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Health and Well-Being of Frail Elderly

Towards Interventions that Really Count!

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Inhoud

Introduction

A scooter ride to Princenhage

Welcome everybody. Let me start my inaugural speech at the beginning – no, not at my birth, but at the start of my professional career. After completing my military service at the Military Rehabilitation Centre in Doorn, in 1986 I began work as a district nurse in Breda, where I came into close contact with my research group's current target population: frail elderly. Unlike many other students then and now, the unique aspects of district nursing and aged care grabbed me instantly. There were two things in particular: firstly that district nursing puts great demands on one's independence and creativity, and secondly, that you encounter people in their own homes and social environments. During the first year I rode my little Austrian 'Puch' scooter to visit all sorts of people, ranging from the residents of big, stately homes in the centre of Princenhage (a suburb of Breda), to people living on farms in the city surrounds. The images of the people I cared for and the conversations I had with them have stayed with me to this day. Like Mr Jansen, an elderly man with Bechterew's disease, who regularly said to me 'Robbert, a bow long bent at last waxeth weak'. Or Mr Visser, who painted pictures with his mouth. Or Mrs Pieters, who suffered from multiple sclerosis, but came in her wheelchair to congratulate Marianne and me at our wedding. It was these experiences that taught me that there is no such thing as 'senior citizens' in general.

From district nursing to education

After around ten years of very fulfilling work as a district nurse, I made the switch to education. This change gave me the opportunity to share my knowledge and experience in aged care with students and colleagues. Ria Wijnen (who was then lecturing at Avans University of Applied Sciences) then asked me to join her Gerontology Research Group, giving me the chance to fulfil my ambitions in research. In 2005 I gave a lecture following her inaugural speech which was titled 'On elderly people and fleeting images...' (Wijnen-Sponselee, 2005). My own lecture was titled 'Empowerment of Elderly with a Chronic Illness', which I concluded by asking the question 'What preventive activities can carers use to improve the quality of life among chronically ill elderly where comorbidity is a factor?' (Gobbens, 2005). Shortly thereafter, Ria asked me whether I would be interested in completing a PhD – that decision was a no-brainer. Following meetings with my supervisors Jos Schols and Katrien Luijkx from Tilburg University, we jointly decided that I would focus on the definition and measurement of frailty among the elderly, and in 2010 I was awarded by PhD.

Inholland Research Group

Then, in late 2014, a vacancy for associate professor in multimorbidity opened up. I thought long and hard about whether I should apply; after all, I had a nice job at the Rotterdam University of Applied Sciences, and had been living in Brabant my whole life; moving was not an option. In Rotterdam, I was a senior researcher in geriatric care, and coordinator of the Nurse Practitioner degree programme. But the subject, the target population and the opportunity to establish branches of research (with the express purpose of creating links between education, research and professional practice) were so irresistible that I applied.

I was accepted, and in February 2015 I started working as associate professor at Inholland University of Applied Sciences and at *Zonnehuisgroep Amstelland* aged care – where I still work today. Both institutions support the research group, which is a very special situation indeed. My remit was worded as follows: to conduct applied research among clients, their families and staff on the effects of multimorbidity on functioning among the elderly, and the consequences thereof for their quality of life.

1 From Multimorbidity to the Health and Well-Being of Frail Elderly

Now, over two years later, the day of my inaugural speech as a professor has arrived. Some of you may have noticed that the name of my research group has changed in the meantime, from 'Multimorbidity' to 'Health and Well-Being of Frail Elderly'. This is more than a mere name change – from the very start, I found the name 'Multimorbidity' not entirely fitting, neither for me nor the area of research. Below I will explain why I believe 'Health and Well-Being of Frail Elderly' is a better choice.

''Multimorbidity' is a term used when single person is suffering from at least two chronic illnesses at the same time (Pel-Littel, Vlek, & Driessen, 2012). These may be physical conditions, or a combination of physical and psychological conditions. Multimorbidity is therefore automatically associated with illness, however the research group was supposed to focus on the *effects* of illness, such as the way people deal with and respond to it. In my view, frailty (in a physical, psychological and/or social sense) can be a *consequence* of multimorbidity.

That is why I prefer 'frailty' as the focus, and also because 'frailty' more effectively emphasises functioning in a more general sense. It is also perfectly in line with creating The Healthy Society, to which Inholland actively contributes via its education and research activities (Inholland University of Applied Sciences, 2015). Lastly, the term is more in keeping with my nursing background, which takes a holistic view of people as its basis.

Positive health

In 1948, the World Health Organisation (WHO) defined health as 'a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity.' The 1988 professional nursing profile (issued by the National Advisory Council for Public Health) already stated that nursing concerned 'the recognition, analysis, and provision of advice and support concerning actual or potential consequences of physical and/or psychological disease processes, disabilities, developmental disorders and their treatment on individuals' fundamental vital functions' (Bakker & le Grand-van den Bogaard, 1988). The profile also indicates that the actions of nurses should aim to influence people in such a way that human capacity is employed for the maintenance and preservation of health.

In 2017 we now embrace Huber's definition from 2014 which defines health as 'the ability to adapt and self-manage, in light of the physical, emotional and social challenges of life'. We call this positive health, which also involves terms such as resilience, functionality and participation. Health is not an end in itself, but rather a means that allows people to do whatever gives meaning to their lives, and possibly contributes to the lives of others. In the title, I wanted to express that my research group is not only about the health, but also the well-being of frail elderly.

2 The Healthy Society

Focus is on people

The research group focuses principally on answering the following question: How can professionals working in practice, promote the health and well-being of frail elderly? By seeking answers to this question, the research group contributes to a healthy society, one of Inholland's key themes that moulds the design of education and research.
The Healthy Society is a reference to an integrated approach to health and well-being that looks first and foremost at the individual, rather than the separate problems they encounter (Inholland University of Applied Sciences, 2015). The theme blends the developments taking place in health, welfare and sport, creating opportunities to offer people new and better solutions. In its efforts to promote a Healthy Society, Inholland has set itself three tasks. Firstly, training professionals who contribute to empowerment and self-management: people's ability to develop and retain as much control and responsibility as possible in running their daily lives is one of the core tasks in creating The Healthy Society. Secondly, students learn interprofessional collaboration skills based on an integrated approach to citizens in their social environments, which demands collaboration across specialisations and a solid personal foundation. The third task involves the optimum use of technological developments.

Contribute to quality of life

I believe this is a good time to briefly explain the connection between my research group and The Healthy Society, and exactly which topics I will go into over the course of my speech. I have already written enough about frailty; here, I will briefly explain how I define frailty in elderly, and its possible consequences. One such consequence is a poorer quality of life. Through the development and application of interventions with integrated functioning and self-management as key concepts, the research group aims to contribute to improving quality of life among frail elderly, especially those living independently, undergoing geriatric rehabilitation or suffering from dementia. In this context, pro-active integrated aged care and interprofessional collaboration are extremely important. The research group will focus principally on collaboration among professionals working in healthcare and well-being. The Learning and Innovation Networks are one concrete example, which were initiated by the research group and are regarded as a means of uniting education, research and professional practice. As you will see, an effective Learning and Innovation Network cannot be created overnight – it takes time. In the final part of my speech, I argue for increasing the numbers of qualified (HBO) nurses and nurse practitioners in aged care. Care for frail elderly is complex by definition, and the reason why these professionals are sorely needed. It does, however, require effort on the part of aged care facilities and universities of applied sciences. I will finish my speech with some garlic, broccoli and walnuts.

