The Human Factors and Technology Requirements Questionnaire (HFTRQ)

(*) Questions with asterisk are open-ended questions

1. Questions for Healthcare professionals (HCP) and the Caregivers

Date of Interview:
Name/Surname of the Researcher:
Name of the Participant:
Code of the Participant:
Telephone of the Researcher:

1.1. Demographics of HCP and the Caregivers

- Gender: Male/ Female
- Age (age and year of birth): ………. and ……………….
- Educational level :
- Years of Education:
- Concerning your experience:
    - Choose the category you fit better:
        - o Family Caregiver
        - o Professional Caregiver
        - o Doctor / Psychologist/ Nurse/ Therapist
        - o Other (define): ……………………………
    - Have you received training with regards to caregiving?: **YES / NO**
    - Concerning the patients you are monitoring, please define:
        - o The age of the patients (e.g., 60-80, 85 etc):
        - o The educational level of the patients:
        - o Cognitive status-diagnosis of the patients (indicate any comorbidities) :
        - o Health status of the people you are taking care of:
            - Fragility:
            - Chronic Disease:
        - o Empathy : **YES/ NO**

1.2. Current Condition of the Patient

1.2.1. Daily Practice
1. **(*)** Please describe your daily activity with the patient(s)
2. Do you participate/control/ any activities of the patient(s) (e.g., cognitive exercises)? **YES/NO**
3. Please choose what kind of activities? (you can choose more than one):

        a. Gymnastic

        b. Music Therapy

        c. Psychotherapy for caregivers

        d. Educational programs for elders

        e. Cognitive exercises

        f. PC operation learning

        g. Other (describe): ………………………………………………………………………….

4. Is there any way to know how the patient was during the day? **YES/NO**

5. Please choose one the following potential ways:

        a. The patient describes me how he/she acted during the day

        b. I use technology to monitor and know how the patient acted during the day

            i. What kind of technology; ……………………………………………………………………….

        c. I rely on friends/relatives to describe me how the patients acted during the day

        d. I rely on patient's declaration and description to gain understanding of how he/she acted during the day

        e. Other (describe): ………………………………………………………………………

6. Is there any way to record potential problems the patient face in order to discuss them later on with the doctor or other HCP? **YES/NO**

7. Please choose the way you are recording potential problems:

        a. I use notes to write down patient's problems

        b. I rely on caregiver's description

        c. I rely on patient's description

        d. I use technology to record the problems

            i. What kind of technology; …………………………………………………………………………….

        e. Other (describe): ………………………………………………………………………….

1.2.2. Problems and Difficulties

1. Do you face problems with the patient(s)? **YES/NO**

2. Please choose major daily problems you face in caring the patient? (you can choose more than one)

        a. Difficulties with his/her sleep

        b. Difficulties in communication

        c. Difficulties in following specific instructions (e.g., prescribed medical treatment)

        d. Difficulties in self-care

        e. Difficulties with his/her orientation

        f. Difficulties with her behavior and emotional condition (e.g., apathy, depression etc)

        g. Other (describe): ………………………………………………………………………….

3. **(*)** What would you like to change in order to reduce these problems?

4. **(*)** Do you think that these problems might be reduced through technology? How?

1.3. Use of Technology in Monitoring the Patient

1. Are you familiar with using technology in your work or personal life? **YES/NO**

2. What kind of technology are you currently using? (you can choose more than one)

        a. PC

      b.   Mobile

      c.   Tablet

      d.   Sensors

          i.   What kind of sensors? ……………………………………………………………

      e.   Other (describe): …………………………………………………………….

3. In which of the following fields would technology help the **patient**? (you can choose more than one)

      a.   Security and Control

      b.   Stress Release

      c.   Independency

      d.   Social Activity

      e.   Daily function

      f.   Health metrics (e.g., sleep, Heart rate etc)

      g.   Other (describe): …………………………………………………………….

