



GÖTEBORGS UNIVERSITET
SAHLGRENSKA AKADEMIN

Institutionen för neurovetenskap och fysiologi
Enheten för logopedi

254

**Validation of the Swedish translation of
Communicative Participation Item Bank on
individuals with Parkinson´s disease or
atypical parkinsonism**

Lisa Mellenthin
Emma Roos

Examensarbete i logopedi
30 högskolepoäng
Vårterminen 2013

Handledare
Lena Hartelius

Validation of the Swedish translation of Communicative Participation Item Bank on individuals with Parkinson´s disease or atypical parkinsonism

Lisa Mellenthin
Emma Roos

Abstract. The aim of the study was to validate Frågebank om Kommunikativ Delaktighet (FKD), which is the Swedish translation of the Communicative Participation Item Bank. It is a self-report questionnaire measuring communicative participation. The study included 12 individuals with dysarthria due to Parkinson´s disease or atypical parkinsonism. Frågebank om Kommunikativ Delaktighet was validated using cognitive interviewing and by measuring association between the participants´ answers on four selected items in Frågebank om Kommunikativ Delaktighet compared with four similar items in Questionnaire on Acquired Speech Disorders. Internal consistency was measured to investigate the reliability of FKD. According to the participants´ comments in the cognitive interviews seven items were revised. The results indicated that Frågebank om Kommunikativ Delaktighet measures what it is intended to measure, that is, communicative participation. Frågebank om Kommunikativ Delaktighet is a positive addition to the field of speech and language pathology since there is no Swedish self-report questionnaire solely measuring communicative participation.

Key words: Communicative participation, self-report questionnaire, validity Parkinson´s disease, atypical parkinsonism.

Validering av den svenska översättningen av Communicative Participation Item Bank på individer med Parkinsons sjukdom eller atypisk parkinsonism

Sammanfattning. Studiens syfte var att validera Frågebank om Kommunikativ Delaktighet (FKD), vilket är den svenska översättningen av Communicative Participation Item Bank. Det är ett självskattningsformulär som mäter kommunikativ delaktighet. Studien inkluderade 12 individer med dysartri till följd av Parkinsons sjukdom eller atypisk parkinsonism. Frågebank om Kommunikativ Delaktighet validerades genom kognitiva intervjuer och genom att mäta samband mellan deltagarnas svar på fyra utvalda frågor i Frågebank om Kommunikativ Delaktighet jämfört med fyra liknande frågor i Självvarsformulär Om Förvärvade Talsvårigheter. Intern konsistens mättes för att undersöka reliabiliteten av FKD. Utifrån deltagarnas kommentarer i de kognitiva intervjuerna reviderades sju frågor. Resultaten indikerade att Frågebank om Kommunikativ Delaktighet mäter det som den avser att mäta, det vill säga kommunikativ delaktighet. Frågebank om Kommunikativ Delaktighet är ett positivt tillskott till det logopediska arbetsfältet eftersom det inte finns något svenskt formulär som enbart mäter kommunikativ delaktighet.

Nyckelord: Kommunikativ delaktighet, självskattningsformulär, validitet, Parkinsons sjukdom, atypisk parkinsonism.

Communicative participation can be defined as “taking part in life situations where knowledge, information, ideas or feelings are exchanged” (Eadie et al., 2006, p. 309; also see Baylor, Yorkston, Eadie, Miller & Amtmann, 2009; Yorkston et al., 2008). Communicative participation is affected by several factors such as personal factors, disease symptoms and environmental factors (Yorkston, Beukelman, Strand & Hakel, 2010). Communicating is not only a way to convey information but also a way to participate in different social contexts. By participating in different social contexts one can express oneself and share feelings, thoughts and experiences. Thereby, a feeling of belonging is created and confirmed (Hartelius, Nettelbladt & Hammarberg, 2008). Communicating is therefore a prerequisite to participating in various everyday life situations. Therefore it is necessary to understand communicative participation to meet the communication needs of people with motor speech disorders (Yorkston & Baylor, 2011).

Communicative participation is a specification of the participation aspect of the International Classification of Functioning, Disability and Health (ICF) perspective and involves different forms of communication such as speaking, listening, reading, writing and also nonverbal communication (Eadie et al., 2006). ICF is a classification of health and health status. ICF is both a model concerning different aspects of health and also a classification tool used to organize items describing health conditions. The ICF model is divided into structure/function, activity and participation, which are affected by environment and personal factors (Hartelius & Miller, 2011; World Health Organization, 2012).

Today’s health care concern is more about the assessment of functioning, focusing on the entire human being in everyday life using the ICF framework rather than the previous focus on disorders or diseases (Hartelius & Miller, 2011). Applying the ICF perspective, for example by including communicative participation to assessment and intervention, can broaden the understanding of a person's limitations and opportunities in life (Dykstra, Hakel & Adams, 2007). Dykstra et al. (2007) argue for the use of the ICF framework in assessment and intervention of dysarthria. This can help to get a broader understanding of the complexity of speech intelligibility in speakers with dysarthria, concerning different aspects ranging from neuroanatomical and physiological to functioning in society.

Dysarthria is defined as “...a neurologic motor speech impairment that is characterized by slow, weak, imprecise, or uncoordinated movements of the speech musculature” (Yorkston et al., 2010, p. 4). Dysarthria can be either congenital or acquired and is caused by damage to the central or peripheral nervous system (Fagius & Aquilonius, 2006; Yorkston et al., 2010). Acquired motor speech disorders include the dysarthrias and apraxia of speech. The debut of acquired motor speech disorders can occur anytime in life but usually onset is later in life. Dysarthria can affect a single articulator or an entire system responsible for speech and voice production. Dysarthria severity can range from mild to severe (Yorkston et al., 2010). The listener may not always notice

changes, but the speakers themselves can experience difficulties and struggle with sustaining speech (Miller & Hartelius, 2011).

Dysarthria is common in Parkinson's disease and atypical parkinsonism and usually occurs later in Parkinson's disease than in atypical parkinsonism (Hartelius et al. 2008). Parkinson's disease is a progressive neurological disease with symptoms such as tremor, rigidity, hypokinesia and effects on coordination and balance. Onset is usually around 55-60 years. Prevalence of Parkinson's disease is 150/100 000 inhabitants (Fagius & Aquilonius, 2006). The symptoms of Parkinson's disease can affect speech and voice, primarily leading to reduced vocal loudness and influence speech rate, articulation and intelligibility. Hypokinetic dysarthria is the type of dysarthria associated with Parkinson's disease (Yorkston et al., 2010). Hypokinetic dysarthria can be seen in approximately 70% of all people with Parkinson's disease, but up to 90% can experience problems with speech (Hartelius et al., 2008). The most common symptoms in hypokinetic dysarthria are reduced loudness and breathy voice, variable speech rate, monotony and imprecise consonants (Yorkston et al., 2010).

Atypical parkinsonism includes syndromes with Parkinson like symptoms and the most common types are multiple system atrophy (MSA) and progressive supranuclear palsy (PSP) (Fagius & Aquilonius, 2006; Parkinson's Disease Foundation, 2008; Yorkston et al., 2010). Prevalence of PSP is 6.4/100 000 and of MSA 4.4/100 000 (Schrag, Ben-Shlomo & Quinn, 1999). Yorkston et al. (2010) describe the nature of dysarthria seen in atypical parkinsonism. These symptoms differ from the type of dysarthria seen in Parkinson's disease, as atypical parkinsonism is caused by damage in several neurological systems. The type of dysarthria seen in atypical parkinsonism is a mixed type. Depending on which type of atypical parkinsonism, various combinations of dysarthria types can be seen. For example, PSP includes spastic, hypokinetic and ataxic dysarthria (Yorkston et al., 2010). Dysarthria seen in MSA is also a mixed type, including ataxic, hypokinetic and spastic signs. The most common symptoms in spastic dysarthria are imprecise consonants, slow speech, pitch is low and monotonous and voice quality is strained and harsh. The most common symptoms in ataxic dysarthria are imprecise consonants, equalization of syllabic stress, irregular breakdowns of articulation, prolonging of sounds, distorted vowels and harsh voice quality (Yorkston et al., 2010). The main difference between the two types of mixed dysarthria associated with atypical parkinsonism is that the ataxic component is usually more prominent in the dysarthria associated with MSA and that the severity of symptoms are usually more pronounced in PSP (Hartelius, Gustavsson, Åstrand & Holmberg, 2006; Hartelius, Lindberg, Peterson & Saldert, 2011).