3 Frailty

Physical frailty

The target population of the research group is 'frail elderly'. According to the Netherlands Institute for Social Research (SCP), the total number of frail elderly aged 65 and over in the Netherlands will increase by over 300,000 (from 700,000 to over one million) between 2010 and 2030 (Van Campen, Ras, & Den Draak, 2011). The prevalence of frailty is related to age: in general it can be said 'the older, the more frail'. Approximately half of all elderly aged 75 and over and living independently can be classified as 'frail' (Gobbens, Van Assen, Luijkx, Wijnen-Sponselee, & Schols, 2010a); in residential care centres this percentage was around 75% (Gobbens, Krans, De Rooij, & Van Assen, 2015). I have never measured frailty rates among the residents of nursing homes, however I estimate the figure to be close to 100%.

I have already repeatedly used the terms *frail and frailty*, but I have not yet explained how I define them. During my PhD research, I discovered that the English term 'frailty' was originally a medical concept, which explains why the initial definitions of the word focuses principally on *physical* conditions that can affect the elderly. An example of one such definition can be taken from the American physician Linda Fried and her colleagues, in whose view 'frailty' is a biological syndrome characterised by a drop in reserve and weakened resistance to stressors, as the result of decline in various physiological systems (Fried et al., 2001). They developed this conceptual definition into an operational one, which they called 'a phenotype of frailty'. An operational definition describes a concept in terms of observable data, or in other words, it outlines how an abstract concept can be identified concretely. Fried and colleagues' operational definition includes five criteria: unintentional weight loss, self-reported exhaustion, weakness, slow walking speed, and low physical activity. In their view, an individual is 'frail' if they exhibit three or more of these criteria. However, all of these criteria are related to the physical functioning of older adults. At an expert meeting in Dallas in 2006, I had the pleasure of talking to Dr Fried, who told me she can quickly tell whether a person is frail or not. And indeed, if frailty is defined solely by the physical problems of later life, that seems highly plausible. But with such a narrow definition, the identification of frail older adults will only focus on their physical degeneration, and not on their psychological or social deterioration. This can lead to fragmented healthcare that neglects the individual as a whole (Gobbens, Luijkx, Wijnen-Sponselee, & Schols, 2010a; Markle-Reid & Browne, 2003).

An integral approach to frailty

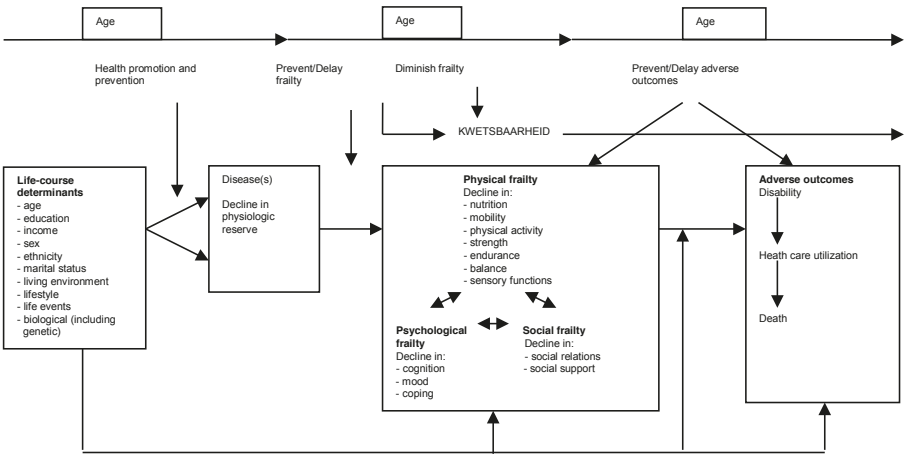
Fried's 'phenotype of frailty' has many proponents and is the most-cited definition of frailty in scientific literature. Fortunately, more and more researchers are criticising this unilateral focus on physical frailty. Based on a literature study and consultations with experts in the field of frailty, we proposed the following, broader definition of frailty: 'Frailty is a dynamic state affecting an individual who experiences losses in one or more domains of human functioning (physical, psychological, social), which is caused by the influence of a range of variables and which increases the risk of adverse outcomes.' (Gobbens, Luijkx, et al., 2010a). We also identified physical, psychological and social components of frailty. Aspects that point toward physical frailty include: inexplicable weight loss, difficulty walking, little strength in the hands, physical exhaustion, poor physical health, problems with hearing/vision, and balance issues. Psychological frailty consists of memory problems, feeling down,

nervousness/anxiety, and problems 'coping'; social frailty encompasses living alone, loneliness and a lack of social support. These fifteen aspects constitute the core of the Tilburg Frailty Indicator (TFI), a validated questionnaire used to screen older adults for frailty, that they can complete themselves. Recently a systematic review was released on the validity and reliability of 38 frailty instruments (Sutton et al., 2016), which revealed that the TFI produced the most robust evidence available. The TFI is now available in multiple languages including English, Danish, Italian, Polish and Portuguese (Andreasen, Sorensen, Gobbens, Lund, & Aadahl, 2014; Coelho, Santos, Paul, Gobbens, & Fernandes, 2014; Gobbens, Van Assen, et al., 2010b; Mulasso, Roppolo, Gobbens, & Rabaglietti, 2015; Santiago, Luz, Mattos, Gobbens, & Van Assen, 2013; Uchmanowicz et al., 2014). In conjunction with Marcel van Assen (Tilburg University), I am currently working on several TFI studies in which the focus is shifted from identifying frail elderly to interventions among them. The promising international Sunfrail project (where I work as an adviser) also focuses on proactive interventions rather than exclusively on the identification of frailty (www.sunfrail.eu).

An integral conceptual model of frailty

The fifteen aforementioned components of frailty constitute not only the core of the TFI, but also of the integral conceptual model of frailty (see Figure 1) (Gobbens, Luijkx, Wijnen-Sponselee, & Schols, 2010b).

Figure 1. An integral conceptual model of frailty (Gobbens et al., 2010b).



This model is a specification of the model titled 'A working framework in development' that was developed by a group of Canadian researchers (Bergman et al., 2004). The integral model outlines the path taken by frailty leading to adverse outcomes. The left side of the model lists ten influential factors: age, level of education, income, gender, ethnicity, marital status, living conditions, lifestyle, life events and biological (including genetic)

determinants. These affect the course of the human ageing process, and the likelihood of suffering disease. Disease occupies a prominent place in the integrated model, as multiple studies have shown that various conditions such as heart failure, anaemia and diabetes mellitus can lead to frailty (Bortz, 2002; Fried et al., 2001; Morley, Haren, Rolland, & Kim, 2006; Van Oostrom & Spijkerman, 2016). Multimorbidity is also known to be associated with frailty (Gobbens, Van Assen, Luijkx, Wijnen-Sponselee, & Schols, 2010b). Two-thirds of American older adults demonstrating physical frailty also suffer from multimorbidity (Fried, Ferrucci, Darer, Williamson, & Anderson, 2004). However, the precise connection between combinations of chronic illnesses and the prevention of frailty is still unclear (Bergman et al., 2007; Rodriguez-Manas et al., 2013). The model focuses primarily on physical, psychological and social frailty, and their associated components. Arrows are placed between these three domains of frailty to indicate that although physical, psychological and social frailty can be distinguished as different domains, they do not exist in isolation and the focus should be on the person as a whole. The three domains are interconnected, with the strongest relationship existing between physical and psychological frailty (Gobbens, Van Assen, et al., 2010a).

The rightmost section of the model lists three adverse outcomes of frailty: disability, use of health care, and mortality. Disability refers to limitations in performing activities of daily living (ADLs) and instrumental activities of daily living (IADLs). ADLs are essential to an individual's immediate self-care, e.g. washing oneself fully, dressing/undressing, and using the toilet. IADLs relate to the ability to function independently of others, e.g. preparing a warm meal or doing the grocery shopping.

