The Acceptability of Dutch Healthcare Workers in Primary Care Towards Eforto®

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Abstract

Background: The growing population of Dutch frail community-dwelling older adults needs more support from primary care. These frail older adults have decreased physiological functions, physical strength and endurance, which makes them more dependent and prone to adverse health outcomes. Therefore, it is crucial that general practitioners (GPs) and General Practice-Based Nurse Specialists (GPB NS') identify frailty, which is currently done through questionnaires such as the Groningen Frailty Indicator (GFI). However, these questionnaires are prone to subjectivity and fail to monitor changes in the patient's level of frailty. A novel technology called Eforto® allows for monitoring muscle fatigability and possibly physical resilience, but it might enable early assessment of frailty as well. Thus, this study aims to explore the acceptability of Dutch GPs' and GPB NS' towards using Eforto® in their daily practice for treating community-dwelling older adults.

Methods: A qualitative study design with semi-structured interviews based on the Theory of Acceptance and Technology (UTAUT) model was used to explore the acceptability. The transcribed interviews were analysed following the six steps of data collection and analysis as described by Braun & Clarke (2006). The code scheme, including six themes and 24 codes, was developed by using a deductive and inductive approach. For the deductive approach five factors of the UTAUT model were used; *Performance Expectancy (PE)*, *Effort Expectancy (EE)*, *Social Influence (SI)*, *Facilitating Conditions (FC)*, and *Behavioural Intention (BI)*.

Results: 15 GPs decided not to participate because they did not have time or believed they were not the right target group for Eforto®. The final sample existed of five participants (four GPs and one GPB NS). The results show that participants were willing to try Eforto® because of its objective measurements and tangible results. However, some conditions need to be met before it can be implemented, such as education, evidence of the added value and changes to the EPD system. Lastly, participants believe that GPB NS' are the most suitable target group in primary care for Eforto® because they see the frail older patients more frequently.

Conclusion: A major dropout for the acceptability study among GPs was due to a lack of time and the perception that Eforto® fits better with GPB NS'. As such, a larger acceptability study among primary care, especially GPB NS', towards Eforto® for treating frail community-dwelling older adults is interesting for future research.

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Background

A Growing Population; Frail Community-Dwelling Older Adults

In the Netherlands, 1 out of 5 individuals is older than 65 and this number will keep increasing (Generation Journey, 2022). Due to this demographic change, the prevalence of physical injuries and fall incidents is increasing (Generation Journey, 2022). After an injury, older adults might move into a clinical state called frailty, which is indicated by decreased physiological functions, physical strength and endurance (Morley et al., 2013). Even though these frail older adults are now more dependent on others, they often return to their homes to live on their own (Morley et al., 2013). This population, known as the frail community-dwelling older adults, are more prone to other fall incidents, adverse health outcomes, disabilities and even death (Knoop et al., 2021; Kua et al., 2016). As a consequence, this growing population of frail community-dwelling older adults needs an increasing amount of support from healthcare workers in primary care.

The Role of General Practitioners and General Practice-Based Nurse Specialists

The general practitioner (GP) is often the first person a frail community-dwelling older adult will see for advice, a diagnosis, treatment or referral to another healthcare specialist (Social Care Institute for Excellence, 2013). GPs use the concept of frailty in their daily routine and closely work together with the General Practice-Based Nurse Specialists (GPB NS') to provide the best social and medical care to these patients (De Lepeleire et al., 2009; Social Care Institute for Excellence, 2013). Once the GP considers the patient as frail, the GPB NS, who will stay in close contact with the GP, starts monitoring this frail older adult on a frequent basis to ensure the effectiveness of the treatment plan and the patient's safety, independence and physical functioning (Ledencirkel POH-Ouderen et al., 2021). The patient's frailty is easily recognised and determined by the healthcare workers through the use of multiple questionnaires such as the Groningen Frailty Indicator (GFI) or the Tilburg Frailty

Indicator (TFI) that address physical, mental and social aspects of the individual's well-being (Dent et al., 2016; van Assen et al., 2016). However, even though frailty is considered an unstable trait due to its dynamic and complex interactions with stressors, it is currently operationalised as a static measure through the use of questionnaires (Kuchel, 2017; Mian et al., 2023; Varadhan et al., 2008). As a consequence, the assessment of frailty is prone to subjectivity and the GPs and GPB NS' are not able to monitor the changes of the patient's level of frailty that is constantly fluctuating, which makes the healthcare workers unable to detect frailty in an early stage and adapt recovery accordingly (Mian et al., 2023; Varadhan et al., 2008). Therefore, it is essential to add tools that refine the assessment of frailty to improve the primary care for frail community-dwelling older adults (De Lepeleire et al., 2009).

Dynamic Measures; Early Indicators of Frailty

Nowadays, frailty is assessed in a later stage using static measurements. Therefore, dynamic measures are necessary for early detection of pre-frail community-dwelling older adults and to monitor the fluctuations in their level of frailty (Knoop et al., 2017). Thus, it is interesting for GPs and GPB NS' to monitor dynamic factors such as muscle fatigability, grip work (GW) and physical resilience.

Muscle fatigability can be described as the muscles' ability to perform physical activities and plays an important role when it comes to proper daily functioning but might also be an early indicator of frailty (Bautmans & Mets, 2005; Theou et al., 2008). It can be measured using a variety of tools, however, most of these tools (e.g., treadmill tests or isokinetic evaluations) cannot be used for clinical evaluations of community-dwelling older adults because the level of concentration and motor control necessary for these tests are too high (Bautmans & Mets, 2005). To assess the muscle fatigability of these individuals, their grip work (GW) and fatigue resistance (FR) need to be determined (Bautmans & Mets, 2005; De Dobbeleer et al., 2017: De Dobbeleer et al., 2023). According to De Dobbeleer et al.

(2023) and Knoop et al. (2017), GW is a dynamic performance and can be used to detect early signs of frailty and its dynamic aspects, especially when also self-perceived fatigue is taken into account. It is found that pre-frail older adults show lower levels of GW and higher levels of self-perceived fatigue (Knoop et al., 2017). Therefore, Knoop et al. (2017) argues that implementing a tool capable of measuring GW combined with self-perceived fatigue enables early detection of frailty, which is needed to develop preventive interventions.

Moreover, a recent study stated that muscle fatigability and GW can be "an ecological and dynamic marker of a person's physical resilience" (De Dobbeleer et al., 2023, p. 836). Physical resilience, a rather new and dynamic construct that can be explained as "the ability to resist functional decline or recover health following a stressor" might be interesting for GPs and GPB NS' as well (Gijzel et al., 2019, p. 2650). Instead of focusing on one's deficits like frailty measurements, physical resilience allows for an emphasis on an individual's resources and capacity to recover from stressors (Gijzel et al., 2019). Therefore, it is expected that this factor enables healthcare workers to predict the recovery process and make a tailored recovery programme (Gijzel et al., 2019; Schorr et al., 2017; Whitson et al., 2018). Thus, in the context of GPs and GPB NS', adding a dynamical dimension through measuring physical resilience can be a promising factor to monitor the recovery of frail older adults and adapt the treatment plan accordingly to their individual. However, until today, there is no unified standard nor objective measurement tool to measure physical resilience in primary care (Varadhan et al., 2018). Within the European FORTO consortium, innovative research is ongoing to investigate if physical resilience can be indicated based on objective measurements of muscle fatigability.

Eforto®; a Novel Measurement Tool

On behalf of an European initiative, Eforto®, a novel monitoring device (Figure 1), was developed to improve the monitoring of "muscle fatigability as an ecological and dynamic marker of an individual's physical resilience" (De Dobbeleer et al., 2023, p. 836).

This device is proven to be a reliable and valid measurement tool when it comes to monitoring muscle fatigability and GW in a clinical context, but it might enable healthcare workers to monitor physical resilience as well (De Dobbeleer et al., 2023; Li et al., 2022). In the context of GPs and GPB NS' treating frail community-dwelling older adults, using Eforto® during their practices enables these healthcare workers to perform dynamic measures in addition to static measures to assess frailty, which has added value regarding the assessment of frailty in a way of detecting early signs of frailty and its fluctuations.

