WHAT IS THE HEALTH STATUS OF INSTITUTIONALIZED ELDERLY IN LEBANON?
A Preliminary Cross-Sectional National Survey

Rita EL-HAYECK[1], Christa BOULOS[2], François SAHYOUN[3], Nazem BASSIL[4], Salam JALLOUL[5]
Chawkat BEAINY[6], Rafic BADDOURA[7]

ABSTRACT • Background : Medical conditions and dependency levels of the elderly in the Lebanese long-term care institutions have not been described. This may undermine care commissioning and development to institutionalized elderly. Data to inform policy and practice are needed. **Objective:** To identify clinical diagnoses and dependency levels among elderly residents in long-term care institutions in Lebanon. **Methods:** Cross-sectional survey of long-term care institutions throughout Lebanon as identified by the Ministry of Social Affairs. **Results :** Thirty-one out of 42 long-term care institutions have been included in this survey. Among them, 1371 elderly subjects were included in the analysis ; 75.6% were over the age of 75, and female represented 67%. Medical morbidities and associated disabilities have driven admission in 70.5% of residents ; 45.6% of residents reported dementia, stroke or other neurodegenerative disease. Overall, 60% of residents required locomotor assistance. **Conclusions :** Elderly residents in long-term care institutions are predominantly females, with mental and/or locomotor disabilities resulting from neurological and arthritic conditions. Targeting healthcare for such health conditions remains a challenge for the institutions.

Keywords : geriatric assessment, long-term care, elderly, dependency, residential care

RÉSUMÉ • Contexte : Les pathologies médicales et les niveaux de dépendance des personnes âgées dans les institutions libanaises de soins de longue durée n'ont pas encore été rapportés. Cela peut affecter la mise en place et le développement des soins de santé nécessaires au sein de ces institutions. De telles données sont utiles pour informer les politiques et les professionnels de santé. **Objectifs :** Caractériser les diagnostics cliniques et décrire les niveaux de dépendance chez les personnes âgées résidentes dans les institutions de soins de longue durée au Liban. **Méthodes:** Enquête transversale menée dans les institutions de soins de longue durée à travers tout le Liban telles qu'identifiées par le ministère des Affaires sociales. **Résultats :** Trente et une des 42 institutions de soins de longue durée ont été incluses dans cette étude, comprenant au total 1371 sujets : 75,6% étaient âgés de plus de 75 ans, et les femmes représentaient 67% ; 70,5% des résidents présentaient des pathologies médicales et des incapacités secondaires justifiant leur admission ; 45,6% des résidents étaient atteints de démence, avaient des antécédents d'accident vasculaire cérébral ou d'autres pathologies neurodégénératives. Dans l'ensemble, 60% des sujets avaient besoin d'aide pour se déplacer. **Conclusion :** Les personnes âgées résidant dans les institutions de soins de longue durée sont principalement des femmes de plus de 75 ans, avec des déficiences mentales et/ou physiques résultant de pathologies neurologiques et/ou rhumatismales. Des soins de santé ciblant ces conditions constituent une priorité pour ces institutions.

BACKGROUND

Aging is increasingly a subject of concern in public opinion and among health authorities. Elderly people aged 65 and above have been recently estimated between 7% and 9.6% of the Lebanese population [1,2]. A significant demographic change over the next two or three decades is expected whereby the percentage of population aged 65 or older may reach 14% by 2028 [2].

The needs of such elderly population in terms of long-term care institutions and assistance remain insufficiently documented.

The Ministry of Social Affairs has recently established an exhaustive list of institutions dedicated to the care of the elderly in Lebanon [3,4] and published a set of recommendations to which these institutions should refer in the perspective of accreditation.

According to our literature search, there has been no published report on morbidities among elderly subjects within long-term care institutions in our country.

In order to assess morbidity pattern among the elderly within these institutions, a survey has been conducted, as a step forward to build up resources for appropriate care commissioning.

