

# THE LIFE SPACE MOBILITY ASSESSMENT AND THE SOCIAL FRAILTY

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**Abstract.** Lately, WHO approaches the study of frailty from a functional perspective. When the functional reserve moderately decreases, behavioral adaptive changes can appear to restore the balance. Such a change is the life space mobility (LSM) constriction, considered a frailty marker. The gerontological literature reveals many domains of frailty research: physical, cognitive, psychological and social. Both the cognitive and the depressive frail phenotype include physical frailty elements in their definitions. Being a mobility measure, LSM certainly assesses physical frailty. Objective: We analyze the links between LSM and some social aspects to see if LSM can assess social frailty. Method: A sample of 281 NIGG inpatients between 45 and 98 years old is globally evaluated by tests referring to: physical functioning (Up and Go Test, Life Space Mobility/LSM), nutritional status (BMI), psycho-sensorial functioning (depression/GDS and fatigue - Brief Fatigue Inventory) and social situation. Results: The weight of frailty assessed by LSM is 27.5%. Firstly, a part of the frail persons depending on the relatives/friends support can be considered socially frail. Secondly, we found significant correlations between LSM and social aspects as: age ( $r=-0.549/ p=0.000$ ), gender, high school graduation ( $r=0.146/p=0.015$ ), social support network ( $r= 0.185/ p=0.032$ ), number of chronic conditions(involving social aspects through the potential “sickness behaviour”). Other important variables revealing an extended LSM are: the high “interest in every day life” and the “satisfaction of social relations”, psycho-social positive aspects that surely help elderly to maintain an active lifestyle. Conclusions: The LSM assessment can be considered a good measure of the social frailty, not only of the physical one.

**Key words:** functional ability, social frailty, life space mobility

**Rezumat.** În ultima vreme, OMS abordează studiul fragilității din perspectiva funcționalității. Când rezervele funcționale scad moderat, pot apărea schimbări comportamentale adaptative pentru refacerea echilibrului. O asemenea schimbare este constricția Mobilității în Spațiul Vital (MSV), considerată un marker al fragilității. Literatura gerontologică relevă mai multe domenii ale fragilității: fizic, cognitiv, psihologic și social. Atât fragilitatea cognitivă, cât și cea însoțită de depresie includ elemente de fragilitate fizică în definiție. MSV, o modalitate de măsurare a mobilității, sigur evaluează fragilitatea fizică. Obiectiv: Studiul corelațiilor dintre MSV și câteva aspecte sociale pentru evidențierea posibilității evaluării fragilității sociale prin MSV. Metoda: 281 pacienți cu vârste între 45-98 ani sunt evaluați prin teste pentru: funcționalitate fizică (Up and Go Test, Mobilitatea în Spațiul Vital/MSV), stare nutrițională (IMC), funcționalitate psiho-senzorială (depresie-scala depresiei geriatrice/ GDS, oboseală-Scurt test de evaluare a obosealii) și situația socială. Rezultate: Ponderele fragilității evaluată prin MSV este de 27.5%. În primul rând, persoanele fragile ce depind de susținerea rudelor/prietenilor pot fi considerate și social fragile. În al doilea rând, există corelații semnificative între MSV și aspecte sociale ca: vârsta ( $r=-0.549/ p=0.000$ ), genul, absolvirea liceului ( $r=0.146/ p=0.015$ ), rețeaua de support social ( $r= 0.185/ p=0.032$ ), numărul de boli cronice(implică aspecte sociale prin potențialul „comportament de boală”). Alte variabile importante relevând un Spațiu Vital extins sunt: „interesul crescut pentru evenimentele cotidiene” și „satisfacția față de relațiile sociale”, aspecte psiho-sociale pozitive care îi susțin pe vârstnici să mențină un stil de viață activ. Concluzii: Evaluarea MSV poate fi considerată un bun indicator al fragilității sociale, nu numai al fragilității fizice.