Interventions among frail older adults

This integral conceptual frailty model is intended to serve multiple purposes. Firstly it is intended as a basis on which to conduct scientific research. Such research may focus on the correlations between (and in particular, the predictive value of) influential factors and the broad operational definition of frailty, or the correlations between (and predictive value of) frailty and the above-mentioned adverse outcomes. Secondly, the model lists the times when both healthcare professionals (such as GPs, nurses and physiotherapists) and well-being professionals can intervene, indicated by the vertical arrows in the model. Health promotion and prevention are intended to prevent or delay the onset of frailty. Interventions are also possible if people are already frail, in which case the objectives are to reduce frailty and prevent or delay the onset of adverse outcomes, such as reduced ability to perform ADLs. I believe that interventions among frail older adults are a crucial point, as ultimately, that is what it is all about. I will come back to that later on in this speech, but first I would like to talk about a negative outcome of frailty that is, in my opinion, indispensable to the above integral model of frailty. I am talking about quality of life.

4 Quality of life

A subjective concept

Unlike frailty, which has its origins in medical science, 'quality of life' is a concept that was developed in social science. Just like frailty, however, it has many definitions.
The oft-cited definition by the World Health Organisation reads as follows: 'Quality of life is the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and interests' (The WHOQOL Group, 1995). This definition shows that quality of life is a subjective concept, which focuses on the individual's own evaluation of various domains in life. When quality of life is included in research, it is therefore the perspective of the target population, in this case older adults. The question is: how do they themselves perceive the various aspects of their situation? This can be determined by using both quantitative and qualitative research methods.

Various instruments are available for the quantitative measurement of quality of life, such as the WHOQOL-OLD (Gobbens & Van Assen, 2016) that was recently validated in the Netherlands. The advantage of this instrument over other instruments that measure the quality of life is that it covers specific areas that are extremely relevant to older adults, such as autonomy, social participation, activities in the past, present and future, and death and dying. Previous studies have revealed a correlation between frailty and reduced quality of life (Bilotta et al., 2010; Chang et al., 2012; Masel, Ostir, & Ottenbacher, 2010). Masel, Graham, Reistetter, Markides, and Ottenbacher (2009) conclude that frail older adults are ten times more likely to experience a lower quality of life than those not considered frail.

Two recent studies in the Netherlands showed that this applied not only in the case of physical frailty, but also in cases of psychological and social frailty. A cross-sectional study among people aged 65 and over showed that explaining people's quality of life improved by adding psychological and social frailty to a model that took account of physical frailty, socio-demographic characteristics and multimorbidity. Older adults who reported feeling 'down' scored significantly lower in all four quality-of-life areas, namely physical health, psychological health, social relationships and living environment (Gobbens, Luijkx, & Van Assen, 2013). A longitudinal study among adults aged 75 and over living alone also showed that feeling 'down' and a perceived lack of social support predicted lower quality of life two and four years later (Gobbens & Van Assen, 2014).

Important things in life

Quality of life among both frail and non-frail elderly (aged 67-90) encompasses aspects such as good health, feeling good (well-being), having social relationships, helping others, keeping active and living in a nice house in a nice neighbourhood. Of these aspects, health, well-being and social contact were most important. The focus on quality of life changes as people become more frail: non-frail elderly find health most important, and frail elderly find social contact most important (Puts et al., 2007). Interviews conducted by the Netherlands Institute for Social Research among 21 older adults aged from 70-91 showed that the elderly are not quick to associate the word 'frail' with themselves (Verhoeven, Kooiker, & Van Campen, 2011). In the interviews, respondents sometimes also talked about the 'one thing their lives revolve around', and about how their lives would be over if they ever lost it. When the interviewer asked Mr H. 'What is important to you in your life?', he responded with 'my boat'. He refers to the boat where he lives with his wife in a beautiful spot just outside Amsterdam:

> *'And I am extremely happy there. If you follow the North Sea Canal, go under the tunnel and then further towards the Canal, that's where I am. Surrounded by nature – magnificent. We live opposite a body of water that – I believe – is eighteen metres deep.'*

A striking aspect is the fact that, during the interviews, the interviewees never used the term 'frail' to describe their physical condition, however they did associate it with their relationships with other people. One interviewee said:

> *'Over the course of the years, your mother dies. Your father dies. That person dies. You know? All these people I know. He gets sick, she gets sick. And then I find it harder to see the joy in life.' Another interviewee, a gentleman aged 94, said: 'I only feel frail when I encounter death. Although it is true, I have less of a social life than before. I used to have lots of friends, and turned up everywhere. Lots of them are dead, and I've survived them all. Less social contact perhaps makes you more frail.'*

In the eyes of elderly, the loss of a partner and social contacts, the 'hardening' of society and dependency on others are key causes of frailty (Verhoeven et al., 2011). They therefore have a different view of frailty than most scientists, and their focus is mainly on quality of life.

5 Interventions

Intervention based on determinants

The concern for older adults is justified, as multiple studies have shown that frail elderly are at increased risk of being limited in their performance of ADLs. They are also at increased risk of being admitted to hospital or a nursing home and of premature death, and their quality of life is lower. So the question now is: what can we do about frailty? Or in other words: which interventions have been proven effective in preventing or reducing frailty, or in delaying the associated adverse health outcomes? There is a saying that goes 'prevention is better than cure', which certainly also applies to frailty. If we wish to prevent frailty among elderly, we should improve our understanding of its associated risk factors.

The integral conceptual model of frailty presented above contains ten influential factors, some of which have a proven correlation with frailty. Old age has a correlation with higher frailty (Fried et al., 2001; Gale, Cooper, & Sayer, 2015; Song, Mitnitski, & Rockwood, 2010); women are often frailer than men (Collard, Boter, Schoevers, & Oude Voshaar, 2012) and widowed elderly are often more frail than their married counterparts (Runzer-Colmenares et al., 2014). Low levels of education and monthly income, usually expressed in terms of socio-economic status, also show a correlation with frailty (Den Draak & Van Campen, 2011; Fried et al., 2001; Hoogendijk et al., 2014). In a recent study, we demonstrated a correlation between ethnicity and frailty (Van Assen, Pallast, Fakiri, & Gobbens, 2016). Native Dutch older adults proved less frail than those from non-western ethnic minority backgrounds; Turkish elderly scored highest on frailty, followed by Moroccan and Surinamese. Surinamese elderly, however, proved to be most frail in a social sense, experiencing greater feelings of loneliness and less social support. Looking at prevention, over the coming period the research group aims to develop culturally sensitive interventions for frail elderly from non-Dutch backgrounds who live independently.

Dissatisfaction with one's living environment also has a bearing on frailty. We collected data using the 'Seniors Barometer', an initiative by Tranzo at Tilburg University. Five factors related to living environment showed a correlation with physical, psychological and social frailty: happiness with one's house, with one's neighbours, the design of the neighbourhood, traffic, and noise/disruptions (Gobbens & Van Assen, 2017a). It should come as no surprise that lack of satisfaction among the elderly with their living environment also correlates to a reduced quality of life (Gobbens & Van Assen, 2017b). Homes must be designed in a way that allows senior citizens to continue to live independently despite their physical frailty. Homes suitable for senior citizens have the facilities for elementary daily activities located on the same floor, for example. Living environments for the elderly must also offer enough opportunity for maintaining social contact, in order to avoid social isolation. Older adults must also feel safe in the neighbourhood where they live. In terms of interventions, the World Health Organisation's

'Age-Friendly Communities' movement is now gaining momentum, which aims to develop an infrastructure and facilities that promote active participation, support and the valuing of older adults. The Municipality of Amsterdam is part of the related network (Fitzgerald & Caro, 2014)

Lifestyle

The factor that I have purposefully left until last is lifestyle. Because unlike a number of other determinants (such as gender, age and level of education), it is lifestyle that includes concrete areas where professionals can initiate preventive interventions. Multiple studies have shown the importance of a healthy lifestyle in preventing frailty (Bortz, 2002; Morley et al., 2006). For example, a longitudinal study showed that smoking and excessive consumption of alcohol were predictors of frailty (Strawbridge, Shema, Balfour, Higby, & Kaplan, 1998).