Figure 1

Eforto® System

Note. The device (left) and app (right) from Eforto® to monitor muscle fatigability through measuring an individual's GW. From *Evidence-Based Clinical Decisions by Quantifying Physical Reserves* by Eforto®, n.d. (https://eforto.com/).

Research aim

To implement Eforto® in the daily practice of GPs and GPB NS', it is crucial to gain a better understanding of the acceptance of GPs and GPB NS' towards this device and if they believe it has added value while treating frail community-dwelling older adults. Therefore, the current study aims on exploring the acceptability of Dutch GPs' and GPB NS' towards using the novel monitoring device Eforto® for the treatment of community-dwelling older adults. To investigate the acceptability, the Unified Theory of Acceptance and Use of Technology (UTAUT) model will be applied since this theory has an extraordinarily high capability of predicting usage behaviour (Oshlyansky et al., 2007; Venkatesh et al., 2003).

Theoretical Framework: Unified Theory of Acceptance and Use of Technology Model

To explore the acceptability of the Dutch GPs and GPB NS' towards Eforto®, a theoretical framework targeting the acceptability of new technology among healthcare professionals (i.e., GPs and GPB NS') needs to be applied. This framework is the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which examines the way society accepts and adopts new technology (Venkatesh et al., 2003; Appendix A). The likelihood that an individual is going to accept and use the technology is determined by four constructs. The first three constructs namely 1) *Performance expectancy (PE),* 2) *Effort expectancy (EE)* and 3) *Social influence (SI)* influence the *Behavioural Intention (BI)* to use the new technology. The fourth construct, 4) *Facilitating conditions (FC)* determines together with one's BI the *Use Behaviour (UB),* which is the actual usage of the new technology. PE is "the degree to which an individual believes that using the system will help him or her to attain gains in job performance", which is seen as the most important predictor of one's BI (Venkatesh et al., 2003, p. 447). The second construct, EE is defined as "the degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450). Then, SI is described as "the degree to which an individual perceives that other important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). Lastly, FC is defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003, p. 453). In addition, there are four moderators that influence this relationship between the four main constructs and the BI to use the technology and the actual usage of the technology. These four moderators are 1) *Age*, 2) *Gender*, 3) *Experience,* and 4) *Voluntariness of use* (Venkatesh et al., 2003). However, this study aims to explore the acceptance of GPs and GPB NS' towards Eforto® qualitatively to gain deeper insight in underlying motives and perspectives to monitor the GW of their patients as a potential indicator of physical resilience. Therefore, factors in the UTAUT model will be treated as guidelines for the interviews performed in the current study.

Method

Study Design

A qualitative study design with semi-structured interviews was used to investigate the acceptability of GPs and GPB NS' towards the usage of Eforto® based on the UTAUT model. Data was collected from the 31st of May 2023 till the 9th of June 2023. The Ethical Committee of the University of Twente approved this study on the 19th of April 2023 (Reference number 230683; Appendix B).

Participants

The following inclusion criteria needed to be met in order for the General Practitioners (GPs) and the General Practice-Based Nurse Specialists (GPB NS') to participate in this study; 1) *The Dutch GP or GPB NS is treating or has treated frail community-dwelling older adults*, and 2) *The Dutch GP or GPB NS is currently having a job as a GP or as GPB NS*.

Participating GPs and GPB NS' were recruited through convenience and snowball sampling (i.e., LinkedIn post or calling and emailing possible participants). They received an email including an information letter to inform them about the aim and background of this study and their rights (Appendix C). All participants had to read and sign the informed consent form attached to the information letter to be able to participate in this study.

Materials

An interview scheme was used to conduct the semi-structured interviews with the participants (Appendix D). First, it lists eight steps the interviewer needs to follow to ensure a good preparation and rightful conduction of the interviews. The interview scheme includes a total of 25 questions. The first four main questions covered demographic information (i.e., age, gender and experience) and an understanding of the participant's client group. The remaining seven main questions were added to investigate the acceptability towards Eforto®. This was done by covering all factors of the UTAUT model at least once with a question (i.e.,

PE, EE, SI, FC and BI). However, for the factor PE, three questions were asked, namely about; 1) the added value of monitoring physical resilience in their practice, 2) the added value of monitoring muscle fatigability in their practice, and 3) the added value of Eforto® in general to their practice. These questions investigated if the intended measurements of Eforto® (i.e., muscle fatigability and possible physical resilience) or possibly additional information Eforto® (i.e., GW related to frailty) can provide are relevant for the target group. Moreover, these seven main questions included a total of 14 sub-questions, which were necessary to gain a deeper understanding of the motives and believes of the participants towards the acceptance of Eforto® and its added value regarding their job performance.

Lastly, the Eforto® device and the corresponding application called Eforto® BLE installed on a Samsung S10 (SM-G973F/DS) smartphone were used, which were shown to the participant during the interview. The Eforto® BLE app guides the GPs and GPB NS' through the four different tests that are conducted with the device. Beforehand, the app provides a questionnaire containing questions about the patient's current self-perceived fatigue. To determine one's maximal grip strength (GS), the patient needs to squeeze the bulb of the Eforto® device (Figure 1) three times for 30 seconds. Then, in the fourth test, the FR can be assessed by gripping the bulb as hard and long as possible until the GS drops underneath 50% of the maximal GS measured previously with the three tests (Bautmans & Mets, 2005; De Dobbeleer et al., 2023). The results of these tests are used to monitor one's GW and in turn one's muscle fatigability, which can be found in the Eforto® BLE app. However, this test procedure was not performed during the interviews due to limited time available with the participants.

Procedure

First, potential participants received an invitation email including the participant information letter, which explains the purpose and background of the study and provides

information about what is expected from them as participants and their rights. If the GP or GPB NS' met the inclusion criteria and they were willing to participate in the interview, they could fill out the informed consent added to the information letter. When the participant has sent an email to the researcher including the filled out informed consent, the participant received an invitation to join a meeting in Microsoft Teams (version 1.4.00.8872) to conduct the interview on a date both the participant and the researcher were available.

At the beginning of the interview, participants were welcomed and again informed about their rights and about the context, duration, and purpose of the current study. Then, if they did not have any questions, they were asked for permission to record the interview. If consent was given, the recording started. After this, the participants were once more asked if they understand their rights, the aim of the study and if they give permission to be recorded. When there were no further questions from the participant, the interview started following the interview scheme (Appendix D). During the interview the participant was allowed to ask questions, omit questions, refuse to answer questions or withdraw from the study.

After the interview, participants were asked if they wanted to add anything or had any questions about the interview or study. Next, the researcher thanked the participant for participating and stopped the recording. Participants were once more reminded about their rights, that they could contact either the researcher or the supervisor and that the participant had 5 working days to inform the researcher that he or she wants to withdraw from the study. An interview took around 20 minutes to complete.

Data Analysis

Five days after the interview, the video-recordings of the interviews were deleted from the UT One Drive and the Microsoft Teams environment. The video-recordings were transcribed within these five working days with Amberscript. The transcriptions were anonymised on the fifth working day by assigning a number to each participant and deleting

personal or identifiable information. The transcribed interviews will be preserved at the UT One Drive no longer than July 2033.

After all the interviews were transcribed and anonymised, the program ATLAS.ti 23 (version 23.2.1.26990) was used for the content analysis. In order to create a coding scheme, both an inductive and deductive approach was used. Deductive analysis was applied by generating general themes based on the five factors of the UTAUT model (i.e., PE, EE, SI, FC and BI). The codes for these themes and other themes or codes were determined by inductive analysis and following the six steps of data collection and analysis as described by Braun & Clarke (2006). After becoming familiar with the data in the transcribed interviews, initial codes were generated based on relevant information regarding the research aim. Then, general themes were created and reviewed based on the codes. In the end, all themes and codes were defined and written down. The parts of the interviews that did not fit any of the codes or themes generated, but included information relevant for exploring the GPs and GPB NS' acceptability, were placed underneath the code "other". In the end, the code scheme included six themes and 24 codes, their explanations and an example quote (Appendix E).

Then, another Dutch psychology student from the UT coded the interviews independently. ATLAS.ti was used to calculate Krippendorff's α to investigate the intercoder reliability. According to Krippendorff (2004), Cohen's kappa tends to overestimate the agreement between coders when codes are not equally prevalent throughout the interviews, which makes Krippendorff's α a more reliable measure of intercoder reliability. The analysis shows that the intercoder reliability is sufficient (Krippendorff's $\alpha = .94$).

