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INTRODUCING FREEZING OF GAIT QUESTIONNAIRE (FOG-Q) FOR TOIMIA NETWORK – Psychometric evaluation of the New Freezing Of Gait Questionnaire and suggestion for Finnish translation

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Keywords: Parkinson´s disease, validity, reliability, responsiveness, freezing of gait questionnaire (FOGQ), the new freezing of gait questionnaire (NFOG-Q), TOIMIA

The purpose of this thesis is to perform an outcome measurement tool evaluation of the New Freezing of Gait Questionnaire (NFOG-Q) for TOIMIA network. A psychometric evaluation of the NFOG-Q and suggestion for Finnish translation will be made for TOIMIA network. The aim is to standardize and develop the measurement and evaluation conventions of functional ability.

Furthermore the aim of this thesis is to offer that functional ability can be measured with more reliability and with appropriate methods.

Theoretical information studied in this thesis included information about Parkinson´s disease and freezing of gait questionnaire. Furthermore measurement in rehabilitation and physiotherapy were considered in relation to freezing of gait questionnaire. Terms such as validity, reliability and responsiveness were discussed. To conclude, process of making the psychometric evaluation of the new freezing of gait questionnaire was discussed.
The NFOG-Q can be used in different ways: in clinical work, research or studies.

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1 INTRODUCTION

Measurements form the basis of diagnosis, prognosis and evaluation of results of medical interventions. They are central to clinical practice and medical and health research. Measurement should be well designed and appropriate. In decision making it is important to know that the measure used is appropriate for its purpose. In addition it is necessary to know how the measurement compares with similar measures, and how to interpret the produced results. (de Vet et al. 2011,1)

Measurement properties for a proper measurement instrument consist of validity, reliability, responsiveness and ability. A measure should provide accurate results to clinicians and researchers. Accuracy is defined by a measurer´s measurement properties. (Finch, Brooks, Stratford, Mayo 2002, 27)

TOIMIA network was formed in 2007 and consists of expert groups. Main aim of TOIMIA network is to improve quality of measurement and harmonize the measures and terminology. (Website of TOIMIA 2012)
All psychometric evaluations of the measurement tools in the database have been evaluated by experts. It is an evaluation of how well the measurement tool applies to be used in the chosen use. The evaluation is based on the information of the measurement tools validity, reliability and responsiveness. (Website of TOIMIA 2012)
Purpose of my thesis is to perform an outcome measurement tool evaluation of the New Freezing of Gait Questionnaire for TOIMIA network.

2 PUPROSE AND AIM OF THESIS

The purpose of this thesis is to perform an outcome measurement tool evaluation for the New Freezing of Gait Questionnaire (NFOG-Q) for TOIMIA network. A psychometric evaluation of the NFOG-Q and suggestion for Finnish translation will be made for TOIMIA network.

Because there is a need for valid and reliable measurement tools in social and health care, furthermore the aim of this thesis is to offer a valid measurement tool. TOIMIA measurement database is an important step towards uniform practices in the measurement of functioning in Finland.

3 PARKINSON´S DISEASE

3.1 Epidemiology

After Alzheimer´s disease, Parkinson´s disease is the second most common neurodegenerative disease. In Europe approximately 1,2 million people live with Parkinson´s disease (Olesen et al. 2012, 155-162). Incidence is 1,5 times higher in males than it is in females (de Lau et al. 2009, 63-68). Parkinson´s disease is a middle and elderly age disease (Soinila, Kaste, Somer 2006, 216). Most diagnoses of Parkinson´s disease are made in persons over the age of 60 years (von Campenhausen et al. 2005, 473-490). The prevalence increase with age, from about 1,4% over age 60 to about 4,3% over age 85 (de Lau et al. 2009, 63-68; von Campenhausen et al. 2005, 473-490).

In Europe the economic impact of Parkinson´s disease is massive with an estimated annual cost of 13,9 billon euro (Olesen et al. 2012, 155-162; Lindgren et al. 2005, 68-73). The largest component of direct cost is usually inpatient care and nursing home costs (Findley 2007, 8-12). Costs increase with disease progression (Findley 2007, 8-12; Keranen et al. 2003, 163-168); from 5000 euro in the early stage of the disease, to over 17 000 euro in the end stage (Bloem et al. 2010).

3.2 Pathophysiology

Cause of the disease is unknown. Main pathophysiology is that dopamine-producing cells in the substantia nigra degenerate progressively (Elbaz & Moisan, 2008, 454-460). Both genetic and environmental factors are thought to affect the risk of an individual to develop Parkinson´s disease (Crosiers et al. 2011, 131-141). A typical neuropathological change in Parkinson´s disease is the detriment of nerve cells and Lewy bodies in substantia nigra that appear into the nerve cells and in other nucleus of the brain stem. What needs to be noticed that unlike in Parkinson´s disease, in Lewy body´s disease those are found also in the cerebral cortex of cerebrum. (Soinila, Kaste, Somer 2006, 218)

3.3 Symptoms, medication and treatment

Parkinsonism means a syndrome where rest tremor, hypokinesia, rigidity and postural changes are typical. To diagnose Parkinson´s disease patient should have at least two of these features (Soinila, Kaste, Somer 2006, 216). The diagnosis is based on clinical criteria (Jankovic 2008, 368-376). It includes bradykinesia and at least one of the following: rigidity, rest tremor or postural instability and the absence of Red Flags for diagnosis (Aerts et al. 2012, 77-87). No test or assessment can differentiate between Parkinson´s disease and Parkinsonism. With 100% certainty Parkinson´s disease can only be diagnosed via post-mortem examination of the brain (Hughes et al. 1992, 181-184; Hughes et al. 2001, 1497-1499).

Current therapeutic strategies are focused on symptom control and compensatory strategies. A variety of drugs and rehabilitation are part of symptomatic treatments (Bloem et al. 2010). Medication is the first choice in care of people with Parkinson´s disease. The aim is to correct the neurotransmitter imbalance within the basal ganglia circuitry.

Levodopa is still used in treatment offering the best symptomatic relief of rigidity, bradykinesia and tremor (Katzenschlager et al. 2008, 474-480).

In a study by Fahn et al. (2004) it was suggested that levodopa either slows the progression of Parkinson´s disease or has a prolonged effect on the symptoms of the dis-

ease. The possible long-term effects of levodopa on Parkinson´s disease still remain uncertain (Fahn et al. 2004, 1).
Dopamine agonists are used as treatment medication in the early stages of the disease in young onset patients who are more prone to develop motor complications. Selegiline, amantadine, anticholinegics and beta-blockers are other medication used in Parkinson´s disease treatment but are not considered as first choice medication due to modest antiparkinsonian efficacy. (Nutt et al. 2011, 734-744)

One alternative option for treatment is deep brain stimulation (DBS). It is a neurosurgical treatment that is applied to three targets. The ventral intermediate nucleus of the thalamus DBS improves contralateral tremor. The globus pallidus internas and the subthalamic nucleus DBS improve off-motor phases and dyskinesias. The deep brain stimulation procedure has the unique advantage of reversibility and adjustability over time. (Pollak et. al. 2002, 1)

3.4 Disease progression

Typical for Parkinson´s disease is a slow start of the symptoms and deterioration during months or years. The first symptoms can be very non-specific: tiredness, muscle pain, depression, decreasement in voice or difficulties in writing. A clearer symptom of the disease is rest tremor, which is in the beginning occasional and often only in one extremity, mostly in upper extremity. Symptoms in the beginning are almost always only bilateral. (Soinila, Kaste, Somer 2006, 218)
Impairments of functions, activity limitations and participation restriction vary between people with Parkinson's disease and are unpredictable. One scale that is used to classify people with Parkinson´s disease based on disease progression is the Hoehn & Yar staging scale (H&Y). However this tool is not linear and does not include non-motor functioning. (Goetz et al. 2004, 1020-1028)
Women have a slightly more faster disease progression than men and they also experience motor complications, for example motor fluctuations, dyskinesias and freezing of gait earlier (Sato et al. 2006, 1384-1395; Garcia-Ruiz et al. 2012, 1-5).