Another study showed that Dutch older adults aged 55-64 were leading less healthy lifestyles in 2002/2003 than the same age group in 1992/1993; they drank and smoked more, and got too little physical exercise (Visser, Pluijm, Van der Horst, Poppelaars, & Deeg, 2005). These results may be different in 2017; according to the Dutch National Institute for Public Health and the Environment (RIVM), previous generations of elderly smoked much more than they do today, however they also exercised less (Van Oostrom et al., 2015). In order to take into account the differences between generations of elderly now and in the future, generation-specific policy is recommended. Because physical exercise correlates to all aspects of frailty (physical, psychological and social), municipalities are encouraged to make exercise-based interventions a standard addition to the local range of intervention services (Van Oostrom et al., 2015). The above research results point towards screening and identifying groups of elderly with an increased risk of frailty, and laying the groundwork for interventions aimed at primary prevention. The results also provide impetus for the development of healthy ageing intervention programmes, which often start in earlier age groups. My research group is keen to make efforts in this area, in collaboration with the Power of Sport *(Kracht van Sport)* research group.

Interventions related to the consequences of frailty

In recent decades, studies have been conducted worldwide into the effects of interventions that can potentially mitigate the adverse outcomes of frailty. These interventions are aimed at reducing the consequences of frailty, such as limitations in ADLs, dependence on healthcare, reduced quality of life, and mortality. While a detailed review of the results of all of these studies is not practicable, I will outline the broad strokes here. A distinction can be drawn between mono-factorial interventions (interventions that only target a single component of frailty) and multi-factorial interventions. Examples of monofactorial interventions are those focusing on strength, nutrition, mood or loneliness. A literature study revealed that interventions targeting outcomes related to 'ADL and IADL limitations' can be subdivided into exercise interventions, nutrition interventions and interventions aimed at the use of physical aids, home modifications and technologies (Daniëls, Metzelthin, Van Rossum, De Witte, & Van Den Heuvel, 2010). Exercise interventions are provided mainly by physiotherapists, and vary considerably in terms of content, duration and intensity. Nutrition interventions are intended for elderly with a sub-optimal level of nutrition, and aim to optimise the consumption of macronutrients (such as proteins and carbohydrates) or micronutrients (such as vitamins and minerals).

As mentioned earlier, the application of technology is one of the tasks that Inholland has set itself in striving towards The Healthy Society. Possible interventions aimed at the use of technology by older adults include motion sensors, or robots that aid elderly in carrying out their daily activities. *Zonnehuisgroep Amstelland*, for example, used Zora the care robot for nursing home residents suffering from dementia. The technology is not always accepted easily, however. A model developed by Peek et al. (2016) can be used to look at which incentives and hurdles apply to older adults individually, to aid the evaluation of what can be done. In my view, frail older adults could benefit greatly from information and communication technology. Given that frailty has a negative correlation with the use of ICT, it seems clear that older adults' own wants and needs in the field of ICT will need to be investigated (Keranan et al., 2017).

Multi-factorial interventions are usually preceded by a Comprehensive Geriatric Assessment (CGA): a diagnostic process that aims to identify a frail individual's physical, psychological, functional and social capabilities and difficulties. It is a multidisciplinary examination performed by a clinical geriatrician, with input from other disciplines such as geriatric nurses, social workers or psychologists. A treatment plan is then drawn up based on their findings (Rubenstein, Siu, & Wieland, 1989). The focus of treatment varies considerably, from interventions aimed at polypharmacy and mobility, to those addressing financial problems and support for informal care.

A preventive home visit can be viewed as a multi-factorial intervention. Such visits are often made by nurses, and in addition to problem identification, consist also of giving advice and referral to other specialists. Multiple studies have examined the effects of preventive home visits on limited ADLs and IADLs, quality of life, hospitalisation and mortality. The effects proved to be inconsistent, and where present, were minor (Elkan et al., 2001; Mayo-Wilson et al., 2014; Stuck, Egger, Hammer, Minder, & Beck, 2002). Multi-factorial interventions are a useful addition to the broad approach to frailty as described earlier, since they look at compounded missing elements across the various domains of human functioning.

The National Aged Care Programme (NPO)

2008 saw the launch of the National Aged Care Programme (N*ationaal Programma Ouderenzorg,* NPO) in the Netherlands, which ran until late 2016. In addition to identifying the negative outcomes of frailty, preventing them constituted a major focus in the study. Over 650 parties involved in aged housing, well-being and care collaborated with seniorcitizens in eight regional networks, with an available budget of €89 million. The NPO has now been entrusted to the *BeterOud* consortium, which started work in 2017 in conjunction with various other bodies to improve the quality of life among older adults. Within the consortium, senior citizens, professionals and organisations including *Movisie, Sociaal Werk Nederland* and Vilans collaborate to develop, disseminate and implement innovative applications for the elderly. The NPO worked hard to institute a movement towards more pro-active aged care that focuses on 'ageing in place', or allowing older adults to stay living at home for as long as possible, even in a frail state. This was the wish expressed by elderly themselves (De Witte et al., 2012). For this to be possible, however, they must first be surrounded by an effective informal care network, and secondly by organised community care (whose primary aim is to provide support, rather than take over) in the form of targeted multidisciplinary first-line care (Schols, 2016). According to Schols, care institutions in this model serve a twofold purpose: firstly as centres of geriatric rehabilitation, and secondly as a 'last resort'.

Unfortunately, the NPO did not deliver the results we were all hoping for. The often multi-factorial interventions demonstrated little to no effect on disabilities or ADLs, IADLs, quality of life, or the usage and costs of care. Various explanations are possible: Process evaluations

by *Zorg uit Voorzorg* (Precaution as Care) (Metzelthin et al., 2013) and the *Zorgprogramma voor Preventie en Herstel na ziekenhuisopname* (Care programme for Prevention and Recovery following hospital admission) (Asmus-Szepesi et al., 2015) respectively showed that the implementation of the protocol was inadequate, and the degree of implementation of interventions by care providers was below 50%. Causes were the high complexity of interventions, and inadequate multidisciplinary consultation. It therefore follows that interventions will only be successful if they are directed not only at the elderly themselves, but also at care providers (Grol & Grimshaw, 2003). To this end, the research group has instituted Learning and Innovation Networks, which I will explain more about later. A critical view can also be taken of the selection of outcome indicators, such as readmissions, quality of life and deterioration in restricted ADLs/IADLs and their associated quantitative measurements carried out in many NPO studies. Different indicators, such as positive health (Huber, 2014) may be more effective in drawing up a range of care and support services for frail elderly living either independently or in aged care. Increasing resilience, self-management and 'health literacy' (basic health skills) requires a greater focus. Professionals must therefore take the abilities of frail older adults as their starting point, and look at the best support that can be offered to support these abilities. The above should not be carried out from a healthcare perspective, but rather from the perspective of (and in conjunction with) other areas such as well-being, housing and sport *(Commissie Innovatie Zorgberoepen & Opleidingen, 2016).*

Balance model

Taking the abilities (rather than the deficiencies) of frail elderly as our starting point instantly renders most frailty models unusable. A balance model would seem more suitable, since it takes account of both the individual's 'care surplus' and 'care deficit'. Their 'care surplus' is measured by the external and internal resources that frail elderly

have at their disposal. An example of an external resource is informal care, such as care provided by family, friends and volunteers. Internal resources are the skills that individuals use to manage their external resources, their 'self-management skills' (Steverink, 2009). An international research group made up of Dutch and Belgian researchers (D-SCOPE) is currently working on a frailty balance (http://www.d-scope.be/nl/). Concentrating on achieving a balance for frail individuals is intended to enable them to continue to participate in society at a social level. A related question, and one that the research group would like to try answer in the near future (preferably through doctoral research) is: How can the self-management skills of frail older adults living independently be improved so as to raise their quality of life?

