Item ID	Item	Possibilités de réponses
CogPMT2	Je suis capable de garder le fil de ce que je suis en train de faire, même si on m'interrompt	
Impact sur la qualite de vie		
CogQ35	Ces problèmes m'ont contrarié(e)	
CogQ37	Ces problèmes ont perturbé ma capacité à travailler	
CogQ38	Ces problèmes ont perturbé ma capacité à faire des choses que j'aime	
CogQ41	Ces problèmes ont perturbé ma qualité de vie	

References

1. Schagen SB, Muller MJ, Boogerd W et al (2002) Late effects of adjuvant chemotherapy on cognitive function: a follow-up study in breast cancer patients. Ann Oncol 13:1387–1397
2. Joly F, Rigal O, Noal S, Giffard B (2011) Cognitive dysfunction and cancer: which consequences in terms of disease management? Psychooncology
3. Lange M, Giffard B, Eustache F, Morel N, Noal S, Joly F (2011) Impact de la chimiothérapie adjuvante sur les fonctions cognitives dans le cancer du sein: revue de la littérature. Psycho-Oncologie 5:3–10
4. Vardy J, Wong K, Yi QL et al (2006) Assessing cognitive function in cancer patients. Support Care Cancer 14:1111–1118
5. Pullens MJ, De Vries J, Roukema JA (2010) Subjective cognitive dysfunction in breast cancer patients: a systematic review. Psychooncology 19:1127–1138
6. Cimprich B, Visovatti M, Ronis DL (2011) The Attentional Function Index—a self-report cognitive measure. Psychooncology 20:194–202
7. Suslow T, Arolt V, Junghanns K (1998) Differentielle validitat des Fragebogen erlebter Defizite der Aufmerksamkeit (FEDA): konkurrente validierungsergebnisse bei schizophrenen und depressiven patienten [in German]. Z Klin Psychol Psychiatr Psychother 46:152–165
8. Wagner LI, Sabatino T, Cella D et al (2005) Cognitive function during cancer treatment: the FACT-Cog study. The J Robert H Lurie Compr Cancer Center Northwest Univ X:10–15
9. Wagner LI, Sweet J, Butt Z, Lai JS, Cella D (2009) Measuring patient self-reported cognitive function: development of the Functional Assessment of Cancer Therapy–Cognitive Function instrument. J Support Oncol 7:W32–W39
10. Eremenco SL, Cella D, Arnold BJ (2005) A comprehensive method for the translation and cross-cultural validation of health status questionnaires. Eval Health Prof 28:212–232
11. Lent L, Hahn E, Eremenco S, Webster K, Cella D (1999) Using cross-cultural input to adapt the Functional Assessment of Chronic Illness Therapy (FACIT) scales. Acta Oncol 38:695–702
12. Bonomi AE, Cella DF, Hahn EA et al (1996) Multilingual translation of the Functional Assessment of Cancer Therapy (FACT) quality of life measurement system. Qual Life Res 5:309–320
13. Willis GB (ed) (2005) Cognitive interviewing: a tool for improving questionnaire design. Sage Publications, Thousand Oaks
14. Folstein MF, Folstein SE, McHugh PR (1975) Mini-mental state. A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 12:189–198
15. Hamilton M (1960) A rating scale for depression. J Neurol Neurosurg Psychiatry 23:56–62
16. Biglia N, Bounous VE, Malabaila A et al (2011) Objective and self-reported cognitive dysfunction in breast cancer women treated with chemotherapy: a prospective study. Eur J Cancer Care (Engl)
17. Spooner DM, Pachana NA (2006) Ecological validity in neuropsychological assessment: a case for greater consideration in research with neurologically intact populations. Arch Clin Neuropsychol 21:327–337
18. Tannock IF, Ahles TA, Ganz PA, van Dam FS (2004) Cognitive impairment associated with chemotherapy for cancer: report of a workshop. J Clin Oncol 22:2233–2239