4. In which of the following fields would technology help you as **HCP and/or caregiver**?

      a.   Security and Control

      b.   Stress Release of the patient

      c.   Objective Clinical information of the patient

      d.   Better Communication with the patient

      e.   Clinical Update (e.g., health data, following of the clinical protocol)

      f.   Surveillance (e.g., replace caregivers, all day monitoring)

      g.   Other (describe): …………………………………………………………….

5. How often will you use the suggested technology?

      a.   Every moment

      b.   Twice a day

      c.   Once a day

      d.   Not frequently

      e.   Other (describe): …………………………………………………………….

6. **(*)** What would affect the adoption of the technology from your side?

7. Would you need any assistance in operating the suggested technology? **YES/NO**

      a.   What kind? …………………………………………………………….

1.4. Application and Use of the Suggested Technology

1. Do you receive assistance or support for your activities related to patient's care this period? **YES/NO**

2. Would the suggested technology be useful for you? **YES/NO**

3. For each of the following items can you briefly describe how you doing and if some of them could be improved? (fill the gaps). Please mark the items in which technology would like to assist you (you can choose more than one):

      a.   Communication with relatives/ Socializing

          (describe): …………………………………………………………….

      b.   Emergency

          (describe): …………………………………………………………….

      c.   Health Monitoring (e.g., HR, calories etc)

(describe): …………………………………………………………………….

    d.   Safety (e.g., falls)

        (describe): …………………………………………………………………….

    e.   Sleep monitoring

        (describe): …………………………………………………………………….

    f.   Use of public transportations

        (describe): …………………………………………………………………….

    g.   Shopping/Financial

        (describe): …………………………………………………………………….

    h.   Interventions (e.g., participation in cognitive exercises)

        (describe): …………………………………………………………………….

    i.   Clinical Trials

        (describe): …………………………………………………………………….

    j.   Other assistance you would like

        (describe): …………………………………………………………………….

1.5. Features and Capabilities of the technology

1. **(*)** Based on your opinion which aspects should be covered by the suggested technology (e.g., ethical, societal etc) in order to use it? Are there any legal or ethical issues which would forestall you of using the technology?

2. Which of the following items would affect your adoption of the technology?

    a.   Personal data storage

    b.   Stigma

    c.   Difficulty in using (e.g., false alarms, shape etc)

    d.   Nothing at all

    e.   Other (describe): …………………………………………………………………….

3. What would be of high importance for you with regards to the appearance and the features of the suggested technology?

    a.   Weight

    b.   Appearance

    c.   Ease to use

    d.   Water resistant

    e.   24h use

    f.   Battery Life

    g.   Other (describe): …………………………………………………………………….

4. **(*)** Can you describe what other features the suggested technology you would like to have?

1.6. Likert-scale Questions for the Caregivers/ HCP

Most of these questions have a statement (e.g., "I like strawberries"), after which you can indicate whether you agree with that statement or not, including (with a pen or pencil) the number corresponding in your answer.

1.6.1. Questions regarding potential use of the technology

Please choose in which of the following categories you need assistance on your daily activity:

	By using the suggested technology…	Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
1	I believe that I will improve the patient care	1	2	3	4	5	6	7
2	I would like to know 24/7 what the person I am taking care of is doing	1	2	3	4	5	6	7
3	Knowing the location of the patient	1	2	3	4	5	6	7
4	I would like to receive messages when the patient goes out of the house	1	2	3	4	5	6	7
5	I want to receive information about patient's sleeping activity	1	2	3	4	5	6	7
6	I want to know information about patient's daily functionality (e.g., cooking)	1	2	3	4	5	6	7
7	I believe it is important to know the emotional condition of the patient	1	2	3	4	5	6	7
7	I want to know exactly if the patient is	1	2	3	4	5	6	7

	taking care of himself (e.g., taking bath)							
8	I want to know how he is doing with the cognitive exercises	1	2	3	4	5	6	7
9	I want to know sleep parameters (e.g., number of awakenings)	1	2	3	4	5	6	7
10	I want to know if the patient took his/her medication	1	2	3	4	5	6	7

2. Questions for the Elderly Participants

Date of Interview:
Name/Surname of the Researcher:
Name of the Participant:
Code of the Participant:
Telephone of the Researcher:

2.1. Demographics of the Elderly

- Gender: Male/ Female
- Age (age and year of birth): ………. and ……………….
- Educational level :
- Years of Education:

2.2. Likert-Scale Questions for the Elders

Most of these questions have a statement (e.g., "I like strawberries"), after which you can indicate whether you agree with that statement or not, including (with a pen or pencil) the number corresponding in your answer.

