Brussels. Retrieved from http://ec.europa.eu/transparency/regdoc/rep/2/2008/EN/2-2008-85-EN-1-0.Pdf Crawford J. & French W. (2008), “A low-carbon future: Spatial planning’s role in enhancing technological innovation in the built environment”, Energy Policy, vol. 36, pp. 4575-4579. Di Sopra L. (1998), Il Modello Friuli – Gestione dell’emergenza e ricostruzione dopo il sisma del 1976, Amministrazione

provinciale di Udine, Udine. Di Sopra L. (2016), “Modello Friuli”. La risposta al terremoto del 1976, Edizioni Biblioteca dell’Immagine, Pordenone ECF (2010), Roadmap 2050 -A practical Guide To A Prosperous Low-Carbon Europe, Technical & Economic Analysis.

The Hague. Retrieved from http://www.roadmap2050.eu/attachments/files/Volume1_fullreport_PressPack.pdf Fabbro S. (2007), Il Progetto della Regione Europea, FrancoAngeli, Milano.

Fabbro S. & Maresca M. (eds., 2014), FVG-Europa: Ultima Chiamata, un “porto regione” tra Mediterraneo e Centro Europa, Forum Editrice, Udine.

Fabbro S., Brunello L. & Dean M. (2015), “Re-framing Large Transport Infrastructure Plans: a Study on European Corridors with a focus on North-Eastern Italy”, International Planning Studies, vol. 20 n. 4, pp. 323-349.

Mason P. (2015), PostCapitalism. A guide to our future, Penguin, London.

Mattioni F. (2015), Caro Modello Friuli, L’Orto della Cultura, Udine.

Moroni S. (2015), Libertà e innovazione nella città sostenibile, Carocci editore, Roma.

Musco F. (2012), Città e territori nel cambiamento climatico: Piani, strumenti e processi di governance, FrancoAngeli, Milano.

OECD (2001), OECD Territorial Outlook, Paris.

Paviotti E. (2016), “Capitale territoriale e rigenerazione urbana. Il caso della regione Friuli Venezia Giulia”, Tesi di Laurea magistrale in Ingegneria Civile, Università degli Studi di Udine.

Raffestin C. (1984), “Territoriality. A reflection of the discrepancies between the organization of space and individual liberty”, International Political Science Review, vol. 5, n. 2, pp. 139-146.

Raffestin C. (1986), “Punti di riferimento per una teoria della territorialità umana”, in Copeta C. (1986), Esistere e abitare. Prospettive umanistiche nella geografia francofona, pp. 75-89, FrancoAngeli, Milano.

UNFCCC. (2015). Adoption of the Paris Agreement. Paris. Retrieved from http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

Verones S. & Zanon B. (eds., 2012), Energia e Pianificazione Urbanistica. Verso una integrazione delle politiche urbane. FrancoAngeli, Milano.

Wilson, E. & Piper, J. (2010). Spatial Planning and Climate Change, Routledge, Abingdon and New York.

ID 1462 | THE MENTAL HEALTH ATLAS AS TOOLS FOR AN COMPREHENSIVE SPATIAL BASED MANAGEMENT OF MENTAL HEALTH CARE

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ABSTRACT: Different funding schemes of mental health care coexist in Spain due to the transfer of power made to regional governments. Comparing the efficiency of those regional systems implies assessing several aspects. Among them, one of the most important is the structure and composition of the mental health network across the each region. This work attempt to present the mental health atlases (MHA) as a

tool developed to describe the current state of the regional mental health network but also to support the planning of health policies. MHA offer a comprehensive approach to the mental health care since it encompasses services provided by the health care system but also services provided by other agents of the regional government. To do this, the DESDE-LTC classification as well as a geographical information system are employed. The DESDE-LTC classification allows making an inventory of the different service unit embodied within the mental health network, describing the function of each unit in a standardized way, regardless the denomination of the unit or its affiliation to a body of the regional government. To illustrate the MHA, this work present the MHA of Bizkaia and Guipuzkoa, whose mental health networks are composed by more than 150 and 130 standardized services, respectively. The MHA of Bizkaia shows that there is a high concentration of services in an area called “Ría de Bilbao”. Meanwhile the MHA of Guipuzkoa exhibits a mental health network more geographically dispersed. Despite these differences, both examples yield a good performance in terms of quality of care, except in the case of long-term stay in hospitals. This work contributes to the planning of public services by delivering a tool, which can be applied to other countries or adapted to be used to analyze the current state of public services networks across the space.