3.5 Quality of life

Parkinson´s disease does threaten quality of life more severely than for example stroke or arthritis (Schrag, Jahanshahi, Quinn, 2000, 308-312). In each phase of the disease the loss of quality of life increases. Depression and psychosocial wellbeing are the non-motor impairments people with Parkinson´s disease face. These are important determinants of quality of life, which have a dramatic impact on the patient´s quality of life together with motor impairments. This usually happens in the later phases of the disease (Schrag, Jahanshahi, Quinn, 2000, 308-312; Visser et al. 2008, 1580-1587). Approximately 40-70% of patients with Parkinson´s Disease suffer from depression in some point of the disease (Kuikka, Pulliainen, Hänninen 2002, 276-277).

In epidemiological studies the prevalence of dementia in Parkinson´s Disease is 30-40%. Patients who are older, who´s illness starts in later age and who´s symptoms rigidity has a control have a high risk of having dementia. Dementia related to Parkinson´s disease varies usually from mild to moderate and a typical symptom is the worsening of gradual loss of action guiding. About 50 % of patients who have dementia connected to Parkinson´s Disease are diagnosed with a parallel brain change caused by another disease usually either Alzheimer´s disease or Lewy body´s disease. (Kuikka, Pulliainen, Hänninen 2002, 276-277)

Difficulties in turning and falls are movement related impairments and limitations which affect a Parkinson´s patients quality of life. (Schrag, Jahanshahi, Quinn, 2000, 308-312; Visser et al. 2008, 1580-1587; Rahman et al. 2008, 1428-1434)

3.6 Impairments, limitations and restrictions in Parkinson´s disease

The classification system of the International Classification of Functioning, Disability and Health can be used to describe daily functioning of Parkinson´s Disease patients. Benefits of ICF are that it provides a general language and a baseline for the understanding and describing health and health-related problems. In ICF three levels of human functioning are classified. First ones are physiological and psychological functions (Body functions) and anatomical parts (Body structures). Second one is execution of a task or action (Activities). Third one is involvement in a life situation

(Participation). Either personal (age, gender, experiences and interests) or environmental (physical, social and attitudinal environment) factors are can be contextual factors, which can be a facilitator or a barrier. (Website of World Health Organization, 2007)

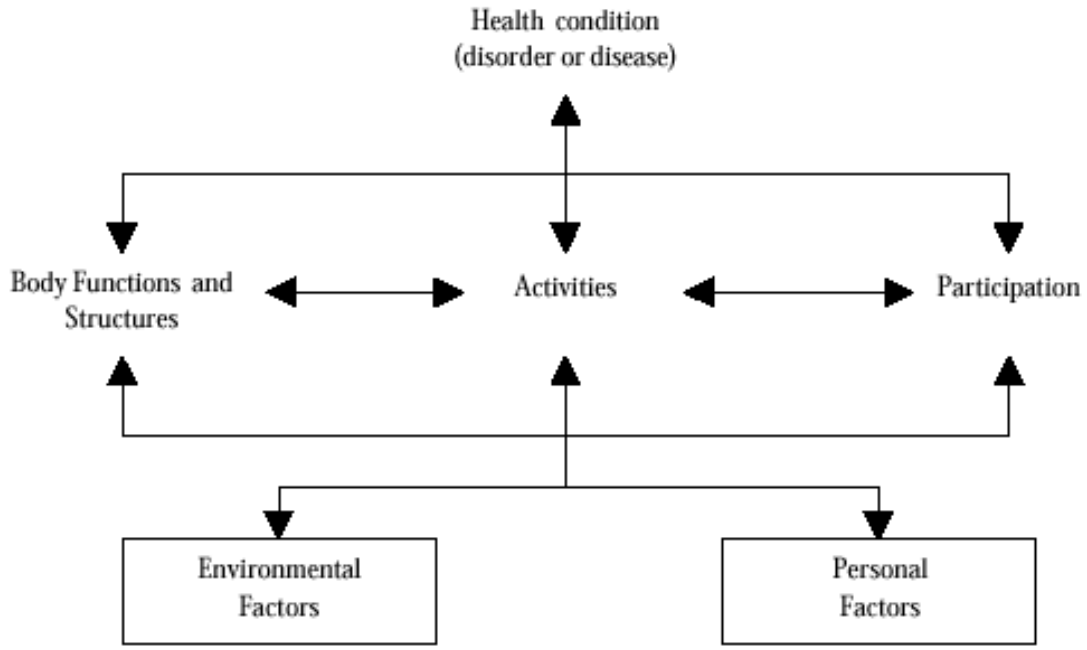

Table 1. ICF: functioning as outcome of interactions between health conditions and contextual factors (Website of World Health Organization, 2007)

Bradykinesia is the most characteristic impairment in motor function, present in 77% to 98% of person with Parkinson´s disease (Gelb, Oliver, Gilman, 1999, 33-39). Tremor at rest occurs in about 70% at times of diagnosis and rigidity is shown in 89% to 99% (Gelb et al. 1999, 33-39). In addition impaired balance reactions and altered dynamic postural control during turning are part of impairments in motor functions in people with Parkinson´s disease (Song et al. 2012). Olfactory dysfunction, REM sleep behaviour disorder, constipation, depression, dementia, urinary incontinence, sexual dysfunction, anxiety, apathy and pain are examples of non-motor impairments (Ziemssen, Reichmann, 2007, 323-332; Chaudhuri, Healy, Schapira, 2006, 235-245; Chaudhuri, Naidu, 2008, 33-38). Often these non-motor impairments are being unnoticed because people with Parkinson´s disease are embarrassed to discuss about them. (Chaudhuri et al. 2010, 704-709). According Ray et al (2013),

about 70% of people with Parkinson´s disease experience from non-motor symptoms. Non-motor impairments are responsible for a notable decrease in quality of life (Schrag, Jahanshahi, Quinn, 2000, 308-312).

Impairments in function that are the most problematic to people with Parkinson´s disease include moving and speaking slowly, tremor, rigidity, pain, psychic instability, swallowing, drooling, speech and the fluctuating response to medication. Performance of transfers, dexterity, communication, eating, gait, and gait-related activities are activity limitations that affect mostly the daily life of people with Parkinson´s disease. In addition people with Parkinson´s disease might become inactive (Nisenzon et al., 2011, 89-94; Politis et al., 2010, 1646-1651; Wimmers, Kamsma, 1998, 54-61).

3.7 Core areas of physiotherapy

Aim of physiotherapy is to support people with Parkinson´s disease in maintaining or improving functional independence, safety and well-being (Meek 2011). Physical capacity, transfers, manual activities, balance and gait are essential areas of people with Parkinson´s disease physiotherapy (Keus et al. 2007, 451-460; Morris 2000, 578-597).