2.2.1. Questions about the daily functionality of the elderly
Please select in which fields you need assistance for your daily functionality:

		Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
1	I can eat without assistance	1	2	3	4	5	6	7
2	I can dress up by my own	1	2	3	4	5	6	7
3	I can take bath without assistance	1	2	3	4	5	6	7
4	I prepare meal by myself	1	2	3	4	5	6	7
5	I manage my financials and pay bills	1	2	3	4	5	6	7
6	I go for shopping by my own	1	2	3	4	5	6	7

		Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
7	I visit bathroom without assistance	1	2	3	4	5	6	7
8	I can take care of myself (e.g., shaving)	1	2	3	4	5	6	7
9	I use electrical appliances	1	2	3	4	5	6	7
10	I complete house chores without assistance	1	2	3	4	5	6	7

2.2.2. Questions about the health status of the elderly

Please select in which fields you need assistance or you face problems with regards to your health:

		Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
1	My sleep is the same as before	1	2	3	4	5	6	7
2	I am very satisfied with my sleep	1	2	3	4	5	6	7
3	I wake up several times during the night	1	2	3	4	5	6	7
5	I can fall asleep easily when I wake up during the night	1	2	3	4	5	6	7
6	I need (medical) assistance to fall asleep	1	2	3	4	5	6	7
7	I feel palpitations during the night	1	2	3	4	5	6	7
8	I feel dizziness during daytime	1	2	3	4	5	6	7
9	I feel that my body has changed	1	2	3	4	5	6	7

		1	2	3	4	5	6	7
10	I feel restless during the day	1	2	3	4	5	6	7
11	I don't move a lot during the day	1	2	3	4	5	6	7
12	I find it difficult by myself	1	2	3	4	5	6	7
13	I cannot complete easy tasks	1	2	3	4	5	6	7
14	I need assistance in almost everything (e.g., visit the bathroom)	1	2	3	4	5	6	7

2.2.3. Questions about the cognitive and emotional condition of the elderly

Please select in which fields you need assistance or you face problems with regards to your cognition and behavior:

		Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
1	I am more nervous compared to the past	1	2	3	4	5	6	7
2	I get upset with everything	1	2	3	4	5	6	7
3	My memory has worsen	1	2	3	4	5	6	7
4	I feel careless	1	2	3	4	5	6	7
5	I forget frequently	1	2	3	4	5	6	7
7	I feel nervous when I forget	1	2	3	4	5	6	7
8	I cry often	1	2	3	4	5	6	7
9	I feel alone	1	2	3	4	5	6	7
10	I cannot describe my feelings	1	2	3	4	5	6	7
11	I am taking notes to remember things and events	1	2	3	4	5	6	7

		Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
	(e.g., appointment)							
12	I cannot describe my situation and my problems to others	1	2	3	4	5	6	7
13	I do believe that an intervention would be useful in my situation	1	2	3	4	5	6	7

2.2.4. Questions about the safety, independency and communication of the elderly

Please select in which fields you need assistance or you face problems with regards to your safety, independency and communication:

		Very Strongly Disagree	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Very Strongly Agree
1	I cannot come in contact with someone when I am in need	1	2	3	4	5	6	7
2	In case of emergency I will not be able to alert someone	1	2	3	4	5	6	7
3	I don't go out of the house very often	1	2	3	4	5	6	7
4	I don't have many friends	1	2	3	4	5	6	7
5	I prefer staying at home alone	1	2	3	4	5	6	7
6	I go out frequently	1	2	3	4	5	6	7
7	I feel scared going out alone	1	2	3	4	5	6	7
8	I use technology to communicate	1	2	3	4	5	6	7
9	I feel safe when I use	1	2	3	4	5	6	7

	technology							
10	I feel independent while using technology	1	2	3	4	5	6	7
11	I use technology when I go out of the house (e.g., GPS)	1	2	3	4	5	6	7
12	I believe that technology is important for my situation	1	2	3	4	5	6	7

2.3. Semi-structured Questions for the elderly

2.3.1. General Open-ended Questions

1. **(*)** What kind of activities are you doing during your daytime? (e.g., daily routine, exercise etc)
2. **(*)** What kind of activities you would like to accomplish that period but you can't? Why you can't do them?
3. **(*)** Are there any activities that you avoid or dislike?

