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MULTIPLATAGE



Multidimensional Prognostic Index (MPI)

**User's manual for the compilation of the MPI
in its different versions**

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Introduction

What is the Multidimensional Prognostic Index (MPI)

The *Multidimensional Prognostic Index* is a prognostic tool based on the Comprehensive Geriatric Assessment (CGA), which is the gold standard for the assessment of older people (aged ≥ 65 years). Numerous studies in literature suggest the excellent accuracy and calibration of the MPI in predicting short- and long-term negative outcomes, like hospitalization, institutionalization, and mortality.

Which domains are included in the Multidimensional Prognostic Index (MPI)

The MPI tool investigates the health of the older person from a multidimensional perspective including 8 different domains: basal and instrumental activities of daily living, mobility or risk of injury from pressure, cognitive status, nutrition status, co-morbidities, number of medications taken, and co-habitation status.

Which MPI tools exist

Over the years, different versions of the MPI have been developed, according to the setting and purpose of use, corresponding to:

Hospital MPI (which can be used in hospitalization),

Outpatient MPI (for outpatient settings),

MPI-SVaMA (based on the Multidimensional Evaluation Sheet for Adults and Seniors)

ONCO-MPI (used in oncology)

TELE-MPI (can be done remotely)

Brief-MPI (brief version for screening settings),

SELFY-MPI (self-administering version “EFFICHRONIC”),

SELFY-MPI-SF (brief self-administering version, “Short Form”)

SELFY-Brief-MPI (brief self-administering version for screening settings).

All the different versions of the MPI will be presented in this manual, along with the related descriptions of the rating scales and instructions on how to compile, calculate and interpret the MPI score obtained.

Hospital MPI

Setting

It is administered to subjects in hospitals in three different situations:

- 1) when the subject is admitted to the hospital (anyway within 48-72 hours from the admission to the hospital unit and, possibly, when the subject is medically stable)
- 2) in case of variation of the clinical conditions
- 3) when the subject is discharged

Actors involved

It is administered by healthcare professionals: doctors and/or nurses; in case of specific domains and from a multidimensional perspective it is possible to involve other professionals in the assessment, like psychologists, physiotherapists, and social or health workers.

Scales

1. ADL (Activities of Daily Living)
2. IADL (Instrumental Activities of Daily Living)
3. ESS (Exton-Smith Scale)
4. SPMSQ (Short Portable Mental Status Questionnaire)
5. MNA-SF (Mini-Nutritional Assessment short form)
6. CIRS (Cumulative Illness Rating Scale): Comorbidity Index
7. Number of drugs
8. Cohabitation status: living in family, alone, or institution or nursing home

Description and method of administration

1. ADL (Activities of Daily Living)

Use: Evaluation of independence in performing daily life activities.

Filling in:

- If the subject does not have cognitive impairments the answers are based on the information given by the subject;
- If the subject has cognitive impairments the questions can be asked to a caregiver;
- The healthcare professional includes his comments ;
- Information referred to the present situation of the subject;
- 6 questions with answer options “0” or “1” corresponding respectively to “dependent” and “independent”

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- Sum the scores obtained in the different questions;
- Enter the data in the final scoring table of the administered MPI version.

Reference scale:

ADL (Activities of Daily Living)

	Date
A) BATHING	
Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area, or disabled extremity.	1
Needs help with bathing more than one part of the body, getting in or out of the tub or shower. Requires total bathing.	0
B) DRESSING	
Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners. May have help tying shoes.	1
Needs help with dressing self or needs to be completely dressed.	0
C) TOILETING	
Goes to the toilet, gets on and off, arranges clothes, cleans genital area without help.	1
Needs help transferring to the toilet, cleaning self or uses bedpan or commode.	0
D) TRANSFERRING	
Moves in and out of bed and chair unassisted. Mechanical transfer aids are acceptable.	1
Needs help in moving from bed to chair or requires a complete transfer.	0

E) CONTINENCE	
Exercises complete self control over urination and defecation.	1
Is partially or totally incontinent of bowel or bladder.	0
F) FEEDING	
Gets food from plate into mouth without help. Preparation of food may be done by another person.	1
Needs partial or total help with feeding or requires parenteral feeding.	0

Total: _____

2. IADL (Instrumental Activities of Daily Living)

Use: Evaluation of the ability to do complex activities considered necessary for maintaining independence and which require the use of tools.

Filling in:

- If the subject does not have cognitive impairments the answers are based on the information given by the subject;
- If the subject has cognitive impairments the questions can be asked to a caregiver;
- The healthcare professional includes his comments ;
- Information referred to the present situation of the subject;
- If an activity is carried out only occasionally, but the subject is able to perform it, the full score is considered;
- 8 items with answer options "0" or "1", corresponding respectively to "unable to perform" and "able to perform".

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- Sum the scores obtained in the different questions;
- Enter the data in the final scoring table of the administered MPI version.

Reference scale:

IADL (Instrumental Activities of Daily Living)

A) ABILITY TO USE TELEPHONE Operates telephone on own initiative, even if he or she dials a few well-known numbers or only answers telephone but does not dial. Does not use telephone at all.	1 0
B) SHOPPING Takes care of all shopping needs independently or at least shops independently for small purchases. Needs to be accompanied on any shopping trip or is completely unable to shop.	1 0
C) FOOD PREPARATION Plans, prepares and serves adequate meals independently or at least if supplied with ingredients. Needs to have meals prepared and served to maintain adequate diet.	1 0
D) HOUSEKEEPING Maintains house alone or with occasional assistance, performs light daily tasks but cannot maintain acceptable level of cleanliness. Needs help with all home maintenance tasks or does not participate in any housekeeping tasks.	1 0
E) LAUNDRY Does personal laundry completely or launders small items-rinses, stocking, etc. All laundry must be done by others.	1 0
F) MODE OF TRANSPORTATION Travels independently on public transportation or drives own car or travel on public transportation when accompanied by another. Travels limited to taxi or car with assistance of another or does not travel at all.	1 0
G) RESPONSIBILITY OF OWN MEDICATIONS Is responsible for taking medication in correct dosages at correct time. Is not capable of dispensing own medication or takes responsibility if medication is prepared in advance in separate dosage.	1 0

H) ABILITY TO HANDLE FINANCES	
Manages financial matters independently (budget, writes, checks, pays rent, bills, goes to bank) or manages day-to-day purchases but needs help with banking, major purchases, etc.	1
Incapable of handling money.	0
TOTAL	

3. ESS (Exton-Smith Scale)

Use: It is used to evaluate the risk of developing pressure sores.

Filling in:

- The tool is filled in by the medical and/or nursing staff;
- 5 questions with 4 answer options: for the method of selecting the answer, refer to the following description of each question:

1) General condition: evaluate levels of assistance required for activities of daily living

- [4] Good: capable in ADLs (hygiene, nutrition, medication, movements, etc.).
- [3] Fair: requires assistance in some ADLs (hygiene, nutrition, medication, movements, etc.).
- [2] Poor: Assistance is required in many ADLs (hygiene, nutrition, medication, movements, etc.).
- [1] Bad: totally dependent for ADLs (hygiene, nutrition, medication, movements, etc.).

2) Mental state: assess the ability to answer questions related to time, space and people

- [4] Alert: normally oriented in time and space, quick response.
- [3] Apathetic: oriented in time and space but needs a repetition of the question.
- [2] Confused: partially oriented in time and space, answer not precise.
- [1] Stuporous: totally disoriented, response may be slow or absent, subject may be comatose

3) Activity: evaluate the ability to walk

- [4] Ambulant: walks alone or with the assistance of devices (e.g. sticks)
- [3] Walk with help: requires the assistance of a person for walking with or without a device
- [2] Sitting (chairbound): Wheelchair only.

- [1] Lying down (in bed all day): the subject is bedridden 24 hours

4) Incontinence: assessment of urine and/or feces control.

- [4] Absent: not urine incontinent. May have a catheter.
- [3] Occasional: urine incontinent 1-2 times per day, at most.
- [2] Usually urine: urine incontinence more than 2 times per day.
- [1] Doubly incontinent: total incontinence of urine and feces.