Various studies confirm that individuals with dysarthria often experience restricted participation in various life situations (Yorkston & Baylor, 2011). Reduced speaking rate and negative effect on speech intelligibility can result in limited communicative participation across various life situations (Miller & Hartelius, 2011). Walshe & Miller (2011) studied experiences of living with dysarthria in ten individuals with dysarthria. All participants experienced changes

in communication due to their condition and described the changes in communicative behavior as being more passive in conversations and avoiding words. The participants also expressed that they avoided various situations such as talking to clerks, talking in a group, making phone calls and speeches and conversing with strangers. The results showed the importance of including personal experiences in clinical practice. Miller and Hartelius (2011) argue that communicative disability does not only affect communication but by extension also other areas in life such as acquisition and use of knowledge, interactions, relationships, social and domestic life. In a life perspective the impact of dysarthria on participation can lead to loss of employment and social isolation (Yorkston & Baylor, 2011). A large study by Miller, Noble, Jones and Burn (2006) showed that Parkinson's disease has an impact on communication in a person's everyday life. In the study 140 participants with Parkinson's disease were included of whom 40% expressed speech changes as their main concern.

Hartelius et al. (2011) examined whether atypical parkinsonism affects communication skills in interaction by inviting the families of individuals with atypical parkinsonism to answer a questionnaire about the differences in communicative ability pre- and post-onset of disease. The results showed a significant effect on the communication skills in interaction and that information from relatives was important to identify problems and also what is relevant to focus on with regard to intervention.

There are different ways to assess speech symptom severity in people with motor speech disorders. One way is to measure intelligibility (Yorkston et al., 2010) and another way is to measure the individuals' experiences of speech and communication (Yorkston & Baylor, 2011). Intelligibility is a measure of the extent to which a listener perceives what the speaker intended to say, thus a high intelligibility level implicates a mild impairment and a low intelligibility level implicates severe impairment (Yorkston et al., 2010). A person who scores low on an intelligibility test may not experience severe dysarthria in real life. On the other hand a person who scores high on an intelligibility test may experience severe problems in everyday life. Therefore, the experience of difficulties in life situations is subjective (Miller & Hartelius, 2011; Yorkston & Baylor, 2011). Hartelius, Elmberg, Holm, Lövberg and Nikolaidis (2008) concluded that there appears to be no clear-cut relationship between individuals' severity of dysarthria and how individuals perceive their communicative difficulties. Communicative participation is a subjective aspect and therefore requires being measured using interviews or self-report instruments. This allows individuals to estimate their own experiences in communicative situations (Miller & Hartelius, 2011; Yorkston & Baylor, 2011).

The available instruments to assess dysarthria today are mainly instruments to investigate the structure/function and activity and there are some instruments measuring participation. A few instruments partly measure communicative participation related to neurological communication difficulties, for example Communicative Effectiveness Survey (Donovan, Velozo, Rosenbek, Okun &

Sapienza, 2005), Quality of Communication Life Scale (Paul et al., 2004) and Functional Assessments of Communication Skills for Adults (Frattali, Thompson, Holland, Wohl, & Ferketic, 1995).

Communicative Participation Item Bank (CPIB) is a self-report questionnaire specifically focused on measuring communicative participation and is developed by Kathryn M. Yorkston and Carolyn R. Baylor. CPIB is a psychometrically sound instrument that has gone through rigorous testing using Item Response Theory (IRT), which is a model-based measurement to evaluate a questionnaire (Baylor, Yorkston, Eadie, Miller & Amtmann, 2009). Applying IRT one can link observed behaviors for example responses to questionnaires to the underlying latent traits by using mathematical models. There are various types of IRT models; a Rasch model is one of them (Embretson & Reise, 2000). When CPIB was developed a Rasch model was used. Using IRT makes it possible to create a large item bank from which one can extract a subset of items to individualize assessment (Baylor et al., 2009).

CPIB was pretested using cognitive interviewing (Yorkston et al., 2008). Cognitive interviewing is a qualitative method generated from cognitive psychology and survey methodology to systematically find out people's opinions of a phenomenon (Beatty & Willis, 2007; Drennan, 2003). Cognitive interviewing has been shown in research to be a useful method both to validate and to identify errors in questionnaires, and is therefore commonly used in the development of new questionnaires, prior to distributing in the targeted population. It can also be a useful method when translating a questionnaire. When designing a questionnaire the researcher wants the participants to fill out the questionnaire and understand the items the way the researcher intended. Cognitive interviews can detect problems in a questionnaire, for example problems with the items, such as unclear wording, and can also discover difficulties that can lead to increased error responses (Beatty & Willis, 2007; Conrad, Blair & Tracy, 1999; Drennan, 2003).

According to Conrad and Blair (1996) and Drennan (2003) cognitive interviewing is usually conducted through semi-structured, in-depth interviews. Willis (1999) proposes that a cognitive interview can last up to two hours but the optimal interview would last one hour. The optimal interviewer has been trained in the concept and method of cognitive interviewing (Willis, 1999). Two commonly used approaches in cognitive interviewing are "think aloud" and "verbal probing". In the cognitive interviews the interviewer may ask the participant to think aloud when filling out the questionnaire. This allows participants to share their thoughts in order for the interviewer to get an understanding of the participant's view on each item (Drennan, 2003; Knafl et al., 2007). The interviewer may also ask the participant to discuss items or specific wording that may be perceived as ambiguous. This is called verbal probing, and allows the participant to disclose their thoughts while reading each item (Grant et al., 1999; Knafl et al., 2007). In Beatty and Willis (2007) and Drennan (2003) current research is discussed concerning different views on which of these two approaches to use. Some researchers argue for the use of either verbal probing or thinking aloud, others

suggest the use of both methods. Drennan (2003) proposes that one may use both methods in combination.

Conrad and Blair (1996) and Conrad et al. (1999) highlights problems with the analysis of data from cognitive interviews as being subjective, therefore they suggest the use of a preset problem taxonomy, which divides potential problems into specific categories as a way to increase objectivity. Drennan (2003) still advocates the use of this method as it is considered to be effective in the testing and development of questionnaires. Beatty and Willis (2007) also justify the use of cognitive interviews in the development and testing of questionnaires.

CPIB has been evaluated in a study by Yorkston et al. (2008) in order to develop and improve the instrument's instructions, the proposed items and response options for measuring communicative participation. Twelve participants with different levels of severity of spasmodic dysphonia, a neurological disorder characterized by voice and speech changes, participated in cognitive interviews while filling out the self-report questionnaire. In the study by Yorkston et al. (2008) an analysis of the cognitive interviews lead to an adaptation of the self-report questionnaire CPIB. It showed that participants preferred response options where they could rate interference rather than satisfaction. By rating their interference participants felt that they could rate their communication experiences more easily. The study concluded that very small differences may be crucial in the understanding of items and that it was important to give participants a specific context and a broad opportunity with several response options. Finally, Yorkston et al. (2008) and Yorkston and Baylor (2011) stress the importance of further testing of CPIB in people with other communication disorders.

QASD (Questionnaire on Acquired Speech Disorders), in Swedish SOFT (Självsvarsformulär Om Förvärvade Talsvårigheter), is a Swedish instrument partly measuring communicative participation, developed by Hartelius et al. (2008). QASD measures speech difficulties and consists of 30 questions influenced by the ICF framework in such a way that one part involves items regarding speech as function, another part involves items regarding speech as activity and participation and another part involves items regarding environmental and personal factors (Hartelius et al., 2008). QASD was validated by Hartelius et al. (2008) by comparing QASD with another established instrument measuring the same phenomena.

Validity of an instrument can be determined in different ways. The first step to validate an instrument is to look at its content. This is called content validity and cannot be measured statistically but needs to be assessed subjectively, for example by letting experts and users of the instrument come to consensus whether the designers of the instrument succeeded to capture the content that was intended. Another form of validity is criterion validity, which is the main method of assessing the validity of a measure. Criterion validity can be assessed by comparing a new instrument with another already existing instrument measuring the same phenomena (Pring, 2005; Streiner & Norman Geoffrey, 2008).

