

UNIVERSIDAD DE MÁLAGA

UNIVERSITY OF MALAGA

DEPARTAMENTO DE  
SALUD PÚBLICA Y PSIQUIATRÍA

DEPARTMENT OF  
PUBLIC HEALTH AND PSYCHIATRY



UNIVERSIDAD  
DE MÁLAGA

TESIS DOCTORAL

DOCTORAL THESIS

PRIMEROS EPISODIOS PSICÓTICOS EN EL AREA NORTE DE  
ALMERIA (PSYCHORISK STUDY)

FIRST EPISODE PSYCHOSIS IN NORTH OF ALMERIA  
(PSYCHORISK STUDY)

DOCTORANDA /PHD CANDIDATE THESIS:  
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**2015**



Publicaciones y  
Divulgación Científica

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EDITA: Publicaciones y Divulgación Científica. Universidad de Málaga



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## ACKNOWLEDGEMENTS

To my Directors, Professor Jose Miguel Pena Andreu and Dr. Andrés Fontalba Navas, for giving me the opportunity to undertake this project.

I am grateful to Pablo Garrido, the statistician, for this research. Although we were working through the internet, the success of this thesis partly depends on his “hard work”.

Thank you to the Cambridge group who believed in me when I did not believe in myself.

Thank you to Head of Clinical Management of THE NORTH OF ALMERIA Hospital (Eva Jiménez and her team) who empathized with me and encouraged in every step of my way.

My English teacher, Wendy, for putting up with me talking about psychosis for over six months.

Thanks to my friends, Ana, Jessica, Pepe, Belén, Maria José, Loli and Paco Delgado for supporting me during this time of learning and the staff of my “work place”.

I would not have done it without my “personal trainer”, the effort was worth it, almost as good as running the half marathon.

My family, my parents, for letting me grow by giving me freedom, and brothers who are more than special to me, and my sisters-in-law, who are always helpful and supportive.

My husband’s family in Vera, for loving me so much, appreciating me and giving me my own space.

Finally, I ask forgiveness from my children and Bernardo for the time stolen. Thank you for your understanding and patience for the time I spent researching on the computer or reading articles instead of sharing our time together. Thank you and I love you.

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## SUMMARY

TITLE: FIRST EPISODE PSYCHOSIS IN THE NORTH OF ALMERIA (PSYCHORISK STUDY)

ABSTRACT:

Objective:

Recent studies suggest that First Episode Psychosis may be related to gender, unemployment and living area (neighbourhood). This retrospective study evaluates the association between risk factors (migrants, suicide rates, rural- urban setting and unemployment) and psychosis from 2008 – 2013.

Methods:

From 2008 to 2013, 111 First Episodes of Psychosis, in people aged between 15-64 years, were diagnosed by the Mental Health Unit in THE NORTH OF ALMERIA, Spain. Socio-demographic, psychiatric morbidity using the OPCRIT Diagnosis Checklist, the primary care area of reference, suicide rate and unemployment rate were analysed.

Results:

The incidence rate of psychosis in THE NORTH OF ALMERIA was 20 cases per 100,000 individuals per year (age range 8-22). It has been established that 68.8% of the incidence rates of psychosis could be explained by four variables: unemployment, gender, neighbourhood and suicide. For each percentage point increase in the unemployment rate, the number of first episodes of psychosis decreases by nearly one point. People in THE NORTH OF ALMERIA who are unemployed could have longer DUP, and subsequently later detection and diagnosis. This study found that a positive linear relationship occurred between suicides and both of the other main variables such as unemployment and early psychotic episodes.

Conclusions:

The expected incidence of psychosis in THE NORTH OF ALMERIA was lower than what was actually found, due to this being a rural area. Increased incidences of psychosis in 2011 exist in most units and in 2012 in two of them. In THE NORTH OF ALMERIA the ratio of unemployment is higher than other parts of Andalusia and Spain. These high rates of unemployment before the onset of psychosis may dissemble prodromal symptoms.

Keywords: Incidence, psychosis, rural, unemployment, suicide.

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## SUMMARY: FIRST EPISODE PSYCHOSIS IN THE NORTH OF ALMERIA.

### 1. Introduction:

The interest in early intervention offers an opportunity to make major changes in psychiatric practice, but requires more research to address questions. [1]Psychosis is associated with several different mental and physical disorders. Some of the more common diagnoses associated with psychosis include: schizophrenia, schizophreniform disorder, brief reactive psychotic disorder, affective psychosis and schizoaffective. Psychosis and the specific diagnosis of schizophrenia represent a major psychiatric disorder (or cluster of disorders) in which a person's perception, thoughts, mood and behaviour are significantly altered. [2] Once an acute episode is over, there are often other problems such as social exclusion, with reduced opportunities to get back into work or study, and problems forming new relationships.

A specific approach to the most serious mental disorders in their initial phase will improve their clinical course and, hence, their prognosis. This suggestion is further strengthened by the fact that very long periods typically pass between the onset of psychotic disorders and their recognition and therapeutic intervention, known as Duration of Untreated Psychosis (DUP).[3] A reduction of this period would lead to the possibility of secondary prevention. In this respect, research confirms that a delay in the treatment of first psychotic episodes is associated with poor outcomes in terms of functionality and symptoms.[4]

Early intervention in psychosis is justified as it is associated with better outcomes at a functional and social level [5] and aims to achieve as much progress as possible in arresting the disorder, thus going beyond the diagnostic label.

Since all of these programmes are highly cost-effective [6], healthcare decisions should take into account the cost of the disease and its treatment, especially in mental health, as well as distribution of resources on local scales. [7]

It has been suggested that incidence may be affected by several variables, including **area of residence or neighbourhood, social isolation** [4], [8], **urban versus rural populations** [9]and **migration** [10].

In a recent meta- analysis the authors found no evidence to support an overall change in the incidence of psychotic disorder over time. The ESOP study shows that, while the incidence rate of psychotic disorders was 34.8 per 100,000 inhabitants/year, the rate in South London was more than double that found in Nottingham or Bristol (54.5, 25.1 and 22.1, respectively).

The systematic review conducted by McGrath *et al* (2008) shows that the distribution of the incidence rate varies between urban and mixed (urban-rural) areas, with a difference of 19 versus 13.3, respectively. In fact, rates could vary from 32/ 100,000 to 74 / 100,000 persons-years, for people 16 -35 years old. This latter rate was estimated from an early intervention in psychosis service, which is 3 times greater than the figure upon which such services were commissioned. [11]

There are fewer incidence and prevalence studies in Spain, however. An incidence of 8 per 100,000 inhabitants/year for the general population is found in Cantabria, and the incidence rate rose to 19, 22 and 24 per 100,000 inhabitants per year in Barcelona, when the age range was widened from 14-30 years to 12-56 years. [12][13] [14]



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The incidence of schizophrenia increases directly with urban living, as measured in terms of population size and density. In France, the annual incidence of psychosis was found to be greater in urban areas (36.02 per 100,000 people per year) than in rural areas (17.2 per 100,000) in the 18-64 year-old age range.[15]

The distribution of psychotic disorders by gender has been found to exhibit a 1.8: 1 male-female ratio [9]. Similar figures were found in a study by Owoeye *et al*, [16] with a 1.39:1 male-female ratio, and 1.4: 1 for schizophrenia [17], which found a higher incidence rate estimate in men than in women, 1.57: 1.[18]

The distribution of the incidence of psychotic disorders in the immigrant population has been found to have a ratio of 4.6:1 relative to the native population. This cannot be explained by selection theory (“people with difficulties emigrate”), [19], or misdiagnosis (clinicians’ failings owing to insufficient attention to social, cultural and contextual factors). [20]

The first study to look at the incidence of psychosis in southern Europe confirmed the difference between migrants and natives. In fact, in Italy, first-generation migrants (mainly from Asia, Africa and Eastern Europe) were found to exhibit a higher risk than native Italians (RR: 2.5).

Unemployment is more common in people with psychosis. They add that it is difficult to identify which comes first however: being unemployed or suffering from the mental disorder. [21] Unemployment is associated with indicators of illness such as depression levels, psychiatric admissions and suicide. In this aspect, there is a clear difference between men and women. For women, the significant effect of mental health on subsequent unemployment reflected an increased risk of experiencing unemployment and not the subsequent duration of that. In contrast, for men the significant overall effect of poor mental health on subsequent unemployment was largely driven by greater duration of unemployment for those who experienced unemployment rather than an increased predisposition to experience unemployment.

On the other hand, it showed an association between the magnitudes of rise in unemployment and increases in suicide in men, suggesting a dose-response effect. In Spain, a study conducted in Barcelona on 110 people with first psychotic episodes and a 2-year follow-up found a suicide attempt incidence rate of 12.4% in this period [22]

In fact, a 1% increase in the unemployment rate was associated with a rise of 1.81 in the rate of suicide attempts in men and 2.27 in women between 2003 and 2012. [23]

By way of introduction to the subject, the currently available psychotic studies are reviewed here, focussing mainly on variables such as residence, gender, migration, unemployment and suicidal factors.

## 2. Methods:

This is a retrospective analytical study in which the population consists of cases of psychotic disorders (first episodes) with the controls being the rest of the population adjusted for age and gender. Associated risk factors (immigrant, suicide rate, rural/urban setting, and unemployment) from 2008 to 2013 in Northern Almeria have also been evaluated.

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## 2.1. Setting

According to municipal records, Northern Almeria has a population of 150,492 inhabitants, 76,982 males and 73,510 females. [24]

It has a surface area of 3,879.3 km<sup>2</sup>, and a population density of 38.79 inhabitants per km<sup>2</sup>. The region comprises 41 small towns of fewer than 20,000 inhabitants divided into nine primary healthcare areas.

Firstly, the Kirkbride study is the main reference of this research [9]. This included two centres in Southeast London and Bristol which were exclusively urban and another one, in Nottingham, which was a mixture of urban, rural-urban and rural environments.

The definition of a rural area is a catchment zone where the towns have fewer than 20,000 inhabitants. [15] Indeed, the density population was also used for classification. In that study incidence rates were calculated in three different groups of population defined by the size of town in which they live (small, medium and large towns).

Thus it is similar to Andalusia, where the capital of the province of Almeria is considered to be urban such as London, Barcelona or Seville, and then THE NORTH OF ALMERIA would be rural. In Spain, Loja (Granada) with 63,000 inhabitants and Bularda (Navarra) with 65,000 inhabitants were considered as rural as THE NORTH OF ALMERIA. [7]

## 2.2. Sample

The study has been conducted at the Mental Health Unit for THE NORTH OF ALMERIA, which is part of the Andalusian Health System, consisting of two community mental health units and one mental health day Hospital, which care for all cases in the area. There is no alternative private network, (there are no private hospitals or mental psychiatric hospitals or units).

The sample includes only those who decided to seek care. In Spain, unlike other countries, free healthcare is available to everyone and use of the healthcare system, especially at primary care level, is very high. Gili et al. [25] adopted a similar procedure for data collection. Other studies have concluded that due to the universal coverage of the Andalusian Health System, results were comparable to the general population. [26]

A possible limitation of this study was that a few individuals cannot seek help from the national health system, so they will go to other places seeking support. In these “lost” cases, they had been prescribed antipsychotic drugs even though they had decided not to go to mental health units.

To correct this limitation, the author has included the majority of individuals who have been prescribed treatment by private practitioners. The great expense of antipsychotic drugs results in these patients having to visit doctors in the public sector in order to have them prescribed. In order to do this they must be registered in the “DIRAYA” computer program.[27] On the other hand, a high impairment is caused by the psychotic symptoms, and the functionality of people with psychosis could be affected during the years after onset. [28]

Besides, it is possible that “lost” cases will re-emerge in adulthood, sometimes if they are being treated privately they will also need the support of the Public Health System, for instance to obtain certificates or a disability pension.

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This study covered six years, and this is a long time to control the lost cases. The study population comprised all patients aged 15-64 who had been seen for a psychotic disorder in 2008-2013 in THE NORTH OF ALMERIA. So there was no need to define a sample size.

Since the investigation is an epidemiological study, the study subjects comprise each healthcare area and its respective sociodemographic variables.

From this assessment, individuals with first episode psychotic disorder were characterised by: I) Diagnosis of psychotic disorder through medical records, II) 15-64 years old at the time of diagnosis, III) Period of diagnosis: 2008- 2013, IV) Compliance with ICD 10 diagnostic criteria (psychotic disorder due to medical illness or to substance abuse, schizophrenia, schizo-like disorders, delusional disorders, affective psychosis), V) Diagnostic confirmation by the OPCRIT questionnaire, VI) Living in THE NORTH OF ALMERIA at the time of diagnosis.

Intake exclusion criteria: I) Diagnosis before study date, II) Diagnosis not confirmed by OPCRIT.

### 2.3. Ethical approval.

Ethical approval was granted by Almeria Ethics Committee in January 2014.

### 2.4. Measures

All participants were assessed by socio-demographic (age, gender, ethnicity, country of origin, living accommodation), psychiatric morbidity, primary care area of reference (Clinical Management Units). The assessment was carried out by psychiatrists working in the units to whom the patients are referred. Research assessments of the ICD10 diagnoses were done using the OPCRIT instrument and by an experienced Consultant Psychiatrist, who, to avoid rater-drift lead on OPCRIT, co-rated with another psychiatrist during the study period.

The socio- demographic variable used is the data on suicide rates in each healthcare area, obtained from the Interactive Mortality Atlas for Andalusia (AIMA) showing the geographical distribution and time-related evolution of mortality in all Andalusian municipalities since 1981. [29]

The socio-economic data that is most relevant for our study is unemployment, which was compiled by the Spanish National Statistics Institute.

Of 1704 subjects assessed, 1666 were prescribed antipsychotic drugs, 13 were from reports from an inpatient unit, 15 from a day hospital. Psychiatrist assessed 399, confirmed by medical records 183, and with OPCRIT 111 individuals. 72 subjects were excluded because the diagnoses were before 2008, and it was impossible to confirm with OPCRIT criteria (incidence and prevalence data of psychosis).

### 2.5. Statistical analysis.

The association between the independent variables was measured by multiple linear regression with the dependent variable (incidence of psychosis), constructing a model with the dependent variable and the other variables as independent variables, in which the variables with statistical and high clinical significance were entered in the bivariate study, using the change of estimation method to evaluate confounding factors. p-values of less than 0.05 are

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considered to be significant. The shape of the relationships between the independent and dependent variables was visually evaluated using locally weighted scatterplot smoothing (LOWESS), a nonparametric local regression method. Diagnosis of the models was performed in order to ensure the goodness of fit and the fulfilment of implementation conditions. Generalised standard-error inflation factors were used to verify the absence of co-linearity between independent variables, while homoscedasticity was tested by plotting residual against fitted values. The linearity of quantitative independent variables was checked with partial regression plots, and the normality of errors was verified by normal QQ plots with 95% confidence intervals.

### 3. Results:

#### 3. 1. Sociodemographic profiles.

The distribution of population by gender in THE NORTH OF ALMERIA is almost half for men and women. The distribution of the population with incidence of psychosis episodes is 56.8% for men and 43.2% for women during 2009 – 2013. The mean age of the THE NORTH OF ALMERIAN population is over 44 years. In the psychosis cases, the mean age is ten years less. The first episode psychotic age has found to be similar in all diagnosis, although brief psychosis and schizoaffective tend to be younger.

In 2009, the foreign population of THE NORTH OF ALMERIA totalled 38,665 (25.69%), most of them originating from the European Community. In line with previous studies, the immigrant population is defined as people from countries other than European Community countries, totalling 12,341 (8.19%). [24]

A high level of psychosis is unlikely to be found among the total immigrant population of the study area, since most of them originate from European countries, and do not share the characteristics of immigrants from further afield. In THE NORTH OF ALMERIA data, migrants with incidence of psychosis are 16.2% or 18 cases of all psychosis. In fact, a difference of a migrant in Northern Almeria was explained by the relative risk. Non- Europeans and Asians had a higher risk of having psychotic disorder than Spanish and other migrant groups such as the Latin/South American and African populations.

Unemployment is defined as the number of registered unemployed. The annual average of registered unemployment is the situation throughout the year. In this sense, THE NORTH OF ALMERIA has an average for 2009 of 10,907 people. The characteristics of people with psychosis in THE NORTH OF ALMERIA can be described as 73% unemployed and 27% in employment.

Finally, suicide was the last variable analysed in THE NORTH OF ALMERIA this study period.

In all areas of THE NORTH OF ALMERIA, in relation to the ratio of suicide it shows an increase in men between 45-64 years. This figure is higher in the years 2009 and 2010 and less in 2011 and 2012. The only city with a different model is Marmol, which has shown an increase in the last two years (2011 – 2012, and in the bigger town Macael)

In relation to suicide, a slightly higher ratio of suicide is found in younger people aged 15-24 to 25-44 years. [30] In small towns such as Sufli, Somontin, Bedar, Los Gallardos, Turre and Taberno a high rate of suicide is found in people between the ages of 15-44 years. This

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elevation is greatest at the onset of an economic crisis, the impact of rising unemployment was even more abrupt.

### 3.2. Psychiatry morbidity.

In relation to the diagnosis, the most common category is affective psychosis, with schizophrenia just below. These disorders show the inverse relation when gender is observed. In fact, affective psychosis is more frequent in women (1: 1.16) and schizophrenia in men (1.23: 1)

Substance abuse psychosis and brief psychosis are higher in men, and this is congruent with the literature. [31] In Spain and other European countries, ICD 10 is used for diagnosis codification. Both of the substance abuse and brief psychosis diagnosis are not usually maintained after one month. [32] After this period of time, these diagnoses often change to schizophrenia, for example.

The acute and transient psychotic disorders are a controversial category for clinical practice and research. The varied and fleeting symptoms, and high rates of cases affected with others and unspecified do not seem to support more accurate diagnosis. In fact, this had led the ICD-11 working group to maintain only polymorphic psychotic disorder.[33]

Nevertheless, this study has confirmed all cases. The instability of diagnosis is common in many studies, even in those using for example the same coding type (ICD 10) or location of the same study (inpatient unit).[22]

### 3.3. Relationship between Unemployment, Suicide and Psychosis.

In fact, to try understanding the rates and the distribution in all geographic area of THE NORTH OF ALMERIA a description of each population has been produced, which has been associated with primary care. Multiple linear regression showed that 68.8% of the values of the rate of first psychotic episodes can be explained by the variability of the values of unemployment, gender, living area and suicide. For every percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by 0.946 to equal the other variables included in the model (p value <0.001) Women having an average rate of 1.433 less than men with first psychotic episodes.

## 4. Discussion:

Describing the character of the THE NORTH OF ALMERIA population, it has found an almost homogeneous distribution of psychosis incidence by gender, nearly half for men and half for women during this study period. The proportion of 1.31: 1 (males: females) in THE NORTH OF ALMERIA is similar to other studies. The median age of the THE NORTH OF ALMERIA population is around the 30 for incidence of psychosis cases.

In recent literature men and women have a peak of incidence of psychosis before 45 years old, and more often between 16 – 20 years. In THE NORTH OF ALMERIA the high level of age may be due to this being a rural area, with no university, so most young people move to a bigger city to carry on with their studies, jobs or apprenticeships.

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In Fontalba Navas A et al [26] the first study was carried out in mental health epidemiology by a healthcare system with a large sample followed over 10 years. These authors analysed the importance of stability in the diagnostic criteria in a hospital setting and they found a difference between the classification and what was happening in real practice. That could be a limitation of this study. In fact, despite being a retrospective study, the OPCRIT has been used to ensure inter-rater reliability, besides confirming diagnosis.

On the other hand, stability diagnosed in our area could be due to the fact that the training of professionals is quite homogeneous, and the wide diversity of diagnostic stability in ICD10 is very high (95-100%). [34]

Psychotic disorders from substance abuse are 13% of the incidence of the area. This data is similar to that found in a cross-sectional study conducted at Inpatient Units in Spain. [35] Nonetheless, this is a low incidence when compared to other previous studies considering that the population is young and concerns first episodes.

For example, cannabis or alcohol abuse or dependence was reported in approximately 50% of CAMEO (Early Intervention in Psychosis Cases) first episode psychosis patients. These findings were also replicated in first episode of psychosis samples from other countries [31]

Higher rates of psychotic disorder in ethnic minority groups are still one of the most controversial public health challenges. The present study identified rates of psychotic disorder across several migrant groups. In THE NORTH OF ALMERIA nearly 25% of residents are foreigners, mostly European. This high number of migrants contrasts with those found in other countries. Besides, this study found that migration had a positive bilateral correlation with the incidence of first episode of psychosis.

In this sense, resettlement stress such as unemployment, low ethnic density and achievement expectation mismatch have been largely described as risk factors in the migrant population.

A number of early hypotheses focused on the possibility that first generation migrants were more likely to be predisposed to psychosis. This was due to the process of migration as it may lead to considerable social stress for some individuals, perhaps increasing risk of psychosis. However, other studies have also found an increase in prevalence in the countries of origin. [36]

Another theory is about misdiagnosis, as a potential explanation of higher rates in minority groups living in THE NORTH OF ALMERIA. It was argued that this is supported by evidence that people from ethnic minorities are more likely to access services through the justice system and are more likely to be compulsorily admitted to hospital.

Indeed, misinterpretation of symptoms may have serious consequences such as over-prescription of antipsychotic drugs and a negative influence on the prognosis of this group. [37]

In terms of individuals, in areas with less ethnic density (defined by the proportion of an ethnic group living in an area), the risk of psychosis is over five times greater than the majority white population. [36]

In fact, they described the existence of a dose effect for the ethnic density in psychotic disorders. There is a lower incidence of psychotic disorder for ethnic minorities in high ethnic density areas compared to the ethnic majority and higher incidence in low density areas.