Pro-active integrated aged care

The Dutch healthcare system is very reactive in nature, that is to say: no action is taken until problems have already appeared (Drewes, De Bruin, & Baan, 2016). Evidence for this is provided in the prevention budget, as there is still too little willingness to grant funding for prevention. The costs of prevention and the resulting rise in costs due to higher life expectancy is more than compensated for by the value of increased health and quality of life

(Vuyk, Vaartjes, & Balm, 2008). The individual needs of individual care recipients must form the starting point for both the content and organisation of the care provided to frail elderly. It is precisely because frail elderly experience difficulties with physical, psychological and social functioning that the care and support for this group often involves multiple disciplines, presenting the inherent danger of fragmented service provision that is not adequately tailored to the needs of frail elderly. Optimum communication, complementarity, effective coordination and continuity are key components of pro-active integrated aged care. They are necessary to protect older adults, and to have their informal systems operate properly based on effective self-management so that only integrated formal care and support that is absolutely necessary are provided, based on reciprocity and shared decision-making (Schols, 2016). Classification systems such as the International Classification of Functioning, Disability and Health (ICF) (RIVM, 2002) and the OMAHA system (Koster & Harmsen, 2015) can help healthcare providers to identify and document problem areas, necessary steps and measurements that apply to the elderly. Regardless of the classification system used, however, the ultimate goal is to forge links between healthcare and well-being professionals in the provision of formal integrated care. Inholland University of Applied Sciences lays the groundwork for this, by bringing healthcare and well-being professionals together, and providing an explicit framework for interprofessional learning.

6 Interprofessional collaboration

Where the focus is on frail elderly living independently, links between care and well-being professionals can be forged via social district teams. *Movisie* defines a social district team as an 'interdisciplinary, mobile and pro-active team of professionals from areas such as municipal authorities, the police, community work, housing associations, social services and healthcare, who identify complex problems at district and household level and ensure that at-risk residents (including frail elderly) receive appropriate assistance' (http://www.movisie.nl). Along with informal care (e.g. family, friends, neighbours, etc.) this district team also helps detail care programmes for individual clients/senior citizens. The broad range of knowledge and experience of district team members ensures that complex problems are viewed from various perspectives, which has a positive effect on problem-solving capacity and creativity. Professionals from various disciplines also complement each other's skills, and stand to learn a lot from each other.

Important role for district nurse

Interprofessional collaboration demands both an understanding of the expertise of team members from other disciplines, as well as a willingness to open up one's own activities for discussion. Cases are presented to the district team, who then decides who the client's contact person will be. District teams often also include a district nursing representative, however this is not always the case. Municipalities can assemble their district teams as they wish, a process that is also influenced by health insurers. Particularly when it comes to discussing cases involving frail elderly, district nurses are indispensable, as they can bridge the gap between the nursing and medical side on the one hand, and the social/community domain on the other. Regular consultation between district nurses and GPs is therefore essential, but sadly does not always take place.

Interprofessional collaboration can also be organised differently when it comes to healthcare and well-being. For example, a partnership in West Brabant (which involved the participation of several healthcare and well-being organisations, a senior citizens' council, and other parties) developed a working process titled 'Early Detection among Frail Elderly and Follow-up Procedures' *(Vroegsignalering Kwetsbare Ouderen en Opvolging,* VKO) (*Keij, 2016)*. In this model, GPs constitute the linchpin of the care provided to frail elderly, fulfilling the management role in their care and treatment. The GP, practice nurse, geriatric specialist and district nurse together constitute the core team, with additional support from other disciplines including healthcare, treatment, housing and welfare services.

The frail older adult in control

My aim with this example was to illustrate that multiple organisational models can be used to implement interprofessional collaboration. The essential goal of the collaboration is to arrive at a healthcare and well-being arrangement that puts the frail older adult (or, if this is not possible, their social network) in control. If this does not prove feasible, control must fall to one of the care professionals, taking the client's wishes and the nature of the problem into account.
The purpose of interprofessional collaboration is to reduce the fragmentation of, and allow for greater tailoring in, care for frail older adults. Although this is likely to benefit their quality of life, we do not yet know for certain whether this is the case. The research group has formulated a research question along these lines that it would like to see answered: To what extent does collaboration among health and well-being care professionals improve tailored healthcare and quality of life for frail elderly?

7 Nursing homes

The government focus is on externalising healthcare, i.e. having senior citizens continue living at home for as long as possible while receiving support from first-line medical care, informal care and volunteers. Senior citizens who were once eligible to move into a nursing home can no longer do so, as they have no more entitlements under the Long-Term Care Act *(Wet langdurige zorg).* Because many frail elderly still live independently, they constitute an important population for the research group. Studies have demonstrated a correlation between frailty and nursing home admissions, and the research group is just as interested in older adults living in nursing homes. Although this group may be smaller, they are no less deserving of attention as they are usually the most frail.

Dignity and pride

On 11 February 2015, State Secretary Van Rijn launched his plan titled 'Dignity and Pride: Loving care for our elderly' (*Waardigheid* en Trots: *Liefdevolle zorg voor onze ouderen*), aimed at improving the quality of care in nursing homes (Van Rijn, 2015). The plan emphasises the increasingly complex nature of long-term care, and stresses that we must offer the best possible care to frail elderly who require long-term care and who are dependent on us. Quoting from Van Rijn: 'I want loving care to be provided in all Dutch nursing homes by proud workers contributing to the dignity of later life. We are all familiar with the examples where dedicated administrators, care providers and valued informal

carers come together within the walls of nursing homes. That is where quality of care starts, and with it, quality of life.' More initiatives followed, all aiming to improve quality of life among nursing home residents by improving quality of care. One such initiative was the Nursing Home Care Quality Framework by the National Health Care Institute (*Kwaliteitskader Verpleeghuiszorg, Zorginstituut Nederland,* 2017) that was recently included in the Institute's official register, and the document titled 'Focus on Aged Care' (*Scherp op Ouderenzorg*) drawn up in 2016 by Hugo Borst and Carin Gaemers. The latter document calls on all political parties to take responsibility for ensuring quality nursing home care, and its authors successfully united political parties in acknowledging the need to improve aged care in the short term.

Dialogue

As is the case for elderly living independently, the preferences of elderly (and their social networks) living in nursing homes must be instrumental in determining the care they receive. There must be a dialogue between healthcare professionals, residents and their family members that focuses on striving to attain the highest possible quality of life for everybody involved. The 'care living plan' (*zorgleefplan*) must incorporate interventions and objectives related to quality of life as determined by the individual themselves, which will also serve as the criteria for evaluation and potential modifications to the plan. Zonnehuisgroep has documented this idea in their new mission titled 'Heartfelt quality of life' *(Hart voor kwaliteit van leven)*, which outlines how professionals work 'from the heart' to provide loving and attentive care to clients. They ask clients what is important to them, which then informs the options presented to clients (and their networks) concerning their needs (*Zonnehuisgroep Amstelland, 2016*).

The care provided in nursing homes is often end-of-life care. Once the palliative stage has started (generally when it becomes clear that recovery is no longer possible), it is important for the professionals to know what kind of care and treatment people wish to receive. This can include treatments that people no longer wish to undergo, due to the negative effects on their quality of life. One useful resource that aids communication during the final stages of life is 'Advance Care Planning', a process in which patients discuss (and potentially document) their wishes, goals and preferences regarding their end-of-life care with their attending physician. Patients do so up to the point when they are no longer able to take these decisions themselves (Ott, Van Thiel, De Ruiter, & Van Delden, 2015).