Lastly, all the demographic data of the interviews, such as the mean and SD of the age, the gender distribution and the mean and SD of working experience were calculated with the statistical software R studio (version 2023.03.0+386) to describe the sample of this study.

Results

Inclusion of Participants

During the recruitment process of participants, it became apparent that many GPs decided not to participate because of 1) the duration of the interview and 2) the relevance of the current study for their occupation. Out of the 25 GP practices that were contacted directly, 15 GPs stated that they did not have time to do an interview. From those 15 GPs, four GPs recommended a document with questions so they could answer these questions in their own time and pace. In addition, four GPs stated that the current study was not relevant for them, but rather for healthcare workers in rehabilitation centres, physiotherapists or GPB NS'. The remaining GP practices were either closed or did not respond. In the end, the sample consisted of five participants (Table 1). The four GPs said that frail-community-dwelling older adults are more common nowadays and cover a considerable amount of their patient group. The GPB NS reported that these frail older adults cover 100% of the patient group. No participants decided to withdraw from the study.

Table 1

Demographics of the Participants

Participant	Occupation	Age	Gender	Working Experience (years)
P1	GP	42	Male	7
P2	GP	54	Female	25
P3	GP	38	Male	7
P4	GP	59	Male	24
P5	GPB NS	36	Female	.50

Note. $M_{age} = 46$, $SD_{age} = 9.09$; $M_{experience} = 13$, $SD_{experience} = 9.94$

Table 2

Result of Coding the Interviews

Themes and Codes	Example Quotes	Number of Interviews in which Code was Applied	Frequency of Themes and Codes
Behavioural Intention (BI)			15
Positive BI	"I want to use it within my practice […] to have something more measurable of frailty." Par. 1	*4*	*11*
Neutral BI	"My first reaction is that I do not know. I am not sure if I directly see an added value." Par. 2	*2*	*2*
Negative BI	"Speaking for myself, I think I am busy enough already to be able to add this task as well. So, yes, no, I would not like to use it." Par. 2	*1*	*2*
Performance Expectancy (PE)			61
Relevance of Frailty	"Maybe is Eforto® more objective than the Groningen Frailty Index […] because the GFI is a questionnaire while Eforto® gives a measurement or a number." Par. 3	*3*	*14*
Relevance of Muscle Fatigability	"I guess Eforto®, measuring muscle fatigability, is especially useful for fall prevention and muscle strength." Par. 3	*5*	*15*
Relevance of Physical Resilience	"It might help to understand the physical resilience a little better. […] This could be something that makes my work easier." Par. 4	*5*	*13*
PE General	"I think in general, the more you accompany people and	*5*	*19*

	keep an eye on them, the easier it is to adjust treatment accordingly.” Par. 2		
Effort Expectancy (EE)			19
Easy use	“Super easy, yes. Like the way you just explained it, it looks very user-friendly.” Par. 5	*4*	*11*
Difficult Use	“No, I think that most of the frail older adults will not be able to this themselves.” Par. 4	*3*	*5*
No Opinion	“I didn’t see it and was not able to try it myself, so I cannot really say something about that.” Par. 2	*2*	3
Social Influence (SI)			7
Open-Minded	“As long as you tell them why we use it and what we measure with it […] most patients are willing to cooperate and will appreciate it” Par. 5	*5*	*6*
Capability of Older Adults	“Maybe that older adults already perceive stress when they need to squeeze the bulb. If they cannot do it, that would be terrible of course.” Par. 3	*1*	*1*
Facilitating Conditions (FC)			21
Facilitators		*4*	*10*
Education	“I think these people need to educate GPs [...].GPs need to get familiar with it and with the cut-off values.” Par. 3		
EPD	“Notation in the EPD would be enough. […] Getting a spot for Eforto® measurements, then it is well organised and easy to keep track off.” Par. 3		

Barriers		*4*	*11*
Time Shortage	"I do not think we are able to execute the measurements as GPs because we do not have enough time." Par. 4		
Extra Tool	"But yes, it is yet another tool" Par. 3		
Assessing Frailty	"We look at a complete image, cognitive and physical, so you are looking at huge variety of factors. […] There are a lot of questionnaires that we use, well especially POH-OZ." Par. 4	4	15
Assessing Muscle Fatigability	"Muscle fatigability is common, but is not named muscle fatigability. It is more a general image of having bad well-being, reduced strength or being more fatigued." Par. 1	5	8
Assessing Physical Resilience	"When someone is visiting me after hospitalisation or something like that, we definitely look at physical resilience and if the patient is getting stronger the following weeks. […] You monitor it, but not based on questionnaires or measurements, just based on your knowledge and experience with patients." Par. 4	2	2
Evidence of Added Value	"It needs, I believe, to have added value, that it says something extra about frailty. […] It is very interesting to know if it is better or adds anything to the golden standard we have now." Par. 3	5	27
Interpretation of Values	"The one 80-year old patient is not the same as the other 80-year old patient. […] If you have a baseline	3	17

	measurement, you can see that someone is getting worse. […] If you know, oh dear, this value is not good, yes then you should maybe do something. So, a baseline measurement and cut-off values can both have added value." Par. 5		
Target Group Eforto® Usage			37
GPs	"This is definitely something that can be applied within the practice of a GP […]." Par. 4	*2*	*3*
GPB NS'	"I think it suits the POH-Oz better, they see the patients more often and frequently." Par. 1	*5*	*14*
Physiotherapists	"Yes, but maybe I would take into account physiotherapist because they see more patients or clients with a certain level of fatigue or muscle problems." Par. 1	*4*	*11*
Other	"Maybe this is something for the orthopaedist or the trauma surgeons in order to keep an eye on the patients for a while." Par. 2	*5*	*9*
Other	"If you look at all those patients, the most you see is; fatigued, muscle related problems." Par. 1 "Also for prevention […] they could have been helped years earlier with formal help or tools" Par. 5	4	12

Note. All quotes are directly translated from Dutch to English. The detailed description of the meaning of the themes and codes can be found in Appendix E.

The results shown in Table 2 are described in more detail in the following the paragraphs. First, the five themes based on the UTAUT model (i.e., PE, EE, SI, FC and BI) and then the remaining themes and codes generated as a result of inductive coding will be discussed.

Performance Expectancy

All participants expect that Eforto® can help them with the assessment of muscle fatigability and physical resilience. Three participants expect that Eforto® can help them as an objective assessment of frailty and muscle fatigability in order to prevent fall injuries amongst older adults. Moreover, according to participant 1, assessing muscle fatigability might give more clarity for most patients that have vague muscle or fatigue complaints. Furthermore, all participants expect that Eforto® can help them gain a better perspective of the older adults' physical resilience. Participant 1 says it would be useful to understand the recovery process of an older adult and that it will help them with the referral to other specialists. Lastly, in general, participants expect that Eforto® will make it easier to assess and get a first impression of the older adults' physical well-being.

Effort Expectancy

Four participants stated that Eforto® seemed effortless, easy to use and user-friendly when used in their practice, indicating a low effort expectancy. However, three participants expected that frail older adults might not be able to use Eforto® due to physical impairments (e.g., Parkinson) or lower self-efficacy when it comes to the use of technology, indicating a high effort expectancy. In short, the participants expect that Eforto® is easy to use for healthcare workers, but that frail older adults might experience difficulties executing the Eforto® measurements. Lastly, all participants indicated that it was difficult to say something about the usability of Eforto® because they were unable to see and try out the device themselves, which indicates a neutral effort expectancy.

Social Influence

Overall, the participants believe their patients would be willing to work with Eforto®. According to four participants, patients would be willing to use it and appreciate the use of Eforto® as long as they make clear what the device is used for and why it is of use to the patient. Participant 2, 3 and 4 say patients are willing to use the device because it makes the results more tangible for them. Lastly, participant 3 expressed that some patients might get frustrated using Eforto® because the frail older adults with muscle problems are not able to execute the exercises. However, this participant also believes that showing them the results might help to get the conversation started.