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In THE NORTH OF ALMERIA, most minority groups usually live in areas with low ethnic density that could justify the effect of a high incident rate of psychosis. The variance in the findings for different ethnic minorities within and across studies is testament to the notion that ethnic minorities are not a homogeneous group. A limitation of this study is that the Spanish category included a “white population” and there is no intra-group difference. For example, the gypsy population, which is a minority group. Despite a focus on ethnicity as a self-ascribed identity that encompasses a share of “community of sentiment and cultural heritage”, it is likely to be a better reflection of reality than a focus on race.

Future studies also need to reflect that this is likely to be a neighbourhood level effect rather than a national or regional level effect. In theory, immigrants have arrived at a place that is likely to be protected from psychosis, because they live in a rural area. But the rural area does not protect them from having a high risk of incidence of psychosis, because immigrants suffer stressors such as experiences of racism or rejection with more frequency.

However, complex social- cultural and socio- environmental experiences may be relevant to understanding variation in rates of psychotic disorders according to ethnicity. For example, the lack of social capital may make it harder to enter local labour markets or develop social support networks to protect against both non-racial and racial social stressors. [38]

Nevertheless this study proposes that the main factor associated with variation in risk of psychosis in THE NORTH OF ALMERIA is unemployment. In effect, the initial point of unemployment in THE NORTH OF ALMERIA is higher than the rest of Almeria and Andalusia up to the year 2006. From 2007 onwards there is an increase in unemployment in THE NORTH OF ALMERIA, Almeria and Andalusia.

These figures did not vary much in THE NORTH OF ALMERIA in 2009. But they continued to grow in Almeria and Andalusia.

Some authors consider that there are two different periods: the first is “acute”, soon after the onset recession (years 2008 – 2009), the worst from an economic point of view), and the second starting in the following years, still ongoing, the “chronic” phase. [39] Moreover, you can argue that THE NORTH OF ALMERIA still behaves as if it is in the chronic phase. Unemployment rates were higher among people with mental health problems compared to those without. Additionally, when study population is observed, it found that 73% were unemployed.

That could not affirm whether the situation of unemployment is prior to the symptoms of psychosis or if, on the other hand, symptoms are difficult to incorporate into working life or both. But individuals who moved from unemployment into employment reported significant improvement in their general mental health. [40]

Based on results from THE NORTH OF ALMERIA, it has been estimated that the incidence of psychosis in those aged 15- 64 years was 20 cases per 100,000 individuals per year (although the range is 8 – 22) [13], [35][12], [41]

The incidence rates from different countries show a range between 15.2 to 51 per 100.000 person – year in individuals with psychotic disorders and a wide age group (15 – 35 or 15 – 64 years, respectively).[42]

These rates are established with a meta- analysis study from the United Kingdom [11] that found overall incidence of psychosis was 31.7 per 100,000 persons – year in individuals aged 16 – 64 years. But it is important to take account of characteristics: urban area, migration and younger people.

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The few studies that have investigated incidence rates in Spain have provided figures for Schizophrenia of 8 - 24 (for the ages 15-54 years). They were located in urban areas such as Barcelona and Cantabria.[43]

It was decided that the present study should not only include the diagnostic category of schizophrenia but all psychotic disorders. [14] The expected incidence of Psychosis in THE NORTH OF ALMERIA should be lower than the real one found, because this is a rural area.

In relation to the adjusted rates by unit, an increased incidence of psychosis exists in 2011 in Cuevas, Huercal and Pulpi, and Velez and in 2012 in Albox and Marmol.

This could be explained that individuals with symptoms of psychosis or high risk mental states suffered from serious impairment in social, occupational or academic functioning previous to First Episode Psychosis Diagnosis. Moreover, individuals with a high risk of psychosis were found to suffer from a wide range of psychiatric disorders and mild psychotic symptoms, reported more suicidal ideation, depressive and anxiety symptoms and presented with worse levels of functioning quality of life and employment status than healthy people. [28]

Thus, it is possible that we have a peak later of psychosis in individuals with high risk or pre-psychosis. Besides, Marmol and Albox are two units with an elevated rate of unemployment. The findings in regard to the incidence of psychotic disorders by age and gender are consistent with the wider international literature.

This study identified variation in the incidence of psychosis in a rural Andalusian region. The overall incidence was higher than typically reported in first episode psychosis studies of the entire adult age range (15- 64 years).

But this is to be expected given our lower age limit (35 years). This is a positive aspect of this study as it gives a wide regard of psychosis during all periods of adult life. On the other hand, a previous study of first episode psychosis was mostly done by a group of experts in psychosis to try to avoid a specific diagnosis, thereby providing a wider diagnosis such as the psychosis spectrum.

This study analysed the association between the ratio of unemployment with psychosis. Indeed, unemployment is more common in people with psychosis. Nevertheless, it cannot be assumed that unemployed individuals do not have other mental disorders. In fact, this is a limitation of this study. However, future research may assess morbidity in people from THE NORTH OF ALMERIA.

In THE NORTH OF ALMERIA the ratio of unemployment is higher, more than in others parts of Andalusia and Spain. These high rates of unemployment before the onset of psychosis may dissemble prodromal symptoms.

For each percentage point increase in the unemployment rate, the number of first episode psychosis decreases by 0.946. This could be rationalised because firstly this population has prodromal symptoms or a high risk status before they are seen by health services. Secondly, other authors have considered that the Duration of Untreated Psychosis (DUP) is longer in unemployed people. [44]Therefore, people from THE NORTH OF ALMERIA who are unemployed could have longer DUP, and subsequently later detection and diagnosis.

According to this theory, in some areas of North Almeria the incidence of psychosis in a year could be lower and increase later, for instance in Cuevas, Pulpi and Velez in 2012 or Garrucha in 2013.



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This is a relevant fact that determines the health policies and the design and implementation of a programme of first psychotic episodes. These specialised programmes should allocate resources in areas that may be of higher risk.

A limitation of this study is that there is no causal link or psychosis justification due to these variables. However, it has been established that approximately 70% of the incident rates of psychosis could be explained by four variables: unemployment, gender, neighbourhood and suicide.

In this regard, based on the Cambridge group and AIMA [45], [46], a geographical map has been designed with areas at a higher predicted risk of psychosis. This is crucial, because in a period of economic crisis and diminishing resources, programmes must seek to be even more efficient.

Therefore, looking at the THE NORTH OF ALMERIA, there is a geographical difference compared to other research the majority of which were conducted in United Kingdom, Australia and Denmark [8], [18], [47] None were exclusively in Spain.

Despite the limitations of comparing such a diverse geographical spread of incidence of psychosis and with a limited number of samples, this study provides a useful contribution to the literature.

## 5. Conclusions

1. The distribution of psychosis incidence by gender in THE NORTH OF ALMERIA is homogeneity, nearly half for men and half for women during the study period.
2. The mean age of the THE NORTH OF ALMERIA population for incidence of psychosis cases is around the age of thirty, older than other studies.
3. The most common category of diagnosis is affective psychosis with schizophrenia just below.
4. The OPCRIT instrument has been used to ensure inter-rater reliability, besides confirming the stability of the diagnosis in this study.
5. The incidence of psychosis in this area was studied and it found almost a quarter of cases were migrants. In this area, non-Europeans and Asians had higher risk of having psychotic disorder than the Spanish population and other migrant groups such as the Latin/South American and African population in this area.
6. In THE NORTH OF ALMERIA most minority groups usually live in areas with low ethnic density. This could justify the effect of a high incident rate of psychosis. It found that migration had a positive bilateral correlation with first episode psychosis.
7. Unemployment rates were higher among people with mental health problems compared to those without. For every percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by nearly a point.
8. In all areas of THE NORTH OF ALMERIA, in relation to the ratio of suicide, an increase has been observed in men between 45-64 years. The figure was higher in the years 2009 and 2010 when the impact of a rise in unemployment was even more abrupt. For

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every percentage point increase in the rate of suicide, the number of first psychotic episodes increased by a point.

9. In THE NORTH OF ALMERIA it has been estimated that the incidence of psychosis in those aged 15-64 years was 20 cases per 100,000 individuals per year (range 8-22).
10. The expected incidence of psychosis in THE NORTH OF ALMERIA was lower than was actually found, due to this being a rural area. Increased incidences of psychosis in 2011 exist in most units and in 2012 in two of them.
11. In THE NORTH OF ALMERIA the ratio of unemployment is higher than others parts of Andalusia and Spain. These high rates of unemployment before the onset of psychosis may dissemble prodromal symptoms.
12. For each percentage point increase in the unemployment rate, the number of first episode of psychosis decrease by nearly one point. People in THE NORTH OF ALMERIA who are unemployed could have longer DUP, and subsequently later detection and diagnosis.

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Table 1. Description of variables

<b>Study period 2009 – 2013</b>				
<b>Population</b>	150,000 inhabitants	111	Rate of Incidence of Psychosis	
	THE NORTH OF ALMERIA			
<b>Gender</b>		Value (N)	Percentage (%)	
	Men	63	56.8	
	Women	48	43.2	
<b>Age</b>	Median	30-8 years		
	Mode	24 years		
<b>Diagnosis</b>		Value (N)	Percentage (%)	Median Age
<b>Affective</b>		39	35.1	30.51
	Men	18	46.2	
	Women	21	53.8	
<b>Delusional</b>		11	9.9	32.82
	Men	7	63.6	
	Women	4	36.4	
<b>Brief Psychosis</b>		1		26
	Men	1	100	
	Women	0	0	
<b>Schizophrenia</b>		29	26.1	30.34
	Men	16	55.2	
	Women	13	44.8	
<b>Substance abuse</b>		15	13.5	32.33
	Men	12	80	
	Women	3	20	
<b>Non-specific psychosis</b>		8	7.2	30.88
	Men	5	62.5	
	Women	3	37.5	
<b>Schizoaffective</b>		8	7.2	28.80
	Men	4	50	
	Women	4	50	
<b>Natives</b>		Residents	Incidence	of
	THE NORTH OF ALMERIA	74.31	83.5	Psychosis
<b>Migrants</b>		Foreigners		
	Europe	17.49	2.7	
	Non-Europe	0.52	4.5	
	Africa	2.08	0.9	
	Asia	0.45	5.4	
	Oceania	0.004	2.7	
<b>Employment</b>		Population of	Cases of Incidence	
		THE NORTH OF ALMERIA (%)	Psychosis (%)	
	Employment	49.54 (2009)	73	
	Unemployment	51.56 (2009)	27	

[Escribir texto]

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>ALBOX</b>	2.0239	0.8157	1.6144	2.8044	0.4074
<b>CUEVAS</b>	0.7156	1.4453	3.7626	0	1.5289
<b>GARRUCHA</b>	2.5511	1.479	1.4325	1.4646	0
<b>HUÉRCAL OVERA</b>	2.7468	0.4543	3.0263	1.7358	2.5615
<b>MÁRMOL</b>	1.5668	0.4807	1.037	2.112	1.077
<b>PULPÍ</b>	2.682	1.2929	3.3672	0	1.0585
<b>VÉLEZ</b>	1.629	0.8044	2.3443	0	0.8088
<b>VERA</b>	1.3785	1.3056	1.7454	0.4493	1.3443

Table 2. Incidence Rate of Psychosis

[Escribir texto]

Table 3. Coefficients of Model 4.

Model 4	Non-standardised coefficients		Standard coefficient	t	Sig.	Confiance interval 95.0%		Statistical collinearity	
	B	Standard error	Beta			Lower limit	Upper limit	Tolerance	FIV
(Constante)	11.365	0.027		415,810	0.000	11.311	11.419		
Unemployment	-0.946	0.001	-1.120	-894.335	0.000	-0.948	-0.944	0.470	2.128
Gender	-1.433	0.010	-0.256	-138.337	0.000	-1.454	-1.413	0.216	4.631
Suicide	1.193	0.010	0.235	116.050	0.000	1.173	1.213	0.180	5.566
CUEVAS	2.677	0.011	0.274	238.800	0.000	2.655	2.698	0.558	1.793
GARRUCHA	2.668	0.010	0.328	275.445	0.000	2.649	2.687	0.518	1.930
HUÉRCAL	2.985	0.009	0.384	328.385	0.000	2.967	3.003	0.538	1.860
MÁRMOL	4.673	0.011	0.575	444.422	0.000	4.653	4.694	0.440	2.275
PULPÍ	-2.422	0.012	-0.202	-209.837	0.000	-2.445	-2.400	0.794	1.260
LOS VÉLEZ	-3.241	0.013	-0.331	-246.634	0.000	-3.267	-3.216	0.409	2.444
VERA	2.686	0.009	0.348	298.382	0.000	2.668	2.704	0.541	1.847

a. Dependent variable: First episode psychosis

[Escribir texto]

Table 4. Correlation of bivariate analysis.

		First episode psychosis	Unemployment	Suicide	Migration
First episode psychosis	Pearson correlation	1	-0.419**	0.026**	0.318**
	Sig. (bilateral)		0.000	0.000	0.000
	N	857012	713868	423444	143296
Unemployment	Pearson correlation	-0.419**	1	0.168**	-0.234**
	Sig. (bilateral)	0.000		0.000	0.000
	N	713868	713868	423444	143296
Suicide	Pearson correlation	0.026**	0.168**	1	-0.193**
	Sig. (bilateral)	0.000	0.000		0.000
	N	423444	423444	423444	143296
Migration	Pearson correlation	0.318**	-0.234**	-0.193**	1
	Sig. (bilateral)	0.000	0.000	0.000	
	N	143296	143296	143296	143296

\*\* Correlation is significant at the 0.01 level (bilateral).

[Escribir texto]

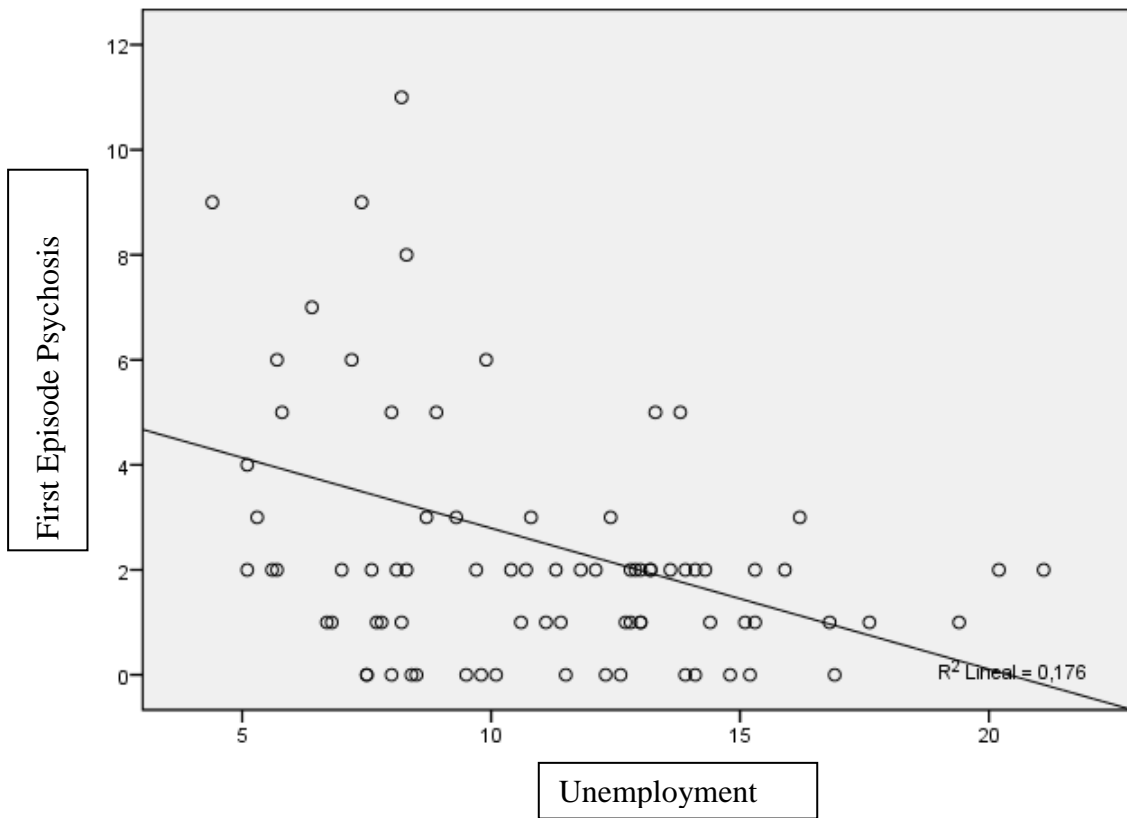


Figure 1. Relation between unemployment and first episode psychosis.

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## TITULO: PRIMEROS EPISODIOS PSICÓTICOS EN EL ÁREA NORTE DE ALMERIA (PSYCHORISK STUDY)

Resumen:

Objetivo:

Reciente estudios sugieren que los Primeros Episodios Psicóticos podrían guardar relación con género, desempleo y lugar de residencia. En este estudio retrospectivo es evaluado la asociación entre los factores de riesgo (género, inmigrantes, tasa de suicidios, zona rural o urbana y desempleo) y psicosis desde 2008 hasta 2013.

Métodos:

Entre el 2008- 2013, 111 Primeros Episodios Psicóticos, con un grupo de 15 a 64 años, fueron diagnosticados por la Unidad de Salud Mental en el Norte de Almería, España. Socio- demográficos, clínica psiquiátrica usando el OPCRIT Diagnóstico, el área de referencia de Atención Primaria, tasa de suicidio y desempleo fueron analizados.

Resultados:

La tasa de incidencia de psicosis en el Norte de Almería era de 20 casos por 100,000 individuos por año (rango 8-22). Se establece que el 68.8% de la tasa de incidencia de psicosis es explicada por cuatro variables: desempleo, género, zona de residencia y suicidio. Por cada punto de porcentaje aumentado en la tasa de desempleo, el número de primeros episodios psicóticos decrece en medio punto. Las personas en el Norte de Almería que están desempleadas podrían tener un periodo de tiempo con psicosis sin tratamiento (DUP) más largo, y secundariamente una detección más tardía y un diagnóstico retrasado. Este estudio muestra una relación positiva entre el suicidio y las otras dos variables como son el desempleo y la incidencia de primeros episodios psicóticos.

Conclusiones:

La incidencia esperada de psicosis en el Norte de Almería era menor que la que realmente se encuentra, ya que se trataba de una zona rural. Un incremento de psicosis existe en el 2011 en la mayoría de las unidades y en 2012 en dos de ellas. En el Norte de Almería el desempleo es más alto que en otras partes de Andalucía y España. Las altas de desempleo previo al inicio de la psicosis pueden enmascarar síntomas de pródromos de psicosis.

Palabras claves: incidencia, psicosis, rural, desempleo, suicide.



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RESUMEN:

## 1. Introducción.

El interés en la Intervención Temprana en Psicosis ofrece una oportunidad para hacer grandes cambios en la psiquiatría práctica, pero requiere una mayor investigación para responder diversas cuestiones. [1]La Psicosis está asociada con diferentes problemas mentales y físicos. Algunos de los más comunes diagnósticos asociados a psicosis incluyen: Esquizofrenia, T. Esquizofreniforme, Psicosis reactiva, Psicosis afectiva y Esquizoafectivo. Psicosis y más específicamente la esquizofrenia, representan un trastorno psiquiátrico mayor (o clúster de diagnósticos) en el cual la percepción de la persona, los pensamientos, el estado de ánimo y la conducta son significativamente alteradas.[2] Una vez la fase aguda es superada, hay con frecuencia otros problemas tales como la exclusión social, la reducción de oportunidades para volver al trabajo o estudiar y los problemas en establecer nuevas relaciones.

Un enfoque más específico en la mayoría de los trastornos mentales graves en su fase inicial mejorará su curso clínico y su pronóstico. Esta sugerencia es más que una fortaleza que el hecho que largos periodos pasan entre el inicio de los trastornos psicóticos y su reconocimiento e intervención terapéutica, conocida como Duración del tiempo sin tratamiento. Una reducción de este periodo podría conllevar a la posibilidad de una prevención secundaria. En relación a ello, la investigación confirma que el retraso en el tratamiento de los primeros episodios psicóticos está asociado con pobres resultados en términos de funcionalidad y de síntomas.[4]

La intervención temprana en psicosis está justificada con mejores resultados a nivel funcional y social [48] y los objetivos para superar el progreso tanto como sea posible, yendo más allá de las etiquetas diagnósticas.

Sin embargo, desde que todos los programas tienen un alto coste-efectividad, [6]las decisiones clínicas deben tener en cuenta el coste de la enfermedad y su tratamiento, especialmente en salud mental, tan bien como la distribución de los recursos a nivel local.[7]

Se ha sugerido que la incidencia pueda ser afectada por varias variables, incluyendo el área de residencia, el aislamiento social[42], rural y urbana[9] y la migración[20].