There is some evidence of short term benefit of physiotherapy in the treatment of Parkinson´s Disease. All outcomes of the study showed improvement with physiotherapy intervention compared with no intervention. Significant benefits after physiotherapy intervention were observed only for the gait outcomes of speed, the two-or six-minute walk test and the Freezing of Gait questionnaire. (Tomlinson et al. 2013, 23)

4 MEASUREMENTS IN REHABILITATION AND PHYSIOTHERAPY

Physiotherapists who make the treatment plan must be able to explain their decisions and discuss the quality of measurements. A challenge for physiotherapists is that without a scientific basis for the assessment or measurement, we face the future independent unable to communicate with one another, unable to document treatment efficacy and unable to demand scientific credibility for our profession. Physiotherapy will always remain partially an art, like medicine and law, but without measurements it can be nothing more than an art. If measurements show validity and reliability they give information and if not, they give a false impression of meaningfulness. If someone has not demonstrated measurements to give information (they have reliability and validity) they may actually mislead us. (Rothstein 1985, 1)

In literature often synonyms are used for the same measurement property. In other words different definitions are used for the same property. For example responsiveness has many definitions, which in the end can lead to different conclusions. The variation in terminology and definitions was one of the reasons to start the COSMIN study. The aim was to reach mutual agreement among various experts, with different backgrounds, about important measurement properties, most suitable terms, definitions and assessment. (de Vet et al. 2011, 2-3)

Table 2. COSMIN taxonomy of relationships of measurement properties (Website of COSMIN 2010)

4.1 Validity

The COSMIN panel defines validity as the level to which an instrument measures the construct it is purposed to measure (de Vet et al. 2011, 150). Types of validity are face validity, construct validity, content validity, concurrent validity and predictive validity. Construct and content validity are considered as forms of theoretical validity. Concurrent and predictive validity are considered as criterion-related validities (Rothstein 1985, 17-24).

Face validity is based on the personal opinions of either the tester or the testee. Therefore face validity is the lowest form of validity because it reflects what a test appears to do what it is supposed to do (Rothstein 1985, 17).
Construct validity means the idea that a measurement reflects what we want it to measure (Rothstein 1985, 18). It is used when gold standard is lacking, to provide evidence of validity (de Vet et al. 2011, 169).
Content validity cannot exist without content validity (Rothstein 1985, 23). Content validity means the degree to which the content of a measurement tool is a reflection of the construct to be measured (de Vet et al. 2011, 169).

Concurrent validity means that it can be defined what happens at the time of the test, it cannot predict what will happen. Concurrent validity treats with whether a disruption is justifiable at the present time. Predictive validity means that it allows to measure something and conclude something about the future. (Rothstein 1985, 24)

4.2 Reliability

The COSMIN panel defines reliability as the level to which the measurement is free from measurement error (de Vet et al. 2011, 96). Reliability is a key requirement of all measurements in clinical practice and research. It´s importance is usually noticed when repeated measurements are performed. Repeated measurements may show changes arising from: measurement instrument; persons performing the measurement; patients undergoing the measurements; or circumstances under which the measurements are taken (de Vet et al. 2011, 96). Types of reliability are intra-tester reliability, inter-tester reliability, parallel forms of reliability and internal consistency (Rothstein 1985, 10).

Intra-tester reliability or stability over time means that the same person measures the same thing on different occasions. One person performs the multiple measurements, meaning that a period of time must go by between test sessions (Rothstein 1985, 10-11). Study design has two or more assessments over an interval (Finch, Brooks, Stratford, Mayo, 2002, 29).

Signifying that this type of reliability reflects stability over time (Rothstein 1985, 10-11). In addition it reflects stability of clients responses over time (Finch, Brooks, Stratford, Mayo, 2002, 29)

Inter-tester reliability means that different persons do same measurements. This form of reliability is especially important in clinical practice (Rothstein 1985, 12). Raters are included in the measurement process. Depending on the construct of the study errors might be due to raters or clients. For example if raters observed the same client, the raters would be the source of error. If each rater observed a different performance on the same client, both the raters and the clients would have an effect to the error (Finch, Brooks, Stratford, Mayo 2002).

Parallel forms of reliability means the use of multiple forms in tests. It can be justified when it can be shown that all forms lead to an approximately equal score when the test is taken by the same person (Rothstein 1985,13).

In internal consistency studies parallel assessments of clients are done at an instant in time. Internal consistency is used when multi-item measures are summarized into a single score (Finch, Brooks, Stratford, Mayo 2002).

4.3 Responsiveness

In medicine one goal is to cure patients. Assessing if the patient´s disease status has changed over time is an important objective of measurements in clinical practice and research. The COSMIN panel defines responsiveness as the ability of an instrument to notice change over time in the construct to be measured. The main idea is that you want to show that the instrument can measure the change for example in a patient group, which is expected to change on the construct to be measured. Assessment can be done in patients with a chronic disease who are known to become weaker over time, or in a study in which patients are given a treatment. The time between the two measurements can be short or long. (de Vet et al. 2010, 202; de Vet et al. 2011, 202)

5 FREEZING OF GAIT QUESTIONNAIRE

5.1 Freezing of Gait Questionnaire (FOG-Q) and the New Freezing of Gait Questionnaire (NFOG-Q)

Freezing of gait is a common, dominant and disabling symptom in Parkinson´s disease (Giladi et al. 1992, 333–9). It interferes with daily functioning and quality of life. Assessment of FOG is difficult due to the episodic nature of this symptom. In addition the influence of mental and environmental factors make assessing FOG difficult (Giladi et al. 1999, 165). The consequences of FOG on patients´ function and quality of life are a reason to assess this symptom more in detail. The purpose of FOGQ is to assess gait symptoms and falls (Giladi et al. 1999, 166).

FOG-Q contains six questions about gait and falls. The six questions assess the following areas: gait in daily living; frequency and severity of FOG; frequency of festinating gait and its relation to falls; frequency and severity of falls (Giladi et al. 1999, 166). A time scale is used in FOG-Q to reflect severity of FOG. A freezing episode of 1-2 seconds in duration will be conceptualized as mild/not disturbing episode. In contrast a severe and disabling episode would be a freezing episode lasting over 30 seconds. In a study by Giladi et al. (1999) FOG-Q was found to be highly reliable with Cronbach alpha 0.94, assessing FOG. There was only moderate correlation with the ADL´s and motor parts of the UPDRS (Unified Parkinson´s Disease Rating Scale) (0.43 and 0.40, respectively) (Giladi et al. 1999,167).

The aim of the New Freezing of Gait Questionnaire is to assess both the clinical aspects of FOG as well as its following aspects on quality of life. The new questionnaire includes a short video that shows a number of FOG examples. This is due to increase the likelihood of accurate self-assessment by patients. In a study by Shine et al. (2012), the results showed that the addition of the video increased the severity of the condition. However it did not add to the sensitivity or specificity of the tool regards to identifying FOG. The NFOG-Q has become a valuable tool for assessing freezing. The NFOG-Q focuses a single question to act as a screening tool for the presence or absence of FOG. (Shine et al. 2011, 25-26)

5.2 Linking NFOG-Q to the ICF

In a report by Cieza et al. (2005) an updated version of the International Classification of Functioning, Disability and Health (ICF) linking rules published in 2002 was made. They illustrated how the rules are applied to link technical and clinical measures, health-status measures and interventions to the ICF.

To link health-status measures to the ICF three specific linking rules have been established. One specific linking rule has been created to link technical and clinical measures and interventions. In total eight linking rules have bee established for use with all different outcome measures and with interventions.

Conclusion of the report was that the updated linking rules will allow researchers systematically to link and compare meaningful concepts contained in them. In addition this should turn out useful in selecting the most appropriate outcome measures among a number of candidate measures for the applied interventions. (Cieza et al. 2005, 212)

NFOG-Q is linked to ICF by codes b770 gait pattern functions, d4500 walking short distances and b1471 quality of psychomotor functions.