Facilitating Conditions

Most participants reported both facilitators as barriers in their interview. The most common barrier is *shortage of time*. All GPs say they do not have time to execute extra measurements because they have too many tasks already and too little time with patients during a consultation, which makes it difficult to implement Eforto®. In addition, participant 3 sees it as yet another tool they have to add in their practice. However, four participants also report that Eforto® can be implemented easily without huge adjustments to the organisational and technical infrastructures. Two participants do suggest that they themselves and different healthcare workers, from whom they receive patients or to whom patients are referred, first get educated about the use of Eforto® and its possible implications to enhance and improve the provided care and the communication amongst healthcare workers. Lastly, participant 3 wants to have a place for Eforto® in their EPD, which is a digital registration of the patient files.

Behavioural Intention

Regarding the results of BI, four participants reported to be interested or willing to try Eforto® as an extra tool within their practice. Only participant 2, reported a negative intention towards the usage of Eforto® because of a shortage of time and because the added value of Eforto® was unclear. Two participants, expressed neutral opinions regarding the usage of

Eforto® because they either did not directly see the added value of the device or it was unclear how often the device would be used. However, it needs to be noted that even though most participants reported to be willing to try Eforto®, they all indicated that Eforto® might suit other healthcare workers better. In addition, participants reported a need to see evidence of the added value of Eforto® and more information about how to interpret the values and outcomes of the device. These factors will be discussed in the following paragraphs.

Target Group Usage

Participants reported that GPB NS' were the most suitable target group for Eforto® followed by physiotherapists. The GPs state that physiotherapists have more insight in the frail older adults' muscle strength and tension. Moreover, most frail older adults rather go to a physiotherapist when they experience complaints with their balance or loss in muscle strength. The GPB NS' are considered the right target group by all participants since these healthcare workers see the frail patients more frequently than GPs, which makes it easier for them to monitor their patients' frailty. Other groups mentioned by the participants are geriatrists, occupational therapist, orthopaedist and patients themselves.

Evidence of Added Value

All participants indicated that they wanted to see or needed evidence of the added value of Eforto® to their practice so they can explain to patients why they are using Eforto®. For example, participant 1 was unsure how to implement Eforto® as a GP and participant 3 wanted to know if Eforto® is better or has added value to the assessment tools they are using already. It showed that without clear proof of the relevance and added value, participants are unsure how to implement or use Eforto® in their practices.

Interpretation of Values

Two GPs indicated that they wanted to have a cut-off value that indicates whether the GPs need to take action or not whereas the GPB NS indicated that both a cut-off value and baseline measurement could be relevant. According to the GPB NS, the baseline might help

with monitoring the patient's progress. However, having a universal guideline among healthcare workers with cut-off values would help them to adapt treatment accordingly, make the results more tangible for patients and help them to communicate better with physiotherapist. Moreover, participant 3 indicates that it might motivate patients to work on their health and take the problem more seriously since they can be compared to their peers.

Assessing Frailty, Muscle Fatigability and Physical Resilience in Daily Practice

Looking at the results, four out of five participants assesses a patient's frailty, which is seen as a complete picture of someone's cognitive and physical well-being, by using multiple questionnaires such as the Groningen Frailty Indicator. According to the GPs and the one GPB NS, GPs often refer frail patients to the GPB NS' who will monitor and take care of them or a physiotherapist who provides them with specific training. Participant 1 wants an objective measurement tool that makes results indicating frailty tangible for their patients.

Muscle fatigability is mentioned in all the interviews. Four participants state that muscle fatigability is not measured in their practice. Participant 1, however, says muscle fatigability says something about the general fatigue or lessened strength experienced by patients, which is regularly assessed by for example giving the patient a hand.

Lastly, participants 1 and 4 had different perspectives on the assessment of physical resilience. According to participant 1, physical resilience is a new concept that is not being assessed, but rather is reflected upon afterwards. However, participant 4 states to monitor physical resilience, especially after a patient has been hospitalised, by using their knowledge and experience with this specific patient rather than using questionnaires or scoring lists.

Other

According to participant 5, and other participants, the population of frail community-dwelling older adults will keep increasing because the government motivates these individuals to keep living at home for as long as possible. According to participant 1 and 5, these frail patients often have fatigued and muscle related problems.

Discussion

This study aimed to explore the acceptability of Dutch GPs' and GPB NS' towards using the novel monitoring device Eforto® for the treatment of community-dwelling older adults by conducting semi-structured interviews including questions based on five factors (i.e., PE, EE, SI, FC and BI) of the UTAUT model.

The results showed that the GPB NS and most of the GPs that participated in this study would be interested to try Eforto® in their practice for the treatment of frail community-dwelling older adults who cover a large percentage of their patient group. They believe that the device may improve their assessment of frailty, muscle fatigability and physical resilience by making the measurements more objective and the results more tangible for their patients. Moreover, they expect that Eforto® might help them adapt treatment accordingly to the patient's needs. In addition, the GPB NS argues that it is important to have tools or formal help that enables early detection of frailty, which is necessary to timely implement an intervention and prevent frail community-dwelling older adults from falling. However, to be able to implement the device in their daily practice, participants want evidence of the added value of Eforto® and detailed information about how to interpret the results. Therefore, it is suggested that GPs, GPB NS' and other healthcare workers they are in close contact with first get educated about Eforto®. Moreover, GPs want a place for Eforto® measurements in their EPD system to be able to keep track of the patients' results in a structured and clear manner. Furthermore, different barriers are expected when implementing Eforto®. GPs state that a shortage of time is the biggest problem, which was not the case for the GPB NS who believes Eforto® can easily be implemented in their daily practice. Lastly, even though the GPs are willing to try Eforto® in their practice, they state that the GPB NS' would be a better target group and benefit more from Eforto® followed by physiotherapists, which is in line with the statement of the GPB NS as well.

It needs to be noted that a considerable amount of GPs did not want to participate in this study because of a shortage of time or because they believed that they were not the right target group for the usage of Eforto®. Four from these GPs that did not want to participate stated that this study should rather focus on GPB NS', healthcare workers in rehabilitation, or physiotherapists. This finding is in line with the statements given by the GPs and the GPB NS that did participate in this study and stated that the GPB NS' would be the best target group for Eforto® usage followed by physiotherapists. In addition, 15 GPs stated that they did not have time to do the interview, which highlights the importance of the expected barrier of *time shortage* amongst GPs when it comes to implementing and using Eforto® in their daily practice. Thus, GPs might not be the most suitable target group for Eforto® usage and the other target groups indicated by the GPs, especially the GPB NS' who monitor frail older adults on a frequent basis, might be therefore more interesting to further investigate.

Considering that the GPs and GPB NS do expect that Eforto® might improve the care they can give to the frail community-dwelling older adults when it meets their needs, it might be interesting to explore how Eforto® can be implemented. According to the Diffusion of Innovation (DOI) Theory by Kaminski (2011), it can help to first introduce the new technology to the innovators and early adopters amongst the GPs and GPB NS' because the device is rather new and there is lacking evidence of its practical implications in these healthcare settings. Looking at the GPs, not only the lack of evidence of the added value of Eforto® may withhold them from implementing Eforto®, but also due to the barrier of *time shortage*. Therefore, it might be more difficult to find innovators and early adopters amongst GPs that are willing to implement the device because they have too many tasks and too little time with a patient during consultation or treatment to add extra measurements. This needs to be considered but either way, the innovators and early adopters are the most likely to adopt new technology. In this way, these two groups can provide new information about the added

value of Eforto® in their practices and promote change. Consequenty, the GPs and GPB NS' belonging to the early majority are likely to adopt Eforto® once the practical implications of the device in their practices are understood. The GPs and GPB NS' in the late majority group will follow due to peer pressure. Lastly, the fifth group called the laggards are the least likely to adopt new products because they do not support change and can be considered real conservatives. Thus, GPs and GPB NS' belonging to the laggards are the least likely to implement Eforto®.