En un reciente meta-análisis, algunos autores encontraron que no existe evidencia para soportar que existe un cambio en la incidencia del trastorno psicótico a lo largo del tiempo. El ESOPP estudio muestra que, mientras en la incidencia tasa de psicosis era 34.8 por 100,000 habitantes al año, la tasa en el Sur de Londres era más del doble de lo encontrado en Nottingham o Bristol

La revisión sistemática realizada por McGrath[17], muestra que la distribución de la tasa de incidencia de psicosis varía entre las zonas urbanas y mixtas (urbana-rural), con una diferencia de 19 frente 13.3, respectivamente. De hecho, la tasa puede oscilar entre 32/100,000 y 74/100,000 personas-años, para los individuos entre 16- 35 años. Esta última tasa ha sido estimada desde un servicio de intervención temprana en psicosis, en el cual es tres veces más frecuente que la cifra en otros lugares en los que no existen.[11]

Hay menos estudios de incidencia y prevalencia en España. Una incidencia de 8 por 100.000 habitantes al año, para la población general, es encontrada en Cantabria, y la tasa se eleva desde 14-30 años a 12-56 años [12],[13], [14]

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La incidencia de la esquizofrenia aumenta directamente con lugar de residencia, medida en términos de tamaños de población y de la densidad. En Francia, la Incidencia anual de psicosis es encontrada a ser mayor en las zonas urbanas (36.02 por 100,000 individuos por año) que en las zonas rurales (17.2 por 100,00) entre los 18-64 años. [15]

La distribución por género de los trastornos psicóticos es de 1.8: 1 hombres – mujeres.[16] Similares datos se mostraban en un estudio realizado por Owoeye, con 1,39: 1 hombres – mujeres, y con 1.4: 1 para esquizofrenia,[49] que además encontró una mayor incidencia ajustada en hombres que en mujeres, 1.57: 1.[18]

La distribución de la incidencia de los trastornos psicóticos en inmigrantes se muestra con un ratio de 4,6: 1 en relación a la población autóctona. Esto no puede ser explicado por la teoría de la selección (“personas con dificultades al emigrar”) [19]o el mal diagnóstico (clínicos con insuficiente atención a social, cultural y contextuales factores)[20]

El primer estudio que mira la incidencia de la psicosis en el Sureste de Europa confirma la diferencia entre inmigrantes y autóctonos. De hecho, en Italia, en la primera generación de inmigrantes (principalmente de Asia, África y Este Europa) se encontrada un alto riesgo con respecto a los nativos italianos (RR 2.5)

El desempleo es más común en personas con psicosis. Existe una dificultad para identificar qué viene primero: ser desempleado o sufrir previamente un trastorno mental. [21]. El desempleo está asociado con indicadores de enfermedades tales como la depresión, los ingresos psiquiátricos y el suicidio. Con respecto a ello hay una clara diferencia entre hombres y mujeres. Para las mujeres, el efecto significativo de la salud mental en el desempleo refleja un incremento en el riesgo de experimentar desempleo y no la duración del mismo. En oposición, para los hombres una pobre salud mental afecta con una mayor duración del mismo.

Por otro lado, se muestra una asociación entre la magnitud del incremento en el desempleo y el incremento en suicidio en hombres, sugiriendo una dosis-respuesta efecto. En España, un estudio conducido en Barcelona en 110 personas con primer episodio psicótico y dos años de seguimiento encontró una tasa de intentos de suicidio de 12,4% en este periodo.[22]

De hecho, el 1% de incremento de la tasa en desempleo era asociado con un incremento de 1.81 en la tasa de intentos de suicidio en hombre y en 2.27 en mujeres entre 2003 y 2012.[23]

Para introducir el tema, los recientes estudios disponibles de psicosis son revisados y se centra principalmente en variables tales como lugar de residencia, género, migración, desempleo y factores de riesgo de suicidio.

## 2. Metodología.

Es un estudio retrospectivo en el cual la población consiste los casos de trastornos psicóticos (primeros episodios) con los controles del resto de la población ajustado por edad y género. Se evalúan los factores de riesgo (género, inmigrantes, tas de suicidio, rural y zona urbana, y desempleo) desde 2008 al 2013 en el norte de Almería.

### 2.1. Localización

En relación a los datos municipales, el Norte de Almería tiene una población de 150,492 habitantes, y 76,982 hombres y 73,510 mujeres (basado estadísticas en 2009)

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El área norte de Almería tiene un superficie de 3,879 km<sup>2</sup> y una población densidad de de 38.79 habitantes por km<sup>2</sup>, distribuido en 41 poblaciones, que tienen menos de 20,000 habitantes divididos en 9 centros de salud de primaria.

En principio, el estudio de Kirkbride es la principal referencia para esta investigación. [9] En dicha investigación se incluye dos centros del sureste de Londres y Bristol los cuales son exclusivamente urbanos y en otro centro, Nottingham el cual es una mezcla de urbano, rural-urbano y rural.

La definición de rural es una zona en el cual las poblaciones tienen menos de 20,000 habitantes.[15] De hecho, la densidad de población también ha sido usada para clasificar. Las tasas de incidencia en tres diferentes grupos de población definidos por el tamaño de las poblaciones en las que viven (pequeño, mediano y grande)

Así es similar en Andalucía, dónde la capital de la provincia de Almería se considera como urbana como Londres, Barcelona o Sevilla, y el Norte de Almería sería rural. En España, Loja (Granada) con 63,000 habitantes y Bularda (Navarra) con 65,000 habitantes eran considerados rurales como es el Norte de Almería. [7]

## 2.2. Población y muestra.

Este estudio ha sido realizado en la Unidad de Salud Mental del Área Norte de Almería, que forma parte del Sistema Andaluz de Salud. Dicha unidad consiste en dos Unidades de Salud Mental Comunitarias y un Hospital de Día de Salud Mental, y entre todos atienden a la mayoría de los casos del área. No existe una alternativa para práctica privada.

La muestra incluye solo aquellos individuos que solicitan ayuda. En España, a diferencia de otros países, la sanidad es gratuita y universal, especialmente el primer nivel de atención primaria que es muy alta. La cobertura universal del sistema andaluz de salud es similar para toda la población.[25] Gili eta al[25] adoptaban un procedimiento similar a la recogida de datos. Otro estudio ha concluido que ya que la cobertura del Sistema Andaluz de Salud es universal, los resultados son comparables a la población general.[26]

Una posible limitación de este estudio era que algunos individuos podrían no buscar ayuda en el sistema nacional de salud, y acudir a otros centros a solicitar tratamiento. En los casos perdidos también se le prescriben antipsicóticos, aunque no acudan a las unidades de salud mental.

Para corregir esta limitación, el autor ha incluido la mayoría de los individuos a los que se les ha prescrito en alguna ocasión antipsicóticos, aunque esto fuera por médicos privados. Los tratamientos antipsicóticos son muy caros, por lo que suelen acudir a sus médicos de primaria del sector público para que se los prescriban. Para hacerlo, se deben registrar en el programa informático "DIRAYA". [27] Por otro lado, el alto deterioro causado por los síntomas psicóticos, y la funcionalidad de las personas con psicosis pueden ser afectados durante los años siguientes después del inicio. [28]

Además, es posible que los casos perdidos aparezcan en un futuro a lo largo de vida adulta. Incluso en ocasiones, aunque sean tratados a nivel privado precisarán de soporte del Sistema Nacional de Salud, por ejemplo para obtener el certificado de minusvalía o algún tipo de prestación económica.

Este estudio cubre seis años, y es bastante largo para que controlar los casos perdidos. El estudio comprende a todos los pacientes con edades entre 15-64 años que han sido vistos por un trastorno psicótico durante el 2008- 2013 en el Norte de Almería. Por lo que no es necesario definir un tamaño de muestra.

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Desde este marco, los individuos incluidos como un primer episodio psicótico se caracterizan por: I) Diagnóstico de Trastorno Psicótico a través de la Historia Clínica, II) 15-64 años en el momento del diagnóstico, III) Periodo comprendido entre 2008- 2013, IV) Criterios diagnósticos según la CIE10, trastornos psicóticos debidos a enfermedad médica o tóxicos, esquizofrenia, espectro esquizoide, trastorno delirante, psicosis afectivas, V) Diagnostico confirmado por OPCRIT, VI) lugar de residencia en Almería Norte.

Criterios de exclusión: I) Diagnóstico previo al periodo del estudio, II) Diagnostico no confirmado con OPCRIT.

### 2.3. Cuestiones ética.

Aprobado por el comité de ética de Almería en Enero de 2014.

### 2.4. Variables.

Todos los participantes fueron evaluados con las variables socio- demográficas (edad, género, etnicidad, país de origen, lugar de residencia), diagnóstico psiquiátrico, unidad de atención primaria de referencia. La valoración fue llevada a cabo por psiquiatras que trabajan en la unidad de los que los pacientes son referidos. La evaluación diagnóstica de CIE10 fue hecha mediante el instrumento OPCRIT, y por Psiquiatras expertos, que para evitar el sesgo de diagnostico, se realizó una evaluación con otro Psiquiatría durante dicho periodo de estudio.

Variables socio demográficas tales como la tasa de suicidio en el área de atención primaria fue obtenida mediante el Atlas Interactivo de Mortalidad de Andalucía (AIMA) que muestra la distribución geográfica y la evolución en relación al tiempo de la mortalidad en todos los municipios de Andalucía desde 1981.[45]

El dato socio demográfico más importante en este estudio es el desempleo, que ha sido obtenidos de Instituto de Estadística Nacional de España.

De 1704 sujetos valorados, 1666 le prescribieron antipsicóticos, 13 procedan de Unidad de Hospitalización, 15 de Hospital de Día. Los Psiquiatras evaluaron 339, siendo confirmados por la historia clínica 183, y con el OPCRIT 111 individuos. 72 sujetos de las 203 fueron excluidas porque el diagnóstico se realizó previo al 2008 y fue imposible confirmar con el OPCRIT (datos prevalentes e incidentes juntos)

### 2.5. Análisis estadístico.

La asociación entre las variables independientes se ha medido por una regresión lineal múltiple con la variable dependiente (incidencia de psicosis), construyendo un modelo con la variable dependiente y las otras variables como independientes, en el que las variables con significación estadística y alta significación clínica se introdujeron en el modelo bivariante, utilizando el cambio de método de estimación para evaluar los factores de confusión. Los valores de p de menos de 0,05 se consideraron significativos.

La forma de las relaciones entre las variables independientes y dependientes fueron visualmente evaluados usando la dispersión ponderada localmente suavizado (LOWESS), un método de regresión local no paramétrica. El diagnóstico de los modelos se realizó con el fin de garantizar la calidad del ajuste y el cumplimiento de las condiciones de ejecución. Se utilizaron factores de inflación estándar de errores generalizados para verificar la ausencia de colinealidad entre las variables independientes, mientras homocedasticidad se puso a prueba

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mediante el trazado residual contra los valores ajustados. La linealidad de las variables cuantitativas independientes se comprobó con parcelas de regresión parcial, y la normalidad de los errores fue verificado por parcelas normales QQ con intervalos de confianza del 95%.

### 3 Resultados.

#### 3.1. Variables sociodemográficas.

La distribución de la población por género en el Norte de Almería es casi la mitad para hombres y mujeres, y los casos de incidencia de psicosis es 56.8% en hombres y 43.2% en mujeres durante los años 2009- 2013. La media de edad de la población del área Norte es sobre 44 años. En los casos de Psicosis, la media de edad es diez años menos. Esta edad encontrada es similar en todos los diagnósticos, aunque la Psicosis breve y Esquizoafectiva es algo más joven.

En 2009, la población extranjera en el Norte de Almería es de 38,665 (25.69%), la mayoría de ellos de origen de la Unión europea. En línea de previos estudios, la población inmigrante es definida como las personas de países diferentes a la Unión Europea, totalmente 12,341 (8.19%). Un alto nivel de psicosis es improbable encontrarlo entre la población de inmigrantes en nuestra área, ya que la mayoría son de Europa, y no comparten las características de los inmigrantes que se refieren en la literatura. En los datos del Norte de Almería, inmigrantes con incidencia de psicosis son 16.2% o 18 casos del total.

El desempleo es definido como el número de desempleados registrados. La media anual registrada de desempleo refleja con mayor medida el desempleo al año. En este sentido, el Norte de Almería tiene una media de 10,907 personas en el año 2009. Describiendo las características de desempleo con psicosis en el norte de Almería, son el 73% desempleo y 27% con empleo.

Finalmente, el suicidio es la última variable analizada en el Norte de Almería durante el periodo de estudio. Este estudio encuentra una relación positiva entre el suicidio y las otras dos variables como son el desempleo y la incidencia de primeros episodios psicóticos.

Aunque de acuerdo con algunos autores el impacto de la crisis tiene su mayor impacto en los hombres, entre la edad de 15-24 años en los países de europeos, mientras que los hombres de edad 45-64 años son de países americanos. En Andalucía, Almería y el Norte de Almería el principal rango de edad afectado es de entre los 25-44 años.

En relación con el suicidio, es ligeramente superior la tasa en las personas más jóvenes, con edades entre 15-24 a 25-44 años.[30] En pequeñas poblaciones como Sufli, Somotín se encuentra una alta tasa de suicidio en las personas entre 15-44 años. Esta elevación es mayor al inicio de la crisis económica, el impacto del incremento fue aún más abrupto. En todas las unidades del área norte de Almería, en relación la tasa de suicidio es mostrada incrementada en hombres entre 45-64 años. Estos datos son mayor en el año 2009 y 2010 y menos en 2011 y 2012. La única población con diferente patrón es el Mármol, el cual hay una elevación en los dos últimos años (2011-2012, y sobre todo en la principal población, Macael)

#### 3.2. Morbilidad psiquiátrica.

En relación al diagnóstico, la categoría más común es la psicosis afectiva siguiéndolo la esquizofrenia. Estos trastornos muestran una relación inversa cuando el género es observado.

[Escribir texto]

De hecho, la psicosis afectiva es más común en mujeres (1: 1.16) y la esquizofrenia en hombres (1.23: 1).

Los trastornos psicóticos por tóxicos y la psicosis breve es más frecuente en hombres, y este es congruente con la literatura.[31] En España y otros países europeos, CIE10 es usado para la codificación diagnóstica. Estos dos últimos diagnósticos, no es frecuente, que no se mantengan a lo largo del tiempo. [32]Después de un mes, según la codificación europea, los diagnósticos cambian a esquizofrenia por ejemplo.

El trastorno psicótico agudo y transitorio es una categoría controvertida para la práctica clínica y la investigación. La variedad y los síntomas fugaces y la alta tasa de casos afectados con otros clasificados como no específicos no parecen apoyar el diagnóstico de un trastorno más preciso. De hecho , esto lleva al grupo de trabajo de la CIE 11 a mantener el trastorno psicótico polimorfo.[33]

La inestabilidad del diagnóstico es común en muchos estudios, incluso en aquellos que usan por ejemplo la misma codificación (CIE10) o la localización del mismo estudio (unidad de ingresos). Sin embargo, en este estudio se han confirmado todos los casos. [22]

### 3.3. Relación entre desempleo, suicidio y psicosis.

De hecho, para intentar entender las tasas y la distribución en toda el área geográfica del Norte de Almería se ha hecho una descripción de cada población, la cual ha sido asociada con la atención primaria. En la regresión múltiple lineal se ha observado que el 68.8% de los valores de las tasas de los primeros episodios psicóticos pueden ser explicados por la variabilidad de los valores de desempleo, género y área de residencia. Por cada punto de porcentaje incrementado en la tasa de desempleo, el número de primeros episodios psicóticos ha decrecido en 0.946 al igual que las otras variables incluidas en el modelo ( $p < 0,001$ ). Las mujeres tienen una tasa media de 1.433 menor que los hombres con primeros episodios psicóticos.

### 4. Discusión.

Describiendo las características de la población del Norte de Almería, es encontrado casi de forma homogénea una distribución de la incidencia de psicosis por género, aproximadamente la mitad para los hombres y la mitad para las mujeres durante el periodo estudiado.

La proporción de 1.31: 1 (hombres: mujeres) en el Norte de Almería es similar a otros estudios. La media de edad del Norte de Almería es alrededor de los treinta para los casos de incidencia de psicosis.

En la literatura reciente los hombres y mujeres tienen un pico de incidencia de psicosis antes de los 45 años y más frecuente entre los 26 y 20 años. En el Norte de Almería, la mayor edad puede ser debida a ser un área rural, sin universidad, donde la mayoría de la población tiene que trasladarse a una gran ciudad para continuar con sus estudios, trabajos u otros tipos de profesiones o aprendizajes.

En Fontalba, [26] se realizó un primer estudio acerca de la epidemiología en salud mental desarrollado en el Sistema Sanitario Público Andaluz con una amplia muestra durante 10 años. Analizaron la importancia de la estabilidad en los criterios diagnósticos en un hospital localizado y ellos encontraron una gran diferencia entre las clasificaciones teóricas y la práctica. La codificación diagnóstica podría ser una limitación de este estudio. De hecho, a pesar de ser un estudio retrospectivo, el OPCRIT ha sido usado para asegurar la fiabilidad interjueces, además de confirmar el diagnóstico.

[Escribir texto]

Por otro lado, la estabilidad diagnóstica en nuestra área puede ser debida a que la formación de los profesionales en psiquiatría es bastante homogénea, y la amplia diversidad diagnóstica en CIE10 es muy alta (95 -100%)[34]

Los trastornos psicóticos debido al consumo de tóxicos son el 13% de la incidencia del área. Estos datos son similares a los encontrados en un estudio transversal hecho en un Ingreso en una Unidad en España. [35]Sin embargo, se trata de una baja incidencia con respecto a estudios previos considerando que la población es joven y su primer episodio.

Por ejemplo, el abuso o dependencia de cannabis y alcohol era informada en el 50% de de los primeros episodios psicóticos referidos al CAMEO (servicio de atención a primeros episodios psicótico). [31] Estos datos fueron también replicados en los primeros episodios de psicosis de otros países.

El incremento de la tasa de trastornos psicóticos en los grupos de inmigrantes es todavía una de las controversias de la salud pública. El presente estudio identifica tasas de psicosis entre varios grupos de inmigrantes. En el Norte de Almería, cerca del 25% de los residentes son extranjeros, la mayoría europeos. La alta tasa del número de inmigrantes contrasta con los encontrados en otros países. Aunque, cuando la incidencia de psicosis en este área ha sido estudiado, se ha encontrado que el 16% de los casos eran inmigrantes, la mayoría de la población de países no europeos. Además este estudio muestra una relación bilateral positiva entre el hecho de ser inmigrante y un incremento en la incidencia de primeros episodios psicóticos.

En este sentido, el estrés que viene asociado de reagrupamiento tales como desempleo, la baja densidad de etnicidad y el desajuste de la consecución de objetivos ha sido ampliamente descrito como factores de riesgos en la población inmigrante.

Un número de hipótesis tempranas están centradas en la posibilidad que la primera generación de inmigrantes era más vulnerable a ser predispuesto a la psicosis. Esto fue debido al proceso de migración y podría llevar un estrés social considerable para algunos individuos., quizás incrementando el riesgo de psicosis. Aunque, otros estudios no han encontrado también un incremento en la prevalencia de la psicosis en otros países.[36]

Otra teoría es el diagnóstico erróneo, como una explicación potencial de una alta tasa en los grupos minoritarios que viven en el norte de Almería. Es justificado por la evidencia que las personas de los grupos minoritarios son más vulnerables para acceder a los servicios y lo hacen a través del sistema de justicia (problemas legales) y ser ingresados de forma reiterativa en un hospital.

Además, esta malinterpretación de los síntomas podría tener una serias consecuencias tales como la sobre prescripción de antipsicóticos y una influencia negativa en el pronóstico de este grupo.[37]

Profundizando en los individuos, en áreas con menos densidad étnica (definida como la proporción de un grupo étnico que vive en un área) el riesgo de la psicosis es cinco veces mayor que en la población mayoritaria blanca.[36]

De hecho, se describe la existencia de una dosis efecto para la densidad étnica en los trastornos psicóticos. Hay una más baja incidencia de los trastornos psicóticos para las étnicas minoritarias en las zonas de mayor densidad étnica comparada a la etnia mayoritaria y mayor incidencia en las zonas de baja de densidad.

[Escribir texto]

En el Norte de Almería, la mayoría de los grupos minoritarios normalmente viven en áreas con baja densidad étnica, que podría justificar el efecto de una tasa alta de incidencia de psicosis. La variación de estos hechos en los diferentes étnicos minoritarios remarca la importancia de que las étnicas minoritarias no son grupos homogéneos. Puede ser una limitación de este estudio que la categoría española solo incluya a la “población blanca” y no existe una diferencia intra-grupo. Por tanto, se debe focalizar en la etnicidad como una identidad propia que comparte una comunidad de sentimiento y el bagaje cultural, siendo un mejor reflejo de la realidad.

Futuros estudios son necesarios para mostrar esta vulnerabilidad, más allá del efecto del lugar de residencia. En teoría, los inmigrantes habrían llegado a un lugar que les debería proteger de la psicosis, ya que ellos viven una zona rural como Almería norte. Pero la zona rural no los protege de tener una mayor incidencia de psicosis, si bien puede ser porque inmigrantes sufren con mayor frecuencia estresores tales como experiencias de racismo o conductas de rechazo.

Aunque, las experiencias complejas a nivel sociocultural y socioambiental podrían ser relevantes para el entendimiento de la variación en la tasa del trastorno psicótico de acuerdo con la etnicidad. Por ejemplo, la ausencia de capital social podría hacer más duro entrar en el trabajo local o en el desarrollo social o en las redes de soporte protegen de estresores sociales como no racial y racial.[11]

Sin embargo, este estudio propone que el principal factor asociado con la variación en riesgo de psicosis en el Norte de Almería es desempleo. En efecto, el punto de partida de desempleo en el Norte de Almería es mayor que en la provincia de Almería y Andalucía hasta el año 2006. Desde 2007 en el Norte de Almería, Almería y Andalucía hay un incremento de desempleo.

Estas cifras no varían mucho en el Norte de Almería en 2009. Pero continúa el crecimiento en Almería y Andalucía.

Algunos autores consideran que hay dos diferentes periodos: el primero es “agudo”, justo después del inicio de la recesión (2008-2009), lo peor desde el punto de vista económico, y el segundo periodo se inicia en los siguientes años, y todavía continúa, la fase “crónica”. [39] Así se podría argumentar que el Norte de Almería todavía se comporta como si estuviera en una fase crónica. Las tasas de desempleo eran altas entre las personas con problemas de salud mental comparados con los que no lo padecen. Adicionalmente, cuando la población de estudio es observada se encuentra con un 73% de desempleo.

