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CONFERENCE ABSTRACT

Comparing theoretical and real complex chronic populations: cross-sectional study

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Introduction: Population stratification systems are based, primarily, on burden of disease and pattern of use of resources. They do not include other variables that, according to available evidence, determine the complexity, especially environmental and social circumstances.

In Catalonia, a strategy for proactive identification of complex chronic patients (CCP) by healthcare professionals in primary care, based on clinical judgment and broad criteria, encompassing adverse psychosocial situations and potential benefit from integrated care strategies, has been promoted by the Chronicity Prevention and Care Program (CPCP) from the Department of Health.

The aim of this study is to compare the characteristics of the theoretical complex chronic population (TP) identified by a theoretical construct based on a population stratification system (Clinical Risk Groups, CRG) with the characteristics of the real complex chronic population (RP) identified by professionals according to clinical judgment and broad criteria promoted by CPCP.

Methods: Information about CRG, demographic variables, presence of chronic diseases, use of health services and expenditure on pharmaceutical prescriptions was collected from the population morbidity database of Catalonia in 2013 (7.753.482 inhabitants). Identification of CCP was retrieved from the Shared Clinical Record of Catalonia, a common technological platform accessible to all providers of public health network.

TP is that which fulfilled the theoretical construct developed by expert consensus based on population stratification variables (CRG 5 severity 6; CRG 6 severities 5-7; CRG 7 severities 2-6; CRG 8 severities 3-6; CRG 9 severities 2-6).

RP is that which was recorded by professionals as CCP in the Shared Clinical Record of Catalonia on 31st December 2013. Specific criteria for identification as CCP were not available.

For comparisons, odds ratio (OR) of association (and 99.9% confidence interval) were calculated using logistic regression models. Weighted coefficient of variation, percentage of explained variability and discrimination (area under the ROC curve) were also calculated.

Results: TP identified by theoretical construct are 320930 persons (4.14% of the population of Catalonia).

RP identified by professionals between 1st February and 31st December 2013 are 101415 persons (1.3% of the population of Catalonia).

56.6% of CCP (57401 persons) fulfils the theoretical construct. They are 17.9% of the total TP, increasing the possibility of being identified in this group (compared to non-identified TP) when increases the number of advanced chronic organic failure diseases (OR1=1,26 [1,21-1,31]; OR>2=2,27 [2,11-2,44]), visits to primary care (OR12-14 = 1,63 [1,53-1,75]; OR>24=4,31 [4,12-4,51]), urgent hospitalization (OR1-2 = 1,34 [1,29-1,39]; OR>2=2,17 [2,03-2,33]), age (OR45-64=1,78 [1,54-2,05]; OR>94=6,29 [5,25-7,52]) and pharmaceutical spending (OR500-749€=1,26 [1,19-1,33]; OR>1499€=1,85 [1,77-1,94]). This criteria is consistently observed in 30 studied areas (weighted coefficient of variation ≤2 for all variables, except for immigration). The model has acceptable discrimination (area under the ROC curve = 0.77) and explains 22% of variability.

43.3% of CCP (44014 persons) does not fulfil the theoretical construct, increasing the possibility of being identified in this group (compared with those that fulfil it) when decreases the number of advanced chronic organic failure diseases (OR1 =0,28 [0,26-0,30]; OR3 = 0,01 [0,007-0,02]), visits to primary care (OR12-14=0,84 [0,75-0,92]; OR>24=0,53 [0,49-0,56]), urgent hospitalization (OR1-2=0,33 [0,31-0,35]; OR>2=0,14 [0,11-0,17]) and pharmaceutical spending (OR500-749€=0,61 [0,56-0,66]; OR>1499€=0,43 [0,40-0,47]), and increases age (OR65-74=1,51 [1,22-1,89]; OR>94=3,47 [2,68-4,49]). This criteria is consistently observed in 30 studied areas (weighted coefficient of variation ≤2 for all variables, except for immigration). The model has optimal discrimination (area under the ROC curve = 0.84) and explains 42.9% of variability.

Discussion: Theoretical construct appropriateness would be supported by percentage of people identified, near to 5% (reference in developed countries) and by percentage (majority) of CCP identified which fulfils it. Short study period, first 11 months of identification, might explain low percentage of TP identified, being considerable they present a higher severity profile, consistently observed in all studied areas.

High percentage of CCP which does not fulfil proposed theoretical construct presents an associated profile that would evidence the existence of a complexity not depending on the burden of disease and the pattern of use of resources, equally consistently observed in all studied areas.

Conclusion: Identifying CCP from a combination of population stratification and clinical judgment is, to the best of our knowledge, a pioneering experience worldwide.

Consistent criteria for identification is remarkable because it shows the existence of a common clinical judgement among primary care professionals when identifying CCP.

Results suggest the convenience to consider additional indicators of complexity, as psychosocial variables, for a more accurate stratification and identification of this population and justify the multidisciplinary, comprehensive and integrated health and social care approach for CCP, as proposed by CPCP.

Additional studies are needed to overcome study limitations, to establish the prevalence of RP and to identify additional indicators, as psychosocial variables, that may determine complexity.

Keywords: integrated health and social care; complex chronic patients; complex care needs; population stratification systems; chronicity