6 PERFORMING THE TOIMIA MEASUREMENT EVALUATION FOR FOG-Q

6.1 Measurement tool identification, application information and description

There are currently two validated questionnaires to assess FOG: the Freezing of Gait Questionnaire and the New Freezing of Gait Questionnaire. The Freezing of Gait Questionnaire assess both freezing of gait, as well as global gait disturbance (Giladi et al. 2000, 165). The New Freezing of Gait Questionnaire assesses both the clinical aspects of FOG as well as its following impairments on quality of life (Shine et al.

2011, 25-26). In a study of Parkinson´s disease patients with self-reported FOG by Shine et al. (2012) it was found that neither tests score correlated with the severity of freezing episodes during actual walking (Moore et al. 2013, 1)

Shine et al. (2011) the results stated that both FOG questionnaires are unsuitable to assess FOG severity and may in fact provide an inaccurate estimate of FOG severity. This may be exacerbated in patients with more advanced disease who spend longer periods in the "off" state. Due to the potential limitations of questionnaire ratings there is an instant need to for the development of new tools that can be used to objectively assess FOG (Shine et al. 2011, 28).

Most commonly FOG is most severe in most patients out of the doctor´s office. Gait lab makes FOG a difficult symptom to evaluate objectively. The episodic nature of FOG and the strong effect of behavioural factors as well as its response to "motor tricks" make the evaluation further complicated (Giladi et al. 1999, 167).

Freezing of gait can be assessed by clinical and instrumental methods. Clinical examination requires experience and may not reveal FOG even for cases confirmed by the medical history. The advantage of clinical examination is being available to most clinicians. Instrumental methods have an advantage in that they may be used for ambulatory surveillance (Popovic et al. 2010,883). Different measurement systems that may be used when monitoring gait with freezing episodes are video (Hausdroff et al. 2003, 187-194; Moore, MacDougall, Ondo, 2008, 340-348), insole forces (Hausdorff et al. 1998, 428-437) and accelerometers (Moore, MacDougall, Ondo, 2008, 340-348; Moore et al., 2007, 200-207; Weiss et al., 2009, 389; Popovic et al., 2010,883).

Original usage meaning of FOG-Q is to assess gait in daily living, and frequency and severity of FOG. In addition FOG-Q assess frequency of festinating gait and its relation to falls, frequency and severity of falls (Giladi et al. 1999, 166).

6.2 Description of measurement tool

Freezing of gait is a common and disabling symptom in Parkinson´s disease (Giladi et al. 1992, 333–9). Purpose of FOG-Q is to assess freezing of gait, as well as gait disturbances (Giladi et al. 2000, 165). Purpose of New FOG-Q is to assess both the clinical aspects of FOG as well as its following impairments on quality of life (Shine et al. 2011, 25-26).

FOG interferes with daily functioning and quality of life. Assessment of FOG is difficult due to the episodic nature of this symptom and due to the influence of mental and environmental factors (Giladi et al. 1999, 165). The consequences of FOG on patients´ function and quality of life are a reason to assess this symptom more in detail (Giladi et al. 1999, 166). For information collection FOG-Q contains 6 questions about gait and falls (Giladi et al. 1999, 166). A time scale is used in FOG-Q to reflect severity of FOG. FOG-Q and New FOG-Q are currently the two validated measurement tools to assess FOG (Giladi et al. 2000, 165).

NFOG-Q is part of European Guidelines for Physiotherapy in Parkinson´s Disease. It is the 1st European Guidelines for Physiotherapy in Parkinson´s Disease. In the guideline there is available evidence-informed material including evidence from controlled clinical trials and expert opinion from physiotherapists across Europe. The document is agreed upon by the professional association from 19 European countries. (Keus SHJ, Munneke M, Graziano M, et al. 2014)

FOG-Q contains six questions about gait and falls. The six questions assess the following areas: gait in daily living; frequency and severity of FOG; frequency of festinating gait and its relation to falls; frequency and severity of falls. A time scale is used in FOG-Q to reflect severity of FOG. A freezing episode of 1-2 seconds in duration will be conceptualized as mild/not disturbing episode. In contrast a severe and disabling episode would be a freezing episode lasting over 30 seconds. (Giladi et al. 1999, 166-167)

Purpose of New FOG-Q is to assess both the clinical aspects of FOG as well as its following impairments on quality of life (Shine et al. 2011, 25-26). The questionnaire

contains five questions about freezing of gait. The five questions assess the following areas: duration of freezing episodes also during turning and when initiating the first step (Keus SHJ, Munneke M, Graziano M, et al. 2014).

6.3 Validity, reliability, responsiveness and feasibility of the measurement tool

Nilsson et al. (2010) developed a self-administered FOG-Q, therefore that the tool becomes somewhat time consuming for implementation in clinical practice. In addition it cannot be used for larger scale postal surveys. In the study by Nilsson et al. the postal survey was sent to 282 patients (39% female). 189 participants were left for analyses. According to Nilsson et al. (2010) the N-FOGQ is as reliable and valid as the original administered FOG-Q version. Reliability was 0.93. Construct validity was supported by a correlation pattern very similar to that reported for the original FOG-Q version. This has important clinical involvement when investigating FOG. (Nilsson et al. 2010)

The Brazilian version of the FOG-Q is also a reliable and valid tool to assess FOG. The 107 patients with PD who participated in the study by Baggio et al. (2012) had median age of 62 years. In addition they had a median of 7 years of disease duration, a median of HY stage of 2 and median SE score of 80. The Brazilian version of FOG-Q had high internal consistency and test-retest reliability. Internal consistency measured by Cronbach´s alpha was 0.86. An item analysis indicated that all FOG-Q items contributed to these high reliability values. Test-retest and inter-rater reliability of the FOG-Q total scores were 0.78 and 0.82. This demonstrates that the Brazilian version is also reliable and valid tool to assess FOG in PD. (Baggio et al. 2012)

Nieuwboer et al. (2009) investigated in a study whether NFOG-Q is reliable measure of freezing and whether adding video improved its reliability. Kappa 0.91 indicated that the patients had a very high agreement between their pre- and post-video detec-

tion of FOG. Adding the video had a significant influence on the rating of FOG severity (duration) but not on the estimation of its functional impact. (Nieuwboer et al. 2009)

Face validity and content validity have not yet been established for FOG-Q. Concurrent and predictive validity are part of criterion validity. According Giladi et al. (2000) FOG-Q concurrent validity with UPDRS subscales and H&Y varied from poor to excellent with an average of adequate strength. R-values were between 0.05-0.66. (Giladi et al. 2000, 165-170)
Convergent validity and discriminant validity are part of construct validity. Accroding Giladi et al. (2009) adequate correlation was found with UPDRS (Giladi et al. 2009, 655-661). Structural-, known group-, or cross-cultural validity were not found for FOG-Q.

FOG-Q had excellent test-retest reliability with r-values 0.83 for placebo group and 0.84 for two treatment groups, which was assessed at baseline and 10 weeks (Giladi et al. 2009, 655-661). Also intra-rater reliability was excellent (ICC=0.84) (Nieuwboer et al. 2007, 134-140). Internal consistency was excellent with Cronbach alpha 0.96 (Giladi et al. 2000, 165-170)

According Giladi et al. (2009) the results stated that item 3 of the FOG-Q is more sensitive (85,9%) in detecting freezers than item 14 of the UPDRS (44,1%). Item 3 remains sensitive after excluding patients with never and very rare FOG (78,4%) (Giladi et al. 2009, 655-661). Nieuwboer et al. (2009) study results stated that inclusion of general gait items reduces FOGQ specificity.