Aunque no se podría afirmar si la situación de desempleo es previa a los síntomas de la psicosis o si por el contrario los síntomas dificultan la incorporación a la vida laboral o ambos, lo que se encuentra es que en los individuos que se mueven del desempleo al empleo informaban de un significativo incremento en su salud mental. [40]

Basado en los resultados del Norte de Almería, se ha estimado que la incidencia de psicosis en el rango de edad 15-64 años era de 20 casos por 100,000 individuos al año (aunque rango de casos era de 8-22)[12], [13], [43]

La tasa de incidencia de los diferentes países muestra un rango entre 15.2 a 51 por 100,000 habitantes año en individuos con trastornos psicóticos (con amplio rango de edad; 15-35 y 15-64)[4]

Esas tasas son establecidas con un estudio meta- análisis en el Reino Unido en el que se encontró que la incidencia de psicosis era de 31.7 por 100.000 habitantes año en individuos de



[Escribir texto]

edad 16-64 años. [11] Pero es importante tener en cuenta las características: área urbana, migración.

Los pocos estudios que han investigado las tasas de incidencia en España han descrito cifras de Esquizofrenia de 8-24 (para los años de 15-54 años). Estos eran localizados en las zonas urbanas tales como Barcelona y Cantabria.[43]

Se decide que el presente estudio debe incluir no solo la categoría diagnóstica de esquizofrenia si no todos los trastornos psicóticos.[14] La incidencia esperada de psicosis en el norte de Almería debería ser más baja que la realmente encontrada, porque se trata de un área rural.

En relación a la tasa ajustada de psicosis por unidades, se encuentra que existe en la mayoría de ellos, un incremento de la incidencia de psicosis en 2011 (Cuevas, Huercal, Pulpí y Vélez) y en 2012 (Albox y Mármol)

Ello podría ser explicado que los individuos con síntomas de psicosis o estados mentales de alto riesgo sufren serios deterioros a nivel social, ocupacional o funcional previo a los primeros episodios psicóticos. Aunque, los individuos con alto riesgo de psicosis sufren un amplio rango de trastornos psiquiátricos y síntomas psicóticos leves, informando con más ideación suicida, depresión y síntomas ansiosos y además con peores niveles de funcionamiento calidad de vida y estatus empleo que problemas de salud.[28]

Así, es posible que este estudio tenga un pico posterior de psicosis en individuos con un alto riesgo o prepsicosis. Además, Marmol y Albox eran dos unidades con una elevada tasa de desempleo. Podría estar tanto asociado. La incidencia de los trastornos psicóticos ajustado por edad y género son consistentes con un la literatura internacional.

Este estudio ha identificado una variación en la incidencia de psicosis en una región rural de Andalucía. La incidencia era mayor que la típicamente informada en los estudios de primeros episodios psicóticos adultos con un rango de edad 15-64.

Esta es una fortaleza de este estudio y que esto para dar una amplia mirada a la psicosis durante todo el periodo de la vida adulta. Por otra parte, en estudios previos de primeros episodios psicóticos, la mayoría de los grupos de expertos en psicosis intentan evitar un diagnóstico muy específico a priori y le dan más un amplio diagnóstico tales como los espectros psicóticos.[8]

Este estudio analiza la asociación entre la tasa de desempleo y la psicosis. De hecho, el desempleo es más común entre las personas con psicosis. Sin embargo, no se puede asumir que los individuos con desempleo no pudieran tener otros trastornos mentales. Podría ser una limitación de este estudio. Por tanto para las futuras investigaciones se valorará la morbilidad psiquiátrica en las personas del Norte de Almería.[18], [47]

En el Norte de Almería la tasa de desempleo es alta, y mayor que en otras partes de Andalucía y España. Estas altas tasas de desempleo antes del inicio de la psicosis puede enmascarar síntomas prodrómicos.

Por cada punto de porcentaje aumentado en la tasa de desempleo, el número de primeros episodios psicóticos decrece en 0.946. Esto podría ser justificado porque, primero, la población presenta síntomas prodrómicos o estado de alto riesgo antes de que acudan a los servicios de salud. Segundo, otros autores han considerado que la duración del tiempo sin tratamiento con psicosis (DUP) es más largo en las personas desempleadas.[44] Por tanto, las personas del Norte de Almería que son desempleadas podrían tener un largo DUP, y secundariamente un retraso en la detección y en el diagnóstico.

[Escribir texto]

De acuerdo con esta teoría, en algunas áreas del Norte de Almería la incidencia de psicosis en un año puede ser más baja e incrementar posteriormente, por ejemplo en Cuevas, Pulpí y los Vélez en el 2012 y 2013.

Esto es un hecho relevante que determina las políticas de salud y el diseño e implantación de programas de primeros episodios psicóticos. Los programas especializados deben asignar los recursos en áreas que pueden ser de mayor riesgo.

Una limitación de este estudio es que no existe una relación causal o una justificación de psicosis debida a estas variables. Aunque, se ha establecido que aproximadamente el 70% de las tasas de incidencia de psicosis podría ser explicado por cuatro variables principales: desempleo, género, lugar de residencia y suicidio.

A este respecto, basado en el grupo de Cambridge y en AIMA,[46] [45] un mapa geográfico ha sido diseñado con áreas de mayor riesgo predictivo de psicosis. Es crucial, porque en un periodo de crisis económico y de reducción de recursos, los programas deben buscar ser cada vez más eficientes.

Además, teniendo en cuenta el contexto en el que el área Norte de Almería se encuentra situada y que hay una gran dispersión geográfica comparada con otras investigaciones que describen las tasas de incidencia de psicosis, la mayoría de los cuales son realizados en el Reino Unido, Australia y Dinamarca.[8], [18], [47]

Ninguno fue realizado exclusivamente en España. A pesar de las limitaciones de comparar la incidencia de psicosis en un área con una amplia distribución geográfica y con un número limitado de la muestra, este estudio proporciona una útil contribución a la literatura científica.

## 5. Conclusiones

1. La distribución de la incidencia de psicosis por género en el área Norte de Almería es homogénea, la mitad para hombres y algo menor para las mujeres.
2. La media de edad de los casos de incidencia en psicosis en el área Norte de Almería es rondando los treinta, más mayores que en otros estudios.
3. La categoría diagnóstica más común es la psicosis afectiva, seguido de la esquizofrenia.
4. El OPCRIT ha sido usado para asegurarse la fiabilidad diagnóstica inter-jueces, además de confirmar la estabilidad diagnóstica en este estudio.
5. La incidencia de psicosis en esta área es estudiada, siendo cerca un cuarto de los casos inmigrantes. Los inmigrantes no-europeos y asiáticos tienen un mayor riesgo de tener trastornos psicóticos que los españoles, los americanos y los africanos en esta área.
6. En el Norte de Almería la mayoría de los grupos minoritarios normalmente viven en áreas con baja densidad étnica. Esto podría justificar el efecto de que exista una tasa alta de incidencia de psicosis. Se encuentra que existe una correlación positiva entre migración y primeros episodios psicóticos.
7. La tasa de desempleo era más alta en las personas con trastorno mental comparadas con aquellas sin ello. Por cada punto de incremento en la tasa de desempleo, el número de primeros episodios psicóticos decrece cerca de un punto.

[Escribir texto]

8. En todas las zonas del Norte de Almería, en relación a la tasa de suicidio existe un incremento en los hombres de 45-64 años. Esta incidencia fue mayor en los años 2009 y 2010, cuando el impacto de un aumento en el desempleo fue incluso más abrupto. Por cada punto de porcentaje incrementado en la tasa de suicidio, el número de primeros episodios psicóticos incrementa en casi un punto.
9. En el Norte de Almería, se ha estimado que la incidencia de psicosis en el rango de edad de 15-64 años era de 20 casos por 100,000 individuos por año (rango 8-22)
10. La incidencia esperada de psicosis en el Norte de Almería era menor que la que actualmente se ha encontrado ya que se trataba de un área rural. Además, se ha encontrado que hay un incremento de incidencia en el año 2011 en la mayoría de las unidades, y en 2012 en un par de ellas.
11. En el Norte de Almería la tasa de desempleo es mayor que en otras partes de Andalucía y España. Estas tasas tan altas de desempleo antes del inicio de la psicosis podrían enmascarar síntomas de pródromos de psicosis.
12. Por cada punto de porcentaje que incrementa en la tasa de desempleo, el número de primeros episodios psicóticos decrece la mitad de un punto. La población del Norte de Almería que está desempleada podría tener un mayor DUP y consecuentemente un retraso en la detección y en el diagnóstico.

[Escribir texto]

Tabla 1. Descripción de las variables

<b>Periodo de estudio 2009 – 2013</b>				
<b>Población</b>	150.000 habitantes	111 tasa de incidencia de psicosis Norte Almería		
<b>Género</b>		Valor (N)	Porcentaje (%)	
	Hombres	63	56.8	
	Mujeres	48	43.2	
<b>Edad</b>	Media	30,8 años		
	Moda	24 años		
<b>Diagnóstico</b>		Valor (N)	Porcentaje (%)	Edad media
<b>Psicosis afectiva</b>		39	35.1	30.51
	Hombres	18	46.2	
	Mujeres	21	53,8	
<b>T. Delirante</b>		11	9.9	32.82
	Hombres	7	63.6	
	Mujeres	4	36.4	
<b>Psicosis breve</b>		1		26
	Hombres	1	100	
	Mujeres	0	0	
<b>Esquizofrenia</b>		29	26.1	30.34
	Hombres	16	55.2	
	Mujeres	13	44.8	
<b>Psicosis tóxica</b>		15	13.5	32.33
	Hombres	12	80	
	Mujeres	3	20	
<b>Psicosis no específica</b>		8	7.2	30.88
	Hombres	5	62.5	
	Mujeres	3	37.5	
<b>T. esquizoafectivo</b>		8	7.2	28.80
	Hombres	4	50	
	Mujeres	4	50	
<b>Autóctonos</b>		Residentes	Incidencia de psicosis	
	Almería Norte	74.31	83,5	
<b>Inmigrantes</b>		Extranjeros		
	Europa	17,49	2,7	
	No-Europeos	0,52	4,5	
	África	2,08	0,9	
	Asia	0,45	5,4	
	Oceanía	0,004	2,7	
<b>Empleo</b>		Población del Norte de Almería (%)	Casos of Incidencia de Psicosis (%)	
	Empleados	49.54 (2009)	73	
	Desempleados	51.56 (2009)	27	

[Escribir texto]

Tabla 2. Tasa de incidencia de psicosis.

	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>ALBOX</b>	2.0239	0.8157	1.6144	2.8044	0.4074
<b>CUEVAS</b>	0.7156	1.4453	3.7626	0	1.5289
<b>GARRUCHA</b>	2.5511	1.479	1.4325	1.4646	0
<b>HUÉRCAL OVERA</b>	2.7468	0.4543	3.0263	1.7358	2.5615
<b>MÁRMOL</b>	1.5668	0.4807	1.037	2.112	1.077
<b>PULPÍ</b>	2.682	1.2929	3.3672	0	1.0585
<b>VÉLEZ</b>	1.629	0.8044	2.3443	0	0.8088
<b>VERA</b>	1.3785	1.3056	1.7454	0.4493	1.3443

[Escribir texto]

Tabla 3. Coeficientes del Modelo 4.

Modelo 4	Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza 95.0%		Estadísticos colineales	
	B	Error estandarizado	Beta			Límite superior	Límite inferior	Tolerancia	FIV
(Constante)	11.365	0.027		415.810	0.000	11.311	11.419		
Desempleo	-0.946	0.001	-1.120	-894.335	0.000	-0.948	-0.944	0.470	2.128
Género	-1.433	0.010	-0.256	-138.337	0.000	-1.454	-1.413	0.216	4.631
Suicidio	1.193	0.010	0.235	116.050	0.000	1.173	1.213	0.180	5.566
CUEVAS	2.677	0.011	0.274	238.800	0.000	2.655	2.698	0.558	1.793
GARRUCHA	2.668	0.010	0.328	275.445	0.000	2.649	2.687	0.518	1.930
HUÉRCAL	2.985	0.009	0.384	328.385	0.000	2.967	3.003	0.538	1.860
MÁRMOL	4.673	0.011	0.575	444.422	0.000	4.653	4.694	0.440	2.275
PULPÍ	-2.422	0.012	-0.202	-209.837	0.000	-2.445	-2.400	0.794	1.260
LOS VÉLEZ	-3.241	0.013	-0.331	-246.634	0.000	-3.267	-3.216	0.409	2.444
VERA	2.686	0.009	0.348	298.382	0.000	2.668	2.704	0.541	1.847

a. Dependent variable: First episode psychosis

[Escribir texto]

Tabla 4. Correlación entre el análisis bivariante.

		Primeros episodios psicóticos	Desempleo	Suicidio	Inmigrante
Primeros episodios psicóticos	Correlación de Pearson	1	-0.419**	0.026**	0.318**
	Sig. (bilateral)		0.000	0.000	0.000
	N	857012	713868	423444	143296
Desempleo	Correlación de Pearson	-0.419**	1	0.168**	-0.234**
	Sig. (bilateral)	0.000		0.000	0.000
	N	713868	713868	423444	143296
Suicidio	Correlación de Pearson	0.026**	0.168**	1	-0.193**
	Sig. (bilateral)	0.000	0.000		0.000
	N	423444	423444	423444	143296
Inmigrante	Correlación de Pearson	0.318**	-0.234**	-0.193**	1
	Sig. (bilateral)	0.000	0.000	0.000	
	N	143296	143296	143296	143296

\*\* Correlación es significativa para 0.01 (bilateral).

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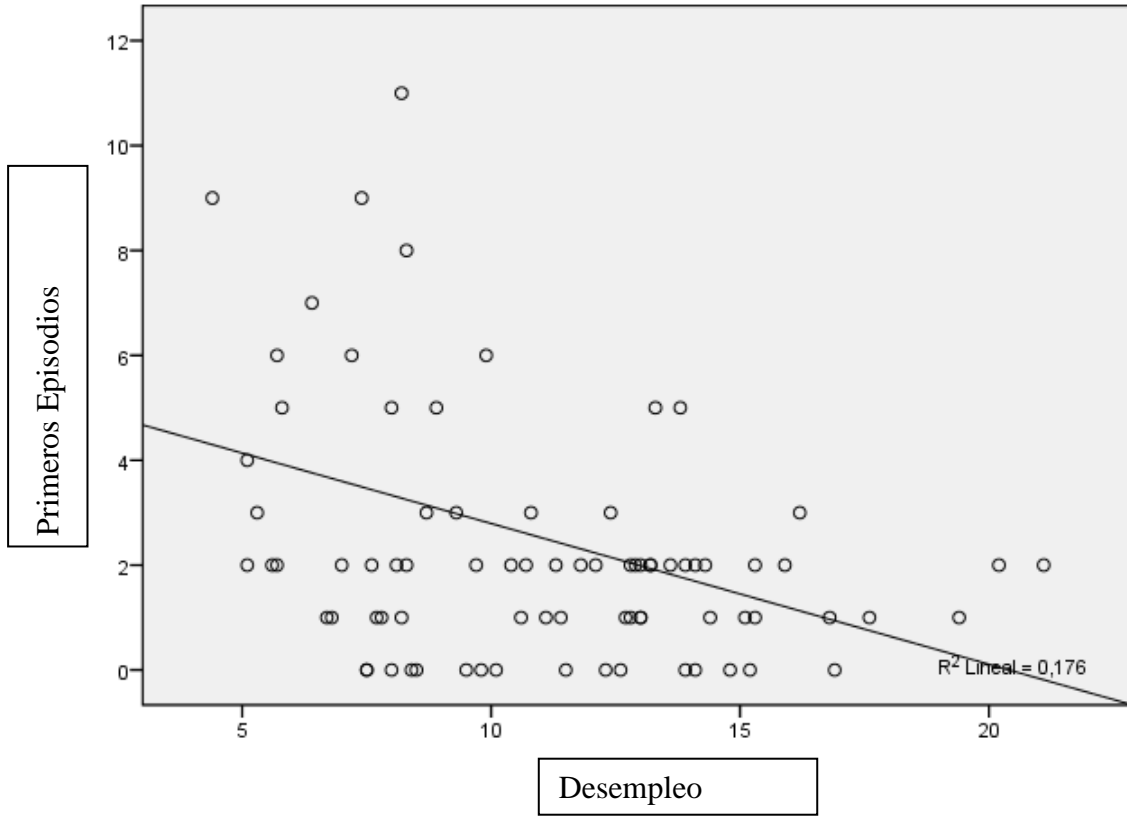


Figura 1. Relación entre desempleo y primeros episodios psicóticos.



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## **CHAPTER 1. INTRODUCTION OF FIRST EPISODE PSYCHOSIS**

A growing interest in first episode of mental disorders has recently emerged, focusing attention on the initial phases of established severe disorders. In the field of psychotic disorders, interest has tended to shift from disorders such as schizophrenia, bipolar disorder and others to a greater consideration of first psychotic episode. [50]

This interest in early intervention offers an opportunity to make major changes in psychiatric practice, but requires more research to address questions.[1]

Psychosis is associated with several different mental and physical disorders. Some of the more common diagnoses associated with psychosis include:

- Schizophrenia
- Schizophreniform disorder
- Brief reactive psychotic disorder
- Bipolar disorder
- Psychotic depression
- Schizoaffective disorder

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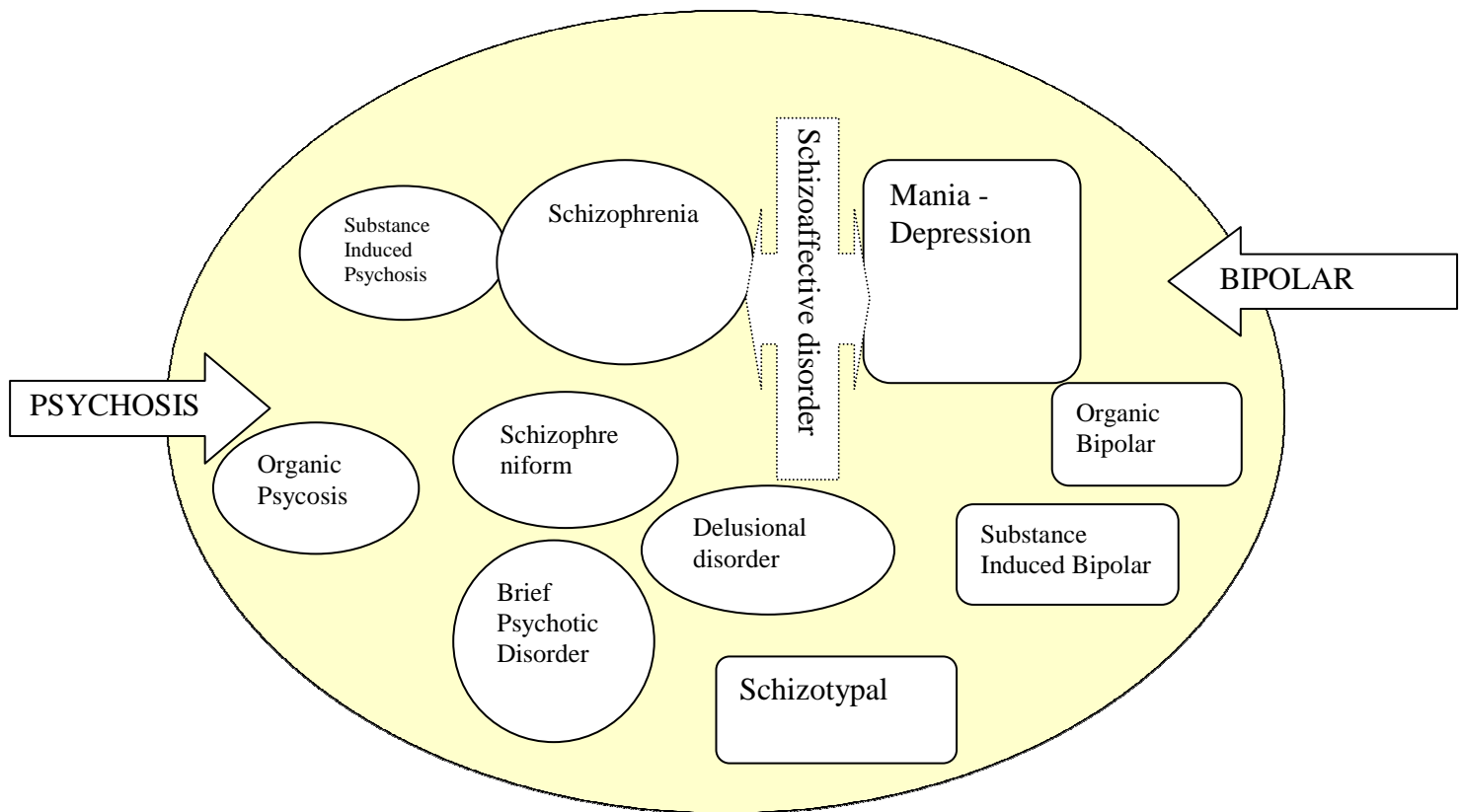


Figure 1.1 Summary of psychotic disorder [51]

There are also other disorders in which psychosis may occur. Sometimes, certain specialized types of assessments (such as a brain scan or assessment of cognitive functioning) may aid in clarifying the specific diagnosis. These will be arranged when it is felt they may be helpful. In order to properly diagnose what specific type of psychotic disorder an individual has, patterns of symptoms must be assessed often over many months. For this reason, determining the diagnosis may take some time, most early intervention in psychosis groups confirms this. [52]

Besides, affective symptoms are often present in the early stages of onset psychosis, and that does not predict a later diagnosis of bipolar disorder or schizophrenia [22]

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The recent DSM 5 conceptualization of the schizophrenia spectrum and other psychotic disorders include schizophrenia, other psychotic disorders, and schizotypal (personality) disorder. They are defined by abnormalities in one or more of the following five domains: delusions, hallucinations, disorganized thinking (speech), grossly disorganized or abnormal motor behaviour (including catatonia), and negative symptoms. Then time limited conditions should be considered. Finally, the diagnosis of a schizophrenia spectrum disorder requires the exclusion of another condition that may give rise to psychosis. [2]

When most studies refer to first episode psychosis, quick classification of a specific diagnosis should be avoided. It is for this reason that schizophrenia spectrum and depression with psychotic symptoms has been included in this study.