1 INTRODUCTION

According to a WHO study, one third of the adult population suffers from a mental disorder each year. The European Study of the Epidemiology of Mental Disorders (ESEMeD) project stated that around 13% of the population reported a lifetime history of major depressive disorder in a large sample from six European countries (Alonso et al., 2004). In Spain, the ESEMeD group calculated the major depression lifetime prevalence to be 10.6%, which is a low value in comparison with other Western countries (Gabilondo et al., 2010). Across Europe, there is a growing awareness of the need for specific strategies, interventions and dedicated services for people with mental disorder but there is inconsistent implementation of evidence based practices.

Due to different political, cultural and socioeconomic contexts, the development and implementation of mental health services across countries has not been a well-coordinated, or uniform process. In order to assess mental health service provision internationally and understand different service contexts when implementing models of care, standardized service mapping tools are required. The Description and Evaluation of Services and Directories for Long Term Care (DESDE-LTC) project developed a classification tool for the coding of longer-term mental health care services. The DESDE-LTC (Salvador-Carulla, et al., 2011) describes service provision at the local level and later aggregates the information to the regional and national level, using a standard unit of analysis of health services based on functional teams.

This standardized information is introduced within the REMAST tool (Salvador-Carulla et al., 2015) which allows to collect and map detailed information, within a study area, of the structure of health and social care services, that provide care for, or are used by, people with mental disorders in terms of service distribution and utilization. To do this, different instruments and visualization techniques are employed, resulting in mental health atlases (MHA). The MHA brings together practice, policy and research to inform Mental Health policy and priority settings across Europe. To illustrate this, we carry out an ecological study aimed at describing and comparing mental health services at a meso level (small health areas) in two northern Spanish regions, Gipuzkoa and Bizkaia, which perform well although they exhibit differences in their mental health network services.

The remainder of the paper is organized as follows. The next section describe the area of study and briefly introduce the methods employed. The third section goes further into the MHA compilation, showing the main results for each type of analysis carried out. In this section, each analysis is illustrated with a sample of those results obtained from Bizkaia and Guipuzkoa provinces. Finally, concluding remarks are offered.

2 SCOPE OF STUDY AND METHODS

Guipuzkoa and Bizkaia are two of the province of Autonomous Community of The Basque Country, a region of northern Spain. Almost half of the 2,155,546 inhabitants of the Basque Autonomous Community

live in Bilbao's metropolitan area, which is sited within the province of Bizkaia. Of the ten most populous cities, six form part of this area.

In Basque Country, the level of sanitary zoning is the Health Area whose first delimitation took place in 1990. There are three Health Areas, which are the same that the so-called Historical Territories: Bizkaia, Gipuzkoa and Araba (the third province). These zones are subdivided into mental health catchment areas and, in turn, the catchment areas are structured by many basic health areas. Currently, there are a total of 20 catchment areas in Bizkaia and 12 in Gipuzkoa.

To carry out this research, data are drawn from two databases: i) the Minimum Data Set for Outpatient Mental Health Centers (CMBD-SMA), provided by the Gipuzkoa and Bizkaia Mental Health Services and Basque Government Department, safeguarding the privacy of patients to prevent geographical identification of individual cases; ii) the data sheets of mental health services obtained with DESDE-LTC instrument. All the data refer to years 2013 and 2014.

Based on this data, an ecological, comparative, descriptive and transversal study of Mental Health in Bizkaia and Gipuzkoa is carried out. It focuses on the evaluation of "services" and "basic types of care" at the meso level (catchment areas) following the model proposed in the Matrix of Thornicroft and Tansella (1999) for the evaluation of services. In addition, a GIS system is used for or mapping sociodemographic, provision and service use indicators. Results are shown by the MHA, covering different issues of the major importance for planning, such as: Health Metal Zoning, Socio-demographic analysis of mental health areas, Catalog of mental health services, Use of services, Accessibility to services and Comparison with other territories. The next section give further details of each step within the process and, at the same time, show the main results of each section.

3 RESULTS

Getting a full depict of a mental health network services that can be useful for planning purpose, implies a high level of research effort and training. This section goes further in the several steps followed within this process and illustrate them by showing a sample of results obtained from the study of Bizkaia and Guipuzkoa mental health network.

The first step is mapping those social and demographic indicators that are relevant to mental health care (Table 1). Information from population data, socioeconomics indicators and service inventory can be combined to provide a detailed description of the study area and to make comparison within each study area.