Since there are no Swedish self-report questionnaire solely measuring communicative participation the aim of the current study was to validate the Swedish translation of CPIB (in Swedish Frågebank om Kommunikativ Delaktighet, FKD) by testing FKD on individuals with Parkinson's disease or atypical parkinsonism. The following research question was asked: does the Swedish translation of CPIB measure communicative participation? This was studied through:

- Investigation of the internal consistency of FKD and QASD.
- Content validity that was examined by cognitive interviews with individuals with experience of dysarthria.
- Criterion validity by exploring the relation between FKD and selected items from QASD concerning communicative participation.

Method

The current study was a descriptive interview study applying qualitative techniques to explore content validity and quantitative techniques to investigate criterion validity. The study was centered at the Division of Speech and Language Pathology at the Sahlgrenska Academy (University of Gothenburg) in Gothenburg, Sweden, and was part of a larger research project in collaboration with the Division of Speech and Language Pathology at the Karolinska Institute in Stockholm, Sweden. Gothenburg included participants with Parkinson's disease and atypical parkinsonism while Stockholm focused on participants with multiple sclerosis and spinocerebellar ataxia.

In the following text the authors used "the research team" as a name for the entire group of researchers in the collaboration. The research team included two graduate SLP-students at the Sahlgrenska Academy (also the authors to the current study), two graduate SLP-students at the Karolinska Institute and their supervisors (who also made the Swedish translation of CPIB). The research team had regular contact via e-mail, phone and also meetings in real-life.

Participants

Inclusion criteria were: all types and severity of dysarthria due to Parkinson's disease or atypical parkinsonism, where the participants should have been diagnosed with Parkinson's disease or atypical parkinsonism for more than a year ago. The participants should mainly live at home and have had experienced communicative difficulties due to their condition. Exclusion criteria were: fully users of Alternative and Augmentative Communication (AAC), documented cognitive loss or acquired language disorders.

Eight participants with Parkinson's disease and four with atypical parkinsonism, a total of twelve participants, four female and eight male between the ages 59-80

years participated in the study (see table 1). All participants except two had Swedish as their native language, one had Albanian and the other had Hindi. Time post onset of their disease varied from 6 years to 18 years. All dysarthria severities (from mild to severe) were represented among the participants. Participants were recruited through speech-language pathologists at the Neuro Care Division at the Sahlgrenska University Hospital in Gothenburg, Angered Hospital in Gothenburg and Huddinge Hospital in Stockholm.

Table 1

Participant characteristics.

Participant	Gender	Age	Diagnosis	Time post onset (years)	Dysarthria severity	Perceived speech problems (years)
D1	M	80	PD	16	Mild	1
D2	M	75	MSA	7	Moderate/ Severe	4
D3	M	67	PSP	10	Mild	7
D4	M	69	PD	11	Mild	-
D5	M	68	MSA	6	Severe	2
D6	F	77	PD	9	Mild	6
D7	F	80	PD	18	Mild/ Moderate	4
D8	M	77	MSA	8	Moderate	2
D9	M	67	PD	6	Mild	2
D10	F	59	PD	6-7	Mild	6-7
D11	F	77	PD	8	Mild	5
D12	M	67	PD	5	Severe	10

Note. M = male, F = female, PD = Parkinson's disease, MSA = Multiple System Atrophy, PSP = Progressive Supranuclear Palsy. Dysarthria severity was reported by clinical speech-language pathologist at the time when the participants were contacted.

Ethical considerations

The study was approved by the Central Ethical Review Board in Stockholm, Sweden. The participants were informed that the participation was voluntary, that they were able to at any time disrupt their participation without giving any reason and that all the collected data would be stored in a locked archive at the Division of Speech and Language Pathology. After being informed both verbally and in written form about the study, the participants gave written consent to participate in the study. A database including information about the participants was established and a passkey was used to obtain anonymity. Only the authors of the current study and their supervisor had access to the passkey.

Material

FKD, which consists of 46 items and measures the experience of communicative participation in everyday communicative situations, was used in the study. The text in brackets below is the Swedish translation. FKD has the following response options: Not at all (Inte alls) 3 points, A little (Litegrann) 2 points, Quite a bit (Ganska mycket) 1 point and Very much (Väldigt mycket) 0 points. The total score of FKD ranges from 0-138 points. High scores indicate less interference in communicative participation. Lena Hartelius and Ellika Schalling made the Swedish translation of CPIB (FKD) following principles for good practice drafted by Wild et al. (2005). These principles include a forward translation (from English to Swedish) and a back translation (from Swedish to English) with review and discussion of results through the entire process.

Four selected items and general questions from QASD were used. The general questions from QASD concerned age, gender, disease, years since diagnosis, years since perceived speech difficulties, education, employment, living circumstances and mobility. Four selected items from FKD were matched with the selected items from QASD, see table 2. QASD has the following response options: Definitely false (Stämmer inte alls) 0 points, Partly false (Stämmer ibland) 1 point, Mostly true (Stämmer för det mesta) 2 points and Definitely true (Stämmer precis) 3 points. Since the scoring in QASD are in reversed order compared to FKD, the authors converted the points so that the points were compatible with the scoring in FKD.

Table 2

The four matched pairs of items from each of the two self-report questionnaires (FKD and QASD).

Item FKD	Item QASD
1. Does your condition interfere with...talking with people you know? (Har ditt tillstånd en negativ påverkan på...din förmåga att tala med människor du känner?)	B18. It is difficult to talk to members of my family and close friends (Det är svårt att tala med familjemedlemmar och nära vänner)
3. Does your condition interfere with...making a phone call to get information? (Har ditt tillstånd en negativ påverkan på...din förmåga att ringa ett telefonsamtal för att få information?)	B21. It is difficult to talk on the phone (Det är svårt att tala i telefon)
17. Does your condition interfere with...talking with people you do NOT know? (Har ditt tillstånd en negativ påverkan på...din förmåga att tala med människor som du inte känner?)	B19. It is difficult to talk to people I know just a little or not at all (Det är svårt att tala med människor som jag känner lite grann eller inte alls)

41. Does your condition interfere with...communicating in a large group of people? (**Har ditt tillstånd en negativ påverkan på...din förmåga att kommunicera i en stor grupp?**)

B20. It is difficult to talk in a group of people
(Det är svårt att tala i en grupp av människor)

Cognitive interviews were documented using mobile auditory recording equipment. Eleven interviews (interviews with participant D1-D11) were recorded with a Zoom H2. One interview (interview with participant D12) was recorded with a MacBook Pro and an external microphone (SONY).

Field notes, in other words the responses to the questions in the cognitive interviews, were taken during the cognitive interviews on a computer (MacBook Pro) and were complemented with orthographical transcriptions of the recordings when needed.

Procedure

A pilot study including three healthy participants (a 24 year old woman, a 25 year old woman and a 54 year old man) was conducted to ensure that the procedure of the sessions worked well and to let the interviewers practice before starting the actual sessions. The pilot studies worked well and the authors decided to keep the session guide and to use the same procedure in the following sessions.

The speech-language pathologists made the first contact with the participants and ensured that the participants met the inclusion and exclusion criteria for the study. The authors then contacted the potential participants to give them additional information about the study. After giving verbal consent to participate in the study, time and place were decided for the session.

A session guide was developed and used at every session to ensure that the same procedure was followed. The session guide included nine steps. First the agenda was described. Then the interviewer explained the purpose of the study and that participation was voluntary and could be disrupted at any time. Thereafter the written information was given and written consent was obtained. Then the interviewer gave instructions to QASD and the participant filled out four selected items and general questions from QASD. After QASD had been collected, FKD was handed out and the recording was started. Then the participant got verbal and written instruction to FKD. Thereafter the cognitive interviewing about the 46 items in FKD and the response options in FKD was made. Finally the interviewer rounded off. The cognitive interview was semi-structured and in-depth. The questions in and design of the cognitive interviews were inspired by research on cognitive interviews (for example see Beatty & Willis, 2007; Conrad & Blair, 1996; Drennan 2003; Willis, 1999).

