

XXXI CICLO - Anno Accademico 2017/2018

Dottorando: Dott. Francesco Gilardi

Tutor: Prof. Giuseppe Liotta

Titolo tesi: The frailty of older adults in the Lazio Region. Evaluation of the social and health impact through the use of current health information systems

ABSTRACT

Background. Frailty is a measurable and reversible, multidimensional risk condition for death and hospitalization for older adults. It forms the background of the functional decline of older adults as directly determined by physical, psychological and socioeconomic factors. Over the last decade a new conceptual definition on frailty has been developed in accordance with WHO's theory of health determinants. It defines the multidimensional nature of health and ageing based on several domains, not only of physical but also of psychological, social and economic nature.

Objective. The overall objective of this doctoral program was to deepen the knowledge on the multidimensional frailty of older adults and its conceptual framework. The specific objectives were to: (1) assess the prevalence of frailty of older adults in an Italian regional context; (2) deepen the knowledge also on the predictive value of the tools used in measuring the state of frailty of older population, especially in primary care; (3) evaluate the welfare burden of the region's frail older population; (4) evaluate the regional health expenditure related to the assistance of the older subjects with a special attention to the frail ones.

Methods. A cohort study design, that included over 64 community-dwelling older adults, was carried out. Over the course of 2014, we randomly enrolled a sample of 1.338 community-dwelling older adults resident in the Lazio region. All the data about mortality, hospitalization, and day hospital admissions, emergency visits and use of home care services in the period 2014-2017 were extracted from the regional database. The health outcomes monitored were: mortality rate; use of hospital services (UHS) determined by the sum of hospitalizations, day hospital admissions and emergency visits, as well as utilization of home care services. The costs of hospital and home care services have been defined according to the fees established by the most recent regional laws.

Results. Firstly, the study contributed to define the dimension of the state of frailty of the older adults resident in the Lazio Region, where more than one out of five older adults (21.6%) results to be frail (42.8% robust, 35.9% pre-frail, 13.7% frail, 7.6% very frail). Our study allowed to deepen the knowledge about the high predictive value, also in a short time of observation, of the multidimensional tools, especially the Geriatric Functional Evaluation (GFE) on the risk of health adverse outcomes (mortality and hospitalization). The most used tools in primary care have also been considered.

The impact of frailty on health services appears evident after having evaluated data on mortality, hospitalization and home care rates of the cohort in study. The mortality rate results to be clearly stratified on the basis of the state of frailty, allowing to record a clear difference between the categories of frailty after one year and, above all, after three years of observation. All the three categories, pre-frail, frail and very frail individuals, showed hospitalization rates higher than the robust individuals ($p < 0.004$). The average number of hospital services used by the interviewed who accessed hospital care at least one time during the first year of follow up was 2.09; the frail people showed the highest UHS mean rate (2.52 per person, $SD \pm 1.76$), higher than the very frail (2.21, $SD \pm 1.29$) that showed the same rate of the pre-frail. Hospital admission (HA) costs are the source of close to 80% of the total hospital services costs generated by the cohort, and 70% of these costs are due to the HA of robust and pre-frail ($p = 0.031$), which are probably partially preventable. Pre-frail individuals generated the highest percentage of both UHS (39.3%) and costs (47.7%) ($p < 0.001$).

The pre-frail individuals also showed the highest mean hospital admission cost per person (6,658.39 Euro). The principle determinants of the UHS are the limitation in performing IADL (functional status) (OR = 30.9; CI95%: 18.3-52.1) and social impairment (OR = 10.1; CI95%: 6.1-17.0). The cumulative incidence of home care service rate was 4.1%. The mean time in home care was 28.6 weeks (SD±29.86). The cost per person/year was € 2,084.92 euro (SD±3,812.05) on average. The very frail individuals generated 33.1% of home care weeks and 49.5% of the total costs.

Conclusion. The evaluation of multidimensional frailty is of crucial importance for planning services aimed at developing both the efficacy of care and appropriateness of resources allocation, demonstrating that frailty represents a key element on which to base a

new model of health and social ad-hoc services. The conceptual framework of multidimensional frailty confirms its validity demonstrating its high predictivity level. The

systematic screening of frailty in older adult population could be posed at the center of a new and innovative regional planning of health services, based on a preventive approach. Further studied should be carried out for the implementation of the model in a little territorial dimension of health service organization context (i.e. Health House, Health District).

Key words: Frailty, older adult, mortality, hospitalization, home care, health informative systems.