Few considerations should be noticed when using FOG-Q. Nieuwboer et al. (2009) stated that the lack of a gold standard measure of FOG is the largest drawback of examining the validity of any FOG measure at the present time. They also stated that patients´self-detection may be more reliable than observation by a lay-person (Nieuwboer et al. 2009, 459-463). Giladi et al. (2009) stated that FOG-Q is a sensitive tool for assessment of interventions designed to improve FOG.

7 THESIS PROCESS

The thesis process can be seen in figure 1. The process began in April 2013 with choosing a topic, performing a psychometric evaluation of NFOG-Q for TOIMIA network. A contract was written with TOIMIA. From June 2013 to September 2014 research was done on the topic and writing was started. The thesis was finalized and presented in October 2014.

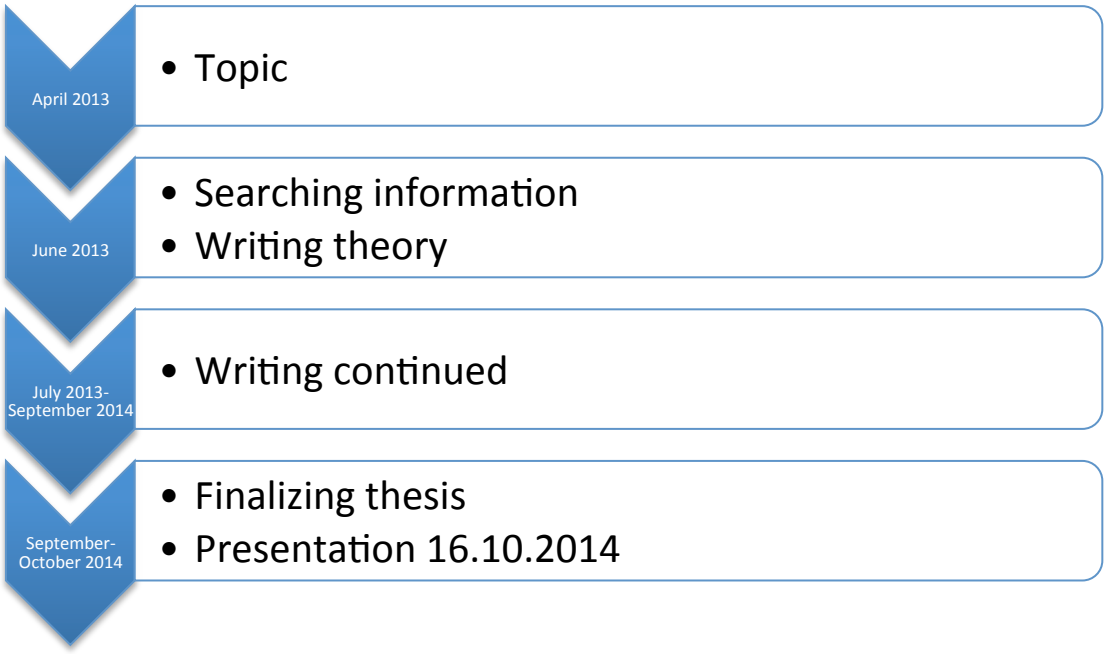

Figure 1. Thesis process

8 DISCUSSION

Topic for this thesis was offered for me by the applied university and my interest in neurological physiotherapy gave me an idea to carry out the thesis in this area. TOIMIA database is growing all the time and NFOG-Q was missing from there when thesis process was started. TOIMIA measurement database is an important step towards uniform practices in the measurement of functioning in Finland. This thesis was carried out in order to perform a psychometric evaluation of NFOG-Q and suggestion for Finnish translation for TOIMIA. The need for valid measurement tools in social and health care exist and therefore I wanted to study measurement tools and especially NFOG-Q more thoroughly.

The penultimate version of the 1st European Guidelines for Physiotherapy in Parkinson´s Disease (2014) gave plenty of material for the thesis work. In the guideline there is available evidence-informed material including evidence from controlled clinical trials and expert opinion from physiotherapists across Europe. In addition several studies were reviewed for this thesis. In a study that was carried out in Sweden a self-administered version of FOG-Q was developed and tested (Nilsson et al. 2010). The present findings of the study were that tFOGQsa is as reliable and valid as the original interview administered FOGQ version.

The high reliability values of Baggio et al. (2012) study indicate that FOG-Q is a reliable and valid tool to assess FOG. In several studies it was stated that FOG is a difficult symptom to evaluate. Evaluation can be further complicated due to different reasons. This should be noticed in the future when using FOG-Q to assess FOG. In addition it should be noticed that FOG clinical examination requires experience and may not reveal already by the medical history confirmed FOG cases.

A follow up survey could be carried out to see how many physiotherapists use NFOG-Q in the field and do they find it useful.

This thesis gave me an opportunity to deepen my knowledge in the field of measurement in physiotherapy, Parkinson´s disease and TOIMIA database. As a future physiotherapist I understand the measurement tool properties and how to construct psychometric evaluations. Moreover, I deepened my knowledge on TOIMIA database and its importance on a national level in standardizing measurement tools. The thesis process gave me an opportunity to create something useful that can be used in practice.

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APPENDIX 1

Lomakkeella kootaan tiedot toimintakyvyn mittaus- ja arviointimenetelmistä (mittareista) TOIMIA-tietokantaa varten (www.thl.fi/toimia/tietokanta/).

Täytetty lomake käsitellään ja hyväksytään TOIMIAn ao. asiantuntijaryhmässä, minkä jälkeen se lähetetään TOIMIAn toimitukseen (susanna.syrjasuo@thl.fi, paivi.sainio@thl.fi) kielentarkistusta varten.

Ohjeita lomakkeen käyttöön

- Tallentaessasi lomakkeen merkitse tiedoston nimeen AINA omat nimikirjamesi ja päivämäärä. Jos lomakkeeseen tulee muutoksia, tallenna se aina uudella nimellä, josta näkyy päivämäärä.
- Täytä kaikki kentät. Käytä yleiskieltä ja suomenkielisiä termejä.
- Merkitse kirjallisuusviitteet tekstiin sulkuihin ja kokonaisuudessaan lomakkeen lopussa olevaan lähdeluetteloon.

LOMAKKEEN TÄYTTÄJÄN TIEDOT	
Nimi Katri Kuosmanen	**Pvm** 28.9.2014
Sähköposti XXXXX	**Puhelin** XXX
Oppiarvo, ammatti, tms. (Tieto tallennetaan tietokantaan) Fysioterapiaopiskelija	

MITTARIN IDENTIFIOINTI- JA KÄYTTÖTIEDOT
Käytössä oleva vakiintunut nimi **Suomeksi** (Jos Suomessa käytetään mittarin englanninkielistä nimeä, merkitse se tähän) **Freezing of gait questionnaire** **Ruotsiksi** Nimi ei ole tiedossa **Englanniksi** Nimi ei ole tiedossa
Lyhenne **NFOG-Q**
Mittarin nimen synonyymit (Mittarista käytetyt synonyymit, jos on) **Mittarin nimelle ei ole synonyymia**
Versio (Jos mittarista on erilaisia versioita, kuvaa tässä, mitä nimenomaista versiota tiedot koskevat) **Tiedot koskevat Freezing of Gait Questionnaire ja New Freezing of Gait Question-**

naire mittaria

Ylläpitotaho

- Mikä taho vastaa mittarin ylläpidosta, esim. mittarin päivityksestä?
- Kirjaa nettiosoite tai muu yhteystieto, jos on. Kirjaa myös ellei ylläpitotahoa ole.

Ylläpitotahoa mittarille ei ole.