5) Mobility in bed: assess the ability to control and carry out the movement of the body or part of it

- [4] Fully Mobile: can move and control the body extremities as he/she wants.
- [3] Slightly limited: can use and control the body extremities with minimum assistance of another person.
- [2] Very limited: limited independence of movement and control of body extremities. Requires more assistance from another person.
- [1] Immobile: has no independence of movement or control of the body extremities . He or she requires assistance for the movement of each body extremity.

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- Sum the scores obtained in the questions (answer range: 5-20);
- Enter the data in the final scoring table of the administered MPI version.

Reference Scale:

ESS (Exton-Smith Scale)

General Condition		Incontinence	
Bad	1	Doubly incontinent	1
Poor	2	Usually urine	2
Fair	3	Occasional	3
Good	4	Absent	4
Mental State		Mobility in Bed	
Stuporous	1	Immobile	1
Confused	2	Very limited	2
Apathetic	3	Slightly limited	3
Alert	4	Fully mobile	4
Activity		TOTAL _____	
Lying down (in bed all day)	1	Score 16-20: <i>minimum risk</i>	
Sitting (chairbound)	2	Score 10-15: <i>medium risk</i>	
Walk with help	3	Score 5-9: <i>high risk</i>	
Ambulant	4		

4. SPMSQ (Short Portable Mental Status Questionnaire)

Use: Evaluation of the presence and severity of cognitive impairments in older subjects.

Filling in:

- The questionnaire is administered through questions directly to the subjects (even in the case of blind subjects or those with functional limitations to the upper limbs);
- The answers have to be given without using support tools for memory (*e.g.*, a calendar, journal, birth certificate, or others);
- 10 questions in total, with “correct answer” or “wrong answer” as options;
- The scoring can be done following the instruction below:
 - 1) The answer is considered wrong even if only one element of the date (day, month and year) is wrong
 - 2) Answer options: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday
 - 3) The answer is correct if the subject provides any indication that would allow recognition of the place
 - 4) The answer is considered wrong if the street, house, number, country or city are wrong
 - 5) The answer is considered correct if the age matches the date of birth
 - 6) The answer is considered correct only if the day, month, or year of birth are correctly reported
 - 7) The answer varies based on current news
 - 8) The answer varies based on current news
 - 9) The surname should be ascertained through family members. If verification is not possible, a different surname is considered correct.
 - 10) The answer is considered wrong for the first error in the subtraction (the whole series must be exact: 17; 14; 11; 8; 5; 2).

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- “0” (correct answer) or “1” (wrong answer);
- Sum the scores obtained in the selected questions;
- Enter the data in the final scoring table of the administered MPI version.

Reference scale:

SPMSQ (Short Portable Mental Status Questionnaire)

	Correct	Wrong
1. What are the date, month, and year? (correct only when the month, date, and year are all correct)	0	1
2. What is the day of the week?	0	1
3. What is the name of this place? (correct if any description of the location is given)	0	1
4. What is your street address?	0	1
5. How old are you?	0	1
6. When were you born?	0	1
7. Who is the current Prime Minister (or Pope)?	0	1
8. Who was the Prime Minister (or Pope) before him?	0	1
9. What was your mother's maiden name?	0	1
10. Can you count backward from 20 by 3's at least for 3 times? (the entire series must be performed correctly to be scored as correct)	0	1

5. MNA- SF (Mini Nutritional Assessment – Short Form)

Use: It is used to identify older people at risk of malnutrition or already in this condition.

Filling in:

- It is filled in by the medical and/or nursing staff, choosing the answer that better describes the subject's situation based on the clinical observations, anamnesis, and the answers given by the subject or by his or her caregiver;
- Each answer corresponds to a specific score (0, 1, 2, 3);
- 6 questions in total;
- Based on the information available, it is possible to choose whether the answer to question F1 or F2
 - If the subject's "weight" and "height" data are available, answer the F1 question (calculation of the BMI index is: $\text{weight}/\text{height}^2$) and skip the F2 question;

- If the F1 question cannot be answered, answer the F2 question on calf circumference measurement.

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- Sum the scores obtained in the different questions
- Enter the data in the final scoring table of the administered MPI version.

Reference scale:

MNA-SF

Weight: _____ kg	Height: _____ m
A. Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties? 0= severe decrease in food intake 1= moderate decrease in food intake 2= no decrease in food intake	
B. Weight loss during the last 3 months 0= weight loss greater than 3 kg (6.6 lbs) 1=does not know 2=weight loss between 1 and 3 kg (2.2 and 6.6 lbs) 3= no weight loss	
C. Mobility 0= bed or chair bound 1= able to get out of bed/chair but does not go out 2= goes out	

D. Has suffered psychological stress or acute disease in the past 3 months? 0=yes 2=no	
E. Neuropsychological problems 0=severe dementia or depression 1=mild dementia 2=no psychological problems	
F1. Body mass index (BMI) (weight in kg/height in m²) 0 = BMI <19 1 = 19 ≤ BMI < 21 2 = 21 ≤ BMI < 23 3 = BMI ≥ 23	
F2.Calf circumference (CC) in cm 0=CC less than 31 1=CC 31 or greater	
If BMI is not available, please replace question F1 with question F2. Do not answer question F2 if question F1 has already been completed.	

6. CIRS-CI (Cumulative Illness Rating Scale - Comorbidity Index)

Use: The co-morbidity index is an effective indicator of the older adult's somatic health status.

Filling in:

- The doctor defines the clinical and functional severity of the disease based on the anamnesis, health records and laboratory tests, physical examination, and the symptoms presented;
- Each item is evaluated on an ordinal scale with increasing severity levels from 1 (none) to 5 (extremely severe);
- The severity of the disease in each category is defined and scored as follows:
 1. NONE: No impairment to that organ/system
 2. MILD: Impairment does not interfere with normal activity; treatment may or may not be required; prognosis is excellent. (Examples could be skin lesions, hernias, or hemorrhoids)
 3. MODERATE: Impairment interferes with normal activity; treatment is needed; prognosis is good. (Examples could be gallstones, diabetes, or fractures)

4. SEVERE: Impairment is disabling; treatment is urgently needed; prognosis is guarded. (Examples could be resectable carcinoma, pulmonary emphysema, or congestive heart failure)
 5. EXTREMELY SEVERE: Impairment is life threatening; treatment is urgent or of no avail; prognosis is grave. (Examples could be myocardial infarction, cerebrovascular accident, gastrointestinal bleeding, or embolus)
- If, for a specific category, several pathologies of different severity are identified, the most compromised pathology must be considered, and the corresponding score indicated.

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- For the MPI scoring, only the *Comorbidity Index (CI)* is used: it represents the number of categories with a score equal to or greater than 3 (referring only to the first 13 categories);
- The final score varies from a minimum of 0 to a maximum of 13;
- Item 14 (psychiatric-behavioral) is excluded from the calculation of the final score to avoid misunderstandings between mental and somatic health;
- Enter the data in the final calculation table of the administered MPI version.

Reference scale:

CIRS

	NONE	MILD	MODERATE	SEVERE	EXTREMELY SEVERE
1. Cardiac (heart only)	1	2	3	4	5
2. Hypertension (rating is based on severity)	1	2	3	4	5
3. Vascular (arteries, veins, lymphatics)	1	2	3	4	5
4. Respiratory (lungs, bronchi, trachea)	1	2	3	4	5
5. EENT (eye, ear, nose, throat, larynx)	1	2	3	4	5
6. Upper GI (esophagus, stomach, duodenum, biliary and pancreatic trees)	1	2	3	4	5
7. Lower GI (intestines, hernias)	1	2	3	4	5
8. Hepatic (liver only)	1	2	3	4	5
9. Renal (kidneys only)	1	2	3	4	5
10. Other GU (ureters, bladder, urethra, prostate, genitals)	1	2	3	4	5
11. Musculo-skeletal-integumentary (muscles, bone, skin)	1	2	3	4	5
12. Neurological (brain, spinal cord, nerves)	1	2	3	4	5
13. Endocrine-metabolic (including diabetes, hyperlipidemia, infections, toxicity)	1	2	3	4	5
14. Psychiatric (dementia, depression, anxiety, agitation, psychosis)	1	2	3	4	5

7. Number of drugs

Use: Evaluation of the amount of drug therapy taken daily by the subject.