Strength & Limitations

The main limitation of this study is that participants did not actually use the device in their practice, were not able to touch and try Eforto® themselves during the interview (via a digital communication platform) and were not shown the whole procedure of the Eforto® measurements, which is necessary if they want to indicate how easy the device is to use by themselves or by their frail older patients. Even though the information given about Eforto® (Appendix D) was the same for all participants, the perceptions of the participants might have been affected (i.e., information bias) because they had to rely on the provided information only. In addition, the study only included five participants, four GPs and one GPB NS, which made it difficult to compare different perspectives between the GPs and GPB NS'. A bigger sample size that includes a considerable amount of GPs and GPB NS' will have more saturation and thus better content validity. However, this study aimed and succeeded to give a first impression of the perspectives and acceptability of GPs and the GPB NS' to try Eforto® in their practice. The possible relevance of Eforto® amongst GPs and GPB NS' was based on theoretical and practical implications within other fields, but there is limited literature available yet about the practical implications of this device for the GPs and GPB NS'. Therefore, this study can be considered a starting point to further investigate the practical use of Eforto® for these healthcare workers in primary care.

Future Research

To investigate the acceptability of GPs and GPB NS' towards Eforto® more precisely and accurately, it is of the utmost importance to do a face-to-face semi-structured interview with the participants. This enables them to touch, use and see Eforto® for themselves. Moreover, the sample for this face-to-face semi-structured interview should include more GPB NS' because they are considered one of the most suitable target groups for Eforto® usage, which is why more insight in their perspectives and acceptability towards Eforto® is needed. Furthermore, participants showed a great need for evidence of the added value of Eforto® within their practice. Therefore, it is recommended to investigate the validity and reliability of the device and its practical implications when it comes to assessing and monitoring frailty, muscle fatigability and physical resilience in their practice.

Conclusion

This study explored the acceptability of GPs and a GPB NS to use Eforto® in their practice. In general, GPs experience a shortage of time and believe GPB NS', followed by physiotherapists, are more suitable as a target group for Eforto®. The GPB NS (N = 1) confirmed interest and the potential added value of Eforto® in their daily practice. Even though this study succeeded to give a first impression of the perspectives and acceptability of GPs and the GPB NS' to try Eforto® in their practice, it should be taken into account that the perspectives of participants might be biased due to limited information about the Eforto® procedure and the sample size (N = 5) was too small to ensure content validity. Thus, this study can be considered a starting point to further investigate the practical use of Eforto® for these healthcare workers, especially the GPB NS', in primary care.

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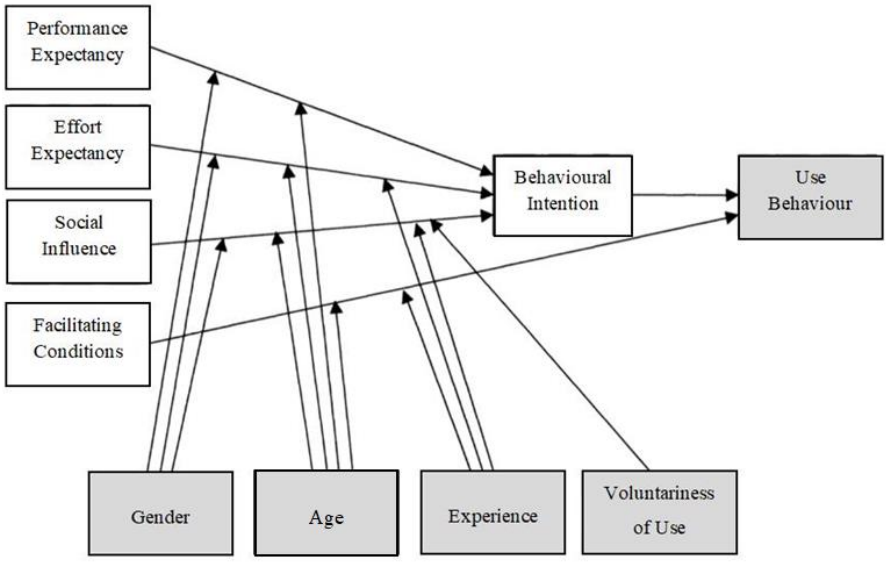
Appendix A

UTAUT Model

Figure 1

UTAUT Model



Note. This study focuses on the white factors of the UTAUT model (Venkatesh et al., 2003)

Appendix B

Approval Ethical Committee

UNIVERSITY OF TWENTE.
FACULTY BMS

230683 REQUEST FOR ETHICAL REVIEW

Request nr:	230683
Researcher:	Beernink, S.
Supervisor:	Spook, J.E.
Reviewer:	Klooster, P.M. ten
Status:	Approved by commission
Version:	2

Appendix C

Information Letter in Dutch

UNIVERSITY OF TWENTE.

Informatiebrief en Toestemmingsformulier Voor Deelname aan Wetenschappelijk Onderzoek

Onderzoek of Huisartsen Eforto® Willen Gebruiken Tijdens hun Werk met Kwetsbare Oudere Thuiswonende Patiënten

Geachte heer/mevrouw,

Met deze informatiebrief wil ik u vragen of u wilt deelnemen aan een interview voor mijn afstudeeropdracht aan de Universiteit Twente. Voor mijn afstudeeropdracht onderzoek ik of Eforto® een apparaat is wat huisartsen kunnen gebruiken tijdens hun werk met kwetsbare oudere thuiswonende patiënten. U heeft deze brief gekregen omdat ik denk dat u mij kunt helpen met dit onderzoek. Meedoen is vrijwillig!

U leest hier om wat voor onderzoek het gaat, wat het voor u betekent, en wat de voordelen en nadelen zijn. Wilt u de informatie doorlezen en beslissen of u wilt meedoen? Als u wilt meedoen, kunt u het toestemmingsformulier invullen dat u vindt in bijlage B. Als u vragen heeft, neemt u gerust contact met mij op (zie bijlage A).

1. Algemene informatie

Universiteit Twente heeft in samenwerking met Ziekenhuisgroep Twente (ZGT) deze afstudeeropdracht opgezet. Voor mijn afstudeeropdracht, ben ik opzoek naar meerdere huisartsen die willen deelnemen aan mijn onderzoek naar de intentie van huisartsen om Eforto® te gebruiken om de spiervermoeidheid en handknijpkracht van kwetsbare oudere thuiswonende patiënten te monitoren. De ethische toetsingscommissie van het BMS Universiteit Twente heeft toestemming gegeven voor dit onderzoek.

2. Wat is het doel van het onderzoek?

Het doel is onderzoeken of huisartsen Eforto® zouden willen gebruiken om de spiervermoeidheid en de handknijpkracht van kwetsbare thuiswonende oudere patiënten te

monitoren. Om dit te bereiken, wil ik verschillende huisartsen interviewen met betrekking tot de factoren die belangrijk zijn wanneer een patiënt wordt beoordeeld op zijn of haar fysieke gezondheid. Ook wil ik weten of u denkt dat Eforto® u hierbij kan ondersteunen. Mogelijk kunnen we met de handknijpkracht en de spiervermoeidheid het herstellend vermogen van de patiënt monitoren. Daarom wordt ook naar de relevantie van het monitoren van de veerkracht om te kunnen herstellen voor huisartsen onderzocht tijdens het interview.

3. Wat is de achtergrond van het onderzoek?

Tot nu toe zijn er in de geneeskunde geen tests beschikbaar die de veerkracht van personen kunnen meten en kunnen volgen over tijd. Het zou echter zeer nuttig zijn om een inschatting te kunnen maken of een patiënt extra zorg nodig zal hebben of dat de patiënt snel herstelt. Uit recent onderzoek blijkt dat Eforto® een betrouwbare meeting kan doen van de handknijpkracht en de spiervermoeidheid van oudere thuiswonende patiënten. Omdat de handknijpkracht en spiervermoeidheid mogelijk gerelateerd zijn met het herstellend vermogen van een patiënt, zou Eforto® hier huisartsen misschien bij kunnen ondersteunen.

4. Hoe verloopt het onderzoek?

Als u meedoet, zal u uitgenodigd worden voor een online interview via Teams wat ongeveer 20 minuten duurt. Tijdens het interview worden verschillende vragen gesteld met betrekking tot;

- De verschillende factoren die voor u belangrijk zijn om de fysieke gezondheid van een kwetsbare oudere thuiswonende patiënt te beoordelen.
- Of het relevant voor u is om inzicht te krijgen in de handknijpkracht en spiervermoeidheid van een kwetsbare oudere thuiswonende patiënt.
- Of het relevant voor u is om inzicht te krijgen in de fysieke veerkracht van een kwetsbare oudere thuiswonende patiënt.
- Of u Eforto® (zie figuur 1 en 2) zou willen gebruiken voor het monitoren van kwetsbare oudere thuiswonende patiënten.