Käyttöoikeus

- Valitse vaihtoehdoista toinen laittamalla rasti ruutuun.

X	**Rajoittamaton** • Valitse tämä, jos kukaan ei omista mittarin tekijänoikeuksia (copyright) ja mittaria saa käyttää vapaasti.
	Rajoitettu • Valitse tämä, jos mittarin käyttöoikeudet (copyright) on jollain taholla, mittari on maksullinen tai sen käyttö edellyttää lisenssiä, tai jos sen käyttöön on muita rajoituksia. **Jos käyttöoikeus on rajoitettu, kuvaa miten** • Esim. kuka omistaa copyrightin, tarvitaanko lisenssi, onko maksullinen, saako käyttää vain tietyissä tilanteissa, esim. tutkimuskäyttö.

Suomennos

- Kuvaa mahdollisimman tarkasti, miten mittari on suomennettu. Kuka, milloin, millaisen protokollan mu
  kaan? Kirjaa myös, ellei suomennosta ole tehty.
- Onko mittarista useita suomennoksia ja jos on, mitä niistä tulisi käyttää?

Mittarin suomennosta ei ole tehty.

Edellytykset mittarin käytölle

- Edellyttääkö mittarin käyttö tiettyä ammattikoulutusta?

  Kävelyn ”jäätymisen” kliininen tutkiminen vaatii aikaisempaa kokemusta. (Popovic et al., 2010,883)
- Onko mittarin käyttöä varten käytävä jokin koulutus?

  Mittarin käyttöä varten ei ole käytävä koulutusta.
- Onko käyttöohjeet helposti saatavilla?

Käyttöohjeet ovat helposti saatavilla.

- Mitä välineitä tarvitaan?

Välineet jotka tarvitaan ovat kyselylomake ja kynä. Mahdollisia välineitä joita voi tarvita kävelyn arviointia varten ovat video, pohjalliset ja kiihtyvyysmittarit. (Hausdroff et al. 2003, 187-194; Moore, MacDougall, Ondo, 2008, 340-348; Hausdorff et al. 1998, 428-437; Moore, MacDougall, Ondo, 2008, 340-348; Moore et al. 2007, 200-207; Weiss et al. 2009, 389; Popovic et al. 2010,883).

MITTARIN KUVAUS

Mittarin alkuperäinen käyttötarkoitus (lyhyesti!)

- Mihin tarkoitukseen mittari on kehitetty? Tieto perustuu yleensä alkuperäiseen lähteeseen.

FOG-Q on kehitetty arvioimaan kävelyä päivittäisessä toiminnassa ja kävelyn ”jäätymisen” toistuvuutta sekä vakavuutta. (Giladi et al., 1999, 166)

Tiedonkeruumenetelmät

- Rastita vaihtoehdoista kaikki ne tavat, joilla mittaria käyttäen hankitaan tietoa tutkittavasta.

X	**Haastattelu**
	Havainnointi
X	**Itse täytettävä kyselylomake**
	Kliininen tutkimus
	Testi tai mittaus

Toimintakyvyn ulottuvuus

- Mitä osa-alueita mittari mittaa? Rastita yksi tai useampi vaihtoehto.
- Huom! Mittari sillataan myös ICF-luokitukseen (erillinen prosessi).

X	**Fyysinen toimintakyky**

	Psyykkinen toimintakyky
	Sosiaalinen toimintakyky
	Kognitiivinen toimintakyky
X	**Yleinen toimintakyky (arkitoiminnot kuten ADL/IADL)**
X	**Työkyky**

Mittarin kuvaamat ICF-luokituksen käsitteet

- Merkitse ICF-kuvauskohteen koodi mahdollisimman tarkalla tasolla.
- Voit käyttää apuna ICF-browseria (www.who.int/classifications/icf/en/ => IFC ONLINE)
- Ehdotuksesi ICF-kuvauskohteista käsitellään TOIMIAn Termit ja käsitteet -ryhmässä

Merkitse tähän mittarin kaikki ne ICF-koodit, joita mittarissa (esim. sen eri osioissa) mitataan:

b770 Kävelymallien toiminnot

d4500 Lyhyiden matkojen käveleminen

b1471 Psykomotoristen toimintojen laatu

Jos mittarin tulos on yksi lukema (esim. summapistemäärä), merkitse tähän, mitä ICF-koodia se kuvaa

Aikatarve

- Merkitse haastatteluun, havainnointiin, kyselylomakkeen täyttöön tai mittaukseen keskimäärin kuluva aika. Merkitse myös arvio ajasta, joka kuluu tulosten laskemiseen tai tulkintaan (jos tiedossa).
- Vapaamuotoinen, merkitään esim. 3–5 minuuttia.

5-10 minuuttia

Tulkinnan avuksi (raja-arvot, viitearvot)

- Miten tuloksia voi hyödyntää, esim. terapian suunnittelussa? Mitä johtopäätöksiä niistä voi tehdä?

  Mahdollisuus arvioida kävelyn ”jäätymisen” vakavuutta tarkasti on keskeistä tuleville interventioiden arvioille, jotka tähtäävät kävelyn ”jäätymis”tapahtumien toistuvuuden ja keston vähenemiseen. (Shine et al. 2011)

- Kirjaa tähän, jos mittarista käytetään vakiintuneita raja-arvoja (+ niiden perusteet, mm. tutkimukset, joihin raja-arvot perustuvat).

  Vakiintuneita raja-arvoja mittarille ei löytynyt.

- Kirjaa myös, jos on olemassa pätevät viitearvot (mainitse lähde). Viitearvot voidaan liittää mukaan erillisenä tiedostona.

  Päteviä viitearvoja mittarille ei löytynyt.

Mittari on mukana tutkimuksissa

- Tähän voit kirjata joitain tärkeimpiä, esim. Suomessa toteutettuja tutkimuksia (1–3 kpl), joissa mittaria on käytetty (viite sekä nettilinkki, jos on). Ei pakollinen täyttää. Ei ole tarkoitus listata kaikkia tutkimuksia, joissa mittaria on käytetty.

Mittari on mukana suosituksissa

- Onko mittari mukana kotimaisissa tai kansainvälisissä suosituksissa, jos on niin missä? Kuvaa lyhyesti, millainen suositus on kyseessä ja anna sen linkki tai muu lähde.

  NFOG-Q on osa tulevaa ensimmäistä yhteiseurooppalaista fysioterapiasuositusta Parkinsonin taudissa. Suositus sisältää tuloksia tutkimuksista ja eri eurooppalaisten fysioterapeuttien ammatillisia mielipiteitä. 19 eri Euroopan maan ammatilliset järjestöt ovat sopineet suosituksen keskenään. (Keus SHJ, Munneke M, Graziano M, et al. 2014).

Mittarin tausta ja kuvaus

- Mihin tarkoitukseen, kenelle, miten ja milloin mittari on kehitetty? (Synty- ja kehityshistoria seikkaperäisemmin kuin Alkuperäinen käyttötarkoitus -kohdassa).

  Mittarin tarkoitus on arvioida kävelyn jäätymisen kliinisiä puolia, kuten myös siitä seuraavia puolia elämänlaatuun. Mittariin liittyy video joka näyttää kävelyn jäätymisen esimerkkejä. (Shine et al. 2011, 25-26). Mittari on tarkoitettu Parkinsonin tautia sairastaville henkilöille ja se on kehitetty vuonna 1999. (Giladi et al.1999, 166)
- Kuvaa mittarin sisältö, esim. kyselylomakkeen rakenne ja kysymysten aihepiirit tai testin yleinen kuvaus, asteikko, pisteytys ym.