VARIABLE	STUDY AREA	
	Guipuzkoa	Bizkaia
Population density	7,856.05	21,144.08
Dependency rate	53.20	56.05
Aging index	177.37	214.13
Immigration index	92.96	94.07
People living alone	9.88	9.54
Elderly living alone	22.04	20.55
Unemployment rate	10.83	14.72

Table 1- Relevant information to Mental Health Care

Only maps for population density of Guipuzkoa and Bizkaia are depicted (Figures 1 and 2), but maps for each variable are available upon request to the authors.

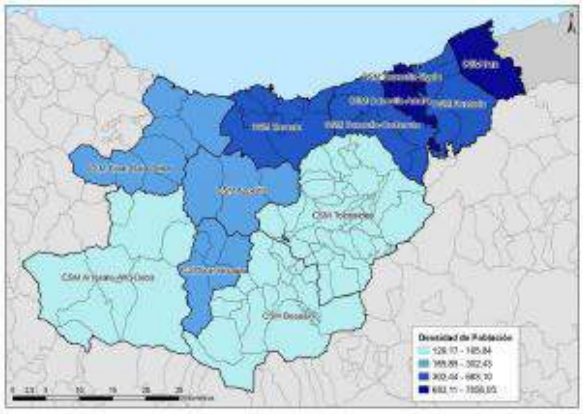

Figure 1 – Population density of Guipuzkoa province. Source: Authors' elaboration.

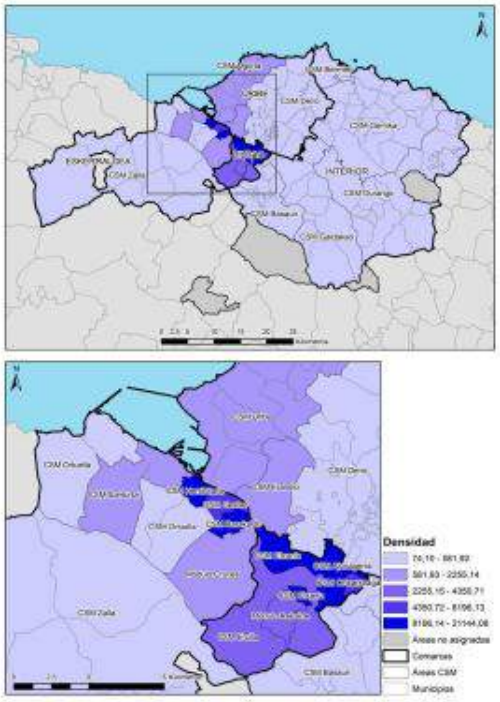

Figure 2 – Population density of Bizkaia province. Source: Authors' elaboration.

Once the study area is characterized, the second step is the classification and mapping of service provision (see Table 2). Classification is made by using the 'Description and Evaluation of Services and Directories for Long Term Care' (DESDE-LTC) instrument, which allows the standardized description of services for long-term Care based on the identification and coding of care teams within services. It follows the approach to service and care team evaluation developed by the EPCAT Group (European Psychiatric Care Assessment Team) and PSICOST Scientific Association since 1997, starting with the development of ESMS (European Care team Mapping Schedule) for the evaluation of services in mental health (Johnson et al, 2000), and related adaptations to the evaluation of services for older people in Spain (DESDAE) and services for disabilities (DESDE) and social care. This instrument is intended to compile information on input and process of care at the meso-level (e.g. health/social catchment areas) and micro-level (e.g. individual services) as defined at a modified version of the Care Matrix developed for the assessment of mental health care (Tansella & Thornicroft, 1999). In sum, DESDE-LTC allows to perform the following tasks in an standardized way: 1) Compiling a standard directory of long term care services in catchment areas, including the provision of social and health care services by the public, private and/or voluntary sectors; 2) Identifying the number of services/care teams in a catchment area for health system analysis and mapping; 3) Identifying the services availability, diversity, placement capacity and workforce capacity of the care teams operating in a catchment area; 4) Measuring and comparing the levels of provision/ availability and utilization of services/care teams between different catchment areas using an international

coding system; 5) Comparing the structure and organization of services/care teams in different catchment areas; and finally, 6)Recording changes through time in services/care teams available within a catchment area.