[1]Department of Geriatrics, School of Medicine, St Joseph University (USJ), Beirut, Lebanon.
[2]Department of Nutrition, Faculty of Pharmacy, USJ.
[3]School of Medicine, University of Balamand (UOB), Beirut.
[4]School of Medicine, UOB, St George Hospital, Beirut.
[5]School of Public Health, Lebanese University, Beirut.
[6]Elderly Care Center, Ain Wazein Hospital, Chouf, Lebanon.
[7]Rheumatology Department, Hôtel-Dieu de France, School of Medicine, USJ, Beirut.

Correspondence : Rita El-Hayeck, MD.
e-mail: rita.elhayeck@usj.edu.lb

OBJECTIVES

The aims of our study were to report on the health status of elderly subjects within long-term care institutions in Lebanon as identified in the 2010 Ministry of Social Affairs directory, and to collect the managers' views on institutional challenges to meet the needs and standards for long-term care of the elderly in Lebanon.

METHODOLOGY

All the 42 institutions identified by the Ministry of Social Affairs as institutions providing health care for the elderly were included in our target population. Thirty-one, across different cazas (Beirut, Metn, Chouf, Baabda, Jbeil, Batroun, Koura, Zgharta, Tripoli, Akkar), have been visited. We were unable to reach out 11 institutions for logistical limitations. These were located in the Bekaa valley (n = 3), the South (n = 1), Aley (n = 2) and Kesrouan (n = 5).

Inside the 31 included institutions a healthcare provider, either a nurse or a physician, was requested to collect data on demographic characteristics, major morbidities, dependency level, frailty and health insurance status of elderly, using a structured questionnaire (see Appendix 1), on all elderly subjects during the implementation of the survey between June 1st and September 30th 2012.

Frailty was defined by the presence of three out of five of the Fried criteria (unintentional weight loss over the past year, weakness, slowness with reduced gait speed, poor endurance as self-reported exhaustion and low physical activity level) [5] as judged by the healthcare provider.

The outcomes of the survey using the structured questionnaire were:
1. Main reason of admission to the institution
2. Prevalence of major medical conditions
3. Prevalence of mental and physical disabilities
4. Level of dependency in mobility

5. Percent of subjects who benefit from any health insurance plan.

Statistical analysis was performed using STATA software version 9.

In parallel to the structured questionnaire, a brief semi-structured interview of the managers of those institutions was conducted to collect qualitative information on four issues we believed critical for appropriate care management (see Appendix 2):
1. Pathways of admission of elderly subjects to the institutions as a reflection of how healthcare system operates for the elderly.
2. Waiting list management as a mean to assess the balance between offer and need.
3. Major perceived challenges in daily practice as a hint on potential aims of future interventions.
4. Nursing care workload assessment as a critical mean of human resources management.

RESULTS

The total number of subjects identified in our study population was 1554; 183 subjects who were less than 65 years old were excluded. The number of subjects remaining for statistical analysis was 1371. The average number of elderly subjects per institution was 50 with a minimum of 9 and a maximum of 175 (Table I).

Subjects were predominantly females (67.0%). However males were younger. The proportion of subjects aged 85 and above was 31.3% in women and 22.1% in men (Table II).

Subjects were provided with residential care (71%), nursing care (12%) and rehabilitation care (14%) (Table III). 83.7% were long-term residents with no plan for discharge; 5.7% have been admitted temporarily (intermediate care, respite, etc.), while 10.6% provided no answer to that question.

Regarding marital status, in comparison to men, women were more frequently reported as widowed, 42.7% versus 17.6%, and less frequently as married,

TABLE I
STUDY POPULATION DISTRIBUTION BY INSTITUTION (*)

Institution	Number	Percent	Institution	Number	Percent	Institution	Number	Percent
A	66	4.2%	F	41	2.6%	P	130	8.4%
A1	32	2.1%	G	25	1.6%	Q	78	5.0%
B	38	2.4%	H	175	11.3%	R	40	2.6%
B1	15	1.0%	I	58	3.7%	S	45	2.9%
C	39	2.5%	J	30	1.9%	T	18	1.2%
C1	14	0.9%	K	25	1.6%	U	15	1.0%
D	30	1.9%	L	34	2.2%	V	36	2.3%
D1	94	6.0%	M	9	0.6%	X	66	4.2%
E	54	3.5%	N	43	2.8%	Y	43	2.8%
E1	30	1.9%	O	115	7.4%	Z	114	7.3%

(*) One single small private institution harboring only two elderly subjects was not included in the table.