Filling in: Write how many different drugs in chronic therapy are taken daily by the subject.

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, insert the data in the final scoring table of the administered MPI version.

Reference item:

Number of drugs in chronic therapy _____

8. Cohabitation status

Use: Evaluation of the presence of social, emotional and physical support in the setting in which the subject lives.

Filling in: Select the co-habitation situation of the subject.

- The subject lives with his or her family
- The subject lives in an institution or nursing home
- The subject lives alone

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, assign the following scores:

- [0] The subject lives in family
- [0,5] The subject lives in institution
- [1] The subject lives alone

Insert the data in the final scoring table of the administered MPI version.

Reference item:

Who does the subject usually live with?
<ul style="list-style-type: none">• The subject lives within his family• The subject lives in an institution• The subject lives alone

⇒ Hospital MPI final scoring

1. Fill in the MPI table based on the results obtained in the 8 different scales (domains);
2. The score obtained in each scale falls within a range that corresponds to one of three different risk categories;
3. Each risk category is associated with a value (0; 0.5; 1). Sum all the values associated with the risk categories obtained;
4. Evaluate how many scales have actually been completed: the final MPI value is valid only if at least 6 scales have been completed (Number of fully completed scales 6);
5. Divide the sum of the values associated with each risk category by the number of scales (domains) actually compiled;
6. The result obtained shall be interpreted as follows:
 - 0.00- 0.33 → MPI 1: the subject has a low risk of developing negative clinical outcomes. He is not in a frail condition.
 - 0.34- 0.66 → MPI 2: the subject has a moderate risk of developing negative clinical outcomes. He's in a pre-frail condition.
 - 0.67- 1.00 → MPI 3: the subject has a high risk of developing negative clinical outcomes. It's in a frail condition.

MPI - Multidimensional Prognostic Index			
	Score assigned for each domain		
	Low (Value = 0)	Mild (Value = 0.5)	High (Value = 1)
1. ADL	6-5	4-3	2-0
2. IADL	8-6	5-4	3-0
3. BARTHEL MOB	3-2	1	0
4. SPMSQ	0-3	4-7	8-10
5. MNA-SF	12-14	8-11	0-7
6. CIRS-CI	0	1-2	≥3
7. Number of drugs	0-3	4-6	≥7
8. Co-habitation status	Lives with family	Institutionalized	Living alone
Add up the scores assigned to each domain, and then divide the number of completed domains (≥6)		TOTAL SCORE MPI HOSPITAL VERSION	

Legend:

RISK	Mild (MPI 1)	Moderate (MPI 2)	Severe (MPI 3)
RANGE	0.00 - 0.33	0.34-0.66	0.67-1.0

Outpatient MPI

Setting

It is administered in cases where the older person is in an outpatient context (generalist or specialist).

Actors involved

It is administered by healthcare professionals: doctors and/or nurses; in case of specific domains and from a multidimensional perspective it is possible to involve other professionals in the assessment, like psychologists, physiotherapists, and social or health workers.

Scales

1. ADL (Activities of Daily Living)
2. IADL (Instrumental Activities of Daily Living)
3. Barthel MOB (Barthel Mobility)
4. SPMSQ (Short Portable Mental Status Questionnaire)
5. MNA-SF (Mini-Nutritional Assessment short form)
6. CIRS (Cumulative Illness Rating Scale): Comorbidity Index
7. Number of drugs
8. Co-habitation status

Description and method of administration

1. ADL (Activities of Daily Living)

[see page 6](#)

2. IADL (Instrumental Activities of Daily Living)

[see page 8](#)

3. Barthel MOB (Barthel Mobility)

Use: Assessment of the subject's mobility

Filling in: Answer to the questions, choosing between two answer options: "yes" and "no"

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- The answer "yes" corresponds to a score of 1
- The answer "no" corresponds to a score of 0
- Total score: sum of scores assigned to each item (range: 0-3)
- Enter the total score in the final calculation table for the administered MPI version.

Reference scale:

Barthel MOB (Barthel Mobility)

1) Is he/she able to move in or out of the bed/wheelchair unassisted?	
- Yes	1
- No	0
2) Is he/she able to walk at least ten feet without any assistance (with or without walking aids)?	
- Yes	1
- No	0
3) Is he/she able to go up and down stairs without assistance?	
- Yes	1
- No	0

Total:_____

4. SPMSQ (Short Portable Mental Status Questionnaire)

[see page 12](#)

5. MNA-SF (Mini-Nutritional Assessment Short Form)

[see page 13](#)

6. CIRS-CI (Cumulative Illness Rating Scale- Comorbidity Index)

[see page 15](#)

7. Number of drugs

[see page 17](#)

8. Cohabitation status

[see page 17](#)

⇒ Outpatient MPI final scoring

- Fill in the MPI table based on the results obtained in the 8 different scales (domains);
- The score obtained in each scale falls within a range that corresponds to one of three different risk categories;
- Each risk category is associated with a value (0; 0.5; 1). Sum all the values associated with the risk categories obtained;
- Evaluate how many scales have actually been completed: the final MPI value is valid only if at least 6 scales have been completed (Number of fully completed scales 6);
- Divide the sum of the values associated with each risk category by the number of scales (domains) actually compiled;
- The result obtained shall be interpreted as follows:
 - 0.00- 0.33 → MPI 1: the subject has a low risk of developing negative clinical outcomes. He is not in a frail condition.
 - 0.34- 0.66 → MPI 2: the subject has a moderate risk of developing negative clinical outcomes. He's in a pre-frail condition.
 - 0.67- 1.00 → MPI 3: the subject has a high risk of developing negative clinical outcomes. It's in a frail condition.

MPI - Multidimensional Prognostic Index			
	Score assigned to each domain		
	Low (Value = 0)	Mild (Value = 0.5)	High (Value = 1)
ADL	6-5	4-3	2-0
IADL	8-6	5-4	3-0
BARTHEL MOB	3-2	1	0
SPMSQ	0-3	4-7	8-10
MNA-SF	12-14	8-11	0-7
CIRS-CI	0	1-2	≥3
Number of drugs	0-3	4-6	≥7
Co-habitation status	Lives with family	Institutionalized	Living alone
Add up the scores assigned to each domain, and then divide the number of completed domains (≥6)		TOTAL SCORE MPI OUTPATIENT VERSION	

TELE- MPI

Setting

It is administered to older subjects remotely, for example, during a teleconsultation.

Actors involved

It is administered by healthcare professionals: doctors and/or nurses; in case of specific domains and from a multidimensional perspective it is possible to involve other professionals in the assessment, like psychologists, physiotherapists, and social or health workers.

Domains and scales

1. ADL
2. IADL
3. Barthel MOB
4. SPMSQ
5. MNA-SF
6. CIRS-CI
7. Number of drugs
8. Cohabitation status

Description and method of administration

1. ADL

Use: Evaluate the subject's functional skills

Filling in:

- For a correct interpretation and filling in of the questions, refer to the original ADL scale from which the information was taken ([page 6](#));
- 6 questions with answer options "yes" and "no".

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- The answer "yes" corresponds to a score of 1
- The answer "no" corresponds to a score of 0
- Total score: sum of scores assigned to each item (range: 0-6)
- Enter the total score in the final calculation table for TELE-MPI.

Reference scale:

ACTIVITIES OF DAILY LIVING (ADL)

Is the patient able to perform the following activities completely independently?

A) BATHING (either sponge bath, tub bath, or shower)	
- YES	1
- NO	0
B) DRESSING	
- YES	1
- NO	0
C) TOILETING (go into the bathroom for urination/evacuation, cleaning oneself, dressing also using aids)	
- YES	1
- NO	0
D) TRANSFER	
- YES	1
- NO	0

E) CONTINENCE	
- YES	1
- NO	0
F) FEEDING	
- YES	1
- NO	0

TOTAL _____

2. IADL

Use: Evaluate the subject's independence in carrying out instrumental activities of daily living.