**Cuvinte cheie:** abilitate funcțională, fragilitate socială, mobilitate în spațiul vital

## INTRODUCTION

When WHO formulates a public health strategy on aging, healthy aging is considered in a holistic sense, based on functional perspectives and on the life-course vision. Healthy ageing is the

process of developing and maintaining the functional ability that enables well-being in older age. The concept of functional ability represents health-related attributes that permit people to do what they consider valuable to themselves. In the healthy

ageing model (Fig. 1), functional ability includes two components in permanent interrelation. The first component, intrinsic capacity is formed of genetic inheritance and personal characteristics of health. The second component, extrinsic capacity is represented by social and physical environment of an individual. Health characteristics from intrinsic capacity include: underlying age-related trends, behaviors, physiological changes and risk factors, diseases and injuries, changes to homeostasis, and broader geriatric syndromes.

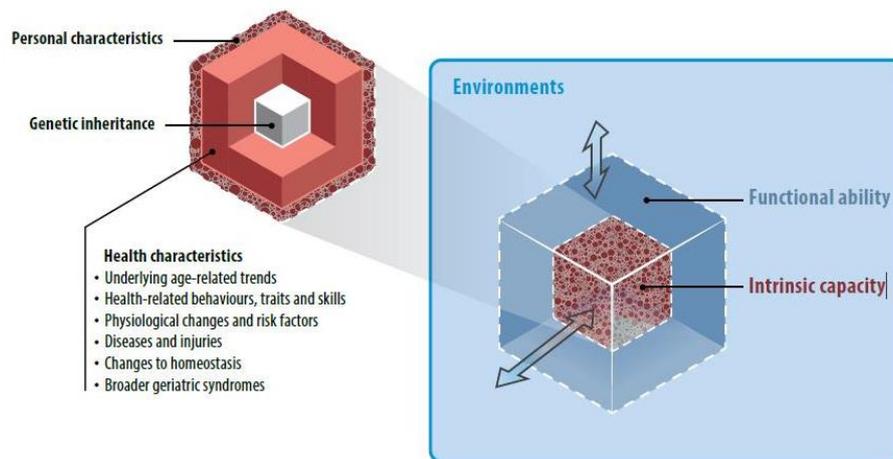


Fig. 1 Healthy Ageing from WHO - World report on ageing and health, 2015

Frailty has been defined as a syndrome involving a high vulnerability to stressors due to reduced functional capacity of various physiological systems. It involves the loss of resilience in the face of internal or environmental challenges, affecting different but interlinked physiological systems. The concept of resilience may be defined as the individual's ability to adapt in the face of stresses and adversities. It is a complex construct depending on a network or interaction of biological, clinical, psychological, and environmental factors that characterize each individual. A frail individual with low resilience is more likely to fall into a disabling cascade and quickly develop negative outcomes, whereas high resilience may be protective and facilitate maintenance of health status [2].

Measures of mobility in older adults are often used as indicators of health and general functioning. Some studies suggest the role of mobility as a predictor of different functional impairments; others

factors, diseases, changes in homeostasis and geriatric syndromes [1].

The frailty is one of the modern geriatric syndromes, along with sarcopenia, anorexia of ageing and cognitive impairment. In 1965, Bernard Isaacs coined the first giants of geriatrics: immobility, instability, incontinence and intellectual impairment (delirium and dementia).

researchers attempt to understand how demographic, biomedical, psychological, sociological, or environmental variables are predictors of mobility [3].

The most used approach of frailty was until now the physical frailty. Well-known studies as the Cardiovascular Health Study (CHS) and the Women's Health and Aging Studies (WHAS) evaluated physical frailty using the Fried phenotype.

In 2013, an international consensus group formed by IANA (the International Academy of Nutrition and Aging) and IAGG (the International Association of Gerontology and Geriatrics) defined the cognitive frailty concept as „a syndrome characterized both by physical frailty and cognitive impairment, in absence of dementia” [4]. Cognitive frailty appears in the context of the reduced neurophysiological reserves. Many studies have demonstrated that poor baseline physical performance results in cognitive impairment or dementia. And neuro-

imaging studies of cognitive networks showed that regular exercise improves connectivity and increases neuroplasticity which translates into better learning skills [5].