13.5% versus 33.5%, single, 38.5% versus 40.3%, or divorced, 5.3% versus 8.6%.

Provision of long-term care was predominantly driven by mental and motor disabilities from either neurologic or musculoskeletal disorders such as dementia, stroke or hip fracture (Figure 1).

Prevalence of dementia was 27.6% (95% CI: 25.3-30.1), and that of depression 17.0% (95% CI: 15.0-19.1).

Besides dementia and depression, 11.1% (95% CI: 9.4-130) of the subjects were reported with a challenging mental status and 6.1% (95% CI: 4.8-7.5) had combination of challenging behavior with dementia and/or depression.

The proportion of subjects remaining autonomous was 39.8% (95% CI: 37.2-42.5), while 37.1% (95% CI: 34.5-39.8) required occasional assistance with mobility and 23.1% were permanently dependent (95% CI: 20.8-25.4) for mobility. Proportion of subjects requiring assistance for mobility increased with age, more significant-ly in women as compared to men. Beyond the age of 85, the proportion of subjects totally dependent reached 35% in women and 15% in men (Figure 2).

Medical conditions identified as leading causes for admission to the institution were dominated by neurological and musculoskeletal conditions, urinary incontinence, and frailty (Table IV). Predominant *neurological disorders* leading to admission included the following: dementia 26.8 %, depression 17%, stroke 12%, Parkinson's disease 5% and multiple sclerosis 1.8%. *Musculoskeletal disorders* leading to admission were dominated by hip fractures (16.9%), which are considered as a clinical marker of osteoporosis. *Urinary incontinence* as a cause of admission was reported in 28.7%. Among institutionalized elderly, 20.3% reported diabetes and 13.7% reported osteoarthritis upon admission, *Frailty* was found in 15.5% of subjects. Comorbidities as reasons for admission were present in more than 30% of residents.

Housing, familial and social problems as causes leading to admission were reported in 17.3% (95% CI: 15.3-19.4), 29.5% (95% CI: 27.1-31.9) and 22.6% (95% CI: 20.4-24.9) of the subjects respectively, with no age or gender effect (Figure 3).

Regarding the payment for staying at the institution, 5.5% (95% CI: 4.4-6.8) reported to benefit from a private

TABLE II

TYPE OF CARE PROVIDED FOR THE ELDERLY WITHIN THE INSTITUTION & NUMBER OF SUBJECTS WHO BENEFIT FROM THAT TYPE OF CARE AMONG OUR STUDY POPULATION

Type of care	Number of subjects	Frequency
Residential	883	70.6%
Residential/Nursing	43	3.4%
Residential/Nursing/Rehabilitation	66	5.3%
Residential/Rehabilitation	7	0.6%
Nursing	149	11.9%
Nursing/Rehabilitation	34	2.7%
Rehabilitation	69	5.5%
Total	**1251***	**100%**

*The total number of available data concerning type of care variable.

TABLE III

AGE AND GENDER DISTRIBUTION OF INSTITUTIONALIZED ELDERLY POPULATION IN LEBANON

Age	Women	Men	Total
< 75	175 (20.9%)	130 (31.5%)	305 (24.4%)
[75-85[	400 (47.8%)	191 (46.4%)	591 (47.3%)
≥ 85	262 (31.3%)	91 (22.1%)	353 (28.3%)
Total	**837 (67.0%)**	**412 (33.0%)**	**1249 (100.0%)***