All sessions except two took place in the participant's home, one at the University of Gothenburg and one at Huddinge hospital. They were all conducted in a quiet room without any disturbing elements. Each session took approximately 90-120 minutes including short breaks. Both of the authors were present at all times, one responsible for completing the self-report questionnaires, cognitive interviews and recording while the other was responsible for taking notes. This was to ensure that the interview process followed the same procedure.

The cognitive interviewing began with a request to think aloud while filling out the questionnaire. The cognitive interview followed with verbal probing, starting with the question: "Did you find the instruction to FKD that you just got clear?". After answering the question the participants started to fill out FKD, one page at a time. After each completed page, the interviewer went through the completed items one by one asking the participant the following questions: "Is/are there any word/words you get stuck on or find difficult or hard to understand?" and "Is there any specific situation you come to think about when you hear/read this question?". After each completed page the participants were offered to take a short break. After FKD was finished the participants were asked the following overall questions about the FKD questionnaire: "What do you think about the choice of words in the response options?" and "Do you have any other comments?". The above questions were asked to ensure that the participants understood the items as intended.

After three interviews (participant D1-D3) had been conducted in Gothenburg and Stockholm the research team had a meeting where results from the interviews were discussed. The research team decided only to revise items when there was a problem with the understanding of an item. Thus no revisions were made in FKD after this meeting and the research team decided to proceed with further sessions.

After the qualitative analysis of eleven cognitive interviews (participant D1-D11) the research team had a new meeting and discussed ambiguous items. The research team decided that minor revisions of seven items in the FKD needed to be made. To test the revised items the authors conducted a new session including cognitive interviewing of the seven revised items with participant D12. The other 39 items were only filled out without cognitive interviewing.

Qualitative Analysis

Knafl et al. (2007) report that there are few guidelines available for analyzing data from cognitive interviews. Blair, Conrad and Tracy (1999) and Drennan (2003) argue for the use of taxonomy as a guideline, which is a structural classification of data. This can increase the validity and objectivity of cognitive interview data.

The analyses were made in consultation with the research team between sessions and also after all sessions had been conducted. After each session, the authors

went through the field notes and discussed the main findings from the cognitive interview. Furthermore, a detailed written review of the field notes was made. Then analyses of the participants' responses to the questions and other thoughts from the cognitive interviews were made. The questions in the cognitive interviews lead to the development of categories. The field notes were subsequently also divided into the categories.

The authors made an overall analysis of the qualitative data in the categories and identified problems with the translation in FKD. The research team developed a problem taxonomy inspired by Knafl et al. (2007) to structure the data concerning problems with the translation into different problem types, see table 3.

Table 3

Problem taxonomy describing type of problem and definition.

Type of problem	Definition
Word	Unclear meaning of word
Wording	Unclear wording
Cultural difference	Unclear definition
Limited applicability	Question concerning a group or a situation where the question is not applicable
Unclear reference	Unclear question regarding which aspect the issue is addressed to, for example to which situation
Unclear perspective	Unclear from which perspective the question should be answered
Length of the item	Too long or too short item
Other	Design, lowercase/ uppercase letter

Data where no problems were identified and data where problems were identified were sorted out. A consensus meeting was conducted where the research team summarized the overall identified problems with the questionnaire. Decisions were made about either keeping or revising items. Alternative wordings were proposed.

Statistical Analysis

The total score on FKD for each participant was compared to the participant's dysarthria severity and was analyzed descriptively.

Data were analyzed quantitatively in SPSS Statistics to measure reliability and validity. Cronbach's alpha was used to measure internal consistency of the 46 items of FKD and the 4 items of QASD. Cohen's kappa and Spearman's rank correlation coefficient comparing FKD and QASD were used to measure validity.

Results

Qualitative results

The qualitative analysis of the cognitive interviews resulted in four categories: (1) Clarity of instruction in FKD, (2) Problems with items in FKD, (3) Response format in FKD and (4) Other comments about FKD.

(1) *Clarity of instruction in FKD.* The responses to the question “Did you find the instruction you just got clear?” in the cognitive interviews formed the category (1) Clarity of instruction in FKD. The following findings derived from the participants’ responses: all participants found the instruction clear. Therefore no revisions of the instruction were made. One of the participants needed to hear the instruction twice. Examples of comments from the participants were D1: “*Yes I thought so, they were totally okay*” (“*Ja det tyckte jag, de var helt okej*”) and D10: “*Yes, it was clear*” (“*Ja, den var tydlig*”).

(2) *Problems with items in FKD.* The responses to the questions “Is/are there any word/words you get stuck on or find difficult or hard to understand?” and “Is there any specific situation you come to think about when you hear/read this question?” in the cognitive interviews formed the category (2) Problems with items in FKD. The following findings derived from the participants’ responses: almost all items were understandable and did not call for any revisions. Two of the items lead to problems with understanding, those were: “...greeting someone you know at a social gathering” (“...hälsa på någon du känner vid en social sammankomst”) and “...taking a phone message” (“...ta emot ett telefonmeddelande”). No revisions were made of those two items. Two participants (D6 and D4) indicated a problem with the understanding of social gathering. Participant D6 interpreted social gathering (social sammankomst) as “*When someone from the municipality comes home and an occupational therapist, physiotherapist, yes it is usually the ones who come, or assistance analysts*” (“*När någon från kommunen kommer hem och en arbetsterapeut, sjukgymnast, ja det är väl dem som kommer, eller biståndsbedömare*”). Participant D4 wondered what social gathering (social sammankomst) meant. Two participants (D10 and D1) indicated a problem with the understanding of phone message (telefonmeddelande). Participant D10 interpreted phone message (telefonmeddelande) as sms, Short Message Service. Participant D1 interpreted taking a phone message (ta emot ett telefonmeddelande) as answering the phone.

Some of the items were problematic for the participants even though they understood the items. Seven of these items lead to minor revisions, see table 4. D9 had the following comments about improving the questionnaire: “*Have a conversation, can you not write converse?*” (“*Ha ett samtal, kan man inte skriva samtala?*”), “*A relaxed conversation? One should find another word for relaxed, simple or something like that*” (“*Ett avslappnat samtal? Man skulle hitta ett annat ord för avslappnade, enklare eller något sånt där*”) and “*It does not say being lost, who is lost, and, but then it suddenly says has, I want to delete a has*” (“*Det*

står inte har gått vilse, som gått vilse, och, men sen står det plötsligt har, jag vill ha bort ett har”). D2 had the following comment about improving the questionnaire: “*Speak in a way that gets someone’s attention /.../ yes, that would be clearer to me*” (“*Tala på ett sätt för att få någons uppmärksamhet /.../ ja, det skulle vara tydligare för mig*”). D11 had the following comment about improving the questionnaire: “*One can insert speak for example...to loosen up and dilute communicate*” (“*Man kan ju sätta in tala till exempel...för att luckra upp och späda ut kommunicera*”). Different problem types occurred for example wording, word, unclear perspective and other.

Table 4

Problems identified from items in FKD that lead to revisions.

