

## Introduction

The aim of this module 1 is that carers, families and health professionals can identify frailty in older adults and know how to act when in contact with these older adults.

Identifying frailty is important, because elder can seem to be in a good condition, but their condition can change very rapidly in a very negative way because of their frailty. It is important that a person knows how to prevent frailty.

Next, the carers, families and health professionals will be able to assess the physical, psychological and social dimensions of frailty in the elder via multidisciplinary assessment instruments.

Finally, the module aims to empower healthy and productive ageing by enabling active participation and supporting autonomy and functionality. The professionals learn how to actively include frail older adults in ICT activities.

## **Module Objectives**

Upon completion of this module participants should be able to:

1. Recognize the needs and challenges of elderly, from a multidisciplinary point of view;
2. Identify the causes and signs of frailty in the elder, in order to set an early diagnosis and prevention;
3. Assess the physical, psychological and social dimensions of frailty in the elder via multidisciplinary assessment instruments;
4. Apply modern learning techniques, explore the actual offer in ICT tools and devices to train the elder, their family caregivers and their health professionals.



**PROADAS**

PROMOTION OF ACTIVE  
DIGITAL AGEING SKILLS

## Unit 1

Identifying physical,  
psychological and  
social frailty in the  
elderly

## Purpose of this unit

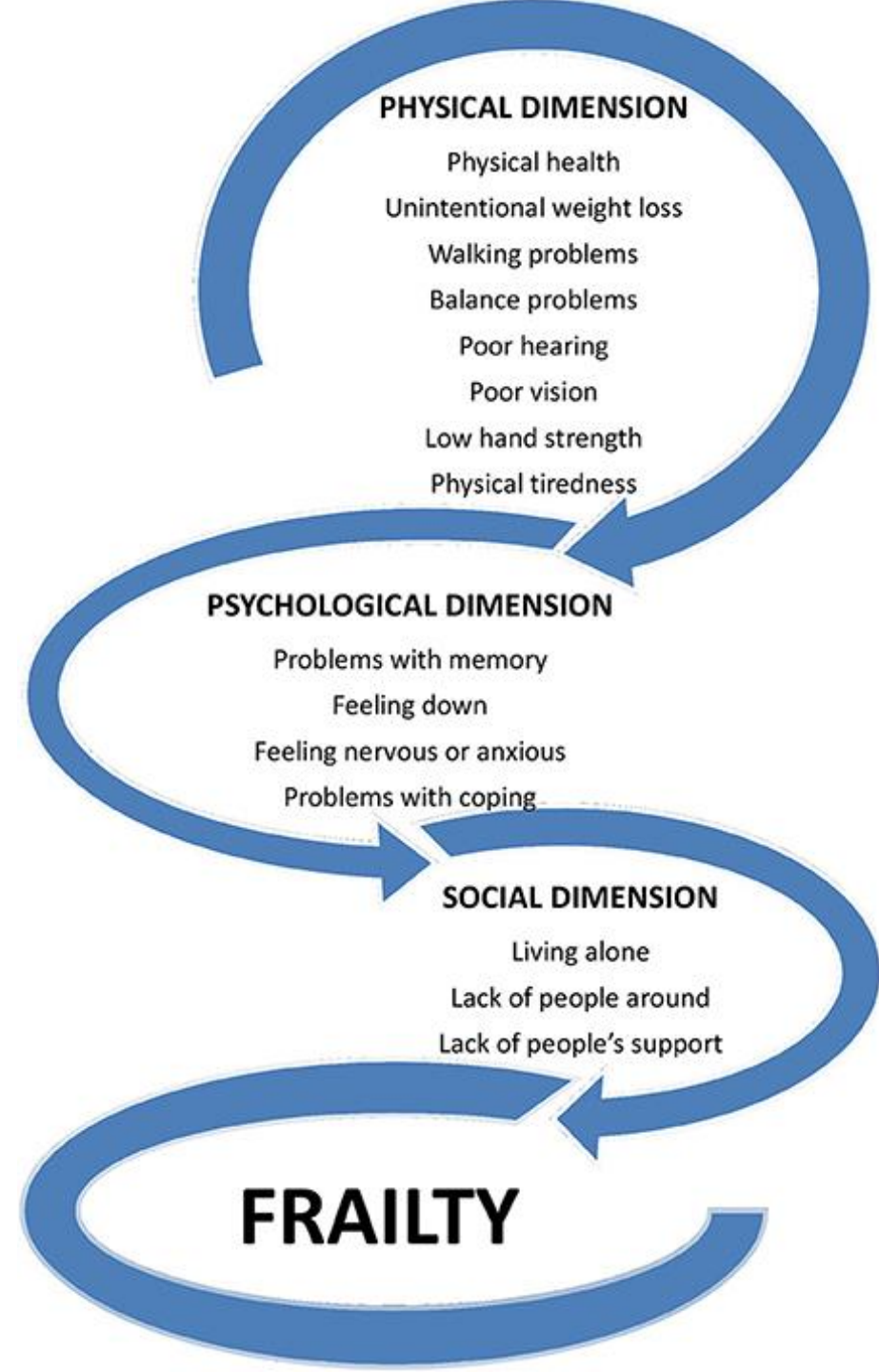
Upon completion of this unit participants should be able to identify frailty and to explain the most important aspects of physical, psychological and social frailty.