Filling in:

- For a correct interpretation and filling in of the questions, refer to the original IADL scale from which the information was taken ([page 8](#));
- 8 questions with answer options "yes" and "no".

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- The answer "yes" corresponds to a score of 1
- The answer "no" corresponds to a score of 0
- Total score: sum of scores assigned to each item (range: 0-8)
- Enter the total score in the final calculation table for TELE-MPI.

Reference scale:

INSTRUMENTAL ACTIVITIES OF THE DAILY LIVING SCALE (IADL)

Are you able to perform the following activities completely independently?

A) ABILITY TO USE A TELEPHONE (at least answer the phone)	
Yes	1
No	0
B) SHOPPING	
Yes	1
No	0
C) FOOD PREPARATION	
Yes	1
No	0

D) HOUSEKEEPING	
Yes	1
No	0
E) LAUNDRY	
Yes	1
No	0
F) MOVE INDEPENDENTLY THROUGH PUBLIC TRANSPORT / OWN CAR	
Yes	1
No	0
G) RESPONSIBILITY FOR OWN MEDICATIONS	
Yes	1
No	0
H) ABILITY TO HANDLE FINANCES (housekeeping, paying rent and other expenses, going to the bank/post office)	
Yes	1
No	0
TOTAL	

3. Barthel MOB

[See page 21](#)

4. SPMSQ

[See page 12](#)

5. MNA-SF

[See page 13](#)

6. CIRS-CI

Use: Assessing the co-morbidity of the subject

Filling in:

- For a correct interpretation of the items (categorization of pathologies), refer to [page 16](#) ;
- Indicate the diseases for which the subject takes drugs regularly.

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- Count how many pathologies have been selected;
- Enter the total score in the final calculation table for TELE-MPI.

Reference scale:

CIRS-CI (Cumulative Illness Rating Scale) - Comorbidity Index

Indicate for which health problems you regularly take medications:

- Cardiac (heart only)
- Hypertension (rating is based on severity)
- Vascular (arteries, veins, lymphatics)
- Respiratory (lungs, bronchus, trachea)
- EENT (eye, ear, nose, throat, larynx)
- Upper GI (esophagus, stomach, duodenum, biliary and pancreatic trees)
- Lower GI (intestines, hernias)
- Hepatic (liver only)
- Renal (kidneys only)
- Other GU (ureters, bladder, urethra, prostate, genitals)
- Musculo-skeletal-integumentary (muscles, bone, skin)
- Neurological (brain, spinal cord, nerves)
- Endocrine-metabolic (including diabetes, hyperlipidemia, infections, toxicity)

Total: _____

7. Number of drugs

[See page 17](#)

8. Cohabitation status

[See page 17](#)

⇒ TELE-MPI final scoring

1. Fill in the MPI table based on the results obtained in the 8 different scales (domains);
2. The score obtained in each scale falls within a range that corresponds to one of three different risk categories;
3. Each risk category is associated with a value (0; 0.5; 1). Sum all the values associated with the risk categories obtained;
4. Evaluate how many scales have actually been completed: the final MPI value is valid only if at least 6 scales have been completed (Number of fully completed scales 6);
5. Divide the sum of the values associated with each risk category by the number of scales (domains) actually compiled;
6. The result obtained shall be interpreted as follows:
 - 0.00- 0.33 → MPI 1: the subject has a low risk of developing negative clinical outcomes. He is not in a frail condition.
 - 0.34- 0.66 → MPI 2: the subject has a moderate risk of developing negative clinical outcomes. He's in a pre-frail condition.
 - 0.67- 1.00 → MPI 3: the subject has a high risk of developing negative clinical outcomes. It's in a frail condition.

MPI - Multidimensional Prognostic Index			
	Score assigned to each domain		
	Low (Value = 0)	Mild (Value = 0.5)	High (Value = 1)
ADL	6-5	4-3	2-0
IADL	8-6	5-4	3-0
BARTHEL MOB	3-2	1	0
SPMSQ	0-3	4-7	8-10
MNA-SF	12-14	8-11	0-7
CIRS-CI	0	1-2	≥3
Number of drugs	0-3	4-6	≥7
Co-habitation Status	Lives with family	Institutionalized	Living alone
Add up the scores assigned to each domain, and then divide the number of completed domains (≥6)		TOTAL SCORE MPI TELE-MPI VERSION	

SELFY-MPI-SF

Setting

The subject completes the questionnaire in self-administration mode.

Actors involved

Subjects aged 65 years or over.

Domains and scales

1. Modified Barthel ADL
2. IADL
3. Modified Barthel MOB
4. TYM Test
5. MNA-SF
6. CIRS-CI
7. Number of drugs
8. Co-habitation status

Description and method of administration

1. Modified Barthel ADL

Use: Assessment of the subject's functional skills.

Filling in:

- 7 multiple choice questions;
- Select the answer that better represents your situation
-

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- A specific score is assigned to each question;
- For the final score, sum the scores for each question;
- Enter the total score in the final calculation table for SELFY-MPI-SF.

Reference scale:

Modified Barthel ADL

A1 FEEDING
[0] I am able to eat on my own.
[2] I am able to eat on my own except for cutting meat, opening the lid of a jar, etc.
[5] I am able to eat on my own but need supervision or assistance to pour milk, sugar, or another product into a cup, use salt and pepper, or spread butter
[8] I am able to use cutlery, but someone has to actively assist me during a meal
[10] I must be fed by someone else.
A2 BATHING
[0] I am able to use a bathtub or take the shower by myself.
[1] I require supervision for safety reasons (transferring to bath or shower, adjusting the water temperature, etc).
[2] I need help to transfer in or out of the bathtub or shower, to wash or dry myself.
[4] I am able to help in some way when bathing.
[5] I completely depend on others in bathing.
A3 PERSONAL HYGIENE (<i>wash my hands and face, comb my hair, brush my teeth, and shave or use make-up</i>)
[0] I'm capable of taking care of my personal hygiene.
[1] I'm capable of taking care of my hygiene, requiring minimal assistance.
[2] I need help with one or more tasks related to personal hygiene.
[4] I am able to help in some way.
[5] I completely depend on others in all aspects of my personal hygiene
A4 DRESSING
[0] I'm able to get dressed by myself.
[2] I only need some help for certain things, such as doing up buttons, zippers, a bra, or shoelaces.
[5] I need help to put on or take off any piece of clothing.
[8] I'm able to help in some way .
[10] I completely depend on others in all aspects of dressing.

A5 BOWEL CONTROL
<p>[0] I have no problems with bowel control.</p> <p>[2] I have occasional accidents with bowel control.</p> <p>[5] I need help to clean myself or to use incontinence aids.</p> <p>[8] I'm able to help in some way .</p> <p>[10] I am bowel incontinent.</p>
A6 BLADDER CONTROL
<p>[0] I have complete bladder control (day and night).</p> <p>[2] I have occasional urine losses (day or night) or I require minimum assistance for the use of devices.</p> <p>[5] I have urine losses but I am able to help with the use of devices.</p> <p>[8] I am urine incontinent, but I am able to cooperate in the application of a device;</p> <p>[10] I am urine incontinent, or I have an indwelling catheter. I need help using devices.</p>
A7 TOILET USE
<p>[0] I am able to use the toilet by myself.</p> <p>[2] I require supervision to safely use the toilet.</p> <p>[5] I need help undressing, dressing and getting seated or getting up and washing my hands..</p> <p>[8] I'm able to help in some way.</p> <p>[10] I completely depend on others to use the toilet .</p>

2. IADL

Use: Assessment of the subject's instrumental skills.

Filling in:

- 8 multiple choice questions;
- Select the answer that better represents your situation

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- A specific and different score is assigned to each question;
- For the final score, sum the selected scores for each question;
- Enter the total score in the final calculation table of SELFY-MPI-SF.