Type of problem	Item in CPIB	Example of old item in FKD	Revision made	Example of new item in FKD
Wording	...having a conversation in a noisy place	...ha ett samtal på en bullrig plats	Simplify wording in the item	...samtala på en bullrig plats
Wording	...having a long conversation with someone you know about a book, movie, show, or sports event	...ha ett långt samtal med ngn du känner om t ex en bok, film, föreställning eller sportevenemang	Simplify wording in the item	...samtala länge med någon du känner om t ex en bok, film, föreställning eller sportevenemang
Wording	...having a conversation about a serious topic	...ha ett samtal om ett allvarligt ämne	Simplify wording in the item	...samtala om ett allvarligt ämne
Wording	...having a conversation while riding in a car	...ha ett samtal när du åker bil	Simplify wording in the item	...samtala när du åker bil
Word	...bringing up a new topic in casual conversations	...ta upp ett nytt ämne i avslappnade samtal	Reword item	...ta upp ett nytt ämne i avspända samtal
Wording, unclear perspective, other	...giving someone DETAILED information	...ge någon DETALJERAD information	Clarify allusion	...ge DETALJERAD information till någon
Wording	...giving directions to someone who is lost and has asked you for help	...förklara vägen för någon som gått vilse och har bett dig om hjälp	Remove an unnecessary word	...förklara vägen för någon som gått vilse och bett dig om hjälp

Examples of situations that came to mind when the participants read the items are presented in table 5. The comment from D6 “*When someone from the municipality comes home and an occupational therapist, physiotherapist, yes it is*

usually the ones who come, or assistance analysts” (“När någon från kommunen kommer hem och en arbetsterapeut, sjukgymnast, ja det är väl dem som kommer, eller biståndsbedömare”) to the item “...greeting someone you know at a social gathering?” is an example where the authors interpreted it as the participant had not understood the items as intended. Another example of that was the comment from D1 “Take a normal phone call” (“Ta ett vanligt telefonsamtal”) to the item “...taking a phone message?”. Examples of comments where the authors interpreted it as the participant had understood the items as intended were: D1 “Possibly a construction site” (“Eventuellt en byggarbetsplats”) to the item “...having a conversation in a noisy place?”, D3 “When I call on my wife or something like that, she does not hear, I say it too low” (“När jag ropar på min fru eller sånt där, så hör hon inte, jag säger det för svagt”) to the item “...saying something to get someone’s attention?”, D7 “Sometimes they [the clerks] walk away from you /.../ just like hurry now because we are in a hurry or something like that, what bothers me the most is that they then have time to stand there and talk to her [another customer]” (“Ibland så går de ifrån en /.../ precis som att skynda dig nu för vi har bråttom eller nåt sånt där, det som retar mig mest då är att de har tid att stå och prata med henne då”) to the item “...talking to a store clerk who is in a hurry?” and D10 “If I am on the tram or so, I never have problems asking someone for help” (“Om jag är på spårvagnen eller så, jag har aldrig problem att be någon om hjälp”) to the item “...asking for help from a stranger?”.

Table 5

Examples of situations that came to mind when the participants read a specific item.

Item FKD	Example of situation
2. Does your condition interfere with...having a conversation in a noisy place?	”Possibly a construction site” (“Eventuellt en byggarbetsplats”)
6. Does your condition interfere with...saying something to get someone’s attention?	”When I call on my wife or something like that, she does not hear, I say it too low” (“När jag ropar på min fru eller sånt där, hör hon inte, jag säger det för svagt”)
13. Does your condition interfere with...greeting someone you know at a social gathering?	”When someone from the municipality comes home and an occupational therapist, physiotherapist, yes it is usually the ones who come, or assistance analysts” (“När någon från kommunen kommer hem och en arbetsterapeut, sjukgymnast, ja det är väl dem som kommer, eller biståndsbedömare”).
19. Does your condition interfere with...talking to a store clerk who is in a hurry?	”Sometimes they [the clerks] walk away from you /.../ just like hurry now because we are in a hurry or something like that,

	what bothers me the most is that they then have time to stand there and talk to her [another customer]" ("Ibland så går de ifrån en /.../ precis som att skynda dig nu för vi har bråttom eller nåt sånt där, det som retar mig mest då är att de har tid att stå och prata med henne då")
27. Does your condition interfere with...taking a phone message?	"Take a normal phone call" ("Ta ett vanligt telefonsamtal")
45. Does your condition interfere with...asking for help from a stranger?	"If I am on the tram or so, I have never problems asking someone for help" ("Om jag är på spårvagnen eller så, jag har aldrig problem att be någon om hjälp")

(3) *Wording of response format in FKD.* The responses to the question "What do you think of the choice of words in the response options?" in the cognitive interviews formed the category (3) Response format in FKD. The following findings derived from the participants' responses: overall participants found the wording in the response options good and understandable. Therefore no revisions were made in the response options. Examples of comments from the participants: D5 found the response options clear and would not have wanted to change them, D4 found the response options: "*Easy to understand*" ("*Lätt att förstå*"), D3 perceived the response options as that "*They are approximately the usual, as it should be*" ("*De är väl ungefär de vanliga, som det ska va*") and D7 commented: "*Quite a bit, it is how much? /.../ but it is hard to say, it is not in my mouth*" ("*Ganska mycket, det är hur mycket? /.../ men det är svårt att säga, det ligger inte i min mun*").

(4) *Other comments about FKD.* The responses to the question "Do you have any other comments?" in the cognitive interviews formed the category (4) Other comments about FKD. The following findings derived from the participants' responses: opinions about the design and content of the questionnaire for example D1: "*I would like to have something in between a little and quite a bit /.../ it is a big jump /.../ would like to have five response options*" ("*Jag skulle vilja något mellan litegrann och ganska mycket /.../ det är ett stort hopp /.../ skulle vilja ha fem svarsalternativ*"), D11 preferred a little bit longer sentences, D9 preferred short sentences, D11 wanted to have a variation in the first part of each item "*...so that they come alive again because they die*" ("*...så att de kommer till liv igen för att de dör*"). Also opinions about the questionnaire as a whole derived, for example D10: "*It is good*" ("*Det är bra*"). These comments did not lead to any revisions.

Quantitative results

Results from the quantitative analysis showed that Cronbach's alpha was $\alpha = 0.987$ ($M = 97.25$, $sd = 33.12$) for the 46 items in FKD. Cronbach's alpha was $\alpha = 0.916$ ($M = 6.75$, $sd = 4.03$) for the four items from QASD. Cronbach's alpha was $\alpha = 0.987$ ($M = 104$, $sd = 36.22$) for all items in FKD and the four selected items from QASD.

Cohen's kappa was $\kappa = 0.341$ on the first pair of items, $\kappa = 0.229$ on the second pair of items, $\kappa = 0.450$ on the third pair of items and $\kappa = 0.308$ on the fourth pair of items. See table 6. The Kappa values indicated that the first pair of items, the second pair of items and the fourth pair of items had a fair association and that the third pair of items had a moderate association.

Spearman's rank correlation coefficient gave the value $\rho = 0.836$ ($p < 0.05$) on the first pair of items, $\rho = 0.966$ ($p < 0.05$) on the second pair of items, $\rho = 0.661$ ($p < 0.05$) on the third pair of items and $\rho = 0.814$ ($p < 0.05$) on the fourth pair of items. See table 6. All four pairs of items were significant on 0.05 level of significance.

Table 6

Kappa and Spearman value of four pairs of items from each of the two self-report questionnaires (FKD and QASD).

Item FKD	Item QASD	Kappa value (κ)	Significance of Spearman coefficient (ρ)
1. Does your condition interfere with talking with people you know?	B18. It is difficult to talk to members of my family and close friends	0.341	0.836
3. Does your condition interfere with making a phone call to get information?	B21. It is difficult to talk on the phone	0.229	0.966
17. Does your condition interfere with talking with people you do NOT know?	B19. It is difficult to talk to people I know just a little or not at all	0.450	0.661
41. Does your condition interfere with communicating in a large group of	B20. It is difficult to talk in a group of people	0.308	0.814

people?

Descriptive statistics showed that the total score on FKD for each participant ranged between 34-134. The mean of the total score on FKD was $M = 97.25$ ($sd = 33.12$). The median of the total score on FKD was 98.5. The mean and standard deviation on each item in FKD can be seen in figure 1. All 46 items in FKD are displayed in table 7.