## Questions pre unit

- 1) Are all older people physically fragile? no
- 2) Is frailty in the elderly person caused by several different components? Yes
- 3) Can fragility be linked to the environmental characteristics in which the elderly person finds himself? Yes
- 4) Is psychological well-being independent of fragility? no
- 5) Social relationships can be a help factor and contrast the fragility? Yes

# What is frailty?

- Frailty = the collection of (biological) factors which reduces the capacity of the elder to bear negative tensions or stress
- Frailty can be a combination of different dimensions, on the level of physical, psychological or social condition of the elder
- For each condition, we give a description on how to identify (unit 1) and how to prevent (unit 2). We give also tools on how to assess frailty (unit 3) and how to include frail elder (unit 4).



# The physical dimension of frailty

- When people age, physical discomforts can appear. This can be for example difficulty to hear, difficulty to walk, arthritis, cardiovascular problems, ... → This can augment the physical frailty.
- The risk of being physical frail ascends with an ascending age, but not all older people are physically frail.
  - Moreover, there is also a significant group of older adults that is in good condition and has an active life style.



# The physical dimension of frailty

Characteristics of physical frailty are:

- Less power
  - Being easily exhausted
  - Difficulty to walk
  - Less energy
  - Less physical activity
  - Difficulty to accomplish daily activities
- 
- Older people can continue to do physical activities for as long as they have the capacity to do so. If they lose the physical capacity, they can try to compensate the physical loss.

# The physical dimension of frailty

- The physical frailty can also be related to the environment where one lives in:
  - If the older adult lives in a house that is not adapted to their changed needs, the older adults can become frail and vulnerable.
  - Moving towards a longterm caring facility can be an option, when the house or the environment isn't adapted to their changed needs.
  - In practice most elder prefer to stay in their own familiar environment.

# The psychological dimension of frailty

- Psychological wellbeing is an important factor in healthy ageing.
- When ageing, people are often confronted with different situations of loss: death of their partner, brothers, sisters or friends from the same age. Also moving to a longterm caring facility and leaving their home can be perceived as a loss.
- It is normal that people mourn and grieve, when confronted with situations of loss and sorrow.

# The psychological dimension of frailty

When ageing, people can be confronted with different psychological issues:

- Problems in sleeping
  - Fear
  - Depression or depressive feelings
  - Cognitive problems or impairment
- Depression is one of the most common complaints in older adults.
  - Cognitive impairment means a decline of the abilities to think, remember, reason and plan. These functions are important and necessary for living independent. Cognitive impairment is not dementia. Some older people – but not all – gain dementia in later life.