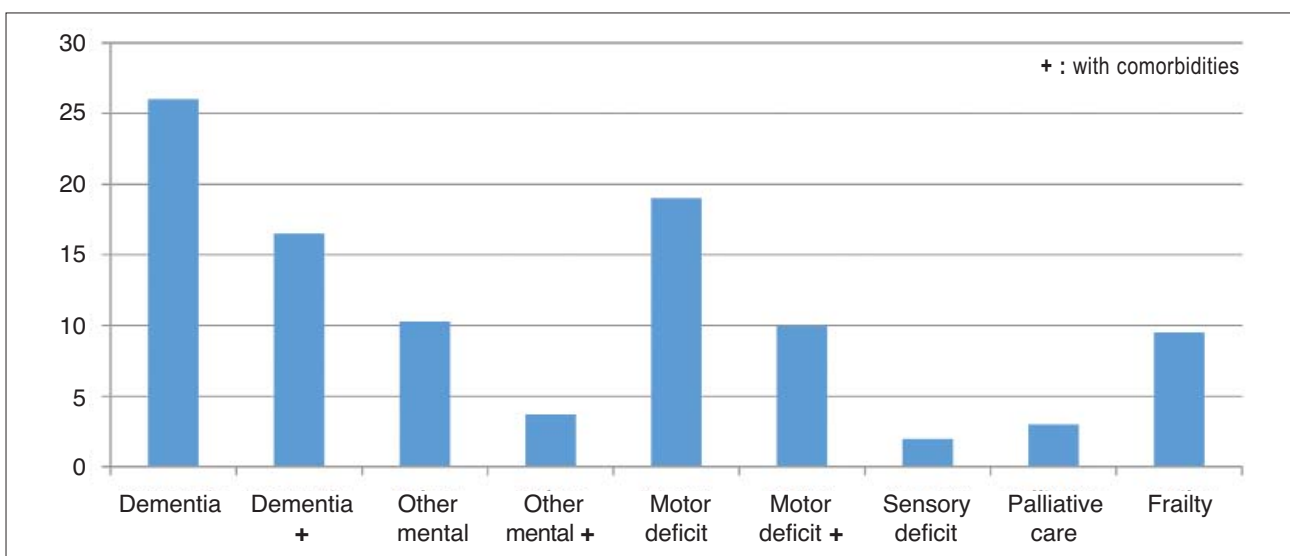*The total number of available data concerning age and gender variables.

FIGURE 1. Health impairment characteristics of elderly people in long-term care institutions in Lebanon (in percentage)

health insurance; 47.1% (95% CI: 44.4-49.7) from governmental support; 9.0% (95% CI: 3.4-14.6) from other sources, essentially charity associations; 7.9% (95% CI: 2.2-13.6) from multiple sources; while 30.5% (95% CI: 28.5-33.0) reported having no financial support.

The percent of subjects reporting no financial support tended to increase with age in both genders concomitantly with a decrease in the percent of those who benefit from governmental support while the percent of those reporting to have a private insurance barely changed with age (Figure 4).

Elderly were often referred to the institution directly from the household rather than from the hospital or other medical institution within the community. Few long-term care institutions reported monitoring medical care for the elderly. Half of the managers reported no waiting lists to manage. Among those who did, reported waiting time remained short, between a few days to a few months. The two major problems for managers were handling the financial burden and getting the qualified personnel. Most of them were not familiar with the tools available for nursing care workload assessment.

DISCUSSION

This is the first survey to report on health conditions of institutionalized elderly in our country. Neurological and musculoskeletal diseases are leading medical causes to admission in a long-term care institution. Morbidities were essentially dementia, visual and hearing loss, stroke, hip fractures, osteoarthritis, urinary incontinence, diabetes, and frailty. Comorbidities were reported by more than 30% of subjects, further increasing the burden of health care.

Our findings are consistent with other studies in Australia, the UK and the US which have consistently found that cognitive impairment, functional dependency, chronic diseases, lack of social support and limited socioeco-nomic resources being significantly associated with risk of admission to residential long-term care institutions [6-12].