The possible link among physical frailty, cognition and chronic inflammation was directly confirmed by some studies. The IANA-IAGG consensus suggested biomarkers, such as inflammatory markers [i.e., C-reactive protein (CRP) and interleukin (IL)-6, that may be able to capture both the risk of future physical and cognitive declines] [6].

An important factor that also may influence the risk of becoming frail in later life is the personality. There is evidence that the personality may be associated with individual differences in physiological processes that have been hypothesized to underlie the onset of frailty, namely inflammation and the dysregulation of Hypothalamic–Pituitary–Adrenal (HPA) Axis [6].

According to WHO, major depression will become the leading cause of disability worldwide by the year 2030 [7]. It must be also emphasized that, in later life, depression represents a severe public health problem, associated with high rates of suicide and dementia. So, recently the depressive frail phenotype was proposed, being a high-risk morbidity and mortality syndrome and revealing a confluence between depression and frailty [6].

The authors discuss two general hypotheses regarding the medical causes of depression linked to effects of some common chronic disorders in late life: one suggests that depression may be associated with subclinical cerebrovascular disease in older patients with cerebrovascular risk factors; the other suggests that depression occurs in association with conditions related to cytokine-mediated "sickness behaviour" [8].

Cytokine levels are elevated in the blood and cerebrospinal fluid of MDD (major depression disorder) patients. Blocking cytokine actions in patients exhibiting

MDD shows some antidepressant efficacy [9].

Similar to the cognitive frailty, for the depressive frailty phenotype a parallel can be made between physical frailty and the domain of brain function. It is known that depression and physical frailty share several clinical characteristics such as loss of energy, fatigability, poor sleep and reduced interest.

Related to the personality, the notion of behaviour is important for the concept of social frailty. The age-related accumulation of deficits is influenced by the individual's behaviors as well as social and economic factors (e.g. access to health care) to which the person is exposed during his or her life [2]. The article "Twenty Years of Research on Cytokine-Induced Sickness Behavior" (2006) shows the following: "*Cytokine-induced sickness behavior was recognized around the 1990s. It was subsequently shown that physiological concentrations of pro-inflammatory cytokines that occur after infection act in the brain to induce common symptoms of sickness (loss of appetite, sleepiness, withdraw from normal social activities, fever, aching joints and fatigue). This syndrome was defined as "sickness behavior" and is now recognized to be part of a motivational system that reorganizes the organism's priorities to facilitate recovery from the infection*" [10]. Sick animals often withdraw from social interactions; their behavior depends on many factors, including the degree of cytokine activation. The complex relations between sickness and social processes suggest that cytokines have many roles in mediating social behaviour that are not limited to situations of pathogen exposure [11].

Social frailty, the most unexplored frailty concept, can be defined as a continuum of being at risk of losing, or having lost, social and general resources, activities, or abilities that are important for fulfilling one or more basic social needs during the lifespan [6].

At the highest level of frailty, the assessment scales consider that the subject is dependent on the surrounding caregivers. This fact highlights the social aspect of frailty since the person progressively loses the autonomy. The healthy ageing model (Fig. 1) presents the frailty as a health characteristic of the intrinsic capacity which permanently interacts with social aspects from the extrinsic capacity. So the social frailty entity can be seen more clearly in a functional perspective.

The model from Fig. 2 shows the frailty in a life-course vision. Xue QL and Fried L et al, consider that an overt state of frailty is preceded by behavioural adaptation made in response to declining physiological reserve (intrinsic capacity). In the intra-individual and environmental domains, in a pre-clinical phase of frailty, there may be adaptive and maladaptive modifications for maintaining of the functional reserve. But

such adaptive changes must capture the real function in the real life [12].