	Sanitarios	Mixtos	Sociales	Drogas	Judiciales	Educativos	TOTAL
Atención a la información							
I1.1 Dispositivo de atención de asesoramiento e información relacionada con la salud	1*						1*
I1.4 Dispositivo donde se ofrece guía y asesoramiento relacionados con el trabajo			1				1
Atención ambulatoria							
O2.1 Dispositivo de atención ambulatoria móvil de urgencia durante horarios definidos de tiempo	5						5
O3.1 Dispositivo de atención ambulatoria de urgencia no móvil con apoyo 24 horas	2/3						2/3
O8.1 Dispositivo de atención ambulatoria continuada (no crisis), no móvil con frecuencia de atención de más de una vez a la semana si se requiere	21/30+3*	1		2			21/*24+3
O9.1 Dispositivo de atención ambulatoria continuada (no crisis), no móvil con frecuencia de atención quincenal	3*			1*	1		1+4*
Atención de día							
D1.1 Dispositivo de atención de día aguda no episódica de alta intensidad (admite en 72 horas)	2/3						2/3
D1.2 Dispositivo de atención de día aguda no episódica que no es de alta intensidad (admite en 4 sem)	2				1		1/2
D2.2 Dispositivo de atención de día donde el usuario realiza un trabajo ordinario remunerado			5/1				5/1
D3.2 Dispositivo de atención de día relacionada con el trabajo de alta intensidad y estancia indefinida			14/5				14/5
D4.1 Dispositivo de atención de día estructurada de alta intensidad relacionada con la salud	4/14	6/1	3	5*			13+5*/15
D4.2 Dispositivo de atención de día estructurada de alta intensidad relacionada con la educación	1					16	16/1

Table 2- Classification of service in Guipuzkoa by DESDE-LTC Source: Authors' elaboration.

As a result, a wide range of service are classified in an standarised way and therefore comparisson are possible. As can be seen from Table 2 the service classified are those related with information and assessemet of health and non-health related needs, denoted with letter "I". Outpatient care facilities, which are denotd with letter "O" are also mapped. These facilities involve contact between staff and users for some purpose related to management of their condition and its associated clinical and social difficulties. Two major characteristics define these type of services: Acuity and Mobility. Acute care is provide by emergency facilities, which makes assessment and initial treatment in response to a crisis, deterioration in physical or mental state, behaviour or social functioning which is related to the condition; and (ii) can usually provide a same day response during working hours or at least within 72 hours after the care demand. Non acute care provide users with continuing care including regular contact with a health professional, which may be long term if required. Continuing care care teams may also provide acute/emergency care on a regular basis. Regarding to mobility, we distinguish between high an low mobility. In the former or home & mobile facilities contact with users occurs in a range of settings including users' homes, as judged most appropriate by professionals and users. For a care team to be classified as high mobility (home & mobile), at least 50% of contacts should take place away from the premises at which the care team is based; otherwise the service will be classified as a low mobility facility. Finally day care facilities, denoted by "D", are also considered. These facilities are normally available to several users at a time (rather than delivering care teams to individuals one at a time); (ii) provide some combination of treatment for problems related to long-term care needs: e.g. providing a structured activity, or social contact and/or support; (iii) have regular opening hours during which they are normally available: and (iv) expect care team users to stay at the facilities beyond the periods during which they have face-to-face contact with staff (i.e. the care team is not simply based on individuals coming for appointments with staff and then leaving immediately after their appointments). The care delivery is usually planned in advance. Day car facilities are also classified into acute and non-acute care. The former deals with health related needs, whereas the latter deals with non-health related needs. Although it is not included in Table 2, information about residencial care facilities, where hospital are condiered, are also collected.

Once each single facility has been classified using the DESDE-LTC code, they are geocoded and located in the territory, resulting in a map as shown in Figure 3 and 4. In this way, a picture of the complete mental health network across the territory is obtained, but showing the type of care provided by each facility.

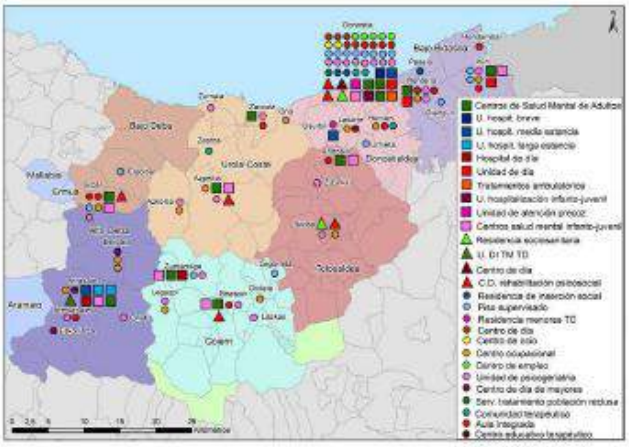

Figure 3 – Services in Guipuzkoa. Source: Authors' elaboration.