To clarify the difference between ICD 10 and DSM 5, it has been useful to understand the symptoms of both disorders (schizophrenia and bipolar), and the duration of the illness is also needed for diagnosis.

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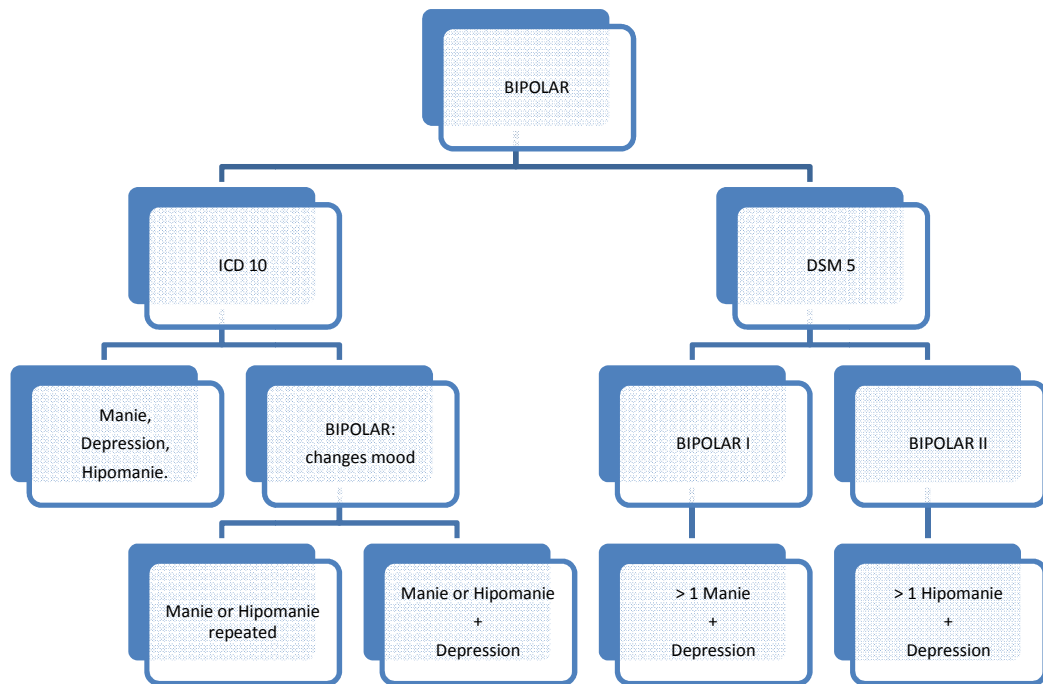


Figure 1.2. Schizophrenia differences between ICD 10 – DSM 5 (compiled by author)

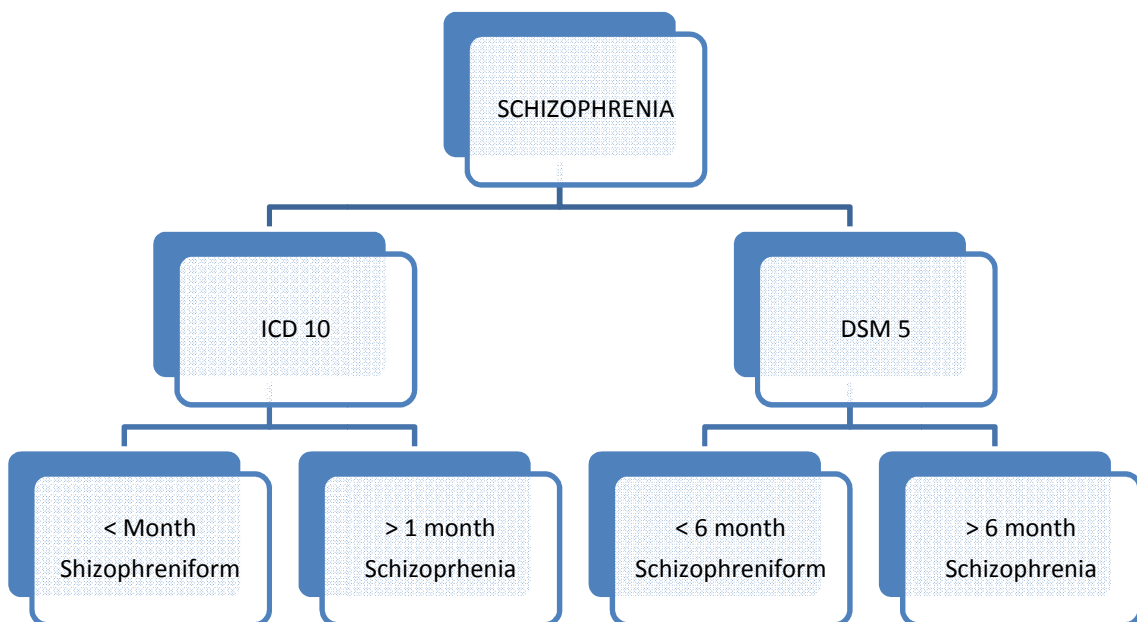


Figure 1.3. Bipolar differences between ICD 10 – DSM 5 (compiled by author)

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A guideline covers “The treatment and management of psychosis and schizophrenia and related disorders in adults” (18 years and older) with onset before the age of 60. [53] The term 'psychosis' is used in this guideline to refer to the group of psychotic disorders that includes schizophrenia, schizoaffective disorder, schizophreniform disorder and delusional disorder. The recognition, treatment and management of affective psychoses (such as bipolar disorder or unipolar psychotic depression) are covered by other NICE guidelines. [54][55][56]

On the other hand, in II Comprehensive Mental Health Plan for Andalusia, one of the 15 strategies which assist in the achievement of the proposed objectives is Early Detection and Intervention of Psychotic Disorders. [57]

It is known that the first three to five years of development of psychosis (known as the critical period) are determining for prognosis. In spite of this, many cases are detected or begin to be treated much later, after years of personal and family suffering and when a severe deterioration in family and social life has already occurred.[58]

Therefore, programmes are required for both early detection and assertive treatment which will ensure, during the first years of the illness, the provision of quality interventions based on the best available evidence and which are aimed at the recovery of family, education and work life, as well as family support and cooperation.[59]

The study and preparation by a cross-cutting working group of a consensus proposal for early detection and intervention of psychosis in Andalusia deals with care quality standards and service coordination and reorganisation needs.[60]

Psychosis and the specific diagnosis of schizophrenia represents a major psychiatric disorder (or cluster of disorders) in which a person's perception, thoughts, mood and behaviour are significantly altered. The symptoms of psychosis and schizophrenia are usually divided into 'positive symptoms', including hallucinations (perception in the absence of any stimulus) and delusions (fixed or falsely held beliefs), and 'negative

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symptoms' (such as emotional apathy, lack of drive, poverty of speech, social withdrawal and self-neglect). [61]

Each person will have a unique combination of symptoms and experiences. Typically there is a prodromal period, which precedes a first episode of psychosis and can last from a few days to around 18 months. [5]

According to one hypothesis, a specific approach to the most serious mental disorders in their initial phase will improve their clinical course and, hence, their prognosis. This suggestion is further strengthened by the fact that very long periods typically pass between the onset of psychotic disorders and their recognition and therapeutic intervention, known as duration of untreated psychosis (DUP). A reduction of this period would lead to the possibility of secondary prevention.[3]

The prodromal period is often characterized by some deterioration in personal functioning. Changes include the emergence of transient (of short duration) and/or attenuated (of lower intensity) psychotic symptoms, memory and concentration problems, unusual behavior and ideas, disturbed communication and affect, and social withdrawal, apathy and reduced interest in daily activities. The prodromal period is usually followed by an acute episode marked by hallucinations, delusions and behavioural disturbances, usually accompanied by agitation and distress. [62]

Following resolution of the acute episode, usually after pharmacological, psychological and other interventions, symptoms diminish and often disappear for many people, although sometimes a number of negative symptoms remain. This phase, which can last for many years, may be interrupted by recurrent acute episodes that may need additional pharmacological, psychological and other interventions, as in previous episodes. [63]

In this respect, research confirms that delay in the treatment of first psychotic episodes is associated with poor outcomes in terms of functionality and symptoms. [4]

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Meanwhile, the age of onset of psychotic episodes ranges from 14 to 35 years, affecting half of the patient's life and impacting on family, social and occupational domains. [64] The first symptoms tend to start in young adulthood, at a time when a person would usually make the transition to independent living, but can occur at any age. The symptoms and behaviour associated with psychosis and schizophrenia can have a distressing impact on the individual, family and friends.[65]

Psychosis and schizophrenia are associated with considerable stigma, fear and limited public understanding. The first few years after onset can be particularly upsetting and chaotic, and there is a higher risk of suicide. Once an acute episode is over, there are often other problems such as social exclusion, with reduced opportunities to get back into work or study, and problems forming new relationships. [66]

In the last decade, there has been a new emphasis on services for early detection and intervention, and a focus on long-term recovery and promoting people's choices about the management of their condition. There is evidence that most people will recover, although some will have persisting difficulties or remain vulnerable to future episodes. Not everyone will accept help from statutory services. In the longer term, most people will find ways to manage acute problems, and compensate for any remaining difficulties. Carers, relatives and friends of people with psychosis and schizophrenia are important both in the process of assessment and engagement, and in the long-term successful delivery of effective treatments. [8] A continuing emphasis on care outside the clinic space places family members at the heart of the care of those with severe mental illness. [67]

**Early intervention in psychosis** is justified as it is associated with better outcomes at a functional and social level [5] and aims to achieve as much progress as possible in arresting the disorder, thus going beyond the diagnostic label.

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In the latest Cochrane review the provision of early detection and specific treatment is recommended in addition to standard care.

Since all of these programmes are highly cost-effective [6], healthcare decisions should take into account the costs of the disease and its treatment, especially in mental health, as well as distribution of resources on a local scale. [7]

Bearing in mind programme development costs and the efficiency of interventions, a tool is required. This tool would help to plan such interventions and programmes by detecting areas at risk of an increased incidence of psychosis based on socio - demographic factors.[68]

Indeed, social-environmental and biological factors interact strongly in the development of many health conditions. Psychiatric disorders and symptoms are no exception. Hence, the Faris and Dunham study (1939) suggested highlighting the neighbourhood context as an important variable that may be associated in complex ways with the onset and course of mental disorders. [69]

To this end the Cambridge group [11]has developed a tool that helps to predict the incidence of psychosis in a given area using just such an analysis.

Reported incidence varies depending on the studies consulted (see table 2.1) across populations. It has been suggested that incidence may be affected by several variables, including **area of residence or neighbourhood, social isolation** [4], **urban versus rural populations** [9] and **migration**. [20]

By way of introduction to the subject, the currently available psychotic studies are reviewed here, focussing mainly on variables such as residence, gender, migration, unemployment and suicidal factors.



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The diagnoses of psychotic disorders are included and encoded in international classification systems: Diagnostic criteria according to International Classification of Diseases, DSM 5 and ICD10 F10-F39. [2]

Table 1.1 ICD10 and DSMIV – DSM 5 diagnostic criteria (compiled by author)

DIAGNOSTIC CRITERIA	ICD 10	DSM IV – DSM 5
Affective psychosis	F30.2 F31.2 F33.3	296.x4, 296.4, 296.89 296.34
Delusional disorder	F22.0	297.1
Brief psychosis	F23.9	298.8.
Schizophrenia Schizophreniform	F20	295.xx 295.40
Schizoaffective	F25	295.70
Substance abuse-induced psychosis	F10 (Alcohol) F12 (Cannabis) F14 (Cocaine) F15 (Amphetamines) F16 (Hallucinogens)	291, 292, 298.9.
Medical Induced psychosis	F06	293.81, 293.82
Non-specified psychosis	F29	298.8
Schizotypal disorder	F21	301.22

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## CHAPTER 2. PSYCHOSIS EPIDEMIOLOGY

### 2.1. THE EPIDEMIOLOGY OF PSYCHOTIC DISORDERS

A meta-analysis challenged the previously-accepted belief that the prevalence and incidence of schizophrenia do not vary as a function of location and gender.[49]

This variation in incidence in terms of the epidemiological dimensions of time, person and place is fundamental, and is an important tool for understanding and investigating the causes of psychosis. [9]

In a recent meta- analysis [38] the authors found no evidence to support an overall change in the incidence of psychotic disorder over time. Nevertheless, the main studies show heterogeneity as regards the following variables:

1. The range of age could vary between 15 – 35 and 15 – 64 years old.
2. The different diagnosis of studies: all psychosis and only schizophrenia within schizophrenia spectrum.
3. Socio – environmental factors included: gender, rural and urban living area, migrants and natives.
4. The direct measurement of incidence for less common disorders usually requires a longer recruitment period and/or larger catchment areas. [18]

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Table 2.1. Summary of cumulative incidence of psychosis according to leading authors

(compiled by author)

Authors	Incidence per 100,000 inhabitants/year	STUDY LOCATION	DIAGNOSTIC GROUP
McGrath et al. 2008	15.2	Meta-analysis, Australia.	Schizophrenia
Anderson KK et al. 2012[4]	82.9 (men) 32.2 (women)	Quebec (Canada)	Schizophrenia spectrum
Kirkbride JB et al. 2012 [11]	42.6 (16 – 35 years)	East Anglia	Psychosis
Kirkbride JB et al. 2013 (ESOP study)[6]	34.8	London, Nottingham, Bristol (UK)	Schizophrenia and other psychoses
Kirkbride JB et al. 2012[38][46]	31.7 (16 – 64 years)	England	Meta – analyses Psychosis
Owoeye O et al. 2013 (CAMFEPS study)[16]	33.5	Cavan Monaghan, Dublin (Ireland)	Psychotic disorders
Kirkbride JB et al. 2013[46]	51	London, Nottingham, Bristol (UK)	Psychotic disorders
Mata I et al, PSICOST group. 2000[13]	22 (15-54 years)	Navarre (Spain)	Schizophrenia
Reay R. 2010[70]	30.95 (16 – 64 years)	Northern England	Psychosis
Saha S et al. 2014[18]	28 (18 – 64 years)	Australia	Psychosis
Tarricone et al. 2012 BoFEP Study[71]	16.4 (18- 64 years)	Italy	First Episode Psychosis
Vázquez-Barquero et al. 2006[7]	19	Cantabria (Spain)	Schizophrenia
Ayuso-Mateos et al. 2006	8 (15-54 years)	Spain	Schizophrenia
Quijada Y et al, 2010	24	Barcelona (Spain)	Schizophrenia and other psychoses

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McGrath et al. [49] note the widespread belief that “the prevalence of schizophrenia is one per cent”, which is consistent with their mean lifetime risk estimate of 11.9 per 1,000. They argue however that the median is a more appropriate measure of central tendency for a skewed distribution, and this yields a lifetime morbid risk estimate of suffering from schizophrenia of 7.2 per 1,000. Therefore, if the aim is to give the general public an idea of the likelihood of developing schizophrenia during their lifetime, a more accurate statement would be that “about seven individuals per 1,000 will be affected.”

There are fewer incidence and prevalence studies in Spain, however. The Cantabria Vazquez-Barquero group studied the prevalence of schizophrenia, they started out with the incidence rate report dating from 1995. [12] The original authors calculated an incidence of 8 per 100,000 inhabitants/year for the general population (8.4 for men and 8 for women), which is consistent with the data obtained by Ayuso-Mateos. However, when age was restricted to the 15-54 range, the incidence rate rose to 19 per 100,000 inhabitants per year (18.8 in men and 19.3 in women).

A similar study found an incidence rate of 24 per 100,000 inhabitants, although it should be noted that the age range was widened from 14-30 years to 12-56 years. [14]

Greater annual incidence has also been reported in Navarre with 22 cases per 100,000 inhabitants in the 15-54 age group.[13]

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The prevalence of severe mental disorders has been reported as 1.5–2.5 per 1,000 in the general population [72], and 1.1–6.2 per 10,000 people [73].

The prevalence of schizophrenia has been reported as 3 per 1,000 inhabitants/year (3 for men and 2.86 for women), with a mean age of onset of 24.4 and 27 years in men and women respectively. [12]

Okkels et al. [74] found an increase in schizophrenia and all psychotic disorders before the age of 18, after a 40-year follow-up study in Denmark, with a diagnosis of early onset schizophrenia in 3.17 out of every 100,000 people.

The authors attribute this to a combination of factors, such as: changes in diagnostic systems, changes in organisations, substance abuse or even the increased attention that has been focused on psychiatric disorders in children and adolescents.

A study by McNamara et al. [75] reports that the prevalence of bipolar disorders in the United States is 4.4% (Type I bipolar: 1%; type II bipolar: 1.1% and other bipolar disorders: 2.2%), with onset in adolescence. (2.5%)

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## **2.2. THE INCIDENCE OF PSYCHOTIC DISORDERS IN RURAL VERSUS URBAN AREAS**

There is a strong association between exposure to an urban environment and the development of schizophrenia, which is potentially extremely useful for predictive models. [76] According to these authors' meta-analysis, the incidence of schizophrenia increases directly with urban living, as measured in terms of population size and density.

The ESOP study[9] shows that, while the incidence rate of psychotic disorders was 34.8 per 100,000 inhabitants/year, the rate in South London was more than double that found in Nottingham or Bristol (54.5, 25.1 and 22.1, respectively). This study suggests a need to investigate the effect of "psychogens" in the context of environment and / or population density.

The authors of the study therefore analysed the incidence of psychosis in England based on two prior studies. One of the reasons for this was that they found that "incidence was not the same everywhere", meaning that it does not affect all geographical areas equally. They suggested that it was underestimated in urban areas and overestimated in rural areas.

The systematic review shows that the distribution of the incidence rate varies between urban and mixed (urban-rural) areas, with a difference of 19 versus 13.3, respectively.

[74]

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In fact, rates could vary from 32/ 100,000 to 74 / 100,000 persons/ year, for people 16-35 years old. This latter rate was estimated from an early intervention in psychosis service, which is three times greater than the figure upon which such services were commissioned. [38]

In France, the annual incidence of psychosis was found to be greater in urban areas (36.02 per 100,000 people per year) than in rural areas (17.2 per 100,000) in the 18-64 year-old age range. [77]

In Spain, a Barcelona group designed the SASPE project [43], and studied two districts of Barcelona (a middle and lower-middle class area versus a more marginal area). The result was a prevalence of schizophrenia of 45.9 per 10,000 inhabitants versus 71.7 in the at-risk (marginal area) group, and a prevalence of other psychoses of 34.9 per 10,000 inhabitants versus 36.1 in the at-risk population. They explain that the prevalence found in the latter group is much greater than in the general population because of social and psychosocial factors [41], a higher percentage of gypsies and a concentration of marginal groups, rather than because of the immigrant population.

Indeed, a study conducted in another area of Barcelona found that the percentage of mental disorders was no greater in the immigrant population than in the local population. [78]

The current author's review of the available literature shows that while there are international studies providing figures for the incidence of psychotic disorders in general, there is no Spanish research that included all of these disorders.

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Using epidemiological data regarding variance in the incidence of psychosis when plotted against socio-demographic risk factors, [11] a psychosis prediction model was developed, known as the Cambridge model, based on the socio-demographic structure of the population of a given area. The authors suggest that prediction models need to consider age, gender, ethnic groups and the rural/urban environment as well as population density. This is to avoid the trap of proposing uniform incidence rates.



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### 2.3. INCIDENCE OF PSYCHOTIC DISORDERS AND GENDER

Excluding affective psychoses, the distribution of psychotic disorders by gender has been found to exhibit a 1.8: 1 male-female ratio [9]. Similar figures were found in a study by Owoeye et al. [16], with a 1.39:1 male-female ratio, and 1.4: 1 for schizophrenia [49]. The same cannot be said for sub clinical psychoses. Rössler [79] found no significant differences between genders in a community cohort study in Switzerland, with both onset and the course of illness being the same for men and women.

Similar results were obtained by an Australian group, which found a higher incidence rate estimate in males than in women, 1.57: 1. [18]

According to the ESOP study, age at onset tends to be 20-24 for men (82.8%) and 16-19 for women (48%). After the age of 35, there are no differences between genders in the incidence rate, suggesting that the same applies to prevalence. [49]

In another study, the mean age at onset was found to be 38.4 years, with a median of 32, five years younger in men than in women (who were found to have a median of 37).[16]

Other studies show that gender differences in the incidence and prevalence of schizophrenia and other psychoses are clear, with onset in the first 20 years in men and a few years later in women [6], and 1.5 to 2 times greater in men than in women.

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For all clinically relevant psychoses non-affective psychoses and schizophrenia as a separate outcome the available data generally indicated that incidence declined with age for both men and women, being steeper for men with a secondary peak in incidence for women, commencing in their mild to late-forties. [11]

The incidence is slightly higher in women in affective psychosis.[80]

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## **2.4. INCIDENCE OF PSYCHOTIC DISORDERS – ETHNIC GROUPS AND MIGRATION**

The distribution of the incidence of psychotic disorders in the immigrant population has been found to have a ratio of 4.6:1 relative to the native population. [49] But this varies in second generations. Other research has found that a personal or family history of migration is a risk factor for psychosis (relative risk: 2.9 [81]; RR: 2.3. [82])

This cannot be explained by selection theory (“people with difficulties emigrate”) [19] or misdiagnosis (clinicians’ failings owing to insufficient attention to social, cultural and contextual factors. [10] It is much more complex.