# The psychological dimension of frailty

- For psychological frailty, we see that complaints often occur together with other ways of frailty (for example: loneliness and depression often go along, as well as physical disabilities and fear of falling).
- Further, there is a connection between cognitive impairment and physical, social and psychological frailty.
- Finally, there is a strong biological connection between cognitive impairment and physical frailty, for example diabetes or cardiovascular diseases can be a trigger for both.

# The social dimension of frailty

- A social network can also be an important barrier against distress, stressful situations and frailty.
- The network of older adults consists of different relationships with family, friends and neighbours.
- These relationships can be an important source of informal help, when the older adults is in need because of illness or disability.
- The amount of social relationships can have a positive influence on their happiness and psychological coping strategies.

# The social dimension of frailty

- When growing older, social networks can change and become smaller, for example due to retirement or death of peers and relatives. This can be a reason for loneliness and sorrow.
- But a smaller network isn't always necessary a reason for being unhappy. A small amount of meaningful and positive relationships can be enough for being happy.
- Older adults without meaningful social relationships are more sensitive for emotional loneliness, and other conditions of frailty.

# The social dimension of frailty

- In addition the direct environment is important for the quality of living and the risk of social frailty.
  - A sufficient amount of places to sit and rest outside has a positive influence on the social relationships of the older adults.
  - Having access to shops, services, support in the direct environment also has a positive influence on the ability to keep living independently in their own environment.



# Conclusion

- Frailty often is a combination of different dimensions on the level of physical, psychological or social condition of the elder.
- The physical, psychological and social condition of the elder are in interaction with each other and influence each other.
- Furthermore, external factors for example the environment can have an influence on the frail status of the elder.

## Questions post unit

- 1) how many main types of frailty can we recognize in the elderly? One two THREE
- 2) What social factors can be decisive for the frailty of the elderly? The richness / LACK OF REFERENCE SOCIAL NETWORKS / the occurrence of diseases typical of old age
- 3) are cognitive difficulties causing psychological fragility in the elderly? Yes, always / no, never / YES, IF LACK OF SUPPORT AND NETWORK OF SOCIAL RELATIONSHIPS
- 4) Are movement difficulties always a cause of frailty in the elderly? Yes, always / ONLY IF THERE IS A LACK OF OTHER TYPES OF HELP, INTEREST, SUPPORT / only if the environment in which they live is characterized by architectural barriers that limit access to places
- 5) Is psychological fragility an independent factor? No, it depends on age / yes, it is often related to the onset of mental illnesses / NO, IT IS IN RELATION TO THE PHYSICAL DIMENSION AND THE SOCIAL DIMENSION, AS WELL AS WITH EXTERNAL ENVIRONMENTAL FACTORS

The right answer is write in CAPITAL LETTER



**PROADAS**

PROMOTION OF ACTIVE  
DIGITAL AGEING SKILLS

## Unit 2

Prevention of physical,  
psychological and  
social frailty

## Purpose of this unit

Upon completion of this Unit participants should be able to identify actions in order to prevent frailty in the elderly.

## Questions pre unit

- 1) Are there organizational level actions that can help prevent the fragility of the elderly? YES
- 2) Is early detection of cognitive impairment necessary to slow down the frailty process in the elderly? YES
- 3) The elder can't try to compensate the abilities that they lose, so they can't accept ageing and cannot thrive for psychological wellbeing. NO
- 4) Starting and keeping to follow courses or educational projects do can help in prevention of social frailty? YES
- 5) Do technology can support the prevention of frailty in elderly? YES


# Prevention of frailty

- The advice is to prevent frailty in order to age actively and healthy.
- The prevention of elder is an individual challenge.
- There are several actions that the elder or their network can perform in order to prevent frailty.
- Further, there are actions on organisational level, where the policy can support the prevention of frailty.

Source image: AGE platform


Between 2000 and 2050, the number of people aged 60 and over is expected to double

In 2050, more than 1 in 5 people will be 60 years or older.