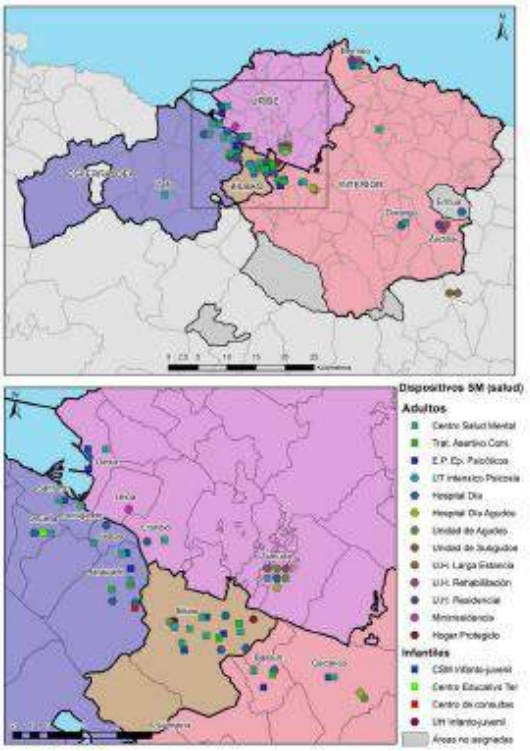

Figure 4 – Services in Bizkaia. Source: Authors' elaboration.

Then, several characteristic of the facilities are analyzed, such as availability of main types of care, placement capacity (beds and places) and workforce capacity per inhabitant. These characteristics determine the patterns of care and make possible comparison within different health system across Europe. In addition, these patterns can help to explain the differences in the financing systems of each region or country. For example, the overall capacity of a system and its balance between hospital and community care can influence the way the same incentive operates in two different countries. In this step, spider graphs are employed to depict and compare the mentioned characteristics, as can be seen in Figures 5, 6, 7 and 9.

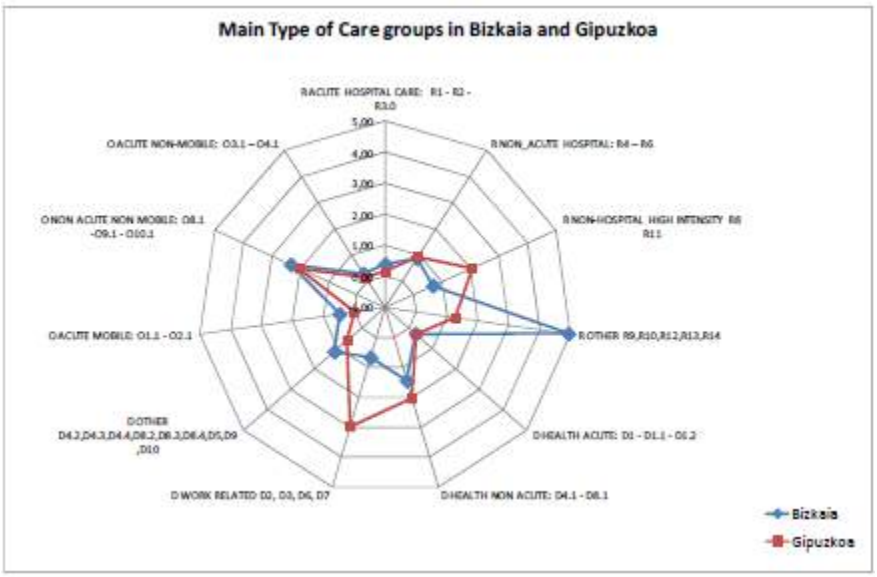

Figure 5 – Comparison of main type of care group in Bizkaia and Guipuzkoa. Source: Authors' elaboration.

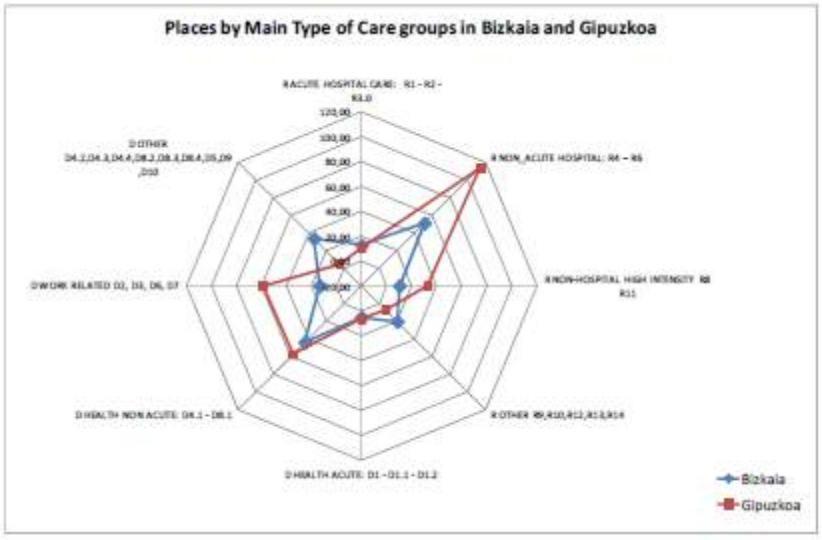

Figure 6 – Comparison of placement capacity in Bizkaia and Guipuzkoa. Source: Authors' elaboration.