In the Bourque et al. [82] review, 21 studies were reported differentiating between first-generation migrants (individuals with a personal history of migration) and second-generation migrants (individuals born in the host country whose parents were born in a foreign country).

Clouding the picture, some studies conducted in the United Kingdom use the term “native” for the "white" population, and “immigrant” for the "non-white" population, including the "black" population from minority ethnic groups that have been living in the country for more than two generations. In the United Kingdom, an increased risk for schizophrenia was reported for black Caribbean (RR: 4.7), black African (RR: 4.7) and South Asian groups (RR: 2.4).[83]

The latter observation is included in the Cantor-Graae et al. [81] meta-analysis of studies conducted in the United Kingdom, Australia, Germany, Denmark, Sweden and the Netherlands.

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The results of meta- analyses of 18 studies are different depending on characteristics of migration.

In first-generation migration, the relative risk was 2.7 with wide heterogeneity. On the other hand, in the studies of second- generation migration, the relative risk was 4.5. Thus, the studies that did not distinguish between first and second generation migrants show a relative risk of 2.9 (with evidence for heterogeneity).

In the same study, when the ICD criteria was used for diagnosis, the relative risk was found to be 3.1.

In fact, it was also found that the risk is greater in immigrants from Eastern Europe as well as developing countries with high incomes, such as Trinidad, and developing countries with medium incomes, such as Jamaica, compared to low-income developing countries, such as India.

The most comprehensive of the meta- analyses, which included both first and second generation migrants, yield a mean weighted effect size of 2.9 for the risk of developing schizophrenia among immigrants.[84]

However, one of the conclusions claims that there is a greater risk associated with skin colour, with the highest risk affecting the black population (RR: 4.8). They assumed that people with dark skin colour (and migrant people in general) may be more subject to the effects of poverty and low social class.

In the Netherlands study, the risk relative for broadly defined psychosis was substantially attenuated when a culturally sensitive diagnostic procedure was applied. According to the outcomes from the culturally sensitive version in that study, differences in the incidence of first contact psychotic disorders between the ethnic

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groups became substantially smaller and the incidence of schizophrenia among Moroccans is no longer significantly higher than among ethnic Dutch people. [37]

The first study on the incidence of psychosis in Southern Europe confirmed the difference between migrants and natives. In fact, in Italy, first-generation migrants (mainly from Asia, Africa and Eastern Europe) were found to exhibit higher risk than native Italians (RR: 2.5).

Meanwhile some authors support the thesis that the incidence of psychotic disorders varies when comparing minority ethnic groups, and is greater in groups that perceive greater discrimination. [85] In fact, if second-generation migrants have a higher risk than first-generation migrants, Veling et al suggest there must be something about growing up in an ethnic minority that increases the risk of psychosis (forms of social adversity). [10]

Amad A et al. [86] put forward a multifactorial framework in which various factors may interact. The increased risk of recurring psychotic disorders in the third generation can be accounted for, they suggest, by higher exposure to social adversity.

Summing up, there are several examples of the incidence rate of psychosis in migrant populations that can be explained by cultural differences and / or language difficulties. These examples can be observed in heterogeneity studies carried out on migrant populations after their arrival in a new country.

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## 2.5. INCIDENCE OF PSYCHOTIC DISORDERS AND SUICIDE

Similarly, the present author decided that other variables, such as mortality from suicide, should also be considered.

In relation to mortality, there is a greater risk of mortality in comparison to the general population only for schizophrenia. Using the standardized mortality ratio (SMR), which refers to “observed” versus “expected” mortality for the same age and gender group, McGrath et al. [49] report that the SMR for schizophrenia is 1.5. Schizophrenia is also associated with an increased suicide rate and risk of premature death due to associated somatic problems (obesity, cardiovascular risk and side-effects of medication).

Most studies have focused on patients with schizophrenia, with a suicide rate of 5% and occurrence of non-fatal suicidal behaviour in as many as 50% of patients. [87] In fact, studies have found that 14-28% of patients with first episode psychosis have attempted suicide prior to first treatment for psychosis.

Suicide accounts for approximately 2-5% of deaths in first episode psychotic patients. Even prior to their first presentation up to 10% or higher of first psychosis patients have made at least one suicide attempt, and a high number of undiagnosed individuals complete suicide. [87][88]

In a systematic review, people with schizophrenia were found to have a two- to three fold increased risk of dying, with a median standardised mortality ratio (SMR) of 2.6 for all-cause mortality, with no gender-related differences. Among psychotic disorders,

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most causes of mortality were elevated in schizophrenia, with suicide being the most common. [49]

Suicide has been linked to numerous cultural factors, such as religion, family ties, positive group identity and community. [89] Indeed, a study in the Netherlands showed a lower suicide rate among Moroccan and Turkish immigrants, and a higher rate among people from Surinam, compared to native Dutch people, but this did not apply to the second generation, where the figures were the same or higher compared to native Dutch people. A study of second-generation immigrants in Sweden also showed a higher risk of suicide than in their parents' generation.

This is interpreted in terms of reduced adherence to traditions (which had played a protective role for first-generation immigrants), tending towards more individualism and the rejection of social support in the case of second-generation immigrants. [89]

This report indicates that within a group of 100,000 people there were 251 incidents of suicide of people with psychotic disorder against 12.3 incidents of suicide in healthy individuals. [89]

In Spain, a study conducted in Barcelona on 110 people with first psychotic episodes and a two year follow-up found a suicide attempt incidence rate of 12.4% in this period. One of the conclusions is suicide is a major concern in onset of first episode psychosis. [22]

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## 2.6. INCIDENCE OF PSYCHOTIC DISORDERS AND UNEMPLOYMENT

Unemployment has been strongly associated with psychiatric disorder. In this sense, approximately 20.2% of people with no unemployment in 2007 were found to be mentally distressed, and 31.9% of those with more than 12 months of unemployment.

[90] [91]

Unemployment is associated with indicators of illness such as depression levels, psychiatric admissions and suicide. In fact, another research found that being unemployed was the strongest correlative of major depressive disorder or prominent risk factor for both major and minor depression. Symptoms of depression amongst adequately employed young adults predicted unemployment two years later. [40]

Significantly better estimates of social functioning were reported by job-seekers with psychotic disorders compared to those with anxiety or mood disorders. However, job-seekers with psychotic disorders reported longer periods of unemployment compared to those with mood disorders and longer estimates of the time it would take to obtain work compared to both the other groups. Perceived psychosocial problems, such as poor social function in job-seekers with anxiety and mood disorders and perceptions of poor employability in those with psychotic disorders, should be considered when developing vocational rehabilitation interventions, or where additional support may be required once employment is obtained.[92]



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Amongst people with mental health problems, males were more likely to be unemployed than females (in 2010, OR: 1.58 and in 2006, OR: 1.26).[93]

In this aspect, there is a clear difference between men and women.

For women, the significant effect of mental health on unemployment reflected an increased risk of experiencing subsequent unemployment and it did not affect duration.

In contrast, for men the significant effect of poor mental health reflected an increased duration of subsequent unemployment. [94]

According to Boydell J et al. [21], unemployment is more common in people with psychosis. However, they add that it is difficult to identify which comes first: being unemployed or suffering from the mental disorder. When the symptoms begin, it is difficult to return to work in the context of persistent symptoms, social stigma and employer prejudice. There are also high rates of unemployment before the onset of psychosis, which some attribute to prodromal symptoms and others see as part of the vulnerability-stress model, leading to a spiral of causes.

However, Mallet et al. [95] found that although all patients with schizophrenia in the United Kingdom were much more likely to be unemployed at the time of first contact with health service, the odds ratio was highest among African-Caribbean patients, at 20.92, compared to the white British or Asian population.

A study by Boydell J et al. [21] conducted in South London, reported a greater incidence of psychosis in the unemployed than in the working population, but particularly among black Caribbean unemployed people, with a risk that is 25 times greater than in the employed population from other ethnic groups.

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In another study, the rate of unemployment amongst first episode of psychosis was nearly nine times greater than the unemployment rate of the region of Ireland. [96]

The rates of employment and participation in non-labour force work amongst those with first episode psychosis were substantially higher than amongst those with established diagnosis of schizophrenia. It assumed that pre-morbid adjustment and duration of untreated psychosis (DUP) contributed to unemployment.

It would appear that influence of poor pre-morbid adjustment on employment functioning commences early in the course of non-affective psychosis. In fact, unemployed individuals did have a significantly longer DUP to employed individuals.[96]

In a replicated study, the most important finding was the remarkably high rate of unemployment in that sample of first episode psychosis in young individuals, which may be explained in part by social factors. But they did not find significant group differences in pre-morbid adjustment and duration of untreated psychosis, although there were different methods to obtain that period. [97] Both research groups used a standardized method to obtain the duration of untreated psychosis, though the end point of these were slightly different.

Turner et al.[96] used commencement on antipsychotic drugs as the endpoint, whereas the Ramsay group used the date of first hospital admission. [97]

Nevertheless, there are fewer studies observing the relationship between unemployment and psychosis than the situation merits.[94][97][98] [96]

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## 2.7. UNEMPLOYMENT, SUICIDE AND ECONOMIC CRISIS

Economic recession has had an enormous impact across all of Europe. In Spain, where the impact of the recent recession has been among the greatest, the prevalence of mental disorders diagnosed in primary care settings has increased.

The 2008 Great Recession had mainly negative consequences on health, but the complexity of the matter and the paucity of scientific evidence suggest the need for further investigation.

The data used in the present study cover the period between 2008 and 2013, a time of economic recession in Spain, where the data was collected. For that reason, the present author postulate a potential link between unemployment and suicide, though no published studies focus on this link in the field of psychosis research.

There is widespread concern that suicide rates might increase in countries affected by the current global economic crisis, and that those economic downturns and associated rises in unemployment are followed by increases in suicide. Chang et al. [30] studied 53 countries with a mortality database, and found a higher than expected rate of suicide in 2009. The rate ratio of 1.033 indicates that the overall suicide rate in men rose 3.3%, with an excess of 5,124 suicides, with no evidence of a change in rates for women.

The impact of the crisis was reported to have been felt most strongly by men aged 15-24 in European countries, whereas men aged 45-64 were most affected in Latin/South American countries.

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Their data showed an association between the magnitude of the rise in unemployment and increases in suicide in men, suggesting a dose-response effect. In addition, the authors reported that there is a stronger association between increases in national suicide rates and unemployment rates in countries with low baseline unemployment rates than in countries with high unemployment rates.

This fact is important to bear in mind, because the present author regard Andalusia as being in a similar position to a country with a high residual unemployment rate from previous crises, rendering it less vulnerable to increased rates of suicide. [99]

Table 2.2 Increased suicide rates in men[74]

	15-24 years	25-44 years	45-64 years	All ages
2009	5.8%	4.1%	3.6%	3.3%

In Spain, the rate ratio was 1.072, with 178 more-than-expected suicides in men, slightly higher than the all-countries figure (RR: 1.064) and a rate ratio of 0.974 in women, with 20 fewer suicides than expected (all-countries RR: 1.006).

Another study, carried out in England, offered corroborating evidence for the suggestion that unemployment increases risk of suicide and non-fatal self-harm (RR: 3.6%).[99] Between 2000 and 2010, each annual 10% increase in the number of unemployed men was associated with a 1.4% increase in the number of male suicides (such short term associations were not significant in women).

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In fact, the Barr et al [99] analysis indicates that increases in male unemployment were associated with about two fifths of the rise in suicides in England during the current recession.

A group in Andalusia meanwhile has been examining the trends in suicide attempts during the economic crisis, particularly in relation to high unemployment rates, and has set out to explore possible sex and age differences in this relationship. [23]

Over the period of 2003-2012, women were found to have higher rates of suicide attempts, with the 40-44 age groups exhibiting the highest rate and the 20-24 age groups the lowest. In the crisis period (2008-2012) the authors found an excess (i.e. greater than expected on previous trends) of 4,989 suicide attempts for sexes combined, 2,012 in men and 2,972 in women. The 35-54 age group, which was the most affected, is described as comprising breadwinners, and is the period in life when the financial burden of supporting a family and young children may be considerable.

Other studies have examined the relationship between mortality and recession in Spain. Thus Gili M et al.[25] reported that suicide rates among those aged under 65 have risen, from 5.16 per 100,000 in 2007 to 5.56 per 100,000 in 2008. These authors found a rise in psychiatric morbidity among patients attending primary care physicians in Spain, about one-third of the overall risk of attendance being accounted for by major depression.

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In fact, a 1% increase in the unemployment rate was associated with a rise of 1.81 in the rate of suicide attempts in men and 2.27 in women between 2003 and 2012. [23]

For this reason, the authors considered the rise in suicide attempts to be associated with unemployment in men, although the increase in suicide attempts in women could not be specifically attributed to unemployment.

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## 2.8. PROTECTION AND RISK FACTOR

Table 2.3. Summary of literature according to variables. (compiled by author)

	PROTECT FACTOR	RISK FACTOR	Authors
AREA OF RESIDENCE	Rural	Urban	Kirkbride, 2006 [9] McGrath, 2008 [49] Szöke, 2014 Tizón, 2010
	1: 2 13.1 : 19 17.2 : 36.02 45.9 : 71.1		
GENDER	Female	Men	Kirkbride, 2006 McGrath, 2008 Rössler, 2012 Van der Werf M, 2014 Saha S, 2014
	1: 1.8 1: 1.39 1: 1.4 1: 1.15 1: 1.57		
MIGRATION	Native	Migration	McGrath, 2008 Cantor-Grae Bourque, 2011
	1: 4.6 RR: 2.6 – 2.9 RR: 4.7		
SUICIDE	WOMEN	MEN SCHIZOPHRENIA	McGrath, 2008 Termossthuizen, 2012 Sanchez- Gistau, 2013
	Schizophrenia = 2-3 times risk Suicide is linked to cultural factors and migrants. Psychosis: 231 incident suicide / 12.3 incidents healthy 12.4% attempt suicide in psychosis		
EMPLOYMENT	Employment	Unemployment Men, migrants.	Bachar, 2012 Butterworth, 2012 Evans- Lacko, 2013 Boydell, 2013 Mallet, 2002
	20. 2% mentally distressed in the employed / 31. 9% mentally distressed in the unemployed. Unemployed = risk factor for depression Men with mental health problems more likely to unemployed (OR: 1.58) Unemployment in psychosis more common. More unemployment in migrants with mental health problems (OR: 20.92 – 25 Africans / ethnic groups)		

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## **CHAPTER 3. METHODOLOGY**

### **3.1. DESIGN**

This is an analytical epidemiological study of a time series (2008-2013) of the incidence of first psychotic episodes in THE NORTH OF ALMERIA.

It is a retrospective analytical study in which the population consists of cases of psychotic disorders (first episodes) with the controls being the rest of the population adjusted for age and gender. Associated risk factors (immigrant, suicide rate, rural/urban setting, and unemployment) from 2008 to 2013 in THE NORTH OF ALMERIA have also been evaluated.

The “DIRAYA” Program implantation in Andalusia mental health units happened at the same time as the beginning of this study in 2008.

### **3.2. OBJECTIVES:**

#### **A. GENERAL OBJECTIVE:**

To determine the sociodemographic and population factors that affect the incidence of psychosis in a given area.

#### **B. SPECIFIC OBJECTIVES:**

- To study the incidence of psychosis in the area and describe its sociodemographic characteristics.



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- To develop a graphic representation of the study variables in the form of a map.
- To identify high-risk areas according to the results.

### **3.3. POPULATION AND SAMPLE.**

#### **A. Population definition:**

According to municipal records, THE NORTH OF ALMERIA has a population of 150,492 inhabitants, 76,982 male and 73,510 female (based on 2009 statistics).

It has a surface area of 3,879.3 km<sup>2</sup>, and a population density of 38.79 inhabitants per km<sup>2</sup>, distributed across 41 towns. [24]

The region comprises 41 small towns of fewer than 20,000 inhabitants divided into nine primary healthcare areas (nine clinical management units in the catchment area).

Firstly, the Kirkbride study is the main reference of this research. [9] They included two centres in Southeast London and Bristol which were exclusively urban and another one, Nottingham, which was a mixture of urban, rural-urban and rural environments.

The definition of rural area is a catchment zone where the towns have fewer than 20,000 inhabitants. [15] Indeed, density population was also used to classify. That study calculated incidence rates in three different groups of population defined by the size of towns in which they live (small, medium and large towns).

According to these authors, the capital of this province of Almeria may be considered urban such as London, Barcelona or Seville, and then THE NORTH OF ALMERIA would be considered rural.

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In Spain, Loja (Granada) with 63,000 inhabitants and Bularda (Navarra) with 65,000 inhabitants were considered as rural as in THE NORTH OF ALMERIA. [7]

It is, therefore, a highly dispersed population, with a surface area that represents approximately one third of the province of Almeria. It is important to consider the significant extent of the area and the local sociodemographic characteristics before establishing a psychosis detection and intervention programme.

## **B. Sample.**

The study has been conducted at the mental health unit for THE NORTH OF ALMERIA, which is part of the Andalusian health system, consisting of two community mental health units and one mental health day hospital, which care for all cases in the area. There is no alternative private network, (there is no private hospital or mental psychiatric hospitals or units).

The sample includes only those who decided to seek care. In Spain, unlike other countries, free healthcare is available to everyone and use of the healthcare system, especially at primary care level, is very high. Gili et al. [25] adopted a similar procedure for data collection. Other studies have concluded that due to the universal coverage of the Andalusian health system, results were comparable to the general population. [26]

A possible limitation of this study was that a few individuals could not look for help from the national health system, and they will go to other places seeking support. In

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these missed cases, they had been prescribed antipsychotic drugs and although they will not decide to go to mental health units.

To correct this limitation, the author has included the majority of individuals who have been prescribed treatment by private practitioners. The great expense of antipsychotic drugs results in these patients having to visit doctors in the public sector in order to have them prescribed. In order to do this they must be registered in the “DIRAYA” computer program.[27]

On the other hand, a high impairment is caused by the psychotic symptoms, and the functionality of people with psychosis could be affected during the following years after onset. [28]

Besides, it is possible that missed cases will re-emerge in adulthood, sometimes if they have been treated privately they will also need the support of the public health system, for instance to obtain certificates or a disability pension.

This study covered six years, and this is a long time to control missed cases.

The study population comprised all patients aged 15-64 who had been seen for a psychotic disorder in 2008-2013 in THE NORTH OF ALMERIA. So there was no need to define a sample size.

Since the investigation is an epidemiological study, the study subjects comprise each healthcare area and its respective sociodemographic variables.

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### **3. 4. INCLUSION AND EXCLUSION CRITERIA:**

#### **A. Inclusion criteria:**

- Medical record in the DIRAYA, specifying a clinical diagnosis of psychotic disorder
- 15-64 years old at the time of diagnosis
- Period of diagnosis: 2008- 2013
- Compliance with ICD 10 diagnostic criteria:
  - o F06: Psychotic disorder due to medical illness
  - o F10 - 19 x.5: Psychotic disorder due to substance abuse
  - o F20 - 29: Schizophrenia, Schizo-like disorders. Delusional disorders
  - o F30 - 31: Bipolar Disorder
  - o F32.3: Recurrent depressive episode with psychotic symptoms
  - o F33.3: Depressive disorder with psychotic symptoms
- Diagnostic confirmation by OPCRIT questionnaire [100]
- Living in THE NORTH OF ALMERIA at time of diagnosis

#### **B. Exclusion criteria:**

- Diagnosis before study date
- Diagnosis not confirmed by OPCRIT questionnaire

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### **3.5. DEFINITION OF VARIABLES:**

#### **A. DEPENDENT VARIABLES:**

- Incidence of psychotic disorder
  - o Cumulative incidence of the number of cases of psychotic disorders per year per 100,000 people aged from 15 to 64 years
  - o INCIDENCE RATE with 95% confidence interval (CI)
- Rate of incidence of psychotic disorders for population of THE NORTH OF ALMERIA and Europe. (Source: <http://ec.europa.eu/eurostat>)
- Rate of incidence of psychotic disorders adjusted by gender for base population in THE NORTH OF ALMERIA and Europe.

#### **B. INDEPENDENT VARIABLES:**

##### **1. Sociodemographic:**

The sociodemographic variables were found using the DIRAYA program, which has a section of demographic information. For each case registered it looked for the following information:

- Age at the time of diagnosis
- Gender: male, female
- Area of residence (postcode)
- Medical practitioner or clinical management unit within the catchment area to which the patient has been referred.

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- Immigrant:
  - First generation (born outside Spain)
  - Second generation (one or both parents foreign)
  
- Country of origin (Spain, Eastern Europe, United Kingdom, Morocco, Latin America, others)

A Dossier from the Andalusia Institute of Employment was used to describe THE NORTH OF ALMERIA area sociodemographic data [24]:

- Mean age of healthcare area
- Gender: male, female
- Area of residence
- Medical practitioner or clinical management unit

Suicide rates for each healthcare area were obtained from the Interactive Mortality Atlas for Andalusia (AIMA)[45], which shows the geographical distribution and time-related evolution of mortality in all Andalusian municipalities since 1981. This system provides results for the main causes of death, adjusted by age group and gender. In fact, the objective pursued is to compare morbidity and mortality in geographic areas with different population pyramids. [101]

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## 2. Socioeconomic data:

The most relevant socioeconomic data for our study is unemployment rates, which has been obtained from the Spanish National Institute of Statistics.