Dementia was the leading cause to admission in a long-term care institution. In a previous study, dementia

TABLE IV

MEDICAL LEADING CAUSES OF ADMISSION
TO LONG-TERM CARE INSTITUTION

| Leading cause to admission	N	Percent
Urinary incontinence	394	28.7%
Neuropsychiatric disorders		
Dementia	368	26.8%
Depression	233	17.0%
Stroke	165	12.0%
Parkinson's disease	69	5.0%
Multiple sclerosis	24	1.8%
Behavioral disorder	17	1.2%
CNS trauma	16	1.2%
Musculoskeletal disorders		
Hip fracture	231	16.8%
Falls	86	6.3%
Frailty	213	15.5%
Cardiovascular disorders		
Cardiovascular disease	172	12.5%
Peripheral vascular disease	51	3.7%
Pulmonary disorders		
Chronic obstructive pulmonary disorder	71	5.2%
Asthma	54	3.9%
Sensory disorders		
Visual impairment	195	14.2%
Hearing impairment	168	12.3%
Major comorbidities		
Diabetes	278	20.3%
Osteoarthritis	188	13.7%
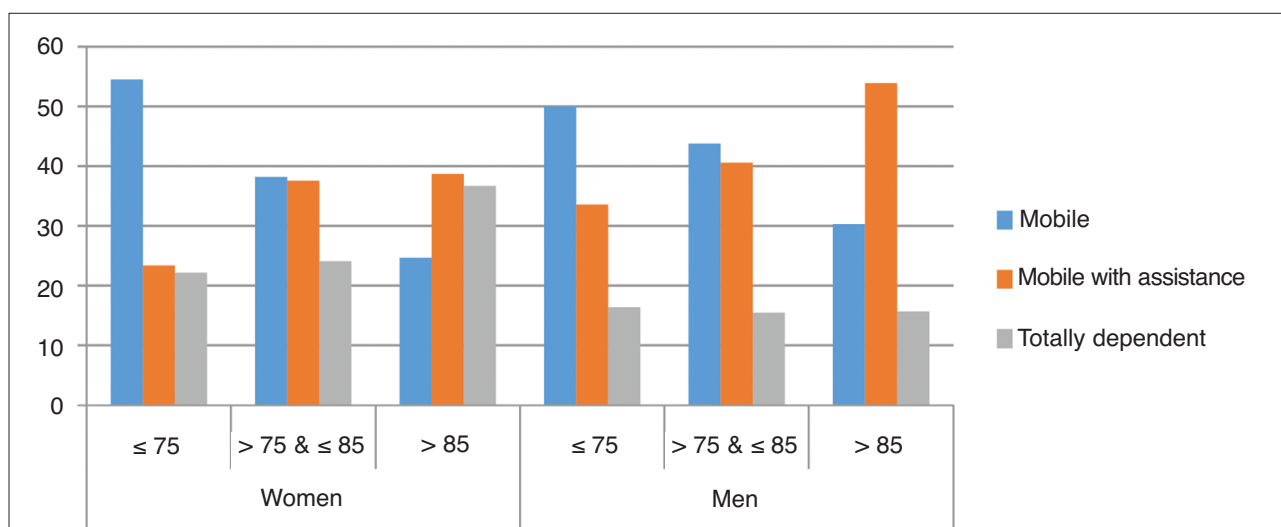
FIGURE 2. Level of dependency among institutionalized elderly by age group and gender (in percentage)

was observed in more than half of nursing home elderly residents [13]. Yet, only 10 nursing homes reported having a dementia special care unit (SCU) [3]. However, such dementia units were just geographically separate units, neither having a specialized staff nor an adapted environment and architecture.

About two thirds of institutionalized elderly population had significant limitations in mobility, as a result of neurological or musculoskeletal disorders, and required occasional or permanent assistance. Urinary incontinence, another healthcare burden among elderly subjects, was also frequently reported, in about one of four subjects. These major causes of dependency drive the burden of nursing care.

From our qualitative assessment, we found very few

managers used to assessing dependency level and nursing care workload, though it is a critical issue in evaluating cost of care.

In Lebanon, the level of monetary contribution of the public sector to residence-care service institutions is not related to the level or type of services being offered.