By 2050, 80% of older people will be living in low- and middle-income countries.

► EVERY OLDER PERSON IS DIFFERENT



Some have the level of functioning of a 30 year old.

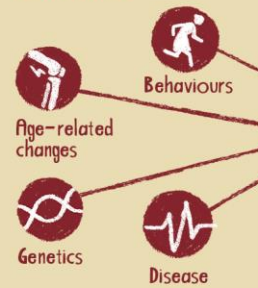


Some require full time assistance for basic everyday tasks.


Health is crucial to how we experience older age.

► WHAT INFLUENCES HEALTH IN OLDER AGE

INDIVIDUAL




ENVIRONMENT THEY LIVE IN




► WHAT IS NEEDED FOR HEALTHY AGEING


A change in the way we think about ageing and older people




Creation of age-friendly environments



Alignment of health systems to the needs of older people



Development of systems for long-term care



Healthy Ageing...being able to do the things we value for a long as possible  
#yearsahead

# Prevention of physical frailty

- Problems related to physical frailty can be:
  - The elder starts to avoid activities that cost more time and energy, with a decrease of physical activity.
  - Avoiding physical activities can augment the risk of falling.
  - Elder can perceive social barriers to go out, when a disability is visible and the elder is ashamed for the disability.

# Prevention of physical frailty

- Advise to prevent physical frailty:
  - Keep on moving and doing activities; ICT can be a useful tool here.
  - Do physical exercises.
  - Optimise management of chronic diseases.
  - Control of vascular risk factors.
  - Control of medication use and review side-effects or interactions.
  - Use an adequate diet.



# Prevention of psychological frailty

- Advise to prevent psychological frailty:
- Early detection of cognitive impairment is necessary to slow down the process
- Keep doing activities; ICT courses can help to keep the brain active.

# Prevention of psychological frailty

- Prevention:
  - A well-known structure in their daily life can help and prevent psychological problems, for example a daily routine augments the control over their life and augments feelings of safety.
  - Detection and adequate treatment in psychological problems is necessary.
  - The elder can try to compensate the abilities that they lose; that way they can accept ageing and thrive for psychological wellbeing.

# Prevention of social frailty

- Advise to prevent social frailty:
  - Start following (and keep following) courses or educational projects; ICT courses can be recommended here.
  - Join activities in the neighbourhood, as they are more accessible, and give the opportunity to build a social network

# Conclusion

- Prevention of frailty should be a combination of actions on physical, psychological and social level.
- These preventive actions should be adapted to the condition of a diverse range of elder, and therefore should be accessible at low cost, in different languages, ... .
- Technology can support the prevention of frailty in elder.

## Questions post unit

- 1) How do a well-known structure in daily life can help and prevent psychological problems? Repetitiveness is harmful / A DAILY ROUTINE AUGMENTS THE CONTROL OVER LIFE AND FEELINGS OF SAFETY / One can never rest easy, there are always problems to be addressed
- 2) Which of these behaviors can help in the prevention of physical fragility? Eat little and be withdrawn / KEEP MOVING AND DO MANY ACTIVITIES / Seek help from neighbors and relatives
- 3) Why is it important that older people try to compensate for the skills they have lost? Because they can only get by on their own / Because otherwise they become useless to society, and represent a burden / BECAUSE IN THIS WAY THEY CAN ACCEPT AGEING AND COMMIT THEMSELVES TO THEIR PSYCHOLOGICAL WELLBEING
- 4) Prevent frailty in the elderly is a personal challenge and is also a matter of:  
maintain productivity /HEALTHY AGING / decrease the social costs of unproductive people
- 5) Is it preferable to participate in activities that take place nearby? why?  
No, it would be better to find specialized facilities / If you are sick, depressed, and you feel old, maybe it's better not to be seen too much around / BECAUSE IN THIS WAY THE NEIGHBORHOOD SOCIAL TIES ARE STRENGTHENED AND THERE ARE MORE OPPORTUNITIES TO BUILD ONE'S OWN SOCIAL NETWORK

The right answer is write in CAPITAL LETTER



**PROADAS**  
PROMOTION OF ACTIVE  
DIGITAL AGEING SKILLS

## Unit 3

# Assessment of frailty in the elderly

## Purpose of this unit

Upon completion of this unit participants should be able to assess frailty in the elderly by using multidisciplinary assessment instruments.