2.3.2. Application and Usage of the Suggested Technology

1. **(*)** What kind of support/assistance do you receive this period?
2. **(*)** Would you consider useful the suggested technology?
3. For each item below please choose and describe how the suggested technology would like to assist you (you can choose more than one):
   a. Communication with relatives
      (describe): ……………………………………………………………………….
   b. SOS in case of emergency
      (describe): ……………………………………………………………………….
   c. Health Monitoring (e.g., HR)
      (describe): ……………………………………………………………………….
   d. Safety (e.g., turn off the oven)
      (describe): ……………………………………………………………………….
   e. Sleep
      (describe): ……………………………………………………………………….
   f. Use of public transportation (e.g., how to reach my destination)
      (describe): ……………………………………………………………………….
   g. Shopping/Financial Management
      (describe): ……………………………………………………………………….
   h. Entertainment (e.g., brain games)

(describe): …………………………………………………………………………….

    i.   Reminders for house chores or appointments

       (describe): …………………………………………………………………………….

    j.   Important Issues (e.g., take care of a baby)

       (describe): …………………………………………………………………………….

    k. Other

       (describe): …………………………………………………………………………….

4. Do you receive any assistance/support in your activities this period? **YES/NO**
5. Would the suggested technology be useful for you? **YES/NO**

2.3.3. Features and Capabilities of the suggested technology

1. **(*)** Based on your opinion which aspects should be covered by the suggested technology (e.g., ethical, societal etc) in order to use it? Are there any legal or ethical issues which would forestall you of using the technology?

2. What would affect the adoption of the suggested technology from your side?

    a. Storage of personal data
    b. Stigma
    c. Difficulty in using
    d. Other (describe): …………………………………………………………………………….

3. What kind of metrics you would like the technology to have?

    (describe): …………………………………………………………………………….

4. What would be of high importance for you with regards to the appearance and the features of the suggested technology?

    a. Weight
    b. Appearance
    c. Ease to use
    d. Water resistant
    e. 24h use
    f. Battery Life
    g. Other (describe): …………………………………………………………………………….

2.3.4. Use of Technology by the Elderly

1. Do you have internet at your home? **YES/NO**
2. Are you familiar with smart phones or other technologies? **YES/NO**
3. What kind of use are you doing?
   (describe): …………………………………………………………………………….
4. Do you use other technologies supporting SOS? **YES/NO**
   (describe): …………………………………………………………………………….

2.3.5. Learning how to Use new Technologies and Cognitive Exercises

1. Do you need support in learning new activities? **YES/NO**
2. **(*)** What kind of cognitive exercises/ brain games are you doing this period?
3. What are your favorite games/ cognitive exercises?

(describe): ………………………………………………………………………………

a. What do you like most on that?

(describe): ………………………………………………………………………………

b. How much time are you playing that game/ doing that exercise/program?

(describe): ………………………………………………………………………………

4. Are there any other games/ cognitive exercises that you were involved in the past but you cannot participate now? **YES/NO**

5. Describe them: ………………………………………………………………………………….

6. Are you using technology to play the games or do the cognitive exercises? **YES/NO**

7. What do you like mostly in these kind of games/exercises?

(describe): ………………………………………………………………………………….

a. What are the main pros and cons?

b. How do you overcome these difficulties you face within these games?

c. In these particular games/exercises are there any rewards? What motivates you mostly in playing these games?

3. Closing

1. **(*)** Do you think there any other issues that should be discussed but we haven't?
2. **(*)** Can we contact you again if we want to discuss other issues?