Reference scale:

IADL

C1 <u>TELEPHONE USE</u>
[1] I can use the telephone by myself [1] I only dial a few well-known numbers [1] I am able to answer the telephone but I don't dial myself [0] I am not capable of using the telephone
C2 <u>GROCERY SHOPPING</u>
[1] I can/could take of grocery shopping by myself [0] I only shop for small items [0] I need to be accompanied for all shopping [0] I am not able to do the shopping
C3 <u>PREPARING MEALS</u>
[1] I can/could plan, prepare and serve adequate meals by myself [0] I prepare adequate meals only if the ingredients are supplied by someone else [0] I heat up, serve and prepare only precooked meals [0] I need to have meals prepared and served by someone else
C4 <u>HOUSEKEEPING</u>
[1] I can/could maintain the house by myself, with occasional external assistance if needed [1] I only perform light daily tasks, such as washing the dishes or making the bed [0] I perform light daily tasks but I can't maintain an acceptable level of cleanliness by myself [0] I need help with all housekeeping tasks [0] I don't participate in any housekeeping tasks
C5 <u>LAUNDRY</u>
[1] I can/could do my personal laundry by myself [1] I launder only small items [0] All laundry must be done by others
C6 <u>TRAVEL</u>
[1] I can travel by myself on public transportation or taxi, or I drive my car [1] I don't use public transportation by myself [1] I travel by public transportation if accompanied [0] I only travel by taxi or car if accompanied [0] I don't travel at all
C7 <u>MEDICATION</u>
[1] I either don't take medication or I am capable of taking my medication in the correct dosage and at the correct time [0] I am capable of taking my medication if it has been prepared in advance [0] I am not responsible for managing my own medication
C8 <u>HANDLING FINANCES</u>
[1] I manage all my financial matters by myself [1] I need external help with banking, major purchases, etc. [0] I am not able to handle banking, money, etc.

3. Modified Barthel MOB

Use: Assessment of the subject's mobility.

Filling in:

- 3 multiple choice questions;
- Select the answer that better represents your situation.

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- A different score is assigned to each question;
- For the final score, sum the selected scores for each question;
- Enter the total score in the final calculation table for SELFY-MPI-SF.

Reference scale:

Modified Barthel MOB

B1 GETTING IN AND OUT OF BED OR CHAIR
[0] I can get in and out of bed or chair by myself
[3] I require supervision for safety purposes when getting in or out
[7] I require minimal help when getting in or out
[12] I require the help of one or two people
[15] I completely depend on others when getting in or out
B2 WALKING ON LEVEL GROUND
[0] I am able to walk by myself for more than 50 yards with or without walking aids
[3] I am able to walk by myself for more than 50 yards, but I require supervision in uneven sections
[7] I occasionally require assistance in using walking aids (walking stick, walker)
[12] I require constant assistance in walking
[15] I'm not able to walk independently I use a wheelchair
B3 CLIMBING THE STAIRS
[0] I am able to walk up and down the stairs without assistance
[2] Generally, I don't require assistance. Occasionally, I require supervision for safety reasons
[5] I need supervision and assistance
[8] I need assistance in walking up and down the stairs
[10] I am able to walk and down the stairs

4. TYM Test

Use: screening of the subject's cognitive functions.

Filling in:

- The subject must answer and complete all the 10 sections
- Only if necessary, the subject asks for help in the compilation (the degree of help provided affects the awarded score).

Scoring:

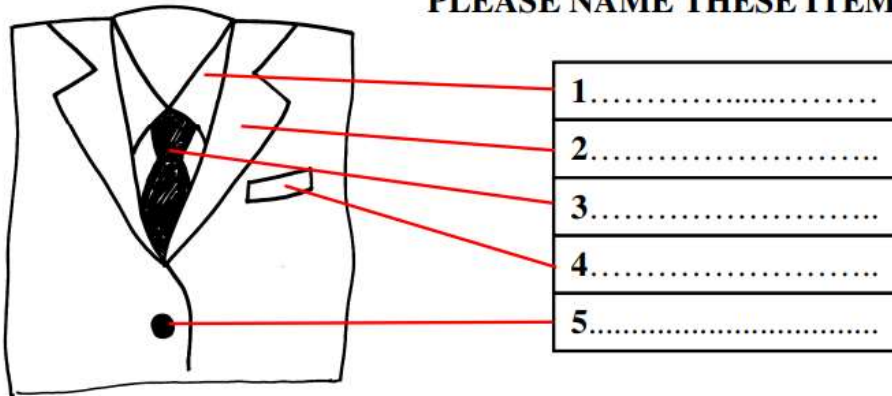
- The scoring must be done by medical-nursing personnel or by healthcare professionals;
- A different score is assigned to each question;
 - o P1) **"Name and Surname"** 2 points for full name; 1 point for initials or other minor errors. **Every other item:** 1 point for each correctly completed space. If the date is wrong by one day, attribute 1 point. **Maximum score for P1 = 10.**
 - o P2) 2 points if everything is correct, 1 point for errors in a word; 0 points for errors in at least two words. If the writing is incomprehensible, attribute the best score, giving it the benefit of the doubt.
 - o P3) 1 point for first name and 1 point for last name. If only initials are entered, do not assign points. In the first 4 weeks after the change of Prime Minister, the name of the outgoing Prime Minister is also considered correct. Year 1914 is considered correct.
 - o P4) 1 point for each correct calculation.
 - o P5) Any real living being is considered correct (e.g.: fish, birds, mammals). Also, the animal species or animal breeds are correct (e.g. for dogs: spaniels), as are extinct but actually existing animals. Mythological animals are not correct.
 - o P6) **Question 1:** 2 points for "vegetables", "need to be peeled", "roots", "grow underground". 1 point for a vague word like "food", "growing". 0 points for incorrect words like "tubers"; **Question 2:** 2 points for "animals", "mammals", "carnivores", "mane", "fur", "animal", "pack" and "hunter"; 1 point for inaccurate answers such as "4 legs", "vertebrates", "savages" and "fierce"; 2 inaccurate answers correspond to 2 points. The answers "dog", "cat", "canines" are wrong but correspond to the score 1.
 - o P7) 1 point for each correct answer. In order, the correct answers are: "collar/shirt", "collar/jacket/blazer/reverse/lapel", "tie", "pocket, badge, pocket flap, label (but not handkerchief)" and "button". If there is repetition of a word, only give 1 point for the word in question.
 - o P8) 3 points if the letter drawn is the W. 2 points for the letter V. 1 point if all the circles have been connected but without forming any letters.
 - o P9) 4 total points. If all the numbers representing the hours (1-12) are entered, assign 1 point. Do not assign any points if the number 0 is entered. 1 point, if the space is correctly distributed and the hands join in the center. The point is lost for inaccuracies, not for disorder. 1 point for each hand inserted in the exact position. There is no penalty for reversing the length of the hands.
 - o P10) 1 point for every correctly remembered word, up to a maximum of 6 points. Spelling errors do not lower the score.
 - o **"TYM Tester"** section: none (=5 points), trivial (=4 points), minor (=3 points), moderate (=2 points), major (=1 point).
 - o For the final score, sum the scores for each question and enter the data in the final calculation table of SELFY-MPI-SF. Otherwise, if the data is entered into the platform, the total score calculation is done automatically.