One example of such behavioural precursor change is the Life Space, a measure of spatial mobility. It is defined as “the size of the spatial area people purposely move through, in their daily life, as well as the frequency of travel within a specific time frame”. As it appears in the model, life space constriction represents a *frailty marker* and it can be influenced by the functional ability components: intra-individual challenges and supports (from intrinsic capacity) and environmental support and challenges (extrinsic capacity). In the Fig. 2, the physiological changes related to age, which can lead to primary frailty, are separated from factors related to chronic physical and mental pathology, generators of secondary frailty. Finally, the risk factors of social frailty can be included in the group of environmental factors: isolation, caregiver gaps, poverty [13].

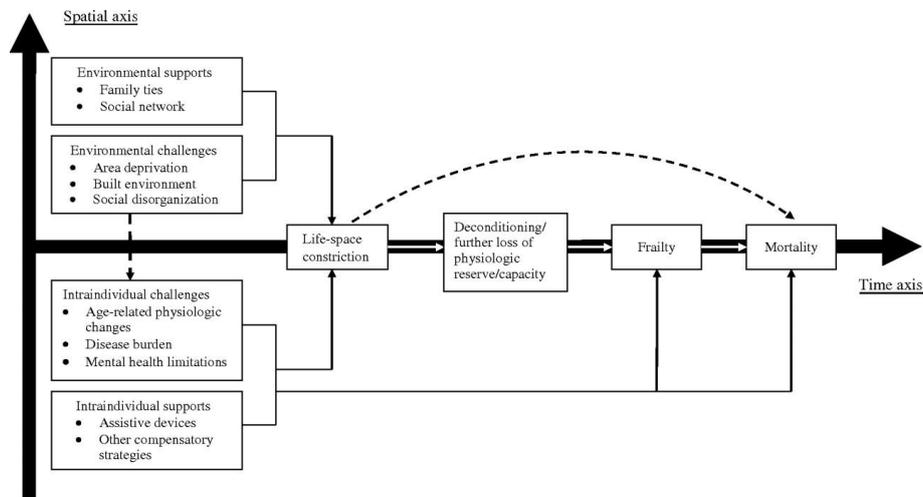


Fig. 2 Theoretical model of the association of life space with the clinical syndrome of frailty [12]. (Solid and dashed lines represent direct and indirect effects, respectively; arrows represent causal direction.)

Based on WHAS-I data (the Women’s Health and Aging Studies -the first Study), three-years of cumulative incidence of frailty were analyzed. The authors used the Fried Phenotype criteria in relation to life-space mobility constriction in 599 community-dwelling women, who were not frail at baseline. Multivariate survival-models showed the following: when women who left the neighbourhood four or

more times per week were compared with those who left the neighbourhood less frequently, the latter were 1.7 times more likely to become frail. And when the former were compared with those who never left their homes, the latter experienced a 3-fold increase in frailty. Xue QL theorized that the LSM constriction is a marker of declines in physiologic reserve. The relation is bi-

directional: the constriction of LSM itself could lead to decreased physical activity and social engagement, accelerated de-conditioning and exacerbated decline in physiologic reserve, directly contributing to the development of clinical frailty [12].

But the study underlines a particularly intriguing idea: “the decreasing of mobility, IADL or ADL alone did not necessarily lead to a reduction in LSM. As reasons for this discrepancy, the authors hypothesize the existence of some external and internal compensatory strategies (e.g., social support and, respectively, using a cane) that may help to minimize the impact on loss of physiologic reserve and preserve LSM” [14].

The same idea was presented in a recent review of researchers from University of Manchester UK (2019): *LSM assessment provides a more complete picture of what a person ‘does do’ rather than what they physically ‘can do’, i.e. abilities of a person, assessed by traditional measures as: up and go test or gait speed.* For example, a severely disabled person may utilize a mobility aid and accessible this meaning an extended LSM. But physically able person with dementia or depression may be relatively restricted. The study concludes: the maintenance of an active lifestyle and social participation in older age are fundamental for a good quality of life [15].