## Questions pre unit

- 1) Is it possible to use innovative technologies to assess the frailty of the elderly? YES
- 2) Are there examples of technologies designed specifically for the self-assessment of the frailty of the elderly? YES
- 3) Is it true that good examples of representation and analysis of the different levels of frailty of the elderly are completely lacking? NO
- 4) Self assessment instruments don't requires any training. NO
- 5) Is the evaluation of the frailty of the elderly exclusively a matter for specialists? NO



# Frailsurvey

- Frailsurvey is a free mobile app for self-assessment of frailty
- The app exists in different languages and can be used easily by different stakeholders.

## Clinical Frailty Scale



**1 Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



**2 Well** – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.



**3 Managing Well** – People whose medical problems are well controlled, but are not regularly active beyond routine walking.



**4 Vulnerable** – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up”, and/or being tired during the day.



**5 Mildly Frail** – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



**6 Moderately Frail** – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.



**7 Severely Frail** – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



**8 Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



**9 Terminally Ill** – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

### Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

# Use of innovative technologies in assessing and preventing frailty

We give some examples to integrate IT in prevention of frailty:

- Virtual reality games for cognitive stimulation and physical activation
- Mobile phone and wearables for measuring strength performance
- Apps and devices to improve the social contacts between relatives

# Conclusion

- Different apps and scales are available to support the elder and their network.
- Depending on the aim, one can choose for a certain scale or instrument.
- For this choice, it is important to bear in mind that frailty is a condition that combines physical, psychological and social factors, so that is also important to assess these different dimensions.

## Questions post unit

- 1) Which of the following is an existing technology for assessing frailty in the elderly? VIRTUAL REALITY GAMES FOR COGNITIVE STIMULATION AND PHYSICAL ACTIVATION / role play games /heart rate monitor
- 2) Frailty is a condition that combines different factors: physical and psychological / SOCIAL, PSYCHOLOGICAL AND PHYSICAL / social and psychological
- 3) The self assessment of frailty by older people is a very important factor because it allows: to have a scientifically validated picture of the status of people / TO BE ABLE TO EVALUATE HOW TO REACT, HOW TO IMPROVE ONE'S QUALITY OF LIFE/ to reduce social costs
- 4) What are the best solutions offered by technology for self-assessment of frailty in elderly people?THERE ARE NO BETTER SOLUTIONS, BUT A WIDE RANGE OF ALTERNATIVES / there are specific apps, like Frailsurvey / there are only assessment tools that can be used by professionals
- 5) In how many different levels are the clinical assessment scales of fragility usually divided? in three levels: good health, uncertain health, illness / IN NINE LEVELS, FROM VERY FIT TO TEMINALLY ILL / in four levels: fit, vulnerable, moderately frail, very severely frail

The right answer is write in CAPITAL LETTER



**PROADAS**  
PROMOTION OF ACTIVE  
DIGITAL AGEING SKILLS

## Unit 4

How to include frail  
elder in ICT activities

## Purpose of this unit

Upon completion of this unit participants should be able see how include frail elder in ICT activities.

## Questions pre unit

- 1) Do you think that architectural barriers have no relevance in organizing an ICT course? NO
- 2) 2) Is it important to provide correct information and help even at home for the elderly in the use of ICT devices? YES
- 3) 3) Can online exercise programs help elderly people with limited mobility? YES
- 4) 4) When organizing ICT courses, is it important to take into account the possible different level of cognitive or mental difficulty of older people? YES
- 5) 5) Can it be useful to involve the elderly in the discussion on how to make the ICT course more accessible by listening to their point of view? YES



# For elder with limited mobility

- Reading can be an interesting activity for elder with impaired mobility: It can also improve memory, reduce stress, improve sleep, and delay cognitive decline. They can use e-readers, audiobooks or online information.
  - Advise: Provide help at home to use the ICT devices or provide support to go towards and from the activity.
- Physical exercises are important, especially for older adults with limited mobility.
  - Advise: Online exercises programs can be helpful when the elder aren't keen on doing physical activities in group or in a sport center.