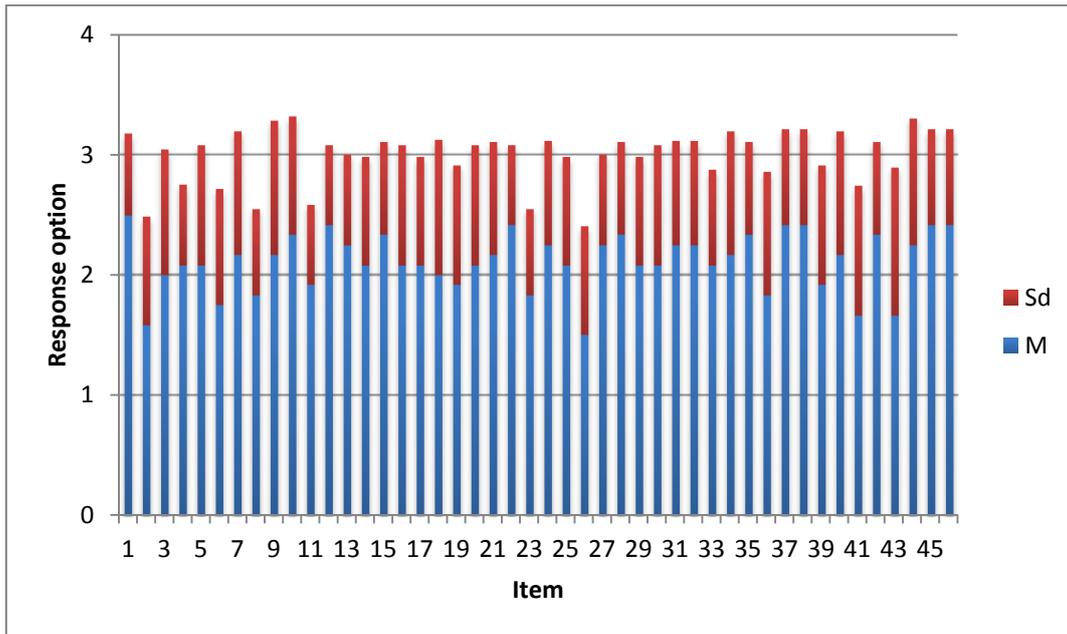


Figure 1. Mean and standard deviation describing how the participants as a group reported their communicative participation on each item in FKD. Note. 3 = Not at all (Inte alls), 2 = A little (Litegrann), 1 = Quite a bit (Ganska mycket), 0 = Very much (Väldigt mycket).

Table 7

All 46 items in FKD in Swedish after revisions were made.

Number	Item
1	Har ditt tillstånd en negativ påverkan på din förmåga att... tala med människor du känner?
2	Har ditt tillstånd en negativ påverkan på din förmåga att... samtala på en bullrig plats?
3	Har ditt tillstånd en negativ påverkan på din förmåga att... ringa ett telefonsamtal för att få information?
4	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera i en liten grupp?
5	Har ditt tillstånd en negativ påverkan på din förmåga att... tala med en expedient i en affär om ett problem med ett kvitto eller inköp?
6	Har ditt tillstånd en negativ påverkan på din förmåga att... säga någonting för att få någons uppmärksamhet?
7	Har ditt tillstånd en negativ påverkan på din förmåga att... samtala länge med någon du känner om t ex en bok, film, föreställning eller sportevenemang?
8	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera när du behöver säga någonting snabbt?

9	Har ditt tillstånd en negativ påverkan på din förmåga att... göra nya bekantskaper?
10	Har ditt tillstånd en negativ påverkan på din förmåga att... att ge personliga råd för att hjälpa en familjemedlem eller vän?
11	Har ditt tillstånd en negativ påverkan på din förmåga att... få fram din åsikt när du är upprörd?
12	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera hemma?
13	Har ditt tillstånd en negativ påverkan på din förmåga att... hälsa på någon du känner vid en social sammankomst?
14	Har ditt tillstånd en negativ påverkan på din förmåga att... samtala om ett allvarligt ämne?
15	Har ditt tillstånd en negativ påverkan på din förmåga att... försöka övertyga en vän eller familjemedlem att se något ur ett annat perspektiv?
16	Har ditt tillstånd en negativ påverkan på din förmåga att... fälla en fyndig eller rolig kommentar i ett samtal?
17	Har ditt tillstånd en negativ påverkan på din förmåga att... tala med människor som du INTE känner?
18	Har ditt tillstånd en negativ påverkan på din förmåga att... samtala när du åker bil?
19	Har ditt tillstånd en negativ påverkan på din förmåga att... tala med en expedit som har bråttom?
20	Har ditt tillstånd en negativ påverkan på din förmåga att... tala med viktiga personer i ditt liv om dina önskingar när det gäller långsiktig planering?
21	Har ditt tillstånd en negativ påverkan på din förmåga att... ta upp ett nytt ämne i avspända samtal?
22	Har ditt tillstånd en negativ påverkan på din förmåga att... uttrycka tacksamhet eller uppskattning?
23	Har ditt tillstånd en negativ påverkan på din förmåga att... fälla en kommentar till familj eller vänner om ett TV-program eller en film som ni tittar på tillsammans?
24	Har ditt tillstånd en negativ påverkan på din förmåga att... tala om dina känslor med personer som står dig nära?
25	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera när du är ute t ex för att göra ärenden eller genomföra ett läkar- eller tandläkarbesök?
26	Har ditt tillstånd en negativ påverkan på din förmåga att... få ordet i ett samtal som förs i snabbt tempo?
27	Har ditt tillstånd en negativ påverkan på din förmåga att... ta emot ett telefonmeddelande?
28	Har ditt tillstånd en negativ påverkan på din förmåga att... tala med familj eller vänner om någonting som du planerar att göra tillsammans med dem?
29	Har ditt tillstånd en negativ påverkan på din förmåga att... småprata?
30	Har ditt tillstånd en negativ påverkan på din förmåga att... ge DETALJERAD information till någon?
31	Har ditt tillstånd en negativ påverkan på din förmåga att... ställa frågor i ett samtal?
32	Har ditt tillstånd en negativ påverkan på din förmåga att... trösta en vän eller familjemedlem?
33	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera vid sociala sammankomster där du känner de flesta?
34	Har ditt tillstånd en negativ påverkan på din förmåga att... förhandla?
35	Har ditt tillstånd en negativ påverkan på din förmåga att... beställa mat på en restaurang?
36	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera med andra var och när du vill?
37	Har ditt tillstånd en negativ påverkan på din förmåga att... inleda ett samtal med någon du känner?
38	Har ditt tillstånd en negativ påverkan på din förmåga att... tala om vad du tycker för familj och vänner?
39	Har ditt tillstånd en negativ påverkan på din förmåga att... umgås med andra på en offentlig plats (t ex park, restaurang, sportaktivitet)?
40	Har ditt tillstånd en negativ påverkan på din förmåga att... tala om en känslsam fråga med familj eller vänner?
41	Har ditt tillstånd en negativ påverkan på din förmåga att... kommunicera i en stor grupp?
42	Har ditt tillstånd en negativ påverkan på din förmåga att... besvara frågor från en läkare eller annan sjukvårdspersonal som du känner?
43	Skulle ditt tillstånd påverka din förmåga att... kommunicera i en nödsituation?
44	Skulle ditt tillstånd påverka din förmåga att... förklara vägen för någon som gått vilse och bett dig om hjälp?
45	Skulle ditt tillstånd påverka din förmåga att... be någon främmande person om hjälp?
46	Skulle ditt tillstånd påverka din förmåga att... genast be om hjälp om du är med någon du känner?

Note. Revised items are in grey.

The descriptive comparison between the total score on FKD for each participant and the participant's dysarthria severity is presented in table 8.

Table 8

Participant, dysarthria severity, years of perceived speech problems and total score on FKD.

Participant	Dysarthria severity	Perceived speech problems (years)	Total score on FKD
D1	Mild	1	121
D2	Moderate/Severe	4	83
D3	Mild	7	40
D4	Mild	-	133
D5	Severe	2	34
D6	Mild	6	134
D7	Mild/Moderate	4	101
D8	Moderate	2	125
D9	Mild	2	86
D10	Mild	6-7	95
D11	Mild	5	96
D12	Severe	10	119

Note. High scores on FKD indicate less interference in communicative participation.

Discussion

The aim of the current study was to validate the Swedish translation of CPIB (FKD). The results from both qualitative and quantitative analysis indicate that FKD measures communicative participation in Swedish individuals with dysarthria due to Parkinson's disease or atypical parkinsonism. Evidence is supplied by the facts that the participants understood the items as intended, FKD correlated significantly with selected items from QASD and FKD and QASD were found to have high internal consistency.

The qualitative data under category (1) *Clarity of instruction in FKD* derived from the participants' responses to the question "Did you find the instruction you just

got clear?”. Since the participants found the instruction clear, this indicates that the instruction to FKD is clear and that no further examination needs to be made.