For example, the monetary contribution provided by the Ministry of Social Affairs since 2012, is fixed at 17,500 L.L. per senior per day [14], while the Ministry of Health's contribution since 2013, is 26,350 L.L. per senior per day [15]. The seniors who are relatively independent at admission and/or have social problems are covered by the Ministry of Social Affairs while those who are more dependent at admission and/or have medical problems are covered by the Ministry of Health.
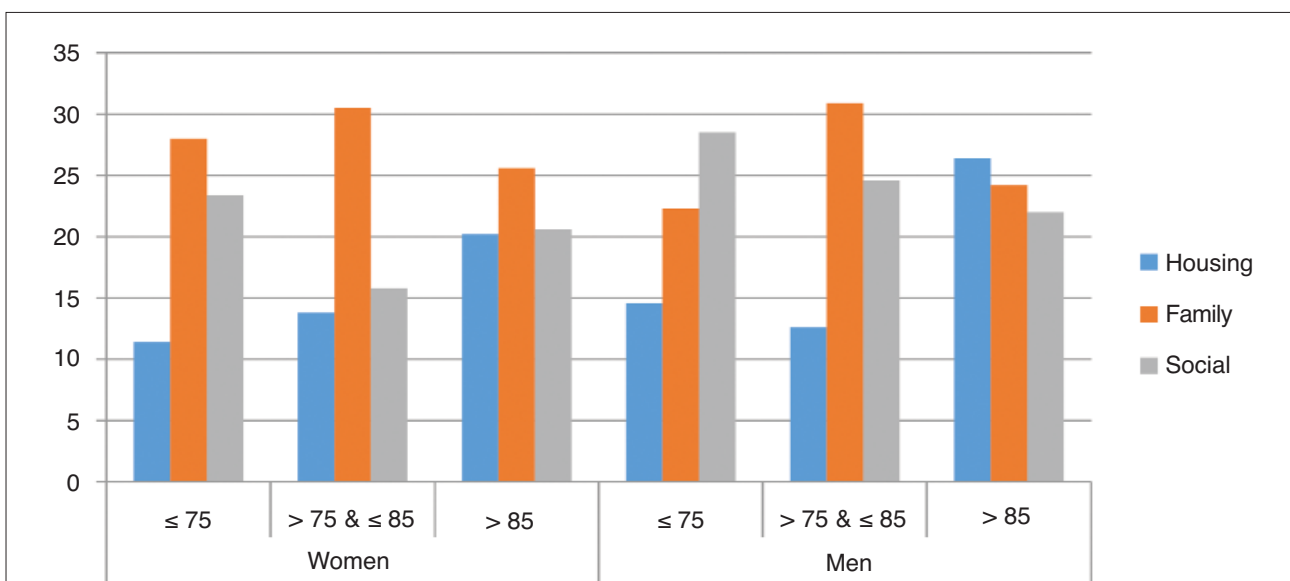

FIGURE 3. Social factors contributing to admission of elderly people in long-term care institutions by age group and gender (in percentage)
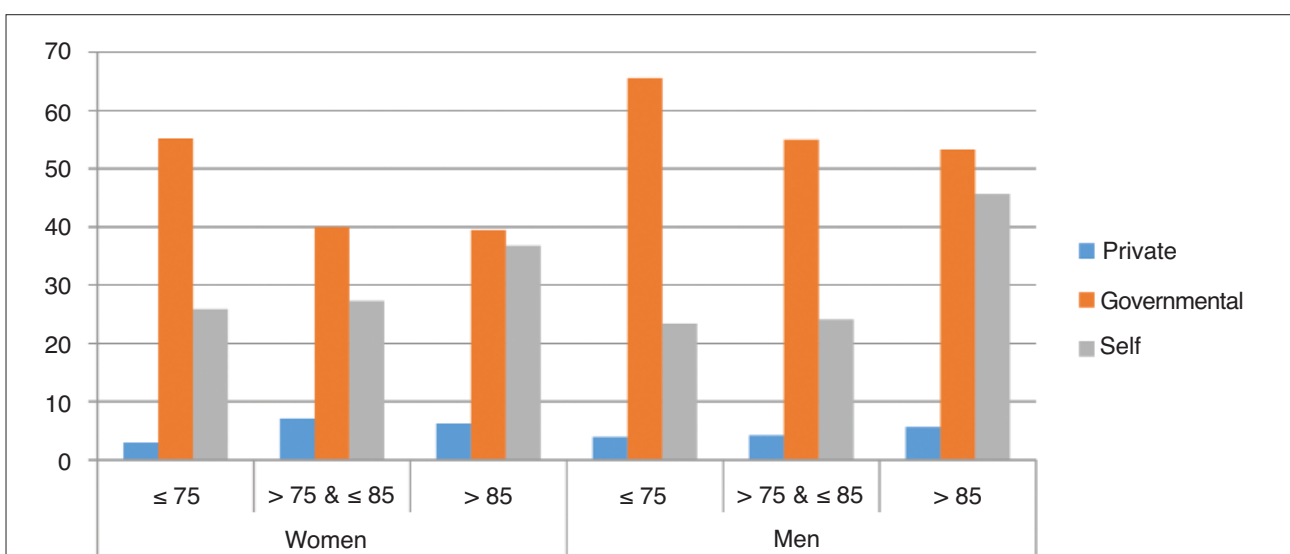