  Kyselylomake sisältää viisi kysymystä kävelyn jäätymisestä. Viisi kysymystä arvioivat seuraavia alueita: kävelyn jäätymisepisodien kestoa sekä kääntymisen aikana ja ottaessa ensimmäistä askelta.

  ”Jäätymis”episodi kestoltaan 1-2 sekuntia tulkitaan lieväksi/ei häiritseväksi. Vakava/vammauttava ”jäätymis”episodi kestäisi yli 30 sekuntia.

  Maksimipisteet mitä mittarista voi saada on 24 pistettä. (Giladi et al., 1999, 166-167)
- Mainitse, jos mittarista on useita versioita (+ mielellään ohje, mitä versiota tulisi käyttää).

  Mittarista on olemassa ensimmäinen versio Freezing of Gait Questionnaire.
- Missä käyttötarkoituksissa mittaria nykyisin yleisimmin käytetään?

  Mittaria käytetään Parkinsonin tautia sairastavien henkilöiden kävelyn jäätymistä arvioitaessa.

MITTARIN PÄTEVYYS, TOISTETTAVUUS, MUUTOSHERKKYYS JA KÄYTTÖKELPOISUUS

Kuvaa tähän ensin lyhyesti keskeiset tutkimusasetelmaan ja –aineistoon liittyvät tiedot kaikista niistä artikkeleista, joiden pätevyys-, toistettavuus- ja muutosherkkyystuloksia ilmoitetaan seuraavassa kohdassa. Keskeisiä tietoja ovat mm. aineiston koko, tutkittavien keski-ikä (+keskihajonta tai vaihteluväli), sukupuolijakauma, potilasaineistosta keskeiset tiedot sairauteen/sairauksiin liittyen jne. Tarvittaessa kirjaa myös muita tietoja, jotka ovat aiheen kannalta oleellisia.

Nilsson et al. (2010) tutkimuksessa oli 189 osallistujaa. Tutkimus lähetettiin 282 potilaalle joista 39% oli naisia. Baggio et al. (2012) tutkimuksessa oli 107 osallistujaa. Potilaiden keski-ikä oli 62 vuotta. Heillä oli keskiarvo 7 vuotta sairauden kesto ja aste 2 HY asteikolla. (Nilsson et al. 2010; Baggio et al. 2012)

Tietoja mittarin pätevyydestä

- Pätevyyttä (validiteettia) koskevat tiedot kootaan tarkastelun kohteeksi valitun käyttötarkoituksen

näkökulmasta: onko mittari pätevä kyseisessä käyttötarkoituksessa / kontekstissa?

- Mittaako mittari juuri sitä tutkittavan ilmiön ominaisuutta, mitä sen on tarkoituskin mitata?
- Kirjaa tulokset kyseisen käyttötarkoituksen kannalta oleellisilta pätevyyden osa-alueilta eri väliotsikoiden alle alla olevan jaottelun mukaisesti. Jos jotain osa-aluetta ei ole tutkittu ja siitä ei ole tietoja, merkitse myös puuttuva tieto. Muista merkitä selvästi mistä artikkelista mikäkin tulos on poimittu (sulkuihin tutkimuksen lähdeviite). Kirjoita lisäksi jokaisen alaotsikon alle alkuun lyhyt parin lauseen yhteenveto kyseisen pätevyyden osa-alueen tuloksista.

Ilmivaliditeetti (face validity) ja sisältövaliditeetti (content validity)

Ilmivalideettia ja sisäsltövalideettia ei ole vielä arvioitu mittaria varten.

Kriteerivaliditeetti (criterion validity)

Samanaikainen validiteetti (concurrent validity)

Giladi et al. (2000) tutkimuksessa FOG-Q samanaikainen validiteetti yhdessä UPDRS alaasteikkojen ja H&Y vaihteli heikosta hyvään keskiarvolla keskinkertainen. (Giladi et al. 2000, 165-170)

Ennustevaliditeetti (predictive validity)

Ennustevaliditeettia ei ole vielä arvioitu mittaria varten.

Rakennevaliditeetti (construct validity)

Giladi et al. (2009) tutkimuksessa FOG-Q vastaa pätevästi UPDRS:n kanssa. (Giladi et al. 2009, 655-661)

Rakenteen validiteetti (structural validity)

Rakenteen validiteettia ei ole vielä arvioitu mittaria varten.

Yhtäpitävä validiteetti (convergent validity)

Yhtäpitävää validiteettia ei ole vielä arvioitu mittaria varten.

Erotteleva validiteetti (discriminant validity)

Erottelevaa validiteettia ei ole vielä arvioitu mittaria varten.

Ryhmien erottelu validiteetti (known group validity)

Ryhmien erottelu validiteettia ei ole vielä arvioitu mittaria varten.

Käännetyn mittarin validiteetti (cross-cultural validity)

Käännetyn mittarin validiteettia ei ole vielä arvioitu mittaria varten.

Tietoja mittarin toistettavuudesta

- Mittarin toistettavuudella (reliabiliteetti) tarkoitetaan mittarin kykyä tuottaa samoja tuloksia eri mittauskerroilla, esimerkiksi tulosten yhtäpitävyys toistomittauksissa saman mittaajan välisenä toistettavuutena (test-retest reliability; intra-rater reliability) tai se voi olla myös eri mittaajien välinen toistettavuus (inter-rater reliability).
- Mittarin sisäisellä yhtenäisyydellä (internal consistency) tarkoitetaan sitä, että mittarin eri osiot, joiden tarkoitus on mitata samaa käsitettä, tuottavat samankaltaisia tuloksia.
- Erityisen tärkeää on etsiä ja kirjata tuloksia, jotka osoittavat mittarin toistettavuutta valitun käyttötarkoituksen näkökulmasta, esim. tarkastelun kohteena olevalla potilas- tai asiakasryhmällä. Jos jotain osa-aluetta ei ole tutkittu ja siitä ei ole tietoja, merkitse myös puuttuva tieto. Muista merkitä selvästi mistä artikkelista mikäkin tulos on poimittu (sulkuihin tutkimuksen lähdeviite). Kirjoita lisäksi jokaisen alaotsikon alle alkuun lyhyt parin lauseen yhteenveto kyseisen toistettavuuden osa-alueen tuloksista.

<u>Tulosten yhtäpitävyys toistomittauksissa saman mittaajan mittaamana (test–retest; intra-rater)</u>

Giladi et al. (2009) ja Nieuwboer et al. (2009) raportoivat FOG-Q tulosten merkittävät toisto-mittausten yhtäpätevyydet, saman mittaajan mittaamana olivat r-arvoilla 0.83 (placebo-ryhmälle), 0.84 (kahdelle hoitoryhmälle) ja ICC=0.84. (Giladi et al. 2009, 655-661; Nieuwboer et al. 2007, 134-140).

Mittaajien välinen toistettavuus (inter-rater)

Mittaajien välistä toistettavuutta ei ole vielä arvioitu mittaria varten.

Sisäinen yhdenmukaisuus (internal consistency)

Giladi et al. (2000) tutkimuksessa sisäinen yhdenmukaisuus oli merkittävä Cronbachin alpha arvolla 0.96. (Giladi et al. 2000, 165-170)

Tietoja mittarin muutosherkkyydestä

- Muutosherkkyys (*responsiveness; sensitivity to change*) on tärkeä mittarin psykometrinen ominaisuus erityisesti silloin, jos mittarilla arvioidaan muutosta. Mittarilla tulisi olla kyky havaita ajan kuluessa tapahtunut muutos ja kliinisesti merkittävä muutos. Muutosherkkyyden tutkiminen edellyttää tutkimukselta pitkittäisasetelmaa, jossa on toteutettu vähintään kaksi mittauskertaa.