Dementia

As mentioned above, many frail older adults live in nursing homes. From the moment we started our research group (titled 'Multimorbidity' at the time), we focused specifically on two target groups: frail elderly suffering from dementia and elderly undergoing rehabilitation. Care for dementia sufferers is complex, and there is room for improvement. Literature has shown that personalised care can result in improvements for both clients and staff (Edvardsson, Winblad, & Sandman, 2008). Personalised care puts the onus on the preferences, needs and values of the individual client. To further crystallise this concept, nursing students at the Inholland University of Applied Sciences conducted the Dementia Care Mapping research project: an observation method that aids the identification of the personal needs and experiences of dementia sufferers. A 'mapper' observes and records what they see and discusses the reporting process with the care team, who then draws up and implements an appropriate action plan. The plan is used to institute a change process that can serve to increase happiness levels among dementia sufferers (http://www.dcmnederland.nl). Zonnehuisgroup Amstelland has been using Dementia Care Mapping for over two years now, and has consciously decided to have trained practical nurses carry out the observations, and to advise their colleagues on improving quality of life among people with dementia. The nursing students then analysed the observational data, and made recommendations to practitioners. One such recommendation was to ensure that dementia sufferers get more physical exercise, which improves well-being and results in less agitated behaviour (Eggermont & Scherder, 2006). The results of the analysis will soon be presented in an article, with one of the students as principal author.

Nursing students also carried out quality-of-life measurements among dementia sufferers using Qualidem, a validated questionnaire that is completed by two carers (Ettema, Droes, De Lange, Mellenbergh, & Ribbe, 2007). Prior studies have shown that involving art (such as viewing artworks on a touchscreen tablet) can have a positive effect on the well-being of people with dementia (Tyack, Camic, Heron, & Hulbert, 2015). This is why we are currently working in close collaboration with the VU University Medical Center and an artist on a subsidy application focusing on a photographic intervention for people with dementia. The project involves the use of photos that express positive emotions, and are tailored to the personal interests of people with dementia. Our aim is to determine whether these photographs foster communication with dementia patients, improve their mood and increase their degree of socialisation.

Geriatric rehabilitation and sarcopenia

A second target population in a nursing home setting of interest to the research group concerns geriatric rehabilitation: short-term, multidisciplinary care aimed at promoting recovery among frail elderly, often those who are admitted to a nursing home for rehabilitation following an operation. This type of care concentrates on the restoration of functioning and participation, and on allowing patients to return home. A recent study showed that higher frailty levels in elderly undergoing rehabilitation was a predictor for lower physical, psychological, social and environmental quality of life one month following discharge from the nursing home (Nobbe-de Graaf, Van Balen, & Gobbens, 2016).

In a study commissioned by the research group, nursing students investigated the prevalence of frailty (using the Tilburg Frailty Indicator) among this group of elderly at *Zonnehuisgroep Amstelland*. Of the sample of 136 elderly, around 80 per cent qualified as 'frail'. The group qualifying as physically frail was close to 83 per cent. There is an overlap between physical frailty and sarcopenia (age-related reduction in muscle mass and strength). Older adults

with sarcopenia are not only at a higher risk of being limited in their ADLs, but their care consumption and mortality rates are also higher (Hirani et al., 2015; Janssen, Shepard, Katzmarzyk, & Roubenoff, 2004; Morandi et al., 2015; Saka et al., 2016). Sarcopenia also correlates to lower quality of life (Beaudart et al., 2015), and is still an unknown condition to many care professionals. In the autumn of 2016, the Health and Well-Being of Frail Elderly research group founded a consortium in partnership with aged care institutes (*Zonnehuisgroep Amstelland, Cordaan, Amstelring)*, the VU University Medical Center, VU University, the University of Melbourne, Nutricia, and two senior citizens' interest groups (KBO and ANBO). The consortium has written and submitted a project application aimed at initiating sarcopenia interventions among elderly undergoing rehabilitation. A combination of nutrition and exercise interventions can prevent the negative effects of sarcopenia, and reduce the length of stays in geriatric rehabilitation departments. The Power of Sport research group at Inholland University of Applied Sciences is contributing to this research project.

The Health and Well-Being of Frail Elderly research group has also co-written a subsidy application being run by the Rotterdam University of Applied Sciences, in which we aim to realise a transition and help clients and informal carers to assume a more central role. We put them in control of their rehabilitation process by giving them the power to monitor and evaluate it themselves. To facilitate this process, geriatric rehabilitation professionals need additional skills, however. 'Effective care for those in rehabilitation' is one of the theme groups in the University Aged Care Network (*Universitair Netwerk Ouderenzorg*), a partnership between the geriatric medicine department (a combination of general practice and geriatrics) at the VU University Medical Center and 21 aged care institutions. I represent *Zonnehuisgroep Amstelland* in this network: in particular the 'Effective care for those in rehabilitation' theme group, which has spent the last year investigating concepts such as positive health, goal-setting and shared decision-making, the links between these concepts, and their importance in geriatric rehabilitation.

8 Learning and Innovation Network (LIN)

A powerful learning environment for staff and students

The research group has initiated the foundation of a Learning and Innovation Network, or LIN for short. Our work began – not entirely coincidentally – at *Zonnehuis Westwijk* (a residence centre for people with dementia) and the geriatric rehabilitation department at *Zonnehuis* Amstelveen. The LIN was inspired by the idea of a care innovation centre (CIC), created and initiated by Fontys. It is a powerful learning environment where staff and students work together on the common goal of raising aged care to a new level (Niessen & Cox, 2011). The restructuring of long-term aged care, and the redivision of the Exceptional Medical Expenses Act into the Long-Term Care Act (Wlz), Social Support Act (WMO) and the Health Insurance Act (Zvw) are sorely testing the adaptability of aged care organisations. An LIN can help develop this adaptability by focusing on a systematic and research-based approach, the application of new working methods and sources of evidence, and promoting engagement among stakeholders. The above puts great demands on staff: they must be willing to reflect on their own practice, to be open to research, and to make explicit the care needs of clients and their families. To me the LIN also constitutes a vehicle for the integration of research, teaching and professional practice, as it is a place where knowledge is created and disseminated, in order to facilitate knowledge circulation within the 'triple helix'. In so doing, we are improving quality of education and innovating professional practice in aged care, and aiding professional development of both staff in aged care organisations, and the academic staff working in universities of applied sciences. These are precisely the duties of the head of a research group. An additional objective of working in a LIN that must not be neglected is the promotion of aged care among universities of applied sciences and their Bachelor of Nursing students – more about that later.

Practice development

At an LIN, care professionals and nursing students at the Inholland University of Applied Sciences work together to improve the quality of healthcare, based on the principles of practice development. Practice development is a system that supports professionals in taking greater responsibility for critically evaluating and improving their own actions. Two principles of practice development are: workplace learning, and the involvement of stakeholders (clients and family members) (Munten et al., 2012). The process is monitored by a Lecturer-Practitioner, who acts as the link between all target groups and supports the implementation of practice development. Lecturer-Practitioners (LPs) play a key role in both moulding the context in which the change takes place, as well as working with those involved to implement evidence.

LPs are lecturers at Inholland University of Applied Sciences, who work eight hours per week at the LIN. Experience has shown that academically-trained LPs can facilitate the implementation of evidence-based changes, and also support nursing staff in their professional development (Cardiff & Van Lieshout, 2006).