FIGURE 4. Cost coverage for the stay in long-term care institutions, by age group and gender (in percentage)

Residents can benefit from only one guarantor institution regardless of the evolution of the health condition and the dependency level.

Financial constraints represent a major challenge for managers of those institutions. Incorporating the burden of dependency level in the cost of care would be recommended. In that respect, we suggest:

- Incorporating three different rates for estimating the cost of stay: 'dependency rate,' 'medical care rate' and 'accommodation rate'
- Promoting financial participation from different sources for the same resident i.e. the Ministry of Social Affairs, the Ministry of Health, the municipalities and insurance plans.

Besides financial challenges, human resources in terms of qualified personnel is obviously needed for the provision of comprehensive and monitored medical care.

A limitation of our study is the cross-sectional design and the limited amount of data collected due to insufficient resources. The total number of elderly residents aged 65 and above was 1371 in the 31 institutions. The actual number of elderly subjects aged 65 and above in long-term care institutions is still debated. One study, published in 2005, included 33 long-term residential care institutions and identified 2600 residents [16], while the National Report on the Services Available for Older People in Lebanon states around 4000 elderly are registered in long-term care institutions [3]. We plan to expand shortly our data collection to include all institutions and have updated figures on the ratio of resident elderly subjects to the total elderly population in the country.

Some information may not be accurate, as it was self-reported, but such a questionnaire has been used in other populations [17].

We did not potentially measure relevant items such hypertension in elderly. Nonetheless, major healthcare issues in long-term care institutions for the elderly have been identified and tracks for further research been highlighted.

CONCLUSION

Morbidities among institutionalized elderly in Lebanon are largely dominated by neurological conditions, essentially dementia and stroke, and musculoskeletal disorders, mainly osteoporotic hip fractures, and frequently associated with disabilities and dependency in daily living.

Dependency and social factors contribute significantly to admission. Referral pathways, starting mostly from homes rather than from clinics, deserve further study.

Handling financial constraints and hiring qualified personnel were considered a significant challenge for managers for the provision of appropriate care. Workload assessment tools were felt needed to improve responsiveness.