Tietoja mittarin käyttökelpoisuudesta, käyttökokemuksista

- Käyttökelpoisuuden (*feasibility*) osalta voi tarkastella mm. seuraavia piirteitä: hinta, saatavuus/käyttörajoitukset, saatavuus suomenkielellä, koulutus, välineistö, ympäristövaatimukset, ajankäyttötarve, yksiselitteisyys, tulosten tulkinnan helppous (myös mm. viitearvojen saatavuus), hyväksyttävyys, turvallisuus, monikäyttöisyys (geneerisyys), levinneisyys, kulttuurista riippumattomuus, jne.
- Tiedot käyttökelpoisuudesta voivat perustua sekä kirjallisuuteen että asiantuntijoiden ja mittaria käyttävien henkilöiden kokemuksiin ja arvioihin.

  Mittaria käytettäessä tulisi huomioida, kävelyn ”jäätymisen” mittauksessa ”kultaisen” standardimittarin puuttuminen mikä on suurin haitta minkä tahansa kävelyn ”jäätymisen” mittauksen validiteettia arvioitaessa. Lisäksi tulisi huomioida, että potilaan oma havainnointi voi olla enemmän luotettavampaa kuin muun tavallisen ihmisen. (Nieuwboer et al. 2009).

LÄHTEET

Lähteet jaotellaan alkuperäiseen lähdeviitteesen ja muihin lähdeviitteisiin

Merkitään Vancouver-tyylin mukaisesti:

- Artikkelit: Author of article, AA, Author of article, BB, Author of article, CC. Title of article. Abbreviated Title of Journal. Year; vol(issue):page number(s).
- Kirjat: Author/editor AA. Title: subtitle. Edition (if not the first). Vol.(if a multivolume work). Place of publication: Publisher; Year. P. Page number(s) (if appropriate).
- Kirjan luku: Author of Part, AA. Title of chapter or part. In: Editor A, Editor B, editors. Title: subtitle of Book. Edition (if not the first). Place of publication: Publisher; Year. P. Page numbers
- Mikäli julkaisu on saatavissa sähköisessä muodossa, kirjaa ylös sen osoite.

Alkuperäinen lähdeviite

- Alkuperäinen kirjallisuusviite (mieluiten vain yksi, mikäli mahdollista).
- Suomenkielinen relevantiksi arvioitu lähde, jossa mittari ja/tai sen ominaisuuksia on kuvattu (jos löytyy).

Giladi N, Shabtai H, Simon E.S, Biran S, Tal J, Korczyn A.D. 1999. Construction of freezing of gait questionnaire for patients with Parkinsonism. Israel:Elsevier.

Muut lähdeviitteet

Baggio J, Curtarelli M, Rodrigues G, Tumas V. Validity of the Brazilian version of the freezing of gait questionnaire. Arquivos de Neuro-Psiquitria 2012; 70:8.

Giladi N, Tal J, Azulay T, Rascol O, Brooks DJ, Melamed E, Oertel W, Poewe WH, Stocchi F, Tolosa E. Validation of the freezing of gait questionnaire in patients with Parkinson´s disease. Mov Disord 2009;24; 655-661.

Nieuwboer A, Kwakkel G et al. Cueing training in the home improves gait-related mobility in Parkinson's disease: the RESCUE trial. Journal of Neurology, Neurosurgery & Psychiatry. 2007;78; 134-140.

Nilsson MH, Haritz G-M, Wictorin K, Miller M, Forsgren L, Hagell P. Development and testing of a self administered version of the Freezing of Gait Questionnaire. BMC Neurology 2010; 10:85.

Shine J.M, Moore S.T, Bolitho S.J, Morris T.R, Dilda V, Naismith S.L, Lewis S.J.G. 2011. Assessing the utility of Freezing of Gait Questionnaires in Parkinsons Disease. Journal of Parkinsonism and Related Disordes 2012; 18: 25-26.

Hyödylliset linkit

- Esim. mittarin kotisivu tai luotettaviksi arvioidut muut sivustot, josta mittarista saa hyödyllistä tietoa.
- Tarkista, että linkki ohjaa suoraan ao. kohtaan sivustolla.

MITTARIIN LIITTYVÄT LOMAKKEET

Toimita mittariin liittyvät lomakkeet (esim. kyselylomake, suoritusohje) word- tai exel-muodossa (doc, rtf, xls) TOIMIAn toimistoon tietokantaan tallentamista varten, jossa ne tallennetaan TOIMIAn lomakepohjalle ja niihin liitetään identifikaatiotunnus. Lomakkeisiin kirjataan (tarvittaessa) alkuperäinen lähde, selvitys suomennoksesta ym. tarpeellisiksi arvioidut tiedot.

Merkitse rasti ruutuun, mitkä mittaria koskevat lomakkeet on toimitettu TOIMIAn toimistoon.

Lomaketyyppi	**Toimitettu TOIMIAn toimistoon**	**Onko lupa tallentaa tietokantaan[1)]**
Kyselylomake		
Mittauslomake		
Suoritusohjeet		
Pisteytysohjeet		
Viitearvot		
Muu, mikä		

[1)] Jos mittari on tekijänoikeuksilla suojattu, tarvitaan selvitys (esim. kirjallinen dokumentti) luvasta tallentaa se tietokantaan.

Ellei lomaketta voi tekijänoikeus- tms. syiden vuoksi laittaa tietokantaan, merkitse tähän tarkka lähde (nettiosoite, artikkeli tms.), jota kautta sen voi hankkia:

Mittarin tiedot hyväksytty asiantuntijaryhmässä:

Ryhmän nimi

Pvm

Lisätietoja:

APPENDIX 2

NEW FREEZING OF GAIT QUESTIONNAIRE (NFOG-Q)

Yleiset ohjeet

Nämä kysymykset on osoitettu ainoastaan kun on vastattu ´kyllä' ensimmäiseen kysymykseen PIF NFOGQssa (kysymys 10)

Arviointi

2. Kuinka usein koet jäätymisepisodeja?

Vähemmän kuin kerran viikossa	
En usein, noin kerran viikossa	
Usein, noin kerran viikossa	
Todella usein, enemmän kuin kerran päivässä	

3. Kuinka usein koet jäätymisepisodeja kääntymisen aikana?

En koskaan > jatka kysymykseen 5	
Harvoin, noin kerran kuussa	
En usein, noin kerran viikossa	
Usein, noin kerran viikossa	
Todella usein, enemmän kuin kerran päivässä	

4. Kuinka pitkä on pisin jäätymisepisodisi kääntymisen aikana?

Todella lyhyt: 1 sekunti	
Lyhyt: 2-5 sekuntia	
Pitkä: 5 ja 30 sekunnin väliltä	
Todella pitkä: Kykenemätön kävelemään pidempään kuin 30 sekuntia	

5. Kuinka usein koet jäätymisepisodeja ottaessa ensimmäistä askelta?

En koskaan > jatka kysymykseen 7	
Harvoin, noin kerran kuussa	
En usein, noin kerran viikossa	
Usein, noin kerran viikossa	
Todella usein, enemmän kuin kerran päivässä	

6. Kuinka pitkä on pisin jäätymisepisodisi ottaessa ensimmäistä askelta?

Todella lyhyt: 1 sekunti	
Lyhyt: 2-5 sekuntia	
Pitkä: 5 ja 30 sekunnin väliltä	
Todella pitkä: Kykenemätön kävelemään pidempään kuin 30 sekuntia	