Unemployed people to be considered for our study include all those aged 16 and over who also meet the following conditions:

- Out of work, that is, who did not work for someone else or were not self-employed during the reference week
- Looking for work, for example they have taken concerted steps to seek paid employment or have taken steps to set up in self-employment in the preceding month
- Available for work or able to begin to do so within two weeks from Sunday of the reference week

### **Socioeconomic data that has been registered:**

- Area employment data (student, employed, unemployed, sick leave, retired)
- % of population with low income
- % of population with low income living in outlying districts
- % of population unemployed
- Distribution of population according to population density

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### **3. Diagnosis, nine diagnostic categories:**

People met criteria for a diagnosis of

1. Affective psychosis
2. Delusional disorder
3. Brief psychosis
4. Schizophrenia, Schizophreniform
5. Substance abuse-induced psychosis
6. Non-specified psychosis
7. Schizoaffective
8. Medically induced psychosis
9. Schizotypal disorder



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Table 3.1. Project variables

<b>INDEPENDENT VARIABLES</b>	<b>CHARACTERISTICS</b>	<b>TYPES</b>
Age	Years	Quantitative
Gender	Male, female	Dichotomic qualitative
Immigrant:	First generation (born outside Spain) Second generation (one or both parents foreign)	Dichotomic qualitative
Country of origin	Spain, Eastern Europe, United Kingdom, Morocco, Latin America, others	Qualitative, categorical
Employment data	% employment/unemployment	Quantitative
Suicide rate in THE NORTH OF ALMERIA		Quantitative
Distribution of populations	Population density	Quantitative
Diagnosis	Affective psychosis , delusional disorder, brief psychosis Schizophrenia and schizo affective disorder, schizophreniform disorder and substance abuse-induced psychosis Non-specified psychosis	Qualitative, categorical

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### 3.6. DATA COLLECTION

All first psychotic episodes that have been seen in the health system have been identified by means of a five-step process.

Firstly, it will describe the main tool for our study: DIRAYA, which is the computer system that the Andalusia public health system uses as an information and care management support system. The main aim of DIRAYA is to integrate all the information on each user, irrespective of the health professional or care area that has generated it, into a single health record, so that it is available whenever and wherever needed for the patient's care. Accordingly, the medical record permits reference to and annotation of data on all technological devices and at all care levels: primary care, specialised care, emergency departments and hospitalisation. The use of telecommunications permits access to a citizen's health record from anywhere within the Andalusian public health network. It is a case, therefore, of a single health record per citizen.[27]

This study started in 2008. The same year the electronic "DIRAYA" program started in the Mental Health Unit in Andalusia. For that reason, the data was requested from Seville (Central Services of Mental Health in Andalusia).

The outcomes were sent but they were confusing because of several reasons.

Firstly, less than 20% of individuals attending for mental health problems were diagnosed by ICD10.

Secondly, primary care data was not available.

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Thirdly, from 2008 – 2013 the data was grouped by “severe mental illness process of Andalusia” [72], which meant bias. Each patient registered under “severe mental illness process” necessarily involves multiple types of management by various professionals. Therefore, the services tend not to include all patients because this would have involved more interventions.

For that, the alternative source of data collection was looked at. Queries were made with four steps as a filter:

- Firstly, all patients aged 15-64 prescribed antipsychotic drugs in THE NORTH OF ALMERIA during the study period were identified using clinical management unit pharmacy computer programs (electronic prescription “XXI”; every antipsychotic prescription in Andalusia must be checked by hospital pharmacy and registered in the DIRAYA program).
- Secondly, the database from the mental health hospitalisation unit in Torrecárdenas for THE NORTH OF ALMERIA was used to obtain the discharge report.
- Thirdly, the emergency department’s records and those of patients seen at the mental health day hospital were reviewed by checking for data with diagnostic codes in the MEDIX intrahospital computer program.
- Finally, information on the 14-65 age group seen by the Albox and Huércal Overa community mental health units was obtained for own handed registered by nurses.

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The material studied in the research comprises the medical records of patients with psychotic disorders; subjects are not required to participate at any time.

The medical records are accessed by psychiatrists working in the units to whom the patients are referred.

Furthermore, clinical data, including the latest principal ICD10 diagnosis, were extracted from medical records using a standardised schema designed for the purpose with focus on the patient's history.

The "possible case" review has been carried out by two different assessors to ensure greater internal data consistency.

Cases obtained by these filters were verified by two criteria. First it was confirmed that patients have had no previous treatment for other psychiatric diagnoses (via the patients' medical records). This should give the diagnosis before the onset of study date (2008 – 2013): Exclusion criteria.

In that period of time, DIRAYA was not working well enough to assume the data to be reliable. According to this criterion, in 2008 incidence and prevalence of psychosis of THE NORTH OF ALMERIA found 72 cases of psychosis altogether.

For that reason, it was decided the data was better to dispose of them and then it avoided contamination of the entire study.

In addition, 2008 data was rejected when the DIRAYA program began in Andalusia, because it was over-estimated and could be the sum of incidence and prevalence of psychosis.

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Secondly, the diagnosis was then confirmed via the patients' medical records using the OPCRIT checklist for psychotic and affective illness computer program used in other research projects for this purpose.

Research assessments of the ICD10 diagnoses were done using the OPCRIT instrument. OPCRIT is an electronic diagnostic tool used for mental health care and research that enables easy entry, provides definitions of the items and applies an algorithm based on ICD10 and DSMIV criteria. [102] [46] [38]

OPCRIT has been used in research in Spain to establish a diagnosis of psychosis according to the symptoms described in medical records. [103]

OPCRIT interviews were done by an experienced consultant psychiatrist who, to avoid rater-drift, carried out the interviews.

Not all data has been entered yet into the computer systems in Andalusia. The program (DIRAYA) has only recently been installed in some of the primary care centres in the area.

On the other hand, some data is difficult to identify because it is not encoded according to the ICD 9 or ICD 10 international system.

This limitation is solved by applying different search criteria in order to identify all cases. By using several case search filters, we can assume that few cases will be missed.

With regard to the first limitation, several filters are available to ensure that no cases are missed.

For the second limitation, there are diagnostic tools that precisely and objectively identify psychiatric symptoms based on international classifications (ICD10, DSMIV),

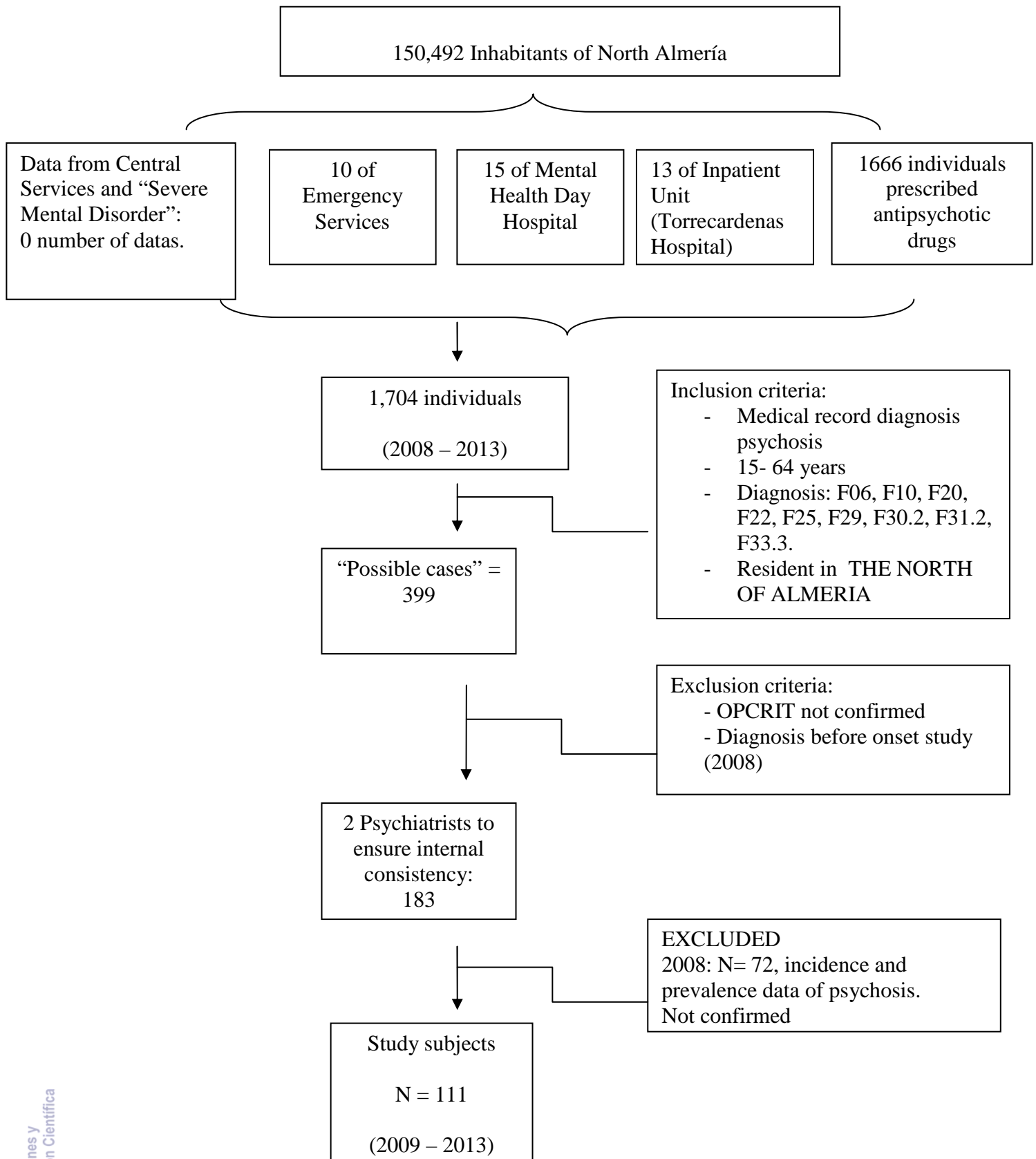
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with high validity and inter observer reliability. One of them is OPCRIT, proposed for this study, which eliminates possible bias in the information.

The full details of each individual was registered by Data Collection Notebook (Appendix II)

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Table 3.2. Flowchart of study selection procedure.



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### **3.7.DATA ANALYSIS:**

Below is the proposed data analysis design:

-The statistical analysis will be performed using version 17 of the SPSS for Windows program and Epidat 3.1 y R.

-The quantitative variables will be described by mean, standard deviation and range. The qualitative variables will be described by absolute and relative frequency expressed as a percentage. The qualitative variables are transformed with dummy variables.

- A baseline and final descriptive analysis will be made of both groups. The quantitative variables will be described by mean, standard deviation and range.

- A table of absolute and relative frequencies expressed as percentages will be built for the qualitative variables.

- The association between the independent variables will be measured by a multiple linear regression with the dependent variable (incidence of psychosis), constructing a model with the dependent variable and the other variables as independent variables, in which the variables with statistical and high clinical significance will be entered in the bivariate study, using the change of estimation method to evaluate confounding factors. P-values of less than 0.05 are considered to be significant.



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Time series analyses are widely used with respect to economic statistics, but are not so common in epidemiology and medicine. [104] For the time series in question, we developed a linear regression model to predict the trends in first psychotic episode during the time sequence (2009- 2013, 5 years).

The dependent variable was Incidence Rate of Psychosis and the independent variable in the time series model were unemployment, gender and living area.

The shape of the relationships between the independent and dependent variables was visually evaluated using locally weighted scatterplot smoothing (LOWESS), a nonparametric local regression method. Diagnosis of the models was performed in order to ensure the goodness of fit and the fulfillment of implementation conditions. Generalised standard-error inflation factors were used to verify the absence of collinearity between independent variables, while homoscedasticity was tested by plotting residual against fitted values. The linearity of quantitative independent variables was checked with partial regression plots, and the normality of errors was verified by normal QQ plots with 95% confidence intervals.

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### **3.8.ETHICS**

Permission to perform the study was obtained from the ethics committee of Almeria in January 2014.

All the necessary steps have been taken to guarantee the freedom and rights of the patients, pursuant to the Personal Data Protection Act (Organic Law 15/1999, of 13 December).

Pursuant to Art. 9, the information about each patient and the databases constructed for this study were protected, with access limited solely to the research team, the members of which signed a confidentiality agreement.

The patient data obtained from medical records has not been used for purposes other than those described herein, and they have been stored in such a way that patients can be identified after follow-up guaranteeing their anonymity during the analytical phase.

The data obtained were from the Andalusian Health System's records, and based on the Data Protection Act patients were entitled to object to same. They have been informed of their rights at the different healthcare centres in THE NORTH OF ALMERIA.

The professionals involved in the project signed a confidentiality agreement.

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## CHAPTER 4. RESULTS

### 4.1. VARIABLES DESCRIPTION IN THE NORTH OF ALMERIA.

#### I. Distribution Population by Gender.

The distribution of population by gender in THE NORTH OF ALMERIA is 50.90 % for men and nearly 49.10% for women. This figure is almost half for men and women.

In THE NORTH OF ALMERIA, the distribution of the population with incidence of psychosis episodes is 56.8% for men and 43.2% for 2009 – 2013.

Table 4.1. Population in THE NORTH OF ALMERIA

	MEN	WOMEN
AREA 2008	70954	67384
AREA 2009	72593	69209
AREA 2010	73287	70009
AREA 2011	74160	71005
AREA 2012	74087	71172
AREA 2013	72854	70290

Table 4.2. Description of THE NORTH OF ALMERIA population. [24]

TOTAL POPULATION	150,492 inhabitants	
<b>2009</b>		
<b>DISTRIBUTION OF AGE</b>	0-14 years	14.43%
	MEN	7.20%
	WOMEN	7.10%
	15- 64 years	68.32%
	MEN	35.60%
	WOMEN	32.22%
	> 65 years	17.25%
	MEN	7.60%
	WOMEN	9.30%
<b>MEAN AGE POPULATION</b>	TOTAL	44.32
	MEN	43.47
	WOMEN	45.20

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Table 4.3. Gender in THE NORTH OF ALMERIA Psychosis 2009 – 2013.

<b>GENDER</b>			
		Frequency	Percentage (%)
Valid	MEN	63	56.8
	WOMEN	48	43.2
	Total	111	100.0

Table 4.4. Mean age of incidences psychotic cases in the period study.

	Psychosis in THE NORTH OF ALMERIA	Psychosis in England [9]	Psychosis in Canada [42]
Age mean of cases	30.80	31.1	32.1
Age mean of population	44.32*	37**	27.9
Relative frequency	$30.80 / 44.32 =$ 0.69	$31.1 / 37 =$ 0.84	$32.1 / 27.9 =$ 1.15
Median	28.00	27 men, 29 women	
Standard deviation	10.073	3.3	8.6
* [24]			
** Eurostar statistics explained[105]			

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## II. DIAGNOSIS IN PSYCHOSIS

The median age of the THE NORTH OF ALMERIA population is over 44 years. In the psychosis cases, the median age is ten years less. This age has been found to be similar in all diagnosis, although brief psychosis and schizoaffective are younger.

Table 4.5. Categories Diagnosis of Psychosis Cases.

	Frequency	Percentage (%)
Affective psychosis	39	35.1
Delusional disorder	11	9.9
Brief psychosis	1	0.9
Schizophrenia	29	26.1
Substance abuse psychosis	15	13.5
Non-specified psychosis	8	7.2
Schizoaffective	8	7.2
Total	111	100.0

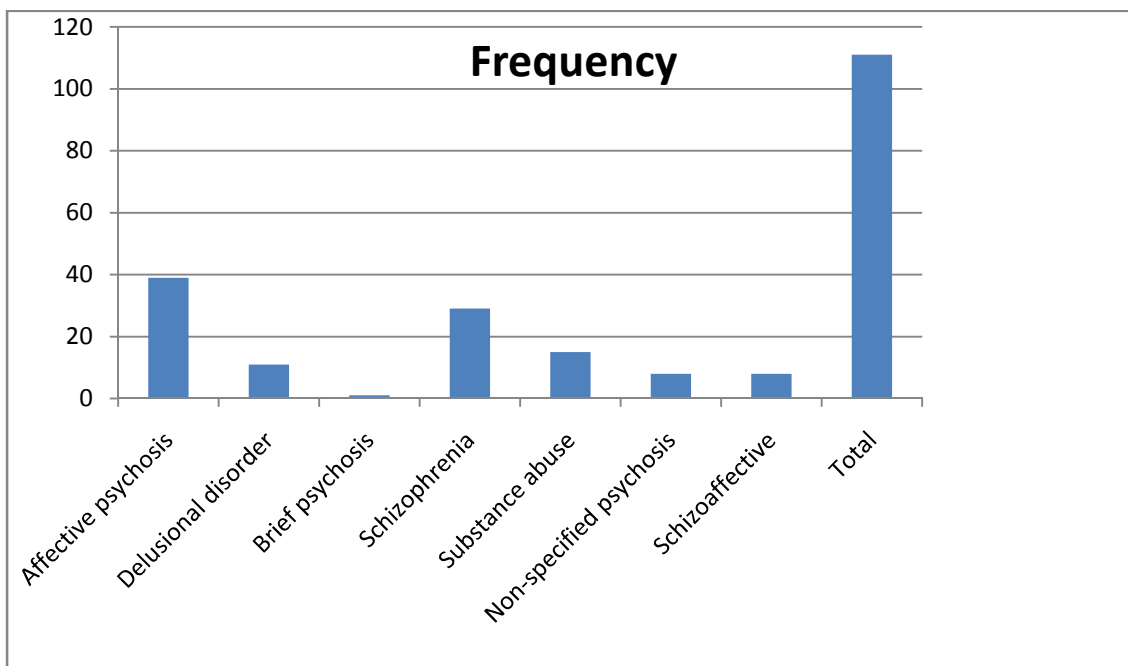


Figure 4.1. Description of Diagnosis Types in THE NORTH OF ALMERIA for 2009 – 2013.

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Table 4.6. Diagnosis by gender in Psychosis in THE NORTH OF ALMERIA.

DIAGNOSIS BY GENDER										
			Diagnosis							Total
			Affective psychosis	Delusional disorder	Brief psychosis	Schizophrenia	Substance abuse	Non-specific psychosis	Schizoaffective	
GENDER	MEN	Number	18	7	1	16	12	5	4	63
		% in Gender	28.6%	11.1%	1.6%	25.4%	19.0%	7.9%	6.3%	100.0%
		% in DX	46.2%	63.6%	100.0%	55.2%	80.0%	62.5%	50.0%	56.8%
		% total	16.2%	6.3%	0.9%	14.4%	10.8%	4.5%	3.6%	56.8%
	WOMEN	Number	21	4	0	13	3	3	4	48
		% in Gender	43.8%	8.3%	0%	27.1%	6.3%	6.3%	8.3%	100.0%
		% in DX	53.8%	36.4%	0%	44.8%	20.0%	37.5%	50.0%	43.2%
		% total	18.9%	3.6%	0%	11.7%	2.7%	2.7%	3.6%	43.2%

Table 4.7. Diagnosis by age in Psychosis in THE NORTH OF ALMERIA.

Diagnosis	Mean age
Affective disorder	30.51
Delusional disorder	32.82
Brief psychosis	26.00
Schizophrenia	30.34
Substance abuse psychosis	32.33
Non-specific psychosis	30.88
Schizoaffective	28.75
Total	30.80

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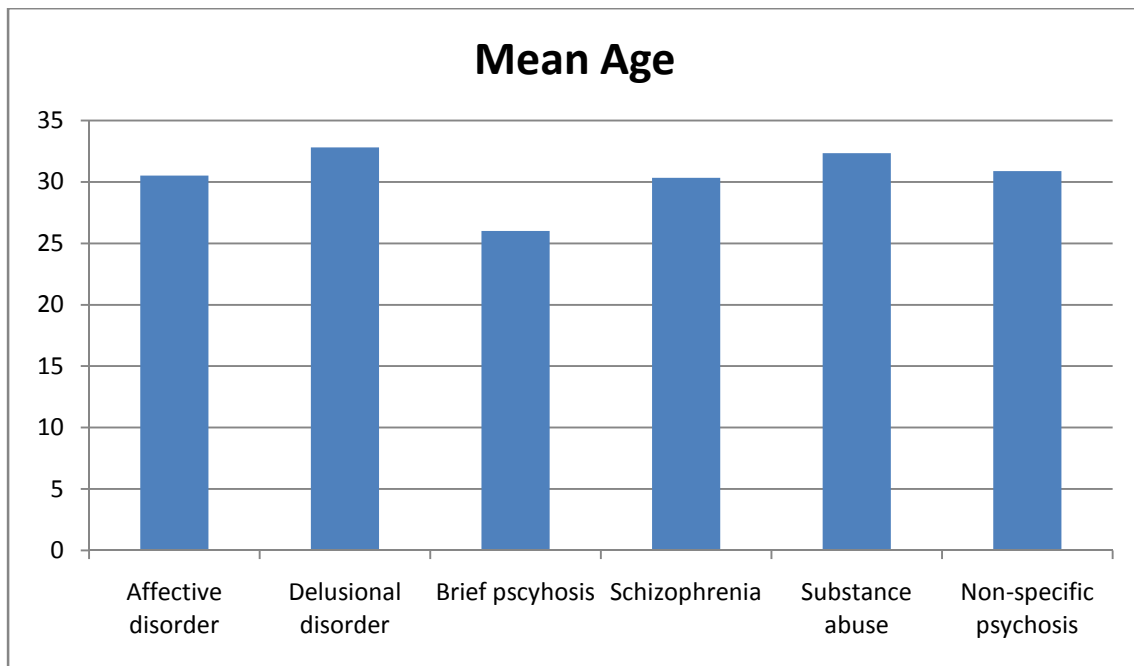


Figure 4.2. Mean Age of Diagnosis.

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### III. Migrants in THE NORTH OF ALMERIA.