To be successful, an LIN must satisfy a number of requirements, the most important of which I will summarise below. First of all, there must be widespread support for LIN throughout the organisation – not only among upper and middle management, but among the staff working in the departments themselves. Secondly, there must be sufficient qualified staff available to supervise 8-10 nursing students. Thirdly, both students and staff must be in a position to act at meso-level, i.e. students' activities should not be restricted to the most basic level of healthcare. It needs no explanation that final responsibility for the care and services provided by an LIN rests with the staff, and quality of care must not be compromised.

We have now amassed considerable experience with intramural and extramural LINs. The extramural LINs were launched in the autumn of 2015 (via a subsidy from the Netherlands Organisation for Health Research and Development, ZonMw) as part of the Cordaan and Evean district nursing teams, and are distinct from other LINs due to the involvement of upper-secondary vocational (MBO) schools. I see it as a positive development, as it means the students at LINs represent a better reflection of the staff. All Learning and Innovation Networks have implemented quality projects: from formulating the criteria applicable to a dementia patient's 'life book' to setting up consultation frameworks between district nurses and GPs. The desired contours of an LIN are gradually taking shape. Setting up an LIN is essentially a bespoke process. Tailored work is necessary due to the enormous potential variety in client groups, locations and staff. The specifics of an LIN for people with dementia in small-scale living arrangements will probably be different than for temporary residents in a geriatric rehabilitation department, for example. What is essential is that those involved (from both the professional side and academia) contribute jointly to the set objectives and working methods. Our experiences thus far are overwhelmingly positive, and show that LINs really do create better connections between teaching, research and professional practice. Of course there are also areas for improvement.

I would like to highlight one of these, namely: the involvement of the lecturer-practitioner. LPs must be incredibly versatile! Great demands are placed on them, and it is very advisable for them to be trained in Practice Development. The course was created by the International Practice Development Collaboration, and is intended for professionals working in the development and implementation of effective, personalised workplace cultures in healthcare and well-being. In truth, I believe that all lecturers in the applied sciences should be LPs, with

one foot in education and the other in professional practice. Ideally they would also participate in applied research initiated by a research group.

A lot of interest in the LINs

The LINs have aroused much interest: over the past year, multiple aged care organisations in the Amsterdam/Alkmaar region have expressed a desire to initiate an LIN. Zorgpact, a cabinet initiative to foster collaboration in healthcare, has included the LIN in the vanguard of its movement. They see LINs as an effective example of closer collaboration in healthcare and well-being, aimed at properly equipping care professionals now and in the future (http://www.zorgpact.nl). Intramural LINs have also been included in the 'Room for nursing homes' programme (Ruimte voor verpleeghuizen), which is part of Dignity and Pride (http://www.waardigheidentrots.nl).

9 Qualified personnel in aged care

Aged care is not 'hip'

One objective of a Learning and Innovation Network is the promotion of aged care among Bachelor's nursing students, an aspect that is not insignificant and sorely needed. In general, the reputation of aged care among students is hardly 'sexy' or dynamic. Hospital work is generally seen as more dynamic, as patient contacts are more short-term. Hospital patients usually return home quite quickly, whereas the dealings with nursing-home residents last much longer. They also find the workload in aged care much higher, and see the level of care as not very complex (or not complex enough) and providing too little challenge.
The common perception is that they only help people with their physical needs (changing incontinence pads, preventing pressure ulcers) and helping to wash and clothe the elderly. Of course this care is necessary, but there is so much more at play.

Consider adult children who require psychological support related to the care of a parent suffering from dementia, or consulting with psychologists to select and implement a specific approach for a dementia patient exhibiting unexplained behaviour. Or even drawing up a 'life care plan' that actually incorporates the client's own goals. I also disagree with the notion that the complexity of aged care is low. Particularly in cases involving frailty or multimorbidity, aged care can be very complex. For care providers this constitutes a complex target group, as the elderly present compounded problems, and multiple disciplines are involved in their care. In such cases, the job of healthcare services is twofold: firstly they must ensure the coordination and continuity of (often complex) medical and nursing care, and secondly they must prevent any further drop in function or social participation. In order to give tertiary nursing students an accurate idea of aged care and get them more interested in working in the sector, in 2015 a campaign titled 'More than meets the eye' (Daar zit meer achter) was launched by professional associations Actiz and V&VN, with support from the Ministry of Health, Welfare and Sport. The campaign website (http://www.daarzitmeerachter.nl) presents three interactive videos that give viewers a brief look at the work performed by qualified nurses in aged care.

Work for qualified nurses

The largest employee group in nursing homes are the nurses themselves. Before anything else, let me say that I have observed high levels of dedication and commitment among nursing staff to ensure the greatest possible quality of life for residents, for which I have a great deal of respect. Nonetheless, I would still like to see more qualified nurses working in both long-term care and district nursing. They need not fulfill a line position, on the contrary – they should participate in the primary process in order to contribute directly to the quality of care. This would enable them to both increase the self-management skills (and therefore the resilience) of older adults, and involve informal care in the process. In order to provide high-quality care to senior citizens, previous years have seen the incentivisation of training and employment for qualified nurses in gerontology and geriatrics (abbreviated in Dutch to HBO-VGG). These professionals become specialists in the field of gerontology and geriatrics, as dictated by the HBO-VGG competence profile (based on the Canadian Medical Education Directives for Specialists (CanMeds) system). This knowledge allows them to provide highly complex care, gives them a 'helicopter view', and puts them in a position to raise the quality of care in general. They also use their knowledge to provide specialist coaching to colleagues (generally nursing staff), for interdisciplinary collaboration, and for professional development (such as giving clinical classes) (Gobbens, Huizenga, Finnema, & Goumans, 2014).

Nurse practitioners

Employing nurse practitioners can also contribute to improved quality of healthcare (Bloemendaal, Albers, De Kroon, & Dekker, 2009). Nurse practitioners differ from 'qualified' (HBO) nurses in their ability to: reason clinically, perform differential diagnostics, arrive at diagnoses independently, administer treatments, and perform restricted activities (such as prescribing medicines), in combination with providing specialist nursing care (Ketelaars & Buijse, 2015). Nurse practitioners operate at the juncture between nursing and medical care. The transferral of duties from doctors to nurse practitioners is expected to continue, under pressure from the rising demands (in terms of both scope and complexity) being placed on healthcare by frail elderly (Lambregts & Grotendorst, 2012) in both the nursing home and first-line context.

Any redistribution of duties must be subject to the condition that the quality of care will remain the same (or improve). The information pack titled 'Implementing the redistribution of duties' (*Implementatie taakherschikking*) describes the steps that can be taken when implementing the statutory regulations governing the redistribution of duties (KNMG, V&VN, & NAPA, 2012). The first step is to identify the relevant professionals; the second is to determine the nurse practitioner's contribution to the care process; and the third and final step is to establish which restricted activities can be independently identified and carried out. Nurse practitioners can also critically evaluate scholarly publications and render them applicable in practice (Lambregts & Grotendorst, 2012), adding to the appeal they carry for research groups. They have a great potential contribution to make in *applied research*, not only because of the research skills they possess, but also due to their understanding of concrete issues in the sector and because they can help take charge of putting new knowledge and working methods into practice.

The involvement of highly-educated employees in aged care (such as tertiary-trained nurses and nurse practitioners) helps bring the world of research closer to aged care, making professional practice more evidence-based and fostering a research-oriented attitude among all employees. In so doing, aged care organisations that offer long-term care fulfil some of the key criteria for the 'Topcare' accreditation – a hallmark for the provision of high-quality care for people requiring complex and long-term care (http://www.topcare.nl).