The link of LSM with physical and psycho-social component of the index Health Related Quality of Life (HRQoL) was studied in a longitudinal survey from the University of Alabama – Birmingham. The study assessed whether the relationship between functional status (ADLs or what individuals report they are capable of doing) and HRQoL are mediated by LSM (i.e., what people actually do in terms of mobility). Perceived difficulties in performing ADLs were shown to be related to mobility and mobility has also been shown to be correlated with the physical and mental component summary scores of the SF-12

(a commonly used measure of HRQoL). The statistical analyses showed that the mediating role of LSM is more significant linked to the mental component score (MCS) of the SF-12 than the physical component score (PCS) [16].

Our work intends to reveal the links between frailty (measured by LSM assessment) and social and physical functioning.

## MATERIALS AND METHODS

The paper studies a sample of 281 patients from the NIGG "Ana Aslan" hospital. They come from two previous studies, one referring on elderly mobility and the other on human longevity. For obtaining significance in the statistical analyzes, only two age groups were used: 45-79 years and 80-98 years, comprising 135 and 146 subjects respectively. Globally, the subjects are evaluated by medico-social survey method, with the application of various tests referring to:

- The physical functioning: Up and Go Test (TUG), ADL and IADL;
  - Life Space Mobility (LSM)-assessment;
  - The nutritional status (Body Mass Index);
  - The psycho-sensorial functioning: depression (Geriatric Depression Scale) and fatigue (Brief Fatigue Inventory);
  - The social situation assessment - Geriatric Assessment Wizard (R.Kleindlenst-2001-2002, version 1.3).
- The diagnoses are obtained from the clinical department.

## RESULTS

Our study uses LSM as a measure of social frailty specially and also of physical frailty, starting from the statement of the UK review (2019): “LSM is a concept that provides a more holistic measure of resilience to physical decline and social isolation in later life” [15].

Following the application of assessment scales, the subjects with a definite frailty diagnosis are dependent (in various degrees) on people who care of them. Thus

the social aspect of frailty is clear. In our lot, the frailty was evaluated mainly by LSM, but in the applied study questionnaire there are also other that mirror the frailty: Up and Go Test and Brief Fatigue Inventory (BFI). Table I shows the frailty weights resulting from

these assessments, which imply the need for social support and, therefore, the existence of social frailty: 27.5% frailty from LSM, 26.6% subjects chronically very tired – a BFI item, and 22.6% frailty according to Up and Go Test.

Tab. I Weights of accentuated frailty which imply the presence of social frailty due to decreased autonomy, with dependence on caregivers

Frailty Index	Criteria	Accentuated frailty
LSM	Those >III at bed+ > with displacement only in the house + > with displacement near the house	27.5%
Presence of fatigue (BFI)	regular accentuated fatigue	26.6 %
Up and Go Test	Those who can't accomplish the test + those with time execution >20 sec	22.8 %

Regarding the links of LSM with different variables we shall see first the social frailty (A) and secondly the physical frailty (B) level.

#### A) Links between LSM and social functioning

In some population-based studies, social frailty has been operationalized with single items from functional and depressive symptom scales or health checklist. We recall a recent longitudinal study (2015) which started from the data of the South Australian Health Omnibus Survey (HOS). In 2011, the LSM assessment was included in its questionnaire. Between 2011 and 2014, the data analysis (regarding 3,032 respondents from the community) showed the following: the mean of the LSM score was 98.3 (SD=±20.3) and decreasing scores were associated with: -female gender, -older age, -living in rural areas, -lower educational attainment, -not employed, -lower household income, and -higher numbers of chronic conditions [17]. So, the variables of HOS study which significantly correlated with LSM represent in majority aspects of social frailty.