In Figure 4, main type of care service per 100,000 inhabitants is shown. In this case, it can be observed that outpatient residential care are the most important type of care in the Bizkaia's mental health network outpatient; whereas day care facilities to cover work related needs are the most frequent type of service.

Figure 5 shows the number of beds/places in the corresponding main type of care. In this case, Bizkaia offers a greater number of places in other day care facilities; meanwhile Guipuzkoa offers more beds in non-acute hospitals and in works related facilities. A zoom can be also done over the previous information in order to obtain a more detailed view. For example, in Figure 7 residential care for medium and long-term stays are depicted, concretely the R11 code which refers to non-hospital facilities for adult population. It can be observed that Guipuzkoa exhibits a higher number of beds in this type of facility than then average of other eight Spanish Autonomous Communities with available data. On the other hand, Figure 8 shows that Bizkaia also promotes this type of care but in hospital facilities (codes R4 to R6), more than in other Spanish regions.

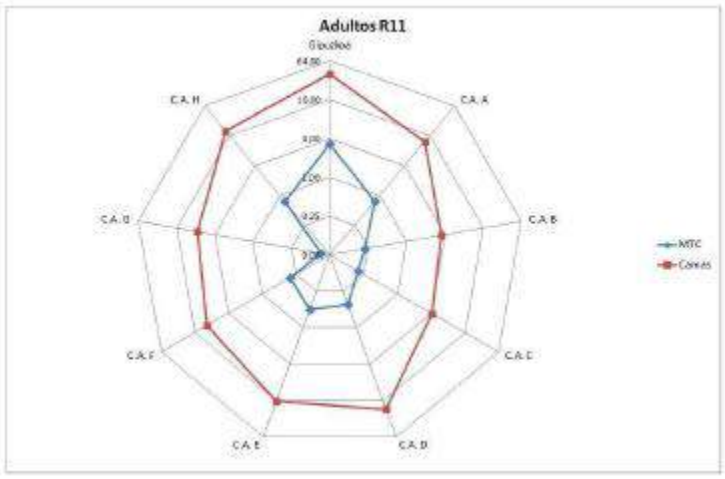

Figure 7 – Residential care for medium and long-term stays at non-hospital facilities in Guipuzkoa.
Source: Authors' elaboration.

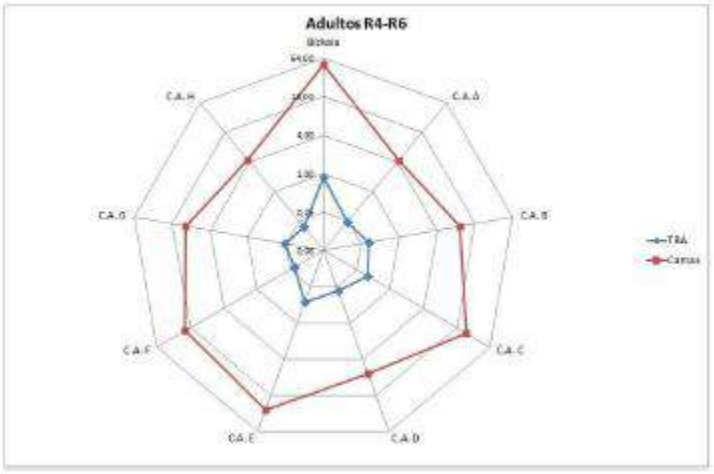

Figure 8 – Residential care for medium and long-term stays at hospital facilities in Bizkaia.
Source: Authors' elaboration.

The previous steps allow characterizing the mental health network services in each study area in a detailed way. The following steps collect and offers information about the use and the accessibility of these services providing a useful information for decision making. Thus, a bunch of relevant information about utilization of mental health services is drawn from the health dataset available, such as admissions and discharges in residential care, contacts in outpatient care, length of stay and so on. Several indicators are hen calculated (see Table 3) for each of the main type of care group.