Figuur 1: Eforto® handknijpkrachtmeter.

Figuur 2: Eforto® app.

5. Wat wordt er van u verwacht?

Ik wil graag dat het onderzoek goed verloopt. Daarom maken ik de volgende afspraken met u:

- U beantwoord de vragen gesteld door de interviewer zo gedetailleerd mogelijk.
- U informeert mij als u op enig moment wilt stoppen met uw deelname.
- U informeert mij, binnen 5 werkdagen na het interview, als u wilt dat uw gegevens niet meer gebruikt worden voor onderzoek.

6. Wat zijn de voordelen en de nadelen als u meedoet aan het onderzoek?

Er zijn voor uwzelf geen voordelen wanneer u meedoet aan dit onderzoek. Als u meedoet aan dit onderzoek helpt u onderzoekers om meer inzicht te krijgen in het herstel en in het herstellend vermogen van patiënten om in de toekomst de zorg voor patiënten te kunnen verbeteren. Meedoen aan het onderzoek kost ongeveer 20 minuten van uw tijd. U beslist zelf of u meedoet aan het onderzoek, deelname is vrijwillig.

7. Wanneer stopt het onderzoek?

Uw deelname aan het onderzoek stopt wanneer:

- Alle hoofdvragen en deelvragen van het interview voldoende zijn beantwoord.
- U wilt zelf stoppen met het onderzoek. Dat mag op ieder moment en moet gelijk gemeld worden bij de onderzoeker. U hoeft niet te vertellen waarom u stopt.
    - Wat gebeurt er met de gegevens als u stopt met het onderzoek?
      U kunt mij binnen 5 werkdagen na ons interview laten weten dat uw gegevens niet meer gebruikt mogen worden voor het onderzoek.

8. Wat gebeurt er na het onderzoek?

Als u geïnteresseerd bent in de uitkomsten van het onderzoek, kunt u rond juli 2023 contact opnemen met de onderzoeker. De belangrijkste uitkomsten van het onderzoek worden u dan via mail toegestuurd.

9.Wat doen we met uw gegevens?

Doet u mee aan het onderzoek? Dan geeft u ook toestemming om uw gegevens te verzamelen, gebruiken en bewaren voor een periode van 10 jaar.

Welke gegevens bewaren we?
We bewaren deze gegevens:

- Uw geslacht en uw leeftijd
- Antwoorden die u heeft gegeven op de vragen tijdens het interview

Hoe verzamelen we bovenstaande gegevens?
Het interview wordt opgenomen met uw toestemming en later omgezet in leesbare tekst. De video-recordings worden na 5 werkdagen verwijderd van Teams. Alleen de leesbare tekst blijft bewaard. Op deze manier kunnen we uw antwoorden goed analyseren.
Waarom verzamelen, gebruiken en bewaren we uw gegevens?
We verzamelen, gebruiken en bewaren uw gegevens om de vragen van dit onderzoek te kunnen beantwoorden en om de resultaten te kunnen publiceren. Ook hebben we deze gegevens nodig om het Eforto® knijpkracht systeem mogelijk op de markt te kunnen brengen.
Hoe beschermen we uw privacy?
Om uw privacy te beschermen, wordt de video-opnames na 5 werkdagen in de Teams omgeving en mijn persoonlijke One Drive van de Universiteit Twente verwijderd. Hiernaast blijven alleen uw leeftijd en geslacht zichtbaar in het uitgeschreven interview. Alle gegevens die u direct kunnen identificeren, zoals uw naam, worden weggelaten en niet opgeslagen in het uitgeschreven interview. Hierdoor kan niemand uw identiteit achterhalen in rapporten en publicaties over het onderzoek.
Toegang tot uw niet-herleidbare gegevens van personen buiten het onderzoeksteam.
De gegevens zoals uw antwoorden tijdens het interview, uw leeftijd en uw geslacht kunnen gedeeld worden met andere leden van het projectteam op de Universiteit Twente, de ZGT, en het FORTO consortium. Op deze manier kan ik de informatie van mijn afstudeeropdracht

inzetten om gezamenlijk onderzoek naar de bruikbaarheid van Eforto® en het mogelijk monitoren van fysieke veerkracht te ondersteunen.

Hoelang bewaren we uw gegevens?

We bewaren uw gegevens tot juli 2033 op de Universiteit Twente. Voor meer informatie kunt u de volgende website bekijken van de Universiteit Twente;
https://www.utwente.nl/en/bms/datalab/datastorage/

Mogen we uw gegevens gebruiken voor ander onderzoek?

Uw gegevens kunnen na afloop van dit onderzoek ook nog van belang zijn voor ander wetenschappelijk onderzoek op het gebied van herstel of van de verdere ontwikkeling van de Eforto® handknijpkrachtmeter. Daarvoor zullen uw gegevens 10 jaar worden bewaard op de Universiteit Twente. In het toestemmingformulier geeft u aan of u dit goed vindt (zie bijlage B). Geeft u geen toestemming? Dan kunt u nog steeds meedoen met dit onderzoek.

Kunt u uw toestemming voor het gebruik van uw gegevens weer intrekken?

U kunt uw toestemming voor gebruik van uw persoonsgegevens binnen 5 werkdagen na het interview weer intrekken. Maar let op: trekt u uw toestemming pas na 5 werkdagen in, dan kunnen wij uw gegevens niet meer verwijderen en worden de gegevens nog wel gebruikt. Na 5 werkdagen worden de video-opnames verwijderd en zijn de uitgeschreven interviews volledig anoniem. Hierdoor is het dus niet meer mogelijk de gegevens naar u te herleiden.

Wilt u meer weten over uw privacy?

- Wilt u meer weten over uw rechten bij de verwerking van persoonsgegevens? Kijk dan op www.autoriteitpersoonsgegevens.nl.

Heeft u vragen over uw rechten? Of heeft u een klacht over de verwerking van uw persoonsgegevens? Neem dan contact op met mij of mijn supervisor (zie bijlage A)

10. Krijgt u een vergoeding als u meedoet aan het onderzoek?

Deelname aan het onderzoek kost u niets. U wordt niet betaald voor het meedoen aan dit onderzoek.

11. Bent u verzekerd tijdens het onderzoek?

U bent niet extra verzekerd voor dit onderzoek, want meedoen aan het onderzoek heeft geen extra risico’s.

12. Heeft u vragen?

Voor vragen over het onderzoek kunt u vragen stellen aan de onderzoeker (Sanne Beernink) of neem contact op met de supervisor via de contactgegevens in bijlage A.

13. Heeft u een klacht?

Bespreek dit met de onderzoeker (Sanne Beernink) of neem contact op met de supervisor via de contactgegevens in bijlage A.

14. Hoe geeft u toestemming voor het onderzoek?

U kunt eerst rustig nadenken over dit onderzoek. Daarna vertelt u de onderzoeker (Sanne Beernink) of u de informatie begrijpt en of u wel of niet wilt meedoen. Wilt u meedoen? Dan vult u het toestemmingsformulier in dat u aan het eind van deze informatiebrief vindt (zie bijlage B). U en de onderzoeker (Sanne Beernink) krijgen allebei een getekende versie van deze toestemmingsverklaring.

Dank voor uw aandacht.