Reference scale:

<p>PLEASE WRITE YOUR FULL NAME.....</p> <p>TODAY ISDAY</p> <p>TODAY'S DATE IS THE : OF(MONTH) 20.....</p> <p>HOW OLD ARE YOU?YEARS</p> <p>ON WHAT DATE WERE YOU BORN? / (MONTH) 19.....</p>	<p>P1</p> <p>10</p>
<p>PLEASE COPY THE FOLLOWING SENTENCE:</p> <p>GOOD CITIZENS ALWAYS WEAR STOUT SHOES</p> <p>.....</p> <p>PLEASE READ THE SENTENCE AGAIN AND TRY TO REMEMBER IT</p>	<p>P2</p> <p>2</p>
<p>WHO IS THE PRIME MINISTER ?</p> <p>IN WHAT YEAR DID THE 1ST WORLD WAR START?.....</p>	<p>P3</p> <p>3</p>
<p>SUMS</p> <p>20 - 4 =</p> <p>16 + 17 =</p> <p>8 x 6 =</p> <p>4 + 15 - 17 =</p>	<p>P4</p> <p>4</p>
<p>PLEASE LIST FOUR CREATURES BEGINNING WITH "S"</p> <p>e.g. Shark</p> <p>1 S.....</p> <p>2 S.....</p> <p>3 S.....</p> <p>4 S.....</p>	<p>P5</p> <p>4</p>
<p>WHY IS A CARROT LIKE A POTATO?.....</p> <p>WHY IS A LION LIKE A WOLF?</p>	<p>P6</p> <p>4</p>

REMEMBER: GOOD CITIZENS ALWAYS WEAR STOUT SHOES

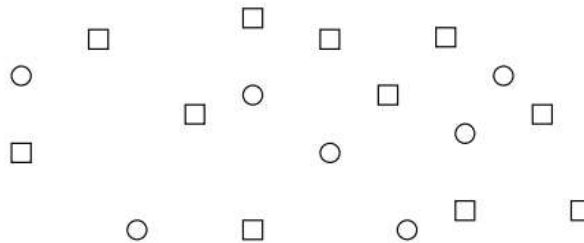
PLEASE NAME THESE ITEMS



P7

5

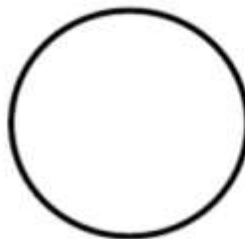
PLEASE JOIN THE CIRCLES TOGETHER TO FORM A LETTER (IGNORE THE SQUARES)



P8

3

PLEASE DRAW IN A CLOCK FACE, PUT IN THE NUMBERS 1 – 12 AND PLACE THE HANDS AT 9.20



P9

4

WITHOUT TURNING BACK THE PAGE, PLEASE WRITE DOWN THE SENTENCE YOU COPIED EARLIER :

P10

6

.....
FOR THE TYM TESTER:
 HELP GIVEN NONE/TRIVIAL/MINOR/MODERATE/MAJOR
 TICK BOX IF ANSWERS WRITTEN FOR PATIENT ☐
 www.tymtest.com © jmbrown 2008

5

/50

5. MNA-SF

[See page 13](#)

6. Number of drugs

Use: Evaluation of the subject's polypharmacotherapy.

Filling in:

- The first question has a dichotomous answer of "yes" or "no";
- If the answer to the previous question is "Yes", write the number of medications taken regularly (every day).

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise enter the final score in the final calculation table for SELFY-MPI-SF.

Reference item:

Are you on medication?
[1] Yes. If yes, how many drugs do you regularly take every day? _____
[0] No

7. Comorbidity (Fonte: CIRS -Comorbidity Index)

Use: assessment of comorbidity as an indicator of the subject's somatic health.

Filling in:

- If in the previous domain 'number of drugs' it was indicated that the person takes medication regularly, proceed to complete the table;
- The subject must select the category(ies) for which he/she takes medication;
- Conversely, if a negative answer was indicated at the 'number of drugs' domain, proceed to the next domain.

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- Count the number of categories ticked by the subject;
- For the final score, write the sum (if no category has been ticked, write the value 0);
- Enter the final score in the final calculation table for SELFY-MPI-SF.

Reference scale:

[See the table presented in the CIRS-CI section at page 27](#)

8. Cohabitation status

[See page 17](#)

⇒ SELFY-MPI-SF final scoring

1. Fill in the MPI table according to the results obtained in the 8 different scales (domains);
2. For each range of response on each scale corresponds a risk value divided into three levels (0- 0.5- 1);
3. Sum all the risk values;
4. Evaluate how many scales have been actually filled in: the final MPI value is valid only if at least 6 scales have been completed (number of fully completed scales ≥ 6);
5. Divide the sum of the risk values by the number of scales (domains) actually completed;
6. The result obtained shall be interpreted as follows:
 - 0.00- 0.33 → MPI 1: the subject has a low risk of developing negative clinical outcomes. He is not in a fragile condition.
 - 0.34- 0.66 → MPI 2: the subject has a moderate risk of developing negative clinical outcomes. He's in a pre-fragile condition.
 - 0.67- 1.00 → MPI 3: the subject has a high risk of developing negative clinical outcomes. It's in a fragile condition.

Scoring Table	
<u>Evaluation Scales</u>	<u>Scores</u>
Modified Barthel ADL/60
IADL/8
Modified Barthel MOB/40
TYM/50
MNA-SF/11
(Calculation BMI =kg/m ²)	+ 0 if BMI <19 + 1 if 19 ≤ BMI <21 + 2 if 21 ≤ BMI <23; + 3 if BMI ≥ 23 =/14
N. of Drugs
Comorbidity (CIRS-CI)
Cohabitation Status	<ul style="list-style-type: none"> ● Lives with family ● Institutionalized ● Living alone

SELFY-MPI-SF				
	Scoring for each domain			
	Low Risk (score=0)	Mild Risk (score=0.5)	High Risk (score=1)	SCORE
Modified Barthel ADL	0-14	15-49	50-60	
IADL	8-6	5-4	3-0	
Modified Barthel MOB	0-14	15-29	30-40	
TYM	50-43	42-24	23-0	
MNA-SF	14-12	11-8	7-0	
N. of drugs	0-3	4-6	≥7	
Comorbidity (CIRS-CI)	0	1-2	3-13	
Cohabitation Status	Lives with family	Institutionalized	Lives alone	
TOTAL	Add up the scores assigned to each domain, and then divide the number of completed domains (≥6)			

Brief- MPI

Setting

It can be administered to elderly subjects in emergency contexts (for example: access to first aid) and in situations where a screening of the degree of frailty is needed (for example, in general medicine and/ or primary care).

Actors involved

The scale is administered by medical and/or nursing staff and, in relation to the domains of competence, by physiotherapists, psychologists and social/health care workers.

Domains

1. Functional skills (source: ADL)
2. Instrumental skills (source: IADL)
3. Mobility (source: Barthel MOB)
4. Cognitive abilities (source: SPMSQ)
5. Nutritional status (source: MNA-SF)
6. Comorbidity (source: CIRS -Comorbidity Index)
7. Number of drugs
8. Cohabitation status

Description and method of administration

1. Functional skills (Source: ADL)

Use: Evaluate the subject's functional skills.

Filling in: Answer 3 questions with dichotomous answer of "yes" and "no".

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point answering "Yes";
- 0 points answering "No";
- sum the selected scores for each question;
- Enter the final score in the final calculation table of Brief -MPI.

Reference items:

A) Is he/she able to eat completely independently? <ul style="list-style-type: none">• YES [1]• NO [0]
B) Can he/she dress herself/himself completely independently? <ul style="list-style-type: none">• YES [1]• NO [0]
C) Does he/she have complete bowel and bladder control? <ul style="list-style-type: none">• YES [1]• NO [0]

2. Instrumental skills (source: IADL)

Use: Evaluate the subject's instrumental skills.

Filling in: Answer 3 questions with dichotomous answers of "yes" and "no".

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the scores for each question;
- Enter the final score in the final calculation table of Brief -MPI.

Reference items

A) Is he/she able to use the telephone? <ul style="list-style-type: none">• YES [1]• NO [0]
B) Is he/she responsible for taking drugs in the correct dosages at the right time? <ul style="list-style-type: none">• YES [1]• NO [0]
C) Can he/she take care of the grocery shopping by himself/herself? <ul style="list-style-type: none">• YES [1]• NO [0]

3. Mobility (Source: Barthel MOB)

Use: Assess the subject's motor skills.

Filling in: Answer 3 questions with dichotomous answers of "yes" and "no".

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the selected scores for each question;
- Enter the total score in the final calculation table of Brief -MPI.

Reference items:

A) Can you get in and out of bed or a chair by yourself? <ul style="list-style-type: none">• YES [1]• NO [0]
B) Can you walk at least 50 meters? <ul style="list-style-type: none">• YES [1]• NO [0]
C) Can you go up and down the stairs? <ul style="list-style-type: none">• YES [1]• NO [0]

4. Cognitive abilities (source: SPMSQ)

Use: Evaluate the subject's cognitive resources.