REFERENCES

1. Living condition survey 2007. [In Arabic] http://www.cas. gov.lb/index.php?option=com_content&view=article&id=108 &Itemid=115 (Accessed July 15, 2014)
2. Population Division of the Department of Economic and Social Affairs of the United Nation Secretariat, World population Prospects: The 2012 revision. http://esa.un. org/unpd/wpp/index.htm (Accessed June 15, 2013)
3. Ministry of Social Affairs; United Nations Population Fund (UNFPA). The National Report on the Services Available for Older People in Lebanon, 2010. [In Arabic]
4. Naja N. Long-term stay institutions in Lebanon. J Med Liban 2012; 60 (4): 252-6.
5. Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, Seeman T, Tracy R, Kop WJ, Burke G, McBurnie MA; Cardiovascular Health Study Collaborative Research Group. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci 2001 Mar; 56 (3): M146-M156.
6. Grundy E, Jitlal M. Socio-demographic variations in moves to institutional care 1991-2001: a record linkage study from England and Wales. Age Ageing 2007; 36: 424-30.
7. Gaugler JE, Duval S, Anderson KA et al. Predicting nursing home admission in the U.S: a meta-analysis. BMC Geriatrics 2007; 7: 13.
8. Bharucha AJ, Pandav R, Shen C et al. Predictors of nursing facility admission: a 12-year epidemiological study in the United States. J Am Geriatr Soc 2004; 52: 434-9.
9. Fisher L, Lieberman MA. A longitudinal study of predictors of nursing home placement for patients with dementia: the contribution of family characteristics. Gerontologist 1999; 39: 677-86.
10. Harris Y. Depression as a risk factor for nursing home admission among older individuals. J Am Med Dir Assoc 2007; 8: 14-20.
11. Aguero-Torres H, Von Straus E, Vitanen M, Windblad B, Fratglioni L. Institutionalization in the elderly: the role of chronic diseases and dementia. Cross-sectional and longitudinal data from a population based study. J Clin Epidemiol 2001; 54: 795-801.
12. McCallum J, Simons LA, Simons J. Patterns and predictors of nursing home placement over 14 years: Dubbo study of elderly Australians. Australas J Ageing 2005; 24: 169-73.
13. Chahine LM, Bijlsma A, Hospers AP, Chemali Z. Dementia and depression among nursing home residents in Lebanon: a pilot study. Int J Geriatr Psychiatry 2007 Apr; 22 (4): 283-5.
14. Ministerial decision No.1/632, 30th May 2012, Lebanese Ministry of Social Affairs.
15. Ministerial decision No.1/561, 25th April 2013, Lebanese Ministry of Health.
16. Bou Harb R : Chroniques Sociales, Annales, Travail Social et Recherche, Vol VII, N° 21, 2004-2005, Beirut: Université Saint-Joseph, 2005.
17. Bowman C, Whistler J, Ellerby M. A national census of care home residents. Age Ageing 2004 Nov; 33 (6): 561-6.

─── **Appendix 1** ───

ELDERLY CENSUS FORM

1. Age:

2. Gender: Female   Male

3. Marital status: Married   Divorced   Widowed   Single

4. Care Type: Residential   Nursing   Rehabilitation

5. Basis of stay on admission: Temporary   Permanent

6. Date of admission: ____/_____/_____
         (dd) / (mm) / (yyyy)

7. Care category: Dementia   Other mental disorder   Motor deficit
Sensory deficit   Palliative care   Frailty (*)

8. Functional problems
  a. Mobility : Mobile   Mobile with assistance   Totally dependent
  b. Mental state: Normal   Demented   Challenging   Depressed

  c. Senses: No sensory impairment
       Sight impairment: Moderate   Severe
       Hearing impairment: Moderate   Severe

9. Admission reason
  a. Neurological/mental: Stroke   Parkinson   Multiple sclerosis
  Neurological trauma   Dementia   Depression   Behavioral
      Other (_____)
  b. Musculoskeletal: Arthritis   Hip fracture   Other fractures
  Falls   Other (_____)
  c. Cardiovascular: Cardiac insufficiency   Peripheral vascular disease
  Other (_____)
  d. Respiratory: COPD   Asthma   Other (_____)
  e. Sensory impairment: Sight impairment   Hearing impairment
  f. Other medical conditions: Frailty   Cancer   Diabetes
  Incontinence Other (_____)
  g. Miscellaneous nonmedical conditions: Housing   Family   Social
  Other (_____)

10. Healthcare payment: Private Insurance   Governmental   Self
Other (specify:_____)

Date: ____/_____/_____
   (dd) / (mm) / (yyyy)

(*) Frailty is defined by the presence of 3 out of 5 of the following criteria as judged by the attending physician: 1. intentional weight loss over the past year, 2. weakness, 3. slowness with reduced gait speed, 4. poor endurance as self-reported exhaustion, 5. low physical activity level

─── **Appendix 2** ───

SEMI-STRUCTURED INTERVIEW WITH INSTITUTIONS DIRECTORS

1. What are the pathways for admission of elderly in your institution? From home, from hospitals or any other institution?

2. Do you have any waiting list?

3. What are the problems you are facing? Staff recruitment, staff training, equipment, financial management…?

4. Are you able to assess the burden of care? How do you do it? Are you interested in suitable specific tools (AGGIR, PATHOS …)?