	PREVALENCE*		INCIDENCE*		FREQUENCY*			
	Gipuzkoa	Bizkaia	Gipuzkoa	Bizkaia	Gipuzkoa		Bizkaia	
Adult Mental Health Center	31,081	35,21	6,70	7,23	254,30		225,51	
Child Mental Health Center	21,282	28,68	9,1225	10,76	154,86		236,16	
Drug Treatment centers	-	8,18	-	0,98	-		102,86	
	DISCHARGE RATE		READMISSION R.		AVERAGE S.TAY O & B		N. PATIENTS O & B	
Acute units in Hospital	1,627	3,25	0,809	1,42	22,3	14,3	1,29	2,29
Subacute units in Hospital	-	0,48	-	1,17	-	51,6	0,51	0,41
LTC units in Hospital	-	0,05	-	1,00	-	253	0,79	0,25

Table 3- Classification of service in Guipuzkoa by DESDE-LTC
Source: Authors' elaboration.

All these indicators are then mapped, in such a way, decision makers can visually detect the main differences across the territory for each main type of care facility. As shown in Figure 9, this information can be offered also referred to specific age groups, mainly child and juvenile group and adult group. In addition, it can be shown in a more aggregated way, according to the needs of the planner or decision maker (Figure 10).

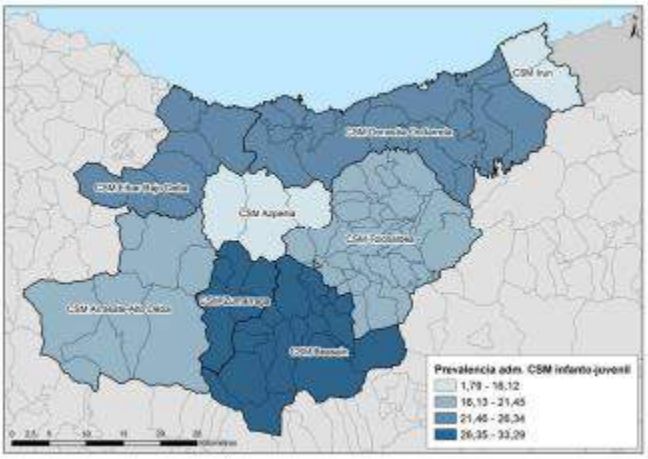

Figure 9 – Administrative prevalence of mental health disorder in child and juvenile population in Guipuzkoa.
Source: Authors' elaboration.

Figure 10 – Administrative frequency of mental health disorder in Bizkaia. Source: Authors' elaboration.

Finally, the last step is analysed geographical accessibility. In this step, the spatial unit is the catchment area of Mental Health Centre. Overlapping these areas with the corresponding drive time isochrones maps is possible to show the level of accessibility across the territory (Figure 11). In the case of Bizkaia, the map show that those areas with a high level of accessibility are mainly located in Bilbao0's metropolitan area and, to a lower extent, in isolated places of the remaining territory of Bizkaia province. In addition, places located in the frontiers with other provinces exhibit a low accessibility to mental health centres. If we put together this piece of information and the previous one, related to frequency, we can observe that the low accessibility of the western are of the province of Bizkaia could explain the low levels of frequency shown in Figure 10.

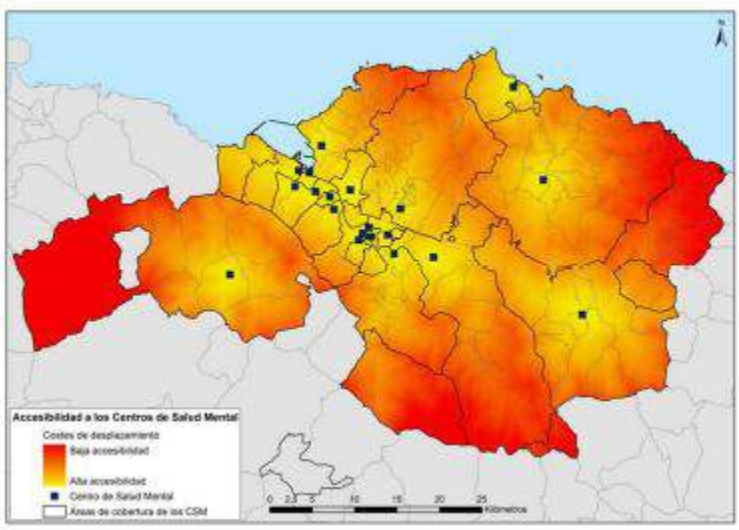

Figure 11 – Accessibility to Mental Health Centres in Bizkaia. Source: Authors' elaboration.