Filling in: Answer 3 questions with the dichotomous answers "correct" and "wrong"

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answers "correct";
- 0 points for answers "wrong";
- Sum the scores for each question;
- Enter the total score in the final calculation table of Brief -MPI.

Reference items:

A) Which day is it today? (day, month, year) <ul style="list-style-type: none">• Correct [0]• Wrong[1]
B) How old are you? <ul style="list-style-type: none">• Correct [0]• Wrong[1]
C) Subtract 3 from 20 until you reach 0 <ul style="list-style-type: none">• Correct [0]• Wrong [1]

5. Nutritional status (source: MNA-SF)

Use: Assess the nutritional status of the subject.

Filling in: Answer 3 questions with dichotomous answer modes "yes" and "no"

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the scores for each question;

Enter the total score in the final calculation table of Brief -MPI.

Reference items:

A) BMI index <21 or ≥ 30 Kg/m ² <ul style="list-style-type: none">• YES [1]• NO [0]
B) Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties? <ul style="list-style-type: none">• YES [1]• NO [0]
C) Has a weight loss > 3 kg occurred during the last 3 months? <ul style="list-style-type: none">• YES [1]• NO [0]

6. Comorbidity (Source: CIRS -Comorbidity Index)

Use: Assessment of the subject's comorbidity.

Filling in: Write down the number of diseases for which the subject takes drugs in chronic therapy.

Scoring: If the data is entered in the platform, the scoring is done automatically.

Otherwise, enter the score in the final calculation table of Brief -MPI.

Reference items:

Number of diseases requiring chronic treatment: _____

7. Number of drugs

[see page 17](#)

8. Cohabitation status

[see page 18](#)

⇒ BRIEF -MPI final scoring

1. Fill in the MPI table according to the results obtained in the 8 different scales (domains);
2. For each range of response on each scale corresponds a risk value divided into three levels (0- 0.5- 1);
3. Sum all the risk values;
4. Evaluate how many scales have been actually filled in: the final MPI value is valid only if at least 6 scales have been completed (number of fully completed scales ≥ 6) ;
5. Divide the sum of the risk values by the number of scales (domains) actually completed;
6. The result obtained shall be interpreted as follows:
 - 0.00- 0.33 → MPI 1: The subject has a low risk of developing negative clinical outcomes. He is not in a fragile condition.
 - 0.34- 0.66 → MPI 2: The subject has a moderate risk of developing negative clinical outcomes. He's in a pre-fragile condition.
 - 0.67- 1.00 → MPI 3: The subject has a high risk of developing negative clinical outcomes. It's in a fragile condition.

BRIEF-MPI (Multidimensional Prognostic Index)			
	Score assigned to each domain		
	Low	Moderate	High
	Value = 0	Value = 0.5	Value = 1
Functional skills (source: ADL)	3	2	1-0
Instrumental Skills (source IADL)	3	2	1-0
Mobility (source: Barthel MOB)	3-2	1	0
Cognitive abilities (source: SPMSQ)	0-1	2	3
Nutritional status (source: MNA-SF)	0-1	2	3
Comorbidity (source: CIRS - Comorbidity Index)	0	1-2	≥ 3
Number of drugs	0-3	4-6	≥ 7
Cohabitation status	With family	Institution	Alone
Add up the scores assigned to each domain, and then divide the number of completed domains (≥ 6)		BRIEF-MPI scoring	

SELFY-BRIEF-MPI

Setting

It is used in self-administration to carry out a screening of the degree of multidimensional frailty.

Actors involved

The SELFY-BRIEF-MPI scale can be self-administered by subjects aged 65 or older.

Domains

1. Basic Activities of Daily Living (source: ADL)
2. Instrumental Activities of Daily Living (source: IADL)
3. Mobility (source: MPI InChianti)
4. Cognitive status (source: CCI - Cognitive Change Index)
5. Nutrition (source: MNA-SF)
6. Comorbidity (source: CIRS -Comorbidity Index)
7. Number of drugs
8. Cohabitation status

1. Basic Activities of Daily Living (Source: ADL)

Use: Evaluate the subject's functional skills.

Filling in: Answer 3 questions with dichotomous answers of "yes" and "no".

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the selected scores for each question;
- Enter the total score in the final calculation table of SELFY-BRIEF-MPI.

Reference items:

A) I am able to eat on my own, without needing any assistance. <ul style="list-style-type: none">• YES [1]• NO [0]
B) I am able to get dressed by myself without needing any assistance <ul style="list-style-type: none">• YES [1]• NO [0]
C) I have complete bowel and bladder control. <ul style="list-style-type: none">• YES [1]• NO [0]

2. Instrumental Activities of Daily Living (source: IADL)

Use: Evaluate the subject's instrumental skills.

Filling in: Answer 3 questions with dichotomous answers of "yes" and "no".

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the scores for each question;
- Enter the total score in the final calculation table of SELFY-BRIEF -MPI.

Reference items:

A) I can use the telephone by myself. <ul style="list-style-type: none">• YES [1]• NO [0]
B) I take my medication by myself in the correct dosage and at the correct time. <ul style="list-style-type: none">• YES [1]• NO [0]
C) I can take care of grocery shopping by myself, without needing any assistance <ul style="list-style-type: none">• YES [1]• NO [0]

3. Mobility (source: MPI InChianti)

Use: Assess the subject's motor skills.

Filling in: Answer 3 questions with dichotomous answers of "yes" and "no".

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the scores for each question;

Enter the total score in the final calculation table of SELFY-BRIEF -MPI.

Reference items:

A) I can get in and out of bed or chair by myself without needing any assistance
<ul style="list-style-type: none">• YES [1]• NO [0]
B) I am able to walk by myself for more than 50 meters on a flat ground (even using walking aids such as walking stick, walker, etc..)
<ul style="list-style-type: none">• YES [1]• NO [0]
C) I am able to walk up and down stair without needing any assistance
<ul style="list-style-type: none">• YES [1]• NO [0]

4. Cognitive status (source: CCI- Cognitive Change Index)

Use: Evaluate the subject's cognitive resources.

Filling in: Answer 3 questions with dichotomous answers of "yes" and "no"

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- 1 point for answering "yes";
- 0 points for answering "no";
- Sum the scores for each question;
- Enter the total score in the final calculation table of Brief -MPI.

Reference items:

A) I find it more difficult to remember recent events than I used to
<ul style="list-style-type: none">• No [0]• Yes [1]
B) I find it more difficult to complete a task than I used to
<ul style="list-style-type: none">• No [0]• Yes [1]
C) I find it more difficult to follow a conversation than I used to
<ul style="list-style-type: none">• No [0]• Yes [1]

5.Nutrition (source: MNA-SF)

Use: Assess the nutritional status of the subject.

Filling in: In the first question, enter your own weight (in kg) and height (in meters). The calculation will be carried out by medical/nursing staff or by the dedicated platform;

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals; If the data is entered in the platform, the scoring is done automatically.

Otherwise, follow the steps below:

- The scoring varies according to the question (0 or 1), as shown in the table below;
- Sum the scores for each question and enter them in the final calculation table.

Reference items:

A) Body mass index BMI

Weight (Kg) _____ = _____

Height (m2)

My total BMI value is between 21 and 29.9

- YES [0]
- NO [1]

B) In the last 3 months, my food intake decreased severely due to a loss of appetite, digestive problems, chewing or swallowing difficulties

- YES [1]
- NO [0]

C) In the last 3 months, I lost more than 3 Kg (6.6 lbs)

- YES [1]
- NO [0]

6. Comorbidity (source: CIRS -Comorbidity Index)

Use: Assessment of the subject's comorbidity.

Filling in: Write down the number of diseases for which the subject takes drugs in chronic therapy (extended over time).

Scoring: The scoring must be done by medical-nursing personnel or by healthcare professionals. If the data is entered in the platform, the scoring is done automatically.

Enter the data in the final scoring table.