Responsibility of aged care organisations

Based on the above, we can surmise that it is important for aged care organisations to employ academically-trained personnel. Before doing so, they must first formulate a vision for the deployment of such personnel, and ensure that the organisation's personnel policy provides for investments in academically-trained personnel. These factors are essential in putting nurses and nurse practitioners in the right positions, and will greatly influence the success or failure of these staff in the institution. Clear position descriptions and appropriate payscaling is also necessary. Some aged care institutions allow HBO nurses to take measurements as part of improvement and research projects. This approach seems to work well, provided the nurses are (and feel) supported by the institution. One of the aims of the Learning and Innovation Networks in aged care is to give support to this existing practice. The benefits are twofold. Firstly, the organisation benefits from the research results, especially if they inform amendments to nursing policy. Secondly, it allows nurses to become more qualified as knowledge workers, and to generate attention by writing journal articles or presenting at conferences. One European study even showed that employing qualified nurses in general hospitals can help reduce preventable hospital mortality (Aiken et al., 2014). The research group considers it important to investigate whether hiring qualified nurses and nurse practitioners in nursing homes (or first-line medicine) produces positive outcomes, such as: reductions in unnecessary admissions, prevention of medication errors, fewer falls, higher quality of care and improved quality of life.

Responsibility of universities of applied sciences

Channelling more nursing students into aged care is not only a task for aged care organisations, but also for the universities they attend. The education system can benefit from lecturers who promote the fact that aged care has a lot to offer nursing students. Lecturer enthusiasm may lead to higher quantity, however quality is also important. Or in other words: curricula must also devote greater attention to aged care, as students encounter senior citizens in nearly all sectors of healthcare, from hospitals to psychiatry. In 2011, Schuurmans, Habes, & Strijbos reported that the knowledge of final-year nursing students is often comparable to that of the average Dutch citizen. The reported barriers to raising the focus on gerontology and geriatrics were: lack of student interest, lack of role models in practice, lack of space in the curriculum and an overwhelmingly negative view of gerontology and geriatrics (Schuurmans et al., 2011). Multiple universities took the report to heart, and developed the above-mentioned nursing specialisation in gerontology and geriatrics, either as a Bachelor's specialisation or as part of contract education. The Bachelor of Nursing 2020 (the new national higher-professional (HBO) nursing programme profile) also devotes extensive attention to later life (Stuurgroep Bachelor of Nursing 2020, 2015). All universities of applied sciences are currently working hard on implementing the new profile and curriculum. As a professor, I believe it is important to be involved in this process, and am massively in favour of professors always being involved in Bachelor's and Master's curriculum committees.

Interprofessional learning

Recently, three lecturer-practitioners (i.e. academics from the Inholland University of Applied Sciences who are part of Learning and Innovation Networks) collaborated closely with the sector to produce the elective titled 'District collaboration' (*Samenwerken in de wijk*) which includes three modules focusing on medical indication, management and innovation. A special aspect of the 'management' module is the fact that nursing and social work students take the same classes. Both groups are instructed to carry out a district analysis, each from their own perspectives. The analyses are then presented, and the similarities and differences discussed. Students from the two disciplines must also organise and run a multidisciplinary meeting based on a case study. These are examples of how Inholland University of Applied Sciences is giving concrete expression to interprofessional learning, and laying the foundation for interprofessional collaboration in practice. This approach demands professionals in healthcare and well-being who can work on good relationships that foster mutual trust, and who can look beyond the limits of their own discipline – an important aspect in meeting the needs of frail elderly.

The Health and Well-being of Frail Elderly research group is also closely involved in the development (and, starting from the 2017-2018 academic year, the implementation) of the elective titled 'Highly complex care, chronic' in the Bachelor's nursing programme. Here, complexity refers to both 'case complexity' and 'patient complexity' (Terpstra et al., 2015). Determining case complexity requires looking at elements such as the context in which care is provided. One aspect of patient complexity involves the degree of frailty, or the extent to which a patient suffers from multiple mutually interrelated physical, psychological and social problems. This elective, which will hopefully be popular among students, puts the focus squarely on frail patients and examines topics such as frailty and self-management, people with dementia (Dementia Care Mapping), geriatric rehabilitation, quality of life, and eHealth. Students also learn how to reason clinically and ethically in chronic healthcare, improving their skills in 'motivational interviewing'.

As head of the research group, my main duties involve designing and conducting applied research projects. In addition to contact with lecturers and staff working in the reality of aged care, ensuring effective links among the triple helix (research, teaching, and the sector) also requires keeping in touch with students. I regularly support nursing students at Inholland University of Applied Sciences in conducting research projects, give lectures on frail elderly, and tutor in SPSS. I also supervise students writing their theses as part of the Physician's Assistant and Advanced Nursing Practice Master's programmes. One such student recently completed a study investigating the correlation between frailty, quality of life and multimorbidity, concluding that there is a strong correlation between frailty and quality of life (measured using the WHOQOL-OLD) among elderly living independently aged 70 and over.

Tips for healthy ageing

The name of my research group is 'Health and Well-Being of Frail Elderly', with a clear focus on the 'frailty' part. In this speech, I have defined frailty, and made a foray into interventions that may help reduce physical, psychological and social frailty, with the primary goal of improving quality of life. This will be the research group's focus in the period ahead, concentrating on three target populations: frail elderly living independently, people with dementia and those undergoing geriatric rehabilitation. I also aim to support interprofessional collaboration and learning, see to the creation of more Learning and Innovation Networks, and get more students interested in aged care. It is my hope that we will succeed in preventing frailty, or at least delaying its onset. That is why, before concluding with my expressions of thanks, I would like to give these 25 tips (https://sochicken.nl/100-jaar-oud-worden) published by Jelle Hermus that make leading a wonderful life as simple as possible.

1. Drink plenty of water.
2. Get enough sleep.
3. Always have breakfast.
4. Say yes to garlic.
5. Cycling is healthy.
6. Eat broccoli
7. Don't be stingy with herbs and spices.
8. Invest in your friends.
9. Drink less alcohol.
10 Don't smoke.
11. Start the day with a cold shower.
12. Pay attention to your breathing.
13. Get at least 30 minutes of exercise a day.
14. Laugh as much as you can.
15. Eat a varied diet.
16. Eat walnuts.
17. Get a dog.
18. Have enough sex.
19. Eat fewer animal products.
20. Eat fruit every day.
21. Take your time when eating.
22. Drink coffee.
23. Find a partner.
24. Drink green tea.
25. Have something to live for.

I hope these 'interventions' help make a real difference!

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Curriculum vitae

Robbert Gobbens (b. 1963) graduated as a qualified nurse in Eindhoven in 1985. After completing military service as a nurse in the Doorn rehabilitation centre, in 1986 he began work as a district nurse with home nursing organisation *Kruisvereniging Breda*. During that time, he came into close contact with his research group's target population: the frail elderly. In 1993 Robbert graduated in health research, and several years later made the transition from healthcare to education. From 1997-2009, Robbert lectured in the Bachelor of Nursing programme at the Brabant University of Applied Sciences, and subsequently as coordinator of the Master of Advanced Nursing Practice and Senior Researcher in the 'Coordination in Aged Care' research group at the Rotterdam University of Applied Sciences until 2015. Since 2015, Robbert has worked at both Inholland University of Applied Sciences and aged care organisation *Zonnehuisgroep Amstelland*, firstly as associate professor in multimorbidity, and now as professor of Health and Well-Being of Frail Elderly.

In 2010, Robbert completed his PhD at Tilburg University on 'Frail Elderly: Towards an Integral Approach', developing an integrated definition and conceptual model of frailty. This model would ultimately provide the basis for the Tilburg Frailty Indicator (TFI), an instrument that can be used to detect frailty in the elderly and is very important in order to prevent avoidable declines in their quality of life and ensure timely and preventive intervention.

Robbert is married to Marianne, who works as a practical nurse caring for people with dementia living in small-scale residences. Robbert and Marianne have four children: Isabella, Charlotte, Rebecca and Benjamin.

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