On the other hand, in NIGG sample, the mean LSM score was 61.6 (SD= ±42.246), much lower than that from HOS survey

(Tab. II). The explanation of the difference is the subjects' provenience, HOS survey collecting data from the community and not from a hospital. Also we see NIGG LSM index significantly correlating with some social aspects: age ( $r = -0.549$  / $p=0.000$ ), gender, high school graduation ( $r = -0.146$  / $p=0.015$ ), social support network and the number of chronic conditions (which is associated with the social aspects due to "sickness behaviour", a quite new syndrome).

Lately, there are more discussions about the psychological frailty which encompasses the concepts of mood and motivational frailty. Regarding (a) the mood, which describes a relative persistent state of emotion, we have mentioned before a recent concept, the depressive frail phenotype [18]. In our study, only in the "80-98 years" group, the link between LSM and depression (GDS) is revealed; the correlation is high ( $r = -0.374$  / $p=0.000$ ). On the other hand, speaking about the psychological frailty, there is also the element of (b) motivation, which means: "the drive toward a goal, or lack of a goal (apathy); it is linked to mood but can be largely independent of it as it is noted, for example, in nondepressed individuals with dementia".

Tab. II Correlations of the Life Space Mobility assessment with social functioning in the NIGG study

Significant correlations of LSM with:	Total NIGG lot	45-79 years	80-98 years
Gender	ns	r = -0.226/ p= 0.008	ns
Age	r= -0.549 /p=0.000	r =-0.622 / p=0.000	r = -0.276 / p=0.001
High school attended	r= -0.147 / p=0.014	ns	ns
Caregiver number		r =0.185 /p= 0.032	ns
Number of chronic conditions (high influence on social aspects due to “sickness behaviour”)	r=-0.230 /p=0.000	ns	ns
Interest in everyday life	r=-0.222 /p=0.000	ns	r=-0.348 /p=0.000
Satisfaction with the social relations	r=-0.230 /p=0.000	ns	r=-0.206 /p=0.013

In our study, significant correlations were also found between LSM and two social variables, with an important psycho-affective content: (1) interest in everyday life and (2) satisfaction for personal social relationships.

(1) Interest in everyday life: In literature, our “interest in everyday life” item is present in depression assessment scales, but it can also be considered alone as a valuable psycho-social indicator. Considering that motivation arouses interest in various activities, we could analyze the interest for everyday life, for different motivations such as described by a 2015 Finnish article with the title „Personal goals and changes in life-space mobility” [19]. The study explored how personal goals predict changes in life-space mobility in old age. It was observed that: (a) a higher life-space mobility was associated with goals indicating a desire to be active in daily life, to stay mentally alert and to exercise; these associations remained valuable over many years; (b) a high life-space mobility was also predicted by goals related to maintaining functioning; association remained present 2-year later in

follow-up; (c) in contrast, lower life-space mobility was predicted by goals aiming improvement of poor physical functioning.

The correlation between the interest for everyday life (for various purposes) and age has a high intensity:  $r=-0.399 / p=0.000$ . This link can explain some percents: only 14.6% from the “85-98 years” group are still making plans; and more than half (52.8%) are less interested in everyday life; on the other hand, in pre-senescent group, two thirds subjects are motivated by various activities and under a fifth (18.6%) are less interested in daily problems.

Fig. 3 shows the link between LSM and the interest for daily activities (or motivation) for the entire sample,  $r=-0.222 / p=0.000$  (see Tab. 2). Of those who say that they have different plans, two thirds go outside the town and a not statistically significant percentage stay at home; conversely, of those who have lost interest in various activities, those who go outside the locality represent almost a half of the percentage of the analogous group mentioned above. A third of those stay only at home (30.5%).