The qualitative data under category (2) *Problems with items in FKD* indicate several problems with the items. This is in accordance with the findings during the development of CPIB where several problems with the items occurred and items were revised (Yorkston et al., 2008). In the beginning of the qualitative analysis problems with two items concerning the understanding appeared. These two items did not lead to a revision because a better word or wording could not be found and also because a revision would have led to a translation too far from the original questionnaire CPIB. The authors also found problems that did not concern the understanding of items, for example problems with wording and word. Since the research team had decided to only discuss revision concerning items where problems with understanding occurred, the authors did not at first bring up the other problems for discussion with the research team. Willis (1999) suggested that even a single problem with an item could be very important because it can threaten the data. With this knowledge the research team accumulated the occurring problems and decided that minor revisions in fact needed to be made in seven items.

The qualitative data under category (3) *Wording of the response format in FKD* derived from the participants’ responses to the question “What do you think of the choice of words in the response options?”. Since the participants found the wording in the response options clear and understandable, this indicates that the wording in the response format in FKD is good and that no further examination needs to be made.

The qualitative data under category (4) *Other comments about FKD* showed different opinions and thoughts about FKD. Some participants discussed the design, for example wished to have an additional response option either one in the middle of the response options or one named “not applicable”. Some participants discussed the overall content in FKD for example about to have a variation in the first part of each item. The authors decided not to pursue these suggestions to revision because the purpose of the study was only to test the Swedish translation not to change the design of FKD. Another reason for this was that according to Yorkston et al. (2008) CPIB had five response options initially, but it appeared that participants tended to avoid the endpoints of the scale and therefore four response options were adopted. In the current study, contradictory opinions derived from the participants about the length of the sentences. These comments did not lead to any revisions because they are not in accordance to the purpose of the study and also because there were no consensus among the comments. One participant wished to have a variation of the beginning of the items. This could not be made because it would have changed the original design too much. Overall the participants gave positive comments about FKD.

In the current study cognitive interviewing was used to examine the *content validity* of FKD. According to Streiner and Norman Geoffrey (2008) content

validity can be strengthened when a content of an item is examined to ensure that the item measures what it is intended to measure. The qualitative data from the cognitive interviews strengthened the content validity of FKD since the participants found the instruction to FKD clear, the participants understood the items in FKD as intended, the participants found the wording in the response options in FKD good and understandable and overall the participants thought that FKD is a good and needed questionnaire. Further the participants' responses to the verbal probing indicated that they had understood the items as intended.

When it comes to the analysis of the results regarding the *criterion validity*, Landis and Koch (1977) propose guidelines for interpreting the Kappa value. The Kappa value can vary from -1.0 to 1.0 where -1.0 indicates opposite opinions between two coders, 0.0 indicates no association and 1.0 indicates perfect association. Different values of Kappa described by Landis and Koch (1977) pinpoints the strength of agreement; $K < 0.00$ poor, $K = 0.00-0.20$ slight, $K = 0.21-0.40$ fair, $K = 0.41-0.60$ moderate, $K = 0.61-0.80$ substantial and $K = 0.81-1.00$ almost perfect. Using the benchmarks from Landis and Koch (1977), three of the selected pairs of items in FKD and QASD showed a fair association and one pair showed a moderate association. According to Streiner and Norman Geoffrey (2008) are Kappa values below 0.60 or even 0.75 not acceptable. However the results from Spearman's rank correlation coefficient showed high significant correlations in all of the four pairs of items from FKD and QASD. This indicates that the two questionnaires may measure the same phenomena, in other words communicative participation. In sum the results from the used measures of agreement (Cohen's Kappa and Spearman's correlation coefficient) were unexpectedly diverse. The authors specifically find the Kappa values surprisingly low since the selected pairs of items from both questionnaires are very similar. The authors believe that the low Kappa value may depend on both the response options and the design and similarity of the items in the questionnaires. The response options may not be totally comparable because the wording is different in the two questionnaires. An example of this is the response option A little (Litegrann) in FKD compared to Partly false (Stämmer ibland) in QASD. The participants may have understood the response options differently because of this difference. Furthermore, since the items in FKD are questions and the items in QASD are statements it is understandable that the two questionnaires contain different response options. The authors believe that this may affect the measures of accordance between the two questionnaires when using Cohen's Kappa, which measures exact agreement. Spearman's rank correlation coefficient, on the other hand, measures correlation independent of how exact the agreement is, and thus gave higher values.

The results from the current study indicate that FKD measures communicative participation since FKD showed a strong content validity and the criterion validity of FKD was partly strong. The reliability was studied by investigating the *internal consistency* in both FKD and QASD. The results indicate that both FKD and QASD separately had a high internal consistency and also that FKD and QASD

together had a high internal consistency. This indicates that both questionnaires separately and together measure the same phenomena.

Obviously, one needs to interpret the quantitative results of the current study with caution because of the small number of participants. However, the number is in accordance with recommendation for qualitative studies with the use of cognitive interviews, which should involve 10-15 participants according to Willis (2005). Moreover the qualitative results may help to verify the quantitative results to make a more certain statement about the validity of FKD. According to Svartdal (2010) quantitative and qualitative approaches often complement each other. The authors used both qualitative and quantitative methods to strengthening the validity of FKD.

The participants in the current study were recruited from three different hospitals to attempt to achieve a width among the participants regarding geographic spread and social and economic status. Individuals with Parkinson's disease or atypical parkinsonism were included in the study because dysarthria is a common symptom seen in these patient groups (Hartelius et al., 2008). Individuals with dysarthria often experience restricted participation in various life situations (Yorkston & Baylor, 2011) and in particular the communicative participation is affected (Miller & Hartelius, 2011). To ensure that the participants had experienced several situations in which their communication difficulties may have affected the communicative participation, the authors decided that the participants must have had Parkinson's disease or atypical parkinsonism in more than a year and mainly live at home. Fully users of Alternative and Augmentative Communication (AAC) were excluded from the study because they may have had difficulties in participating in the sessions. Individuals with documented cognitive loss and/or acquired language disorders were also excluded since cognitive loss and acquired language disorders may lead to misleading results. Two of the participants had another native language than Swedish. The authors consider that including individuals with another native language than Swedish can be seen as an advantage in the current study. The idea is that FKD should be understandable even for individuals with another native language than Swedish. This may strengthen the external validity of the study.

When it comes to the relation between communicative participation and dysarthria the short instructions for the scoring of CPIB and FKD describes that high scores indicate less interference in communicative participation. According to these directions the authors to the current study interpret the results from the participant group's total score on FKD ($M = 97.25$, $sd = 33.12$) as that the group's communicative participation is affected due to their conditions. These results are consistent with earlier findings described in Miller and Hartelius (2011), that communicative participation is affected in individuals with dysarthria. In the present study two participants differed from the other participants concerning the relationship between dysarthria severity and total score on FKD. These are D3 and D12. D3 had mild dysarthria and scored 40 on FKD, which indicates that D3 experience interference in communicative participation. Only participant D5

scored lower on FKD with a total score of 34. This participant had severe dysarthria. D12 had severe dysarthria and scored 119 on FKD, which indicates that D12 experienced less interference in communicative participation. The participant who scored closest to D12 was D1 who scored 121 and had mild dysarthria. The findings indicate that severe dysarthria may not always implicate high interference in communicative participation. This is in accordance with Hartelius et al. (2008) where conclusions showed that there appears to be no clear-cut relationship between individuals' severity of dysarthria and how they perceive their communicative difficulties. Results in the current study also indicated a wide range between the participants' individual total scores, ranging from 34 to 134 (minimum score = 0, total score = 138). These results can be interpreted as that it is a great inter individual difference between how persons with dysarthria experience their communicative participation. The heterogeneity of results indicates that in order to understand and meet the communicative needs of people with motor speech disorders, an analysis of their communicative participation is needed.

Finally, the authors did not find any evident relationship between years of perceived speech difficulties and total score on FKD among the participants. For example D1 and D12 had a similar total score on FKD. D1 scored 121 and D12 119 but their years of perceived speech problems differed quite a bit. D1 has perceived speech problems for a year and D12 has perceived speech problems for ten years. Comparing their total score on FKD with years of perceived speech problems indicated that the duration of experienced speech problems may not implicate high interference in communicative participation.