Bijlage A; Contactgegevens

Contactgegevens onderzoeker:

- Naam: Sanne Beernink

- Student Psychologie op Universiteit Twente

- Email: s.beernink@student.utwente.nl

Contactgegevens supervisor:

- Naam: Dr. Jorinde E. Spook

- Assistant Professor op Universiteit Twente

- Email: j.e.spook@utwente.nl

- Telefoon: +31534892697

Bijlage B; Toestemmingsformulier

Ik heb de informatiebrief gelezen en begrepen. Ook kon ik vragen stellen. Mijn vragen zijn voldoende beantwoord. Ik had genoeg tijd om te beslissen of ik meedoe.
Ja ☐ Nee☐

Ik weet dat meedoen vrijwillig is. Ook weet ik dat ik op ieder moment kan beslissen om toch niet mee te doen of te stoppen met het onderzoek zonder reden op te geven.
Ja ☐ Nee☐

Ik begrijp dat ik voor dit onderzoek deelneem aan een online interview waarin ik vragen moet beantwoorden met betrekking tot Eforto® en factoren die meespelen in de beoordeling van de fysieke gezondheid van kwetsbare thuiswonende ouderen.
Ja ☐ Nee☐

Ik geef toestemming voor het verzamelen en gebruiken van persoonlijke gegevens (leeftijd en geslacht), en voor de gegevens verzameld tijdens het interview voor de beantwoording van de onderzoeks vragen in dit onderzoek.
Ja ☐ Nee☐

Ik geef toestemming om mijn gegevens te bewaren om dit te gebruiken voor ander onderzoek, zoals in de informatiebrief staat.
Ja ☐ Nee☐

Ik wil meedoen aan dit onderzoek.
Ja ☐ Nee☐

Mijn naam is (deelnemer):.....Handtekening:

Datum: ____/ ____/ ____

Ik verklaar dat ik deze deelnemer volledig heb geïnformeerd over het genoemde onderzoek. Als er tijdens het onderzoek informatie bekend wordt die de toestemming van de deelnemer zou kunnen beïnvloeden, dan breng ik hem/haar daarvan tijdig op de hoogte. Naam onderzoeker (of diens vertegenwoordiger):

Naam: Sanne Beernink Handtekening:

Datum: ____/ ____ / ____

Appendix D

Interview Scheme

Permission and Instruction

1. Check if the recording is working.
2. Read the questions in a calm manner.
3. To encourage the interviewee throughout the interview, ask the following open-ended questions:
    - Can you explain that?
    - What exactly do you mean by that?
    - Can you tell me more about that?
    - Can you give examples?
4. Thanking the General Practitioner (GP) for their agreement to participate in the interview.
    - Introduce yourself. Briefly describe the interview's duration, purpose, and content.
    - The study's aim is to examine the GP's acceptance towards the use of the Eforto® device in community-dwelling older adult patients' treatment; This would allow the Eforto® researchers and developers to improve the device and to gain insights into the contexts in which the device could be implemented in.
    - Questions asked will be covering topics such as your age, gender, working experience as a GP, experience with and opinion on use of technology and specifically the Eforto® device for the treatment of frail community-dwelling older adult patients.
    - The interview lasts about 20 minutes.
    - The GP has always the option to refuse to answer a question.

5. Request permission to record the conversation.
4. Does the GP have any questions? If not, the interview starts.
7. After the recording has started, ask again for permission to do the audio recording.
8. During the interview, make sure that all critical questions in bold are asked. Keep the conversation naturally flowing as much as possible and ask questions that are not bold if feasible.

Abbreviations, based on UTAUT:

BI: Behavioural Intention

EE: Expected Effort

FC: Facilitating Conditions

PE: Performance Expectancy

SI: Social Influence

Interview met Huisarts

Goedemorgen/middag/avond meneer/mevrouw [naam deelnemer],

Voor we beginnen, wil ik u bedanken voor het meedoen aan dit onderzoek. Mijn naam is Sanne Beernink en ik ga u interviewen vandaag. Ik wil u vragen of u het goed vindt dat ik dit gesprek opneem. [bij toestemming, start de opname]

Nogmaals, bedankt voor het deelnemen aan het interview. Voordat we verder gaan, vraag ik nogmaals toestemming voor het opnemen van ons gesprek [bij toestemming, verder gaan]. Bedankt, dan ga ik u nu eerst nog een korte uitleg geven.

Het doel van dit interview is het begrijpen van uw intenties om Eforto® te gaan gebruiken tijdens uw behandelingen van kwetsbare thuiswonende ouderen. Dit is belangrijk om te kijken hoe we het apparaat in kunnen zetten om de zorg te verbeteren en of het apparaat eventueel nog aangepast moet worden. Het interview duurt ongeveer 20 minuten en u kunt weigeren een vraag te beantwoorden of te stoppen met het interview wanneer u wilt. Dit heeft geen consequenties voor u. U kunt binnen 5 werkdagen na dit interview nog besluiten om uw gegevens en antwoorden te laten verwijderen zodat we dit niet kunnen gebruiken voor het onderzoek.

Voordat we beginnen met het onderzoek, heeft u nog vragen met betrekking tot uw rechten, het interview of Eforto®? [wacht op antwoord van de deelnemer]. Als u nog steeds wilt deelnemen aan het onderzoek, kunnen we nu beginnen met het interview.

Eerst heb ik wat algemene vragen die belangrijk zijn om de globale karakteristieken van de groep deelnemers te kunnen noteren.

Demographic information:

1. **Wat is uw leeftijd?**
2. **Wat is uw geslacht?**
3. **Hoeveel werkervaring als huisarts heeft u?**
4. **Hoeveel procent van uw patiënten zijn kwetsbare thuiswonende ouderen?**

Nu wil ik u wat vragen stellen met betrekking tot Eforto®. In de informatiebrief die u via de mail heeft ontvangen heeft u al wat over dit systeem kunnen lezen. Daarom wil ik in het kort herhalen wat de belangrijkste functies zijn en hoe het functioneert.
Eforto® monitort de spiervermoeidheid van patiënten en kan mogelijk ook de fysieke veerkracht monitoren. Het Eforto® apparaat ziet er zo uit [laat het apparaat aan de deelnemer zien]. De spiervermoeidheid wordt gemeten wanneer een patiënt in de rubberen ballon knijpt totdat de maximale grijpkracht met 50% is verminderd. De maximale grijpkracht wordt bepaald door de patiënt eerst 3x zo hard mogelijk in de ballon te laten knijpen. De resultaten van de verschillende patiënten kunnen worden bijgehouden met de mobiele Eforto® app [laat de app aan de deelnemer zien]. Naast de resultaten, kun je hier ook een gebruiksaanwijzing vinden. Hierdoor kunt u de spiervermoeidheid van de patiënten monitoren. Dus in het kort, Eforto® is gevalideerd en betrouwbaar in het meten van de spiervermoeidheid en kan mogelijk ook de fysieke veerkracht van patiënten bijhouden.

Heeft u vragen over Eforto®? Als er verder geen vragen zijn, ga ik nu verder met de vragen over Eforto®

<u>Eforto</u>

1. **BI: Zou u Eforto® willen gebruiken tijdens de behandelingen van kwetsbare thuiswonende ouderen?**
    a. Is het Eforto® systeem compleet?
    b. Wat vindt u fijn of goed aan Eforto®? / Waarom zou u het wel willen gebruiken?
    c. Wat zou u willen veranderen of verbeteren aan Eforto®? / Waarom zou u het niet willen gebruiken?
    d. Hoe zou u het inzetten?

2. **PE: Denkt u dat Eforto® in het algemeen relevant is en de zorg voor kwetsbare thuiswonende ouderen kan verbeteren?**
    a. Zo ja, op welke manier?
    b. PE: Kan Eforto® helpen bij de meest voorkomende gezondheidsprobleem van deze patiëntengroep [kwetsbare thuiswonende oudere patienten]? Of is het meer geschikt voor een andere doelgroep of ander beroep?

3. **PE: Wat vindt u van het idee om Eforto® te gebruiken om de spiervermoeidheid van kwetsbare thuiswondende ouderen te monitoren?**
    - PE: Is spiervermoeidheid en het monitoren van de spiervermoeidheid relevant voor u tijdens het behandelen van kwetsbare thuiswonende ouderen?
    - PE: Hoe denkt u dat Eforto® u hierbij helpt vergeleken met andere apparaten of procedures die u momenteel gebruikt tijdens de behandelingen?

4. **PE: Wat vindt u van het idee om Eforto® te gebruiken om de fysieke veerkracht van kwetsbare thuiswondende ouderen te monitoren als dit mogelijk blijkt?**
    - PE: Is fysieke veerkracht en het monitoren van de fysieke veerkracht relevant voor u tijdens het behandelen van kwetsbare thuiswonende ouderen?
    - PE: Denkt u dat uw Eforto® (meer) wilt gebruiken wanneer het naast het monitoren van de spiervermoeidheid ook de mogelijkheid biedt om de fysieke veerkracht te monitoren?