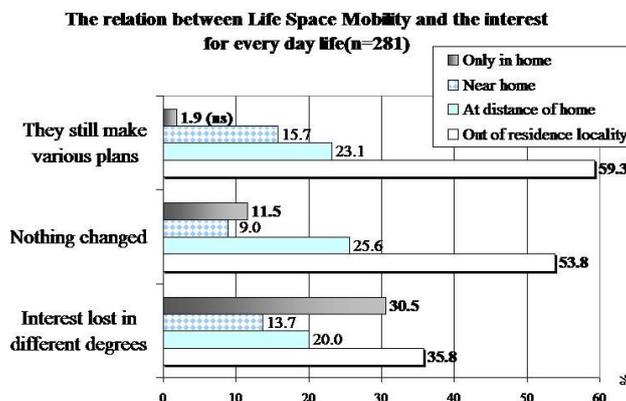


Fig. 3 Links of the Life Space Mobility Index and the interest in daily life (n=281) ( $r= - 0.222 / p=0.000$ )

(2) Satisfaction for personal social relationships: The item evaluating the satisfaction with the social relations also has both a social and a psychological meaning. On the one hand, it indicates the existence of a social support network, more or less satisfactory from a quantitative view point; on the other hand it also indicates the quality of the affective load of these connections.

The link between age and the “satisfaction regarding social relations” is strong:  $r=0.398$  / $p=0.000$ . This is the reason for which in the 85-100 years group, only 16.9% are satisfied with their relationships, and more than half (56.2%) feel the limitation of social relations but they resign. Almost a third feels alone and / or disadvantaged.

We can include “the satisfaction with social relationships” in the concept of “attachment”, defined as the long-term emotional connection with a particular individual [20]. People have different attachment styles, associated with positive

or bad relationships with the others. People characterized by a secure attachment, meaning those who trust the other can be loved, responsive and supportive of their needs, are more resilient to the vicissitudes of life. These people are more optimistic, they make fewer negative assessments about dangers and they are more confident in their ability to face life's challenges.

More recent research shows that attachment style also has an impact on how adults manage to control their emotions in adulthood. Thus, in the lot, the satisfaction with social relationships correlates with high intensity, inversely proportional to depression ( $r = -0.477$  /  $p = 0.000$ ), but even more with the interest for everyday ( $r = 0.593$  /  $p = 0.000$ ). This last high correlation between daily interest and satisfaction with social relationships explains why the Fig. 4, the representation of the relationship between LSM and social relations satisfaction, resembles so much the Fig. 3.

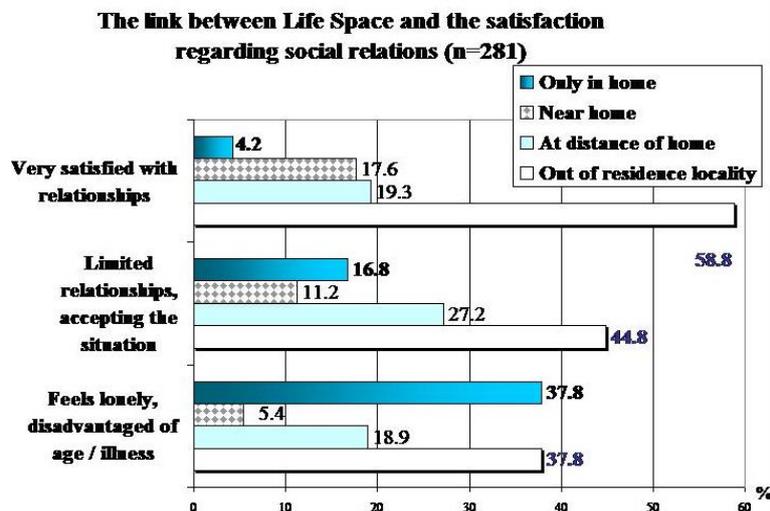


Fig. 4 The links between the Life Space Mobility Index and the social relations satisfaction (n=281) ( $r= - 0.230$  / $p=0.000$ )