Reference items:

Please, indicate the number of health problems for which you need medication (extended over time): _____
--

7. Number of drugs

[See page 17](#)

8. Cohabitation status

[See page 18](#)

⇒ SELFY-BRIEF-MPI final scoring

1. Fill in the MPI table according to the results obtained in the 8 different scales (domains);
2. For each range of response on each scale corresponds a risk value divided into three levels (0- 0.5- 1);
3. Sum all the risk values;
4. Evaluate how many scales have been actually filled in: the final MPI value is valid only if at least 6 scales have been completed (number of fully completed scales ≥ 6);
5. Divide the sum of the risk values by the number of scales (domains) actually completed;
6. The result obtained shall be interpreted as follows:
 - 0.00- 0.33 → MPI 1: the subject has a low risk of developing negative clinical outcomes. He is not in a fragile condition.
 - 0.34- 0.66 → MPI 2: the subject has a moderate risk of developing negative clinical outcomes. He's in a pre-fragile condition.
 - 0.67- 1.00 → MPI 3: the subject has a high risk of developing negative clinical outcomes. It's in a fragile condition.

SELFY-BRIEF-MPI (Multidimensional Prognostic Index)				
	Score assigned to each domain			Value of the corresponding column 0 - 0.5 - 1
	Low Value = 0	Moderate Value = 0.5	High Value = 1	
Basic Activities of Daily Living	3	2	1 or 0	
Instrumental Activities of Daily Living	3	2	1 or 0	
Mobility	3-2	1	0	
Cognitive status	0-1	2	3	
Nutrition	0-1	2	3	
Comorbidity	0	1-2	≥3	
Number of drugs	0-3	4-6	≥7	
Cohabitation status	With family	Institution	Alone	
Add up the scores in the right column				Total _____
Divide the total by the number of filled in domains (at least 6)			Final scoring SELFY-BRIEF-MPI	_____

Bibliography

- Barulli, M. R., Piccininni, M., Brugnolo, A., et al. (2021). The Italian Version of the Test Your Memory (TYM-I): A Tool to Detect Mild Cognitive Impairment in the Clinical Setting. *Frontiers in Psychology*, 11:614920. doi: 10.3389/fpsyg.2020.614920
- Bliss, M. R., McLaren, R., & Exton-Smith, A. N. (1966). Mattresses for preventing pressure sores in geriatric patients. *Monthly bulletin of the Ministry of Health and the Public Health Laboratory Service*, 25, 238–268.
- Cella, A., Veronese, N., Custodero, C., Castagna, A., Cammalleri, L. A., Capitano, W. M., Solimando, L., Carruba, L., Sabbà, C., Ruotolo, G., Barbagallo, M., & Pilotto, A. (2022). Validation of Abbreviated Form of the Multidimensional Prognostic Index (MPI): The BRIEF-MPI Project. *Clinical interventions in aging*, 17, 789–796. <https://doi.org/10.2147/CIA.S355801>
- Cruz-Jentoft AJ, Daragjati J, Fratiglioni L, Maggi S, Mangoni AA, Mattace-Raso F, Paccalin M, Polidori MC, Topinkova E, Ferrucci L, Pilotto A; MPI_AGE Investigators (2020). Using the Multidimensional Prognostic Index (MPI) to improve cost-effectiveness of interventions in multimorbid frail older persons: results and final recommendations from the MPI_AGE European Project. *Aging Clin Exp Res*, 32(5):861-868
- Custodero C, Senesi B, Pinna A, Floris A, Vigo M, Fama M, Mastropierro V, Sabbà C, Prete C, Pilotto A (2021). Validation and implementation of telephone-administered version of the Multidimensional Prognostic Index (TELE-MPI) for remote monitoring of community-dwelling older adults. *Aging Clin Exp Res*, 33 (12):3363-3369. doi: 10.1007/s40520-021-01871-6
- Kaiser, M. J., Bauer, J. M., Ramsch, C., Uter, W., Guigoz, Y., Cederholm, T., Thomas, D. R., Anthony, P., Charlton, K. E., Maggio, M., Tsai, A. C., Grathwohl, D., Vellas, B., Sieber, C. C., & MNA-International Group (2009). Validation of the Mini Nutritional Assessment short-form (MNA-SF): a practical tool for identification of nutritional status. *The journal of nutrition, health & aging*, 13(9), 782–788. <https://doi.org/10.1007/s12603-009-0214-7>
- Katz, S., Ford, A.B., Moskowitz, R.W., Jackson B.A., & Jaffe, M.W. (1963). Studies of illness in the aged. The index of ADL: A standardized measure of biological and psychosocial function. *Journal of the American Medical Association*, 185, 914–919.
- Lawton, M.P., Brody, E.M. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *Gerontologist*, 9, 179-186.
- Linn, B. S., Linn, M. W., & Gurel, L. (1968). Cumulative illness rating scale. *Journal of the American Geriatrics Society*, 16(5), 622–626. <https://doi.org/10.1111/j.1532-5415.1968.tb02103.x>
- Parmelee, P.A., Thuras, P.D., Katz, I.R., Lawton, M.P. (1995). Validation of cumulative illness rating scale in a geriatric residential population. *Journal of the American Geriatric Society*, 43, 130-137.
- Pfeiffer, E. (1975). A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. *Journal of the American Geriatric Society*, 23, 433-441.
- Pilotto, A., Custodero, C., Maggi, S., Polidori, M. C., Veronese, N., & Ferrucci, L. (2020). A multidimensional approach to frailty in older people. *Ageing research reviews*, 60, 101047. <https://doi.org/10.1016/j.arr.2020.101047>

Pilotto, A., Ferrucci, L., Franceschi, M., D'Ambrosio, L. P., Scarcelli, C., Cascavilla, L., Paris, F., Placentino, G., Seripa, D., Dallapiccola, B., & Leandro, G. (2008). Development and validation of a multidimensional prognostic index for one-year mortality from comprehensive geriatric assessment in hospitalized older patients. *Rejuvenation research*, 11(1), 151–161. <https://doi.org/10.1089/rej.2007.0569>

Pilotto, A., Veronese, N., Quispe Guerrero, K. L., Zora, S., Boone, A. L. D., Puntoni, M., Giorgeschi, A., Cella, A., Rey Hidalgo, I., Pers, Y. M., Ferri, A., Fernandez, J. R. H., Pisano Gonzalez, M., & EFFICHRONIC Consortium (2019). Development and Validation of a Self-Administered Multidimensional Prognostic Index to Predict Negative Health Outcomes in Community-Dwelling Persons. *Rejuvenation research*, 22(4), 299–305. <https://doi.org/10.1089/rej.2018.2103>

Salvi, F., Miller, M. D., Grilli, A., Giorgi, R., Towers, A. L., Morichi, V., Spazzafumo, L., Mancinelli, L., Espinosa, E., Rappelli, A., & Dessi-Fulgheri, P. (2008). A manual of guidelines to score the modified cumulative illness rating scale and its validation in acute hospitalized elderly patients. *Journal of the American Geriatrics Society*, 56(10), 1926–1931. <https://doi.org/10.1111/j.1532-5415.2008.01935.x>

Shah, S., Vanclay, F., & Cooper, B. (1989). Improving the sensitivity of the Barthel Index for stroke rehabilitation. *Journal of clinical epidemiology*, 42(8), 703–709. [https://doi.org/10.1016/0895-4356\(89\)90065-6](https://doi.org/10.1016/0895-4356(89)90065-6)

Vellas, B., Villars, H., Abellan, G., Soto, M. E., Rolland, Y., Guigoz, Y., Morley, J. E., Chumlea, W., Salva, A., Rubenstein, L. Z., & Garry, P. (2006). Overview of the MNA--Its history and challenges. *The journal of nutrition, health & aging*, 10(6), 456–465. Rubenstein LZ, Harker JO, Salva A, Guigoz Y, Vellas B. Screening for Undernutrition in Geriatric Practice: Developing the Short-Form Mini Nutritional Assessment (MNA-SF). *J. Geront* 2001;56A: M366-377.

Zora, S., Guerrero, KLQ., Veronese, N., et al (2019). Implementation of the SELFY-MPI in five European countries: a multicenter international feasibility study, *Geriatric Care*, 5:3, doi: 10.4081/gc.2019.8502.