5. **EE: Hoe gemakkelijk denkt u dat het gebruik van Eforto® is wanneer u kwetsbare thuiswonende ouderen behandeld?**
    - EE; Op een schaal van 1-10, hoe moeilijk denkt u dat het is om het apparaat te gebruiken tijdens de behandelingen? 1 betekent erg makkelijk te gebruiken en 10 betekent erg moeilijk om te gebruiken.
    - FC: Denkt u dat u specifieke vaardigheden nodig heeft om Eforto® te kunnen gebruiken tijdens uw werk? Zo ja, welke vaardigheden denkt u aan?
    - Kunt u uitleggen waarom het makkelijk/moeilijk te gebruiken lijkt?

6. **FC: Kunt u Eforto® gelijk toepassen binnen uw praktijk als u wilt?**
    - FC: Moeten er grote verandering plaats vinden wanneer u Eforto® wilt gebruiken tijdens de behandeling (binnen uw praktijk of groter)?

7. **SI: Wat denkt u dat uw patiënten van het gebruik van Eforto® tijdens de behandelingen van kwetsbare thuiswonende ouderen vinden?**

We zijn nu bij het eind van het interview aangekomen. Ik wil u nogmaals heel erg bedanken voor uw deelname aan het onderzoek. Als u vragen of opmerkingen heeft of u wilt dat ik uw gegevens verwijder, dan vraag ik u contact met mij op te nemen binnen 5 werkdagen via de mail. Ik stop de video-opname nu.

Appendix E

Code Scheme of the Interviews

Table 1

Code scheme

Codes and Sub-codes	**Description Code and Sub-codes**	**Example Quotes**
Behavioural Intention (BI)	The degree to which an individual intends to use Eforto®.	
Positive BI	*The individual states that he or she wants or believes that he or she is going to use Eforto®.*	"I want to use it within my practice […] to have something more measurable of frailty." Par. 1
Neutral BI	*The individual does not state that or does not know if he or she wants or believes he or she is going to use Eforto®.*	"My first reaction is that I do not know. I am not sure if I directly see an added value." Par. 2
Negative BI	*The individual states that he or she does not want or believes he or she is not going to use Eforto®.*	"Speaking for myself, I think I am busy enough already to be able to add this task as well. So, yes, no, I would not like to use it." Par. 2
Performance Expectancy (PE)	"The degree to which an individual believes that using the system[1] will help him or her to attain gains in job performance" (Venkatesh et	

	al., 2003, p. 447).	
Relevance of Frailty	*The PE is related to better assessment of frailty or the importance of assessing frailty as a GPB NS or GP.*	"Maybe is Eforto® more objective than the Groningen Frailty Index […] because the GFI is a questionnaire while Eforto® gives a measurement or a number." Par. 3
Relevance of Muscle Fatigability	*The PE is related to better assessment of muscle fatigability or the importance of assessing muscle fatigability as a GPB NS or GP.*	"I guess Eforto®, measuring muscle fatigability, is especially useful for fall prevention and muscle strength." Par. 3
Relevance of Physical Resilience	*The PE is related to better assessment of physical resilience or the importance of assessing physical resilience as a GPB NS or GP.*	"It might help to understand the physical resilience a little better. […] This could be something that makes my work easier." Par. 4
PE General	*The PE is not related to assessing frailty, muscle fatigability or physical resilience as a GPB NS or GP.*	"I think in general, the more you accompany people and keep an eye on them, the easier it is to adjust treatment accordingly." Par. 2
Effort Expectancy (EE)	"The degree of ease associated with the use of the system" (Venkatesh et al., 2003, p. 450).	
Easy use	*The individual states Eforto® seems user-friendly, easy to use or gives Eforto® a score of >5 on a 1 to 10 scale (1 = very difficult to*	"Super easy, yes. Like the way you just explained it, it looks very user-friendly." Par. 5

	use, 10 = very easy to use).	
Difficult Use	*The individual states Eforto® does not seem user-friendly, easy to use or gives Eforto® a score of <5 on a 1 to 10 scale (1 = very difficult to use, 10 = very easy to use).*	"No, I think that most of the frail older adults will not be able to this themselves." Par. 4
No Opinion	*The individual is not able or does not want to say anything about the EE of Eforto®.*	"I didn't see it and was not able to try it myself, so I cannot really say something about that." Par. 2
Social Influence (SI)	"The degree to which an individual perceives that other important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451).	
Open-Minded	*Individuals believe that the patients are willing to try Eforto® when it is used in their practice.*	"As long as you tell them why we use it and what we measure with it […] most patients are willing to cooperate and will appreciate it" Par. 5
Capability of Older Adults	*Individuals are doubting if the patients are willing to use it or able to use it due to the physical abilities of the older adult or a lower self-efficacy when it comes to using novel technology.*	"Maybe that older adults already perceive stress when they need to squeeze the bulb. If they cannot do it, that would be terrible of course." Par. 3
Facilitating Conditions (FC)	"The degree to which an individual believes that an organizational and technical	

	infrastructure exists to support use of the system" (Venkatesh et al., 2003, p. 453).	
Facilitators	*Individuals believe that Eforto® can be implemented right away or that some minor and doable changes in organisational or technical infrastructures are needed.*	"I think these people need to educate GPs [...].GPs need to get familiar with it and with the cut-off values." Par. 3
Barriers	*Individuals believe that Eforto® cannot be implemented right away and that major changes in organisational or technical infrastructures are needed.*	"I do not think we are able to execute the measurements as GPs because we do not have enough time." Par. 4
Assessing Frailty	Information about how and if frailty is assessed by GPs or the GPB NS.	"We look at a complete image, cognitive and physical, so you are looking at huge variety of factors. […] There are a lot of questionnaires that we use, well especially POH-OZ." Par. 4
Assessing Muscle Fatigability	Individuals give information about how and if muscle fatigability is assessed by GPs or the GPB NS' in their practice.	"Muscle fatigability is common, but is not named muscle fatigability. It is more a general image of having bad well-being, reduced strength or being more fatigued." Par. 1
Assessing Physical Resilience	Individuals give information about how and if physical resilience is assessed by GPs or the GPB NS' in their practice.	"When someone is visiting me after hospitalisation or something like that, we definitely look at physical resilience and if the patient is getting stronger the

		following weeks. […] You monitor it, but not based on questionnaires or measurements, just based on your knowledge and experience with patients." Par. 4
Evidence of Added Value	Individuals ask questions regarding the evidence about the added value of Eforto® for their practices or express a need to have evidence about the added value of Eforto®.	"It needs, I believe, to have added value, that it says something extra about frailty. […] It is very interesting to know if it is better or adds anything to the golden standard we have now." Par. 3
Interpretation of Values	Individuals give information about how they want or think they have to interpret the measurements and values of Eforto®.	"The one 80-year old patient is not the same as the other 80-year old patient. […] If you have a baseline measurement, you can see that someone is getting worse. […] If you know, oh dear, this value is not good, yes then you should maybe do something. So, a baseline measurement and cut-off values can both have added value." Par. 5
Target Group Eforto® Usage	GPs or GPB NS' state that Eforto® can be used by different target groups.	
GPs	*Individuals state that GPs are the right target group for Eforto® usage.*	"This is definitely something that can be applied within the practice of a GP […]." Par. 4
GPB NS'	*Individuals state that the GPB NS' (aka. POH-OZ) are the right target group for Eforto® usage.*	"I think it suits the POH-Oz better, they see the patients more often and frequently." Par. 1

Physiotherapists	*Individuals state that physiotherapists are the right target group for Eforto® usage.*	"Yes, but maybe I would take into account physiotherapist because they see more patients or clients with a certain level of fatigue or muscle problems." Par. 1
Other	*Individuals state other possible target groups, other than GPs, GPB NS' and physiotherapist, for Eforto® usage.*	"Maybe this is something for the orthopaedist or the trauma surgeons in order to keep an eye on the patients for a while." Par. 2
Other	All units of analysis that do not fit underneath any other code mentioned above, can be covered by this code.	"If you look at all those patients, the most you see is; fatigued, muscle related problems." Par. 1

Note. All quotes are directly translated from Dutch to English. [1]The system used for this Bachelor Thesis is Eforto®.