### B) Links between LSM and physical decline

Starting from the Fried Phenotype criteria, in case of an isolated appearance of muscle weakness, preventive interventions for frailty can be successfully. But if fatigue and / or weight loss had also appeared, it is

too late to return to robust health [21]. Both situations are met in our study. First, in the age group “45-79 years”, the Life Space Mobility (used as the Index for frailty) correlates only with the test that suggests the low muscle tone and the slow movement (Up and Go Test); but LSM

does not correlate with fatigue and weight loss (BMI) (Tab. III). These mean that muscle weakness is isolated, and that the subjects' health can return to a better status. On the contrary, in the "80-98 years" group, LSM Index correlates with "Up and

Go Test", but also with the Brief Fatigue (BFI) Index items linked to general physical activity, walking and with also weight loss (BMI). So, given these circumstances, it is too late for frail subjects to recover to a robust health.

Tab. III The link between frailty (LSM) and Fried phenotype items: Up and Go Test, Fatigue (BFI), weight loss (BMI)

Life Space Mobility Index Correlated with:	Age groups			
	45-79 years		80-98 years	
	r=	r=	r=	p=
Up-and Go Test	-0.168	0.050	-0.308	0.000
Global (BFI) Brief Fatigue Index	ns		-0.265	0.003
BMI	ns		0.183	0.028

### CONCLUSIONS

The article places the frailty first in the picture of healthy aging related to the perspectives of functionality and of life course phenomena. Additionally, the paper draws attention to the transitions from a certain health status to pre-frailty (moderate decrease of functional reserve determining behavioural adaptive changes, such as LSM), to frailty and finally to death.

Some data from the literature reveal recent frailty research fields: physical, cognitive, psychological and social. Both the cognitive frailty and the depressive frailty phenotype include elements of physical frailty in their definitions. In our study, we present the links between the Life Space Mobility (LSM) with social variables of functionality and with physical frailty. The social frailty, a little explored frailty concept, can be defined by many criteria. Firstly, we can state that in any kind of frailty, when this condition is accentuated, the person depends on the surrounding help in different degrees, becoming a social frail. In our study, the weights of frailty are 14.1% and 39.7%, in the 45-79 years group, respectively the longevous group.

Secondly, the presence of social frailty is revealed by the links between LSM and some social variables. More precisely, LSM significantly correlates with: age ( $r = -0,549 / p = 0,000$ ), gender, social support network, educational level ( $r = -0.147 / p = 0.014$ ) and chronic diseases number ( $r = -0.230$

$/p = 0.000$ ) (linked to the "sickness behavior"). All these variables bring to attention components of the social frailty: social isolation, caregiver gaps and poverty. Third, other aspects of the social frailty are suggested through the significant correlations between the LSM with two social variables that have an increased psycho-affective content: the interest for everyday life ( $r = -0.222 / p = 0.000$ ) and the satisfaction with the social relations ( $r = -0.230 / p = 0.000$ ). Both subjects with a high interest for everyday life, as well as those satisfied with their social relations, have a LSM more extended, traveling at distance from their home in the residence locality and also outside the locality. From the literature we find that the concerns of being active mentally and physically are the reasons which stimulate the interest of the elderly for daily life; these goals correlate with an extended LSM. Also good social relations or, in other words, a secure attachment represents a support for mental health and social adaptation. Those who are satisfied with their relationships are emotionally more attached to their relatives and friends; they want to support them and in turn, they receive support as needed. This interrelation fills their daily existence, giving them reasons to be tonic, active. In our sample, these situations are suggested by the intense correlation between satisfaction for own relationships and interest in everyday life ( $r = 0.593 / p =$

0.000). The mutual help relationships support elderly to be more confident, more optimistic. (See the intense but inverse correlation between relationship satisfaction and depression ( $r=-0.477 / p = 0.000$ ).

Cognitive frailty and depressive frail phenotype are by definition associated with

physical frailty. In our study, the social frailty is also seconded by the physical frailty, being assessed by LSM, a mobility measure. As a conclusion, we can say that the LSM is a valuable method for the assessment of social frailty in particular, but also of frailty in general.

### Conflicts of interest

The authors declare no conflicts of interest.

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