# For elder with limited mobility

- When ICT courses are organised: pay special attention to the (physical) accessibility of the location:
  - Can one access in a wheel chair or with a walker?
  - Are the computer tables accessible?
  - Are the computer screens large enough to provide large fonts?
  - Is the location known by the elderly? And do they know how to get there?

# For elder who need mental support

- When ICT courses are organised: pay special attention to the support of elder who are challenged on mental or cognitive level:
  - During the course: provide an explanation on large screen and a step-by-step guideline for each computer.
  - Combine a ICT class with a social event: the possibility to sit and talk after the course
  - When you provide information, it is important that elder understand the information. Use the teach-back method by asking them what they understood of a certain explanation, to check in that explanation was clear.

# For elder with limited social network

- A pet can help elder to go outside, for example for dog walks. This will support social talks with people in the neighbourhood. A gps-app on the smartphone can motivate to discover new walks in the environment.
- Include elderly themselves in discussing how to make the course more accessible for different profiles.
- Provide ICT support for free or in low cost, to reach out to as many elder as possible.

# Conclusion: tips for an accessible activity

- When you provide information, it is important that elder understand the information.
- Pay attention of psychical accessibility. Go sit in a wheel chair and check for yourself how accessible your activity is.
- Activities for elder should be low-cost or free, to include a diverse range of elder.

## Questions post unit

- 1) When you provide information in an ICT course, it is important that:the information is technically correct and expressed in the specialized language / the information is simplified, because the elderly generally do not understand / THAT THE ELDERLY UNDERSTAND THE INFORMATION
- 2) If you are an elderly person, what can be the advantage of knowing how to use a GPS on your smartphone? ALLOWS YOU TO SAFELY EXPLORE NEW ROUTES (WALKS, VISITS) / allow your relatives to know where you are / it is of no use
- 3) To ensure good physical accessibility to the location of an ICT course for elderly people, it is important to check that: COMPUTER SCREENS ARE LARGE ENOUGH TO PROVIDE LARGE FONTS / computers are new and with very high performance / the computers are old and with simplified programs
- 4) It may be useful to combine an ICT course with a SOCIAL EVENT, WHICH ALLOWS PARTICIPANTS TO DISCUSS AND GET TO KNOW EACH OTHER / skill competition, with personal scores / strict evaluation of the abilities of each, with differential classes
- 5) When organizing an ICT course for seniors, it is very important to select the participants on the basis: of the level of education and income / demonstrated technical skills, for example with an entrance exam / NEED FOR LEARNING AND LIMITATIONS IN MOBILITY, COGNITIVE LEVEL OR LACK OF SOCIAL NETWORKS

## References

Duppen D., Van der Elst M., Dury S., Lambotte D., De Donder L. and D-SCOPE (2017). The Social environment's relationship with frailty: evidence from existing studies. *Journal of Applied Gerontology*, 1–24.

Dury S. , Dierckx E., van der Vorst A., Van der Elst M., Fret B., Duppen D., ... , De Donder L (2018). Detecting frail, older adults and identifying their strengths: results of a mixed-methods study. *BMC Public Health*, 18:191.

Sacha J., Sacha M., Soboń M., Borysiuk Z. and Feusette P. (2017). Is It Time to Begin a Public Campaign Concerning Frailty and Pre-frailty? A Review Article. *Frontiers in Physiology*.

Smetcoren A-S, Lambotte D., Duppen D., Fret B. and D-SCOPE (2016). D-SCOPE naar een brede kijk op kwetsbaarheid bij ouderen. Brussel. Vrije Universiteit Brussel.