The whole MHAs for both provinces allows us to conclude that there is a high concentration of services in an area called "Ría de Bilbao" in the province of Bizkaia with can explain the utilization rate. Meanwhile the MHA of Guipuzkoa exhibits a mental health network more geographically dispersed. Despite these differences, both examples yield a good performance in terms of quality of care, except in the case of long-term stay in hospitals.

4 CONCLUDING REMARKS

The MHA toolkit allows for the collection of exhaustive and standardized information on the typology and functioning of services based on the territory useful for the planning of mental care based on informed-evidence. Compiling the MHA requires a huge research effort and also a high level of training, concretely to disentangle the different mental health facilities and to classify them by using DESDE-LTC coding, which allows to make comparison between different mental health networks, which includes mental care services offered by different providers and not only by the health system. At this point, it should be noted that there is a huge disparity in the availability of service and geographical information across different regions, making this task quite difficult.

The tool also provides information on the location of the services and highlights the existence of shortage areas for a better provision and equitable access to mental health care. The visual maps illustrate problem areas in the provision of services, becoming an easy-to-understand information for planners and decision makers.

Unfortunately, the results obtained from a sample of mental health networks across national territory cannot be extrapolated to the whole nation. In this senses, full regional and national service mapping should be carried out to obtain a complete depict of state of the mental health system in such territories and to effectively planning of this system. Despite this limitation, the compilation of MHA improve the information to users and society on the available resources of mental health care, allowing a more ethical, transparent and democratic participations in health issues. Furthermore, MHA provides a methodology that

can be extrapolated for analysing the current state of public services networks across the space and planning their evolution according to population needs.

BIBLIOGRAPHIC REFERENCES

Alonso, J., Angermeyer, M. C., Bernert, S., Bruffaerts, R., Brugha, T. S., Bryson, H., …& Haro, J. M. (2004). Prevalence of mental disorders in Europe: results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. Acta Psychiatrica Scandinavica, 109, 21–27. https://doi.org/10.1111/j.1600-0047.2004.00327.x

Gabilondo, A., Rojas-Farreras, S., Vilagut, G., Haro, J. M., Fernández, A., Pinto-Meza, A., & Alonso, J. (2010). Epidemiology of major depressive episode in a southern European country: results from the ESEMeD-Spain project. Journal of Affective Disorders, 120(1–3), 76–85. https://doi.org/doi: 10.1016/j.jad.2009.04.016

Johnson, S., & Kuhlmann, R. (2000). The European Service Mapping Schedule (ESMS): development of an instrumentfor the description and classificationof mental health services. Acta Psychiatrica Scandinavica, 102(s405), 14-23.

Salvador-Carulla, L., Romero, C., Weber, G., Dimitrov, H., Sprah, L., Venner, B., & McDaid, D. (2011). Classification, assessment and comparison of European LTC services. Ageing and Long-Term Care, 17(2– 3), 27.

Salvador-Carulla, L., Amaddeo, F., Gutiérrez-Colosía, M., Salazzari, D., Gonzalez-Caballero, J. L., Montagni, I., ... & Hagmair, G. (2015). Developing a tool for mapping adult mental health care provision in Europe: the REMAST research protocol and its contribution to better integrated care. International Journal of Integrated Care, 15(4). https://doi.org/10.5334/ijic.2417

Thornicroft, G., & Tansella, M. (1999). The mental health matrix: a manual to improve services. Cambridge University Press.

ID 1502 | SPATIAL PATTERN ANALYSIS OF MIXED-USE AND VERTICALIZED URBAN MANUFACTURING INDUSTRY IN THE SEOUL METROPOLITAN AREA OF SOUTH KOREA

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1 INTRODUCTION

Despite long-term job losses, manufacturing remains a critical part of the economic base of most metropolitan areas in South Korea. Most of the existing literature on urban manufacturing is focused on the locations of manufacturing and its economic impacts. Very little empirical research has been conducted on the spatial patterns of urban manufacturing industries which are characterized by mixed-use and verticalization. Using the Establishment Census Spatial database (DB) in 2013 of the Korea National Statistical Office, this research attempts to examine mixed-use patterns of urban manufacturing industry in the Seoul metropolitan area of South Korea. It calculates the urban industrial space mixed-use index, which is a modified entropy index, for each building unit based on individual establishments. Further, it attempts to examine the verticalization patterns of the urban manufacturing industry by calculating the average number of floors of establishments with respect to manufacturing subsectors.