The authors are aware that testing the revisions on only one participant is a limitation in the study. This was primarily caused by the limited timeframe of the study. At least one more participant would have been desirable. Despite this, the authors believe that even if more interviews were conducted it would probably not have changed the result, because the minor revisions that were made did not concern understanding but rather to simplify and clarify items.

FKD needs to be tested on more individuals to ensure that the Swedish translation corresponds to CPIB. As Yorkston and Baylor (2011) stress the importance of further testing of CPIB in people with other communication disorders, the authors to the current study also propose further testing of FKD in individuals with other communication disorders to address a broader group.

References

- Baylor, C., Yorkston, K., Eadie, T., Miller, R. & Amtmann, D. (2009). Developing the Communicative Participation Item Bank: Rasch Analysis Results From a Spasmodic Dysphonia Sample. *Journal of Speech, Language, and Hearing Research*, 52, 1302-1320.

- Beatty, P. C., & Willis, G. B. (2007). Research Synthesis: The Practice of Cognitive Interviewing. *Public Opinion Quarterly*, 71(2), 287-311.
- Conrad, F. & Blair, J. (1996). *From impressions to data: increasing the objectivity of cognitive interviews*. Washington DC: Proceedings of the Survey Research Methods Section of the American Statistical Association.
- Conrad F., Blair J. & Tracy E. (1999) Verbal reports are data! A theoretical approach to cognitive interviews. *Proceedings of the Federal Committee on Statistical Methodology Research Conference, Tuesday B Sessions*, Arlington, VA, pp. 11–20.
- Donovan, N. J., Velozo, C. A., Rosenbek, J. C., Okun, M. S. & Sapienza, C. M. (2005). Developing a measure of communicative effectiveness for individuals with Parkinson's disease. *Movement Disorders*, 20(S10), 92.
- Drennan, J. (2003). Cognitive interviewing: verbal data in the design and pretesting of Questionnaires. *Journal of Advanced Nursing*, 42(1), 57–63.
- Dykstra, A. D., Hakel, M. E. & Adams, S. G. (2007). Application of the ICF in Reduced Speech Intelligibility in Dysarthria. *Seminars in Speech and Language*, 28 (4), 301-311.
- Embretson, S.E. & Reise, S. P. (2000). *Item Response Theory for Psychologists*. Mahwah, NJ: Erlbaum.
- Fagius, J. & Aquilonius, S. (Eds) (2006). *Neurologi*. (4th, [rev.] Edition) Stockholm: Liber.
- Frattali, C., Thompson, C. K., Holland, A. L., Wohl, C. B. & Ferketic, M. K. (1995). American Speech-Language-Hearing Association Functional Assessment of Communication Skills for Adults. Rockville, MD: American Speech-Language Hearing Association.
- Grant E., Turner-Roan K., Daugherty S., Li T., Eckenfels E., Baier C., McDermott M. & Weiss K. (1999). Development of a survey of asthma knowledge, attitudes and perceptions: the Chicago community asthma survey. *Chest: the Cardiopulmonary and Critical Care Journal*, 116, 178–183.
- Hartelius, L., Nettelbladt, U. & Hammarberg, B. (Eds) (2008). *Logopedi*. (1st Edition) Lund: Studentlitteratur.
- Hartelius, L., Elmberg, M., Holm, R., Lövberg, A-S. & Nikolaidis, S. (2008). Living with Dysarthria: Evaluation of a Self-Report Questionnaire. *Folia Phoniatrica et Logopaedica*, 60, 11-19.
- Hartelius, L., Gustavsson, H., Åstrand., M. & Holmberg, B. (2006). Perceptual Analysis of Speech in Multiple System Atrophy and Progressive Supranuclear Palsy. *Journal of Medical Speech-Language Pathology*, 14, 241-147.
- Hartelius, L., Lindberg, J., Peterson, L. & Saldert, C. (2011). Perceived Changes in Communicative Interaction in Atypical Parkinsonism. *ISRN Neurology*. 1-7.
- Hartelius, L. & Miller, N. (2011). The ICF Framework and Its Relevance to the Assessment of People with Motor Speech Disorders. Lowit, A. & Kent, R. D. (Eds), *Assessment of motor speech disorders*. (1-19). San Diego, USA: Plural Publishing.
- Knafl, K., Deatrick, J., Gallo, A., Holcombe., G, Bakitas, M., Dixon, J & Grey, M. (2007). The Analysis and Interpretation of Cognitive Interviews for Instrument Development. *Research in Nursing & Health*, 30, 224-234.

- Landis, J. R. & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174.
- Maclure M. & Willett W. C. (1987). Misinterpretation and misuse of the kappa statistic. *American Journal Epidemiol.* 126(2), 161-169.
- Miller, N. & Hartelius, L. (2011). Acquired Motor Speech Disorders. Hilari, K. & Botting, N. (Eds), *The impact of communication disability across the lifespan.* (187-206). :J R Press Ltd.
- Miller N., Noble E., Jones D. & Burn D. (2006). Life with communication changes in Parkinson's Disease. *Age and Ageing*, 35 (3), 235-239.
- Parkinson's Disease Foundation. (2008). *Understanding Parkinson's Plus Syndromes and Atypical Parkinsonism.* Retrieved 2013-04-08 from http://www.pdf.org/en/about_pd
- Paul, D., Frattali, C. M., Holland, M. L., Thompson, C. K., Caperton, C. J., & Slater, S. C. (2004). *Quality of Communication Life Scale.* Rockville, MD: American Speech-Language-Hearing Association.
- Pring, T. (2005). *Research Methods in Communication Disorders.* London: Whurr Publishers Ltd.
- Schrag, A., Ben-Shlomo, Y. & Quinn N.P. (1999). Prevalence of progressive supranuclear palsy and multiple system atrophy: a cross-sectional study. *The Lancet*, 354(9192), 1771-1775.
- Streiner, D. L. & Norman Geoffrey, R. (2008). *Health measurement scales: a practical guide to their development and use.* (4th Edition). Oxford: Oxford University Press.
- Svartdal, F. (2010). *Psykologins forskningsmetoder.* Stockholm: Liber.
- Walshe, M. & Miller, N. (2011). Living with acquired dysarthria: the speaker's perspective. *Disability and Rehabilitation*, 33(3), 195-203.
- Wild, D., Grove, A., Martin, M., Eremenco, S., McElroy, S., Verjee-Lorenz, A. & Erikson, P. (2005). Principles of Good Practice for the Translation and Cultural Adaptation Process for Patient-Reported Outcomes (PRO) Measures: Report of the ISPOR Task Force for Translation and Cultural Adaptation. *Value in Health*, 8(2), 94-104.
- Willis, G.B. (1999). *Cognitive Interviewing, A "How To" Guide, Reducing Survey Error through Research on the Cognitive and Decision Processes in Surveys: Meeting of the American Statistical Association.* Rockville, MD: Research Triangle Institute.
- Willis, G.B. (2005). *Cognitive interviewing : a tool for improving questionnaire design.* Thousand Oaks, CA : Sage Publications.
- World Health Organization. *International Classification of Function, Disability and Health.* Retrieved 2013-04-08 from: <http://www.who.int/classifications/icf/en/>
- Yorkston, K. M. & Baylor, C.R. (2011). Measurement of Communicative Participation. Lowit, A. & Kent, R. D. (Eds), *Assessment of motor speech disorders.* (123-139). San Diego, USA: Plural Publishing.
- Yorkston, K. M., Baylor, C. R., Dietz, J., Dudgeon, B. J., Eadie, T., Miller, R. M. & Amtmann, D. (2008). Developing a scale of communicative participation: A cognitive interviewing study. *Disability and Rehabilitation*, 30(6), 425-433.

- Yorkston, K. M., Beukelman, D. R., Strand, E. A. & Hakel, M. (2010).
Management of motor speech disorders in children and adults. (3rd Edition)
Austin, Tex.: Pro-Ed.
- Yorkston K. M., Bombardier C.: The Communication Profile for Speakers with
Motor Speech Disorders. Unpublished Questionnaire. Seattle, University of
Washington, 1992.