Immigrants are defined as people with foreign origins or parents who move to THE NORTH OF ALMERIA. First-generation immigrants are those born outside Spain and second-generation immigrants have at least one parent born outside Spain. [106]

In 2009, the foreign population in THE NORTH OF ALMERIA totalled 38,665 (25.69%), most of them originating from the European Community. In line with previous studies, the immigrant population is defined as people from countries other than European Community countries, totalling 12,341 (8.19%). [24]

Table 4.8. Distribution of the foreign population in THE NORTH OF ALMERIA.[24]

	Number of population	% THE NORTH OF ALMERIA Foreign	Number of Psychosis	% Incidence Psychosis	Relative frequency
<b>Spain</b>	124,258	74.31	93	83.8	0.0748
<b>Europe</b>	26,234	17.49	3	2.7	0.011
<b>Non-UE Europe</b>	785	0.52	5	4.5	0.636
<b>Africa</b>	3131	2.08	1	0.9	0.031
<b>America</b>	7739	5.14	6	5.4	0.077
<b>Asia + Oceania</b>	686	0.454	3	2.7	0.437



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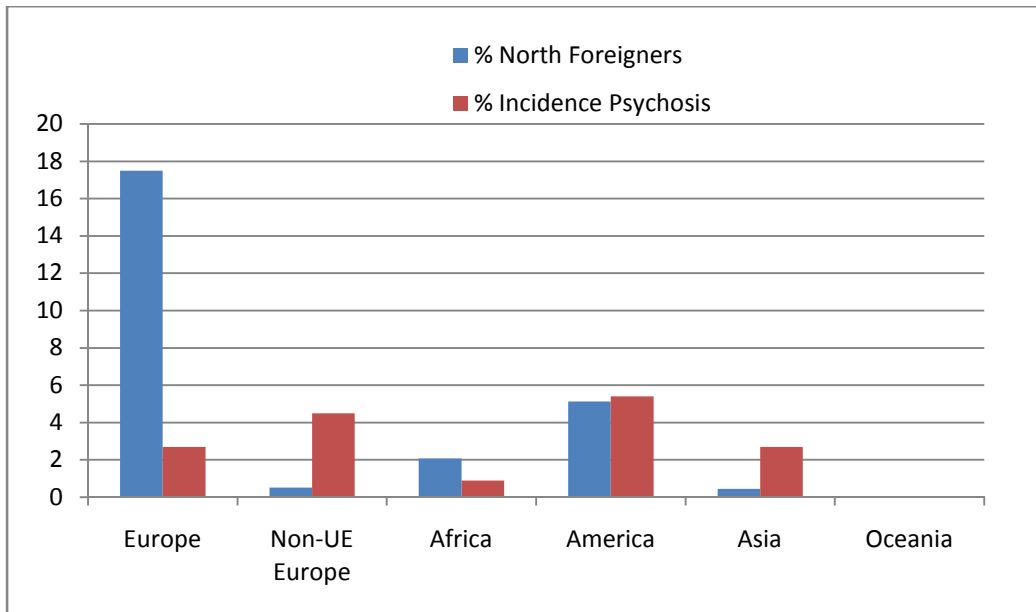


Figure 4. 3. THE NORTH OF ALMERIA Foreigners and Incidences of Psychosis.

The present author's review of the available literature suggests that a high level of psychosis is unlikely to be found among the total immigrant population of the study area, since most of them originate from European countries, and do not share the characteristics of immigrants from further afield.

[Escribir texto]

#### IV. Employment in THE NORTH OF ALMERIA

The number of companies in the area totals 5,536, with a business density of 36.78.

The service sector is predominant, followed by construction, agriculture and industry.

[24]

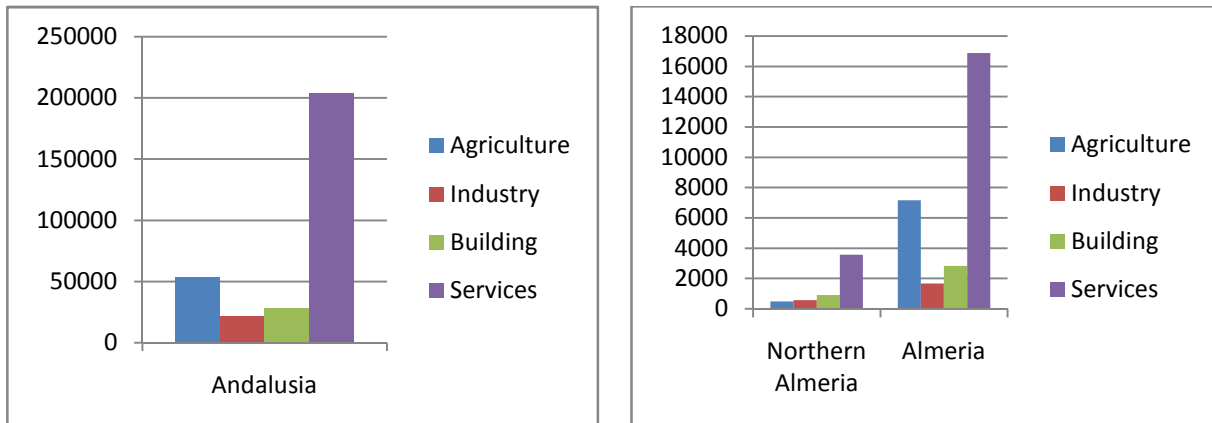


Figure 4.4. Business structure of Andalusia (number of companies)

**Unemployment** is defined as the number of registered unemployed individuals.

The annual average of registered unemployment is the situation throughout the year.

In this sense, THE NORTH OF ALMERIA has an average for 2009 of 10,907 people.

Table 4.9. Comparison figures of unemployed individuals in 2009 [24]

Annual mean of unemployed individuals registered	THE NORTH OF ALMERIA	Almeria	Andalusia
Mean for 2009	10,907.33	60,131.25	803,647.58

[Escribir texto]

Variations in unemployment are relevant to this study as they reflect the job situation before and after the start of the crisis.

Table. 4.10. Variations in unemployment per year [24]

	2006- 2007	2007-2008	2008-2009
<b>THE NORTH OF ALMERIA</b>	13.36%	47.64%	49.54%
<b>Almeria</b>	17.80%	38.01%	45.87%
<b>Andalusia</b>	3.14%	22.46%	33.60%

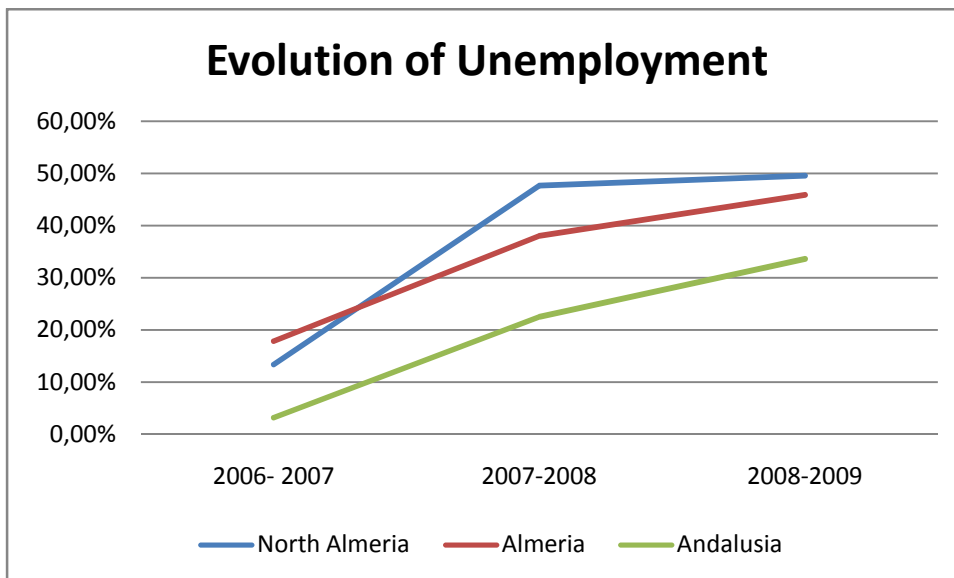


Figure 4.6. Evolution of Relative Variation of Unemployment

According to other authors, unemployment rose in Andalusia from 12.2% in 2006 to 35.8% in 2012 and poverty rates increased from 29.5% in 2008 to 31.0% in 2012, far above the overall Spanish poverty rate of 22.2%. [23]

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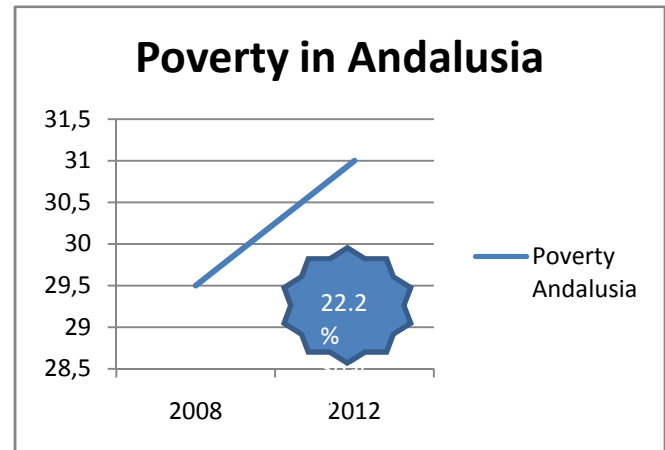
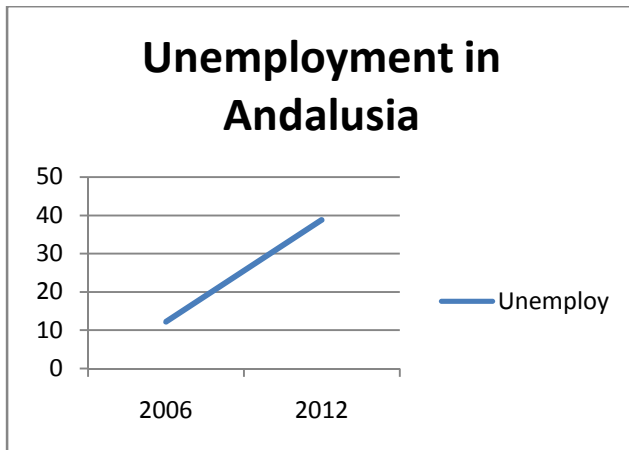


Figure 4.6 and 4.7. Unemployment and Poverty in Andalusia [23]

The characteristics of people with psychosis in the THE NORTH OF ALMERIA can be described as 73% unemployed and 27% with employment.

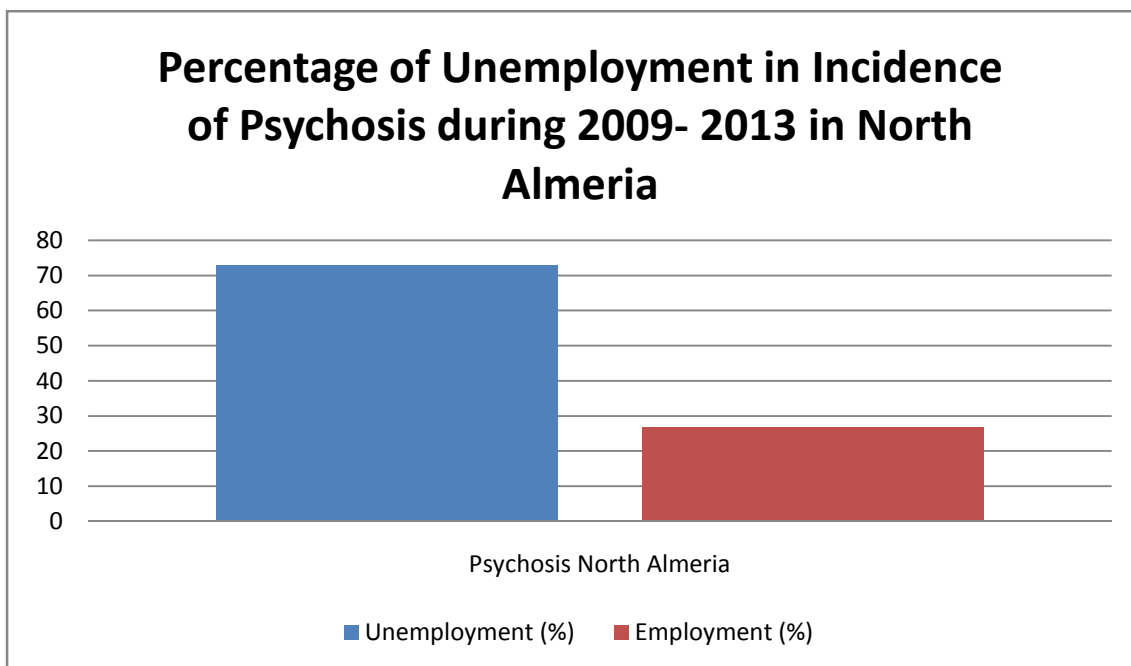


Figure 4.8. Percentage of Unemployment

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## V. Suicide in THE NORTH OF ALMERIA

To try to understand the rates and the distribution across the geographic area of THE NORTH OF ALMERIA a description of each population has been produced, which has been associated with primary care.

Table 4.11. Ratio of suicide mortality in Spain according to AIMA [45]

Ratio of suicide mortality in Spain adjusted by gender and age per 10.000 individuals.				
	2009	2010	2011	2012
<b>Spain</b>	0.9	0.83	0.84	0.94

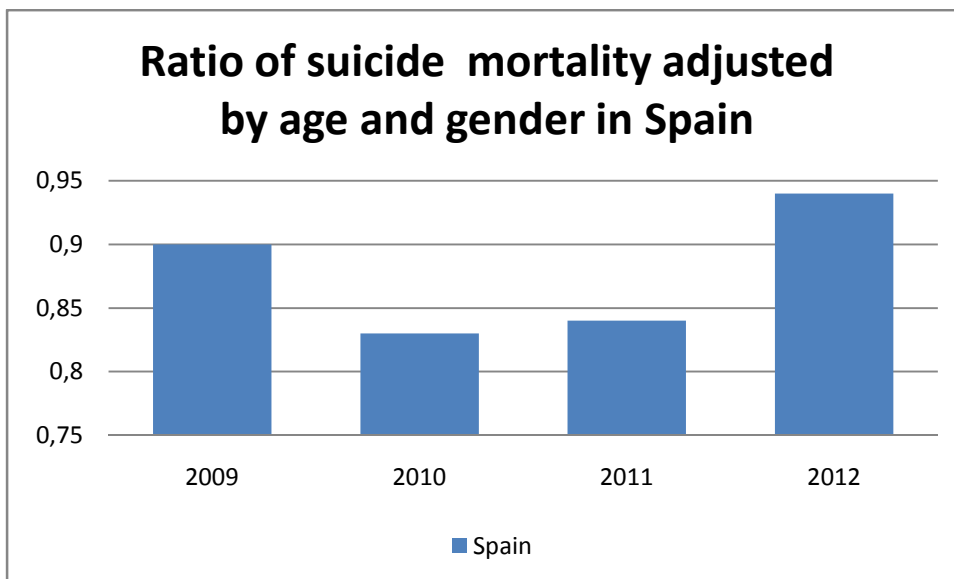


Figure 4.10. Ratio of Suicide Mortality adjusted by age and gender in Spain (per 10,000 inhabitants)[45]

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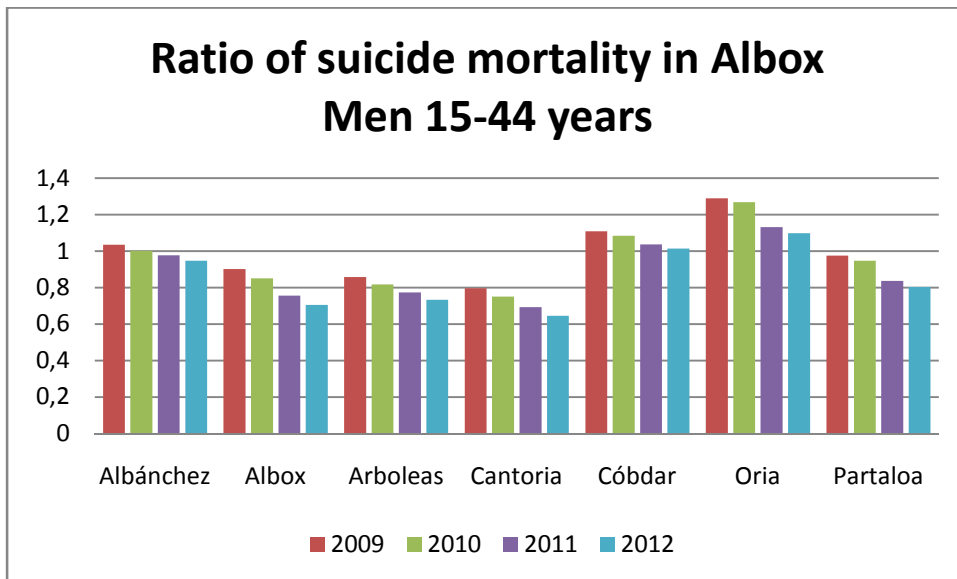


Figure 4.11. Ratio of Suicide Mortality in Albox per 10,000 inhabitants[45]

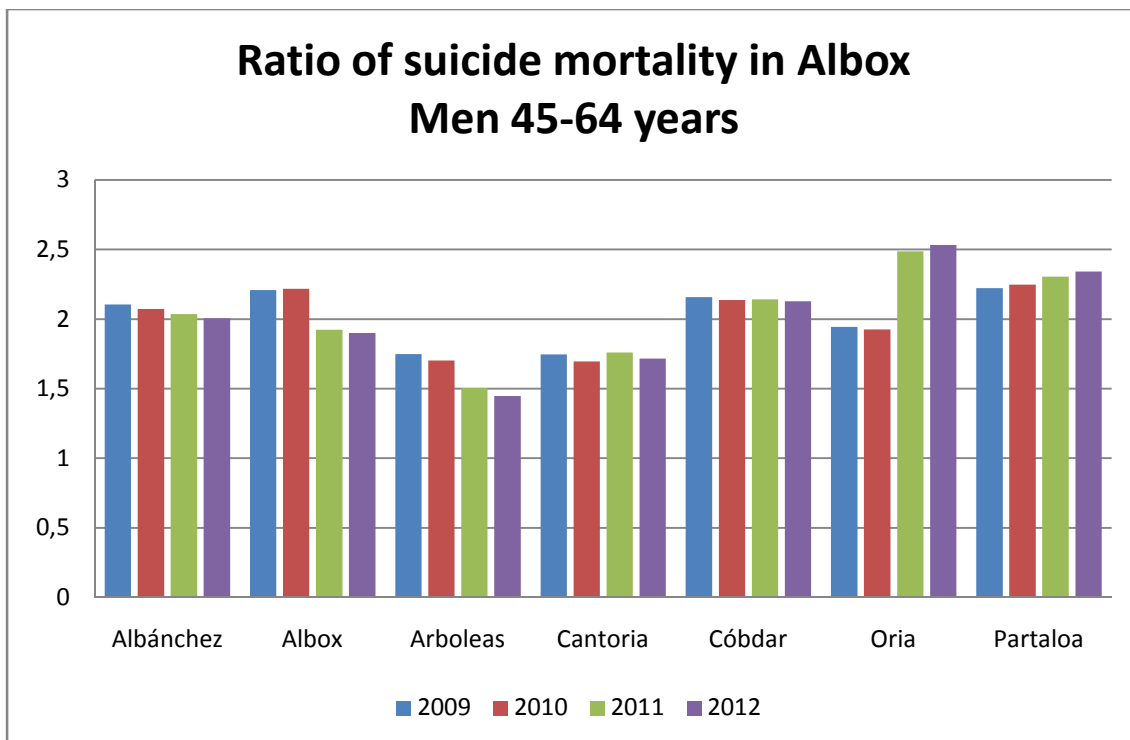


Figure 4.12. Ratio of Suicide Mortality in Albox per 10,000 Inhabitants [45]

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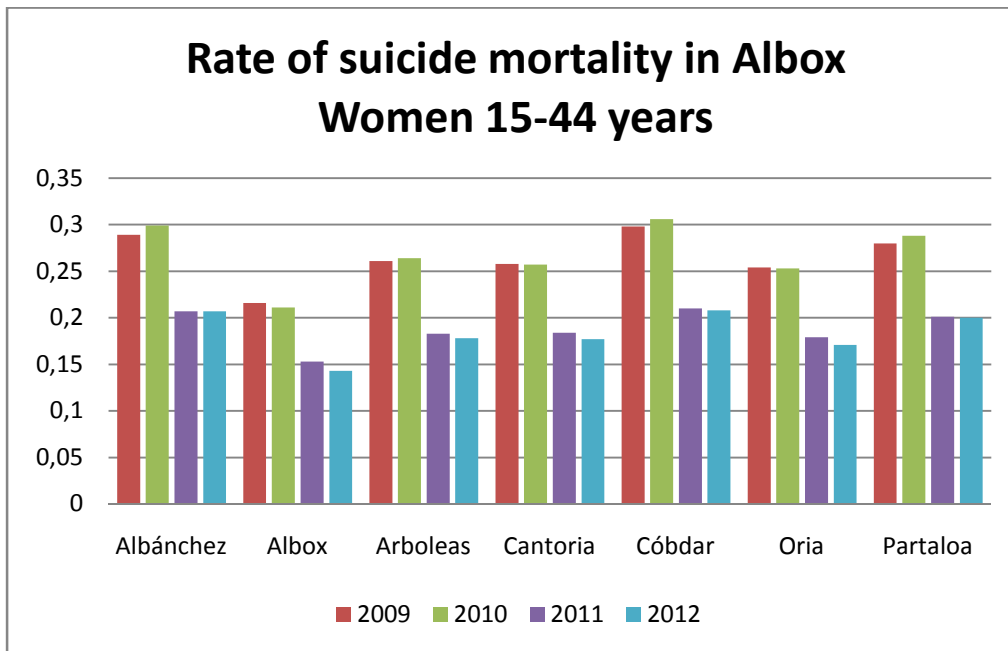


Figure 4.13. Ratio of Suicide Mortality in Albox per 10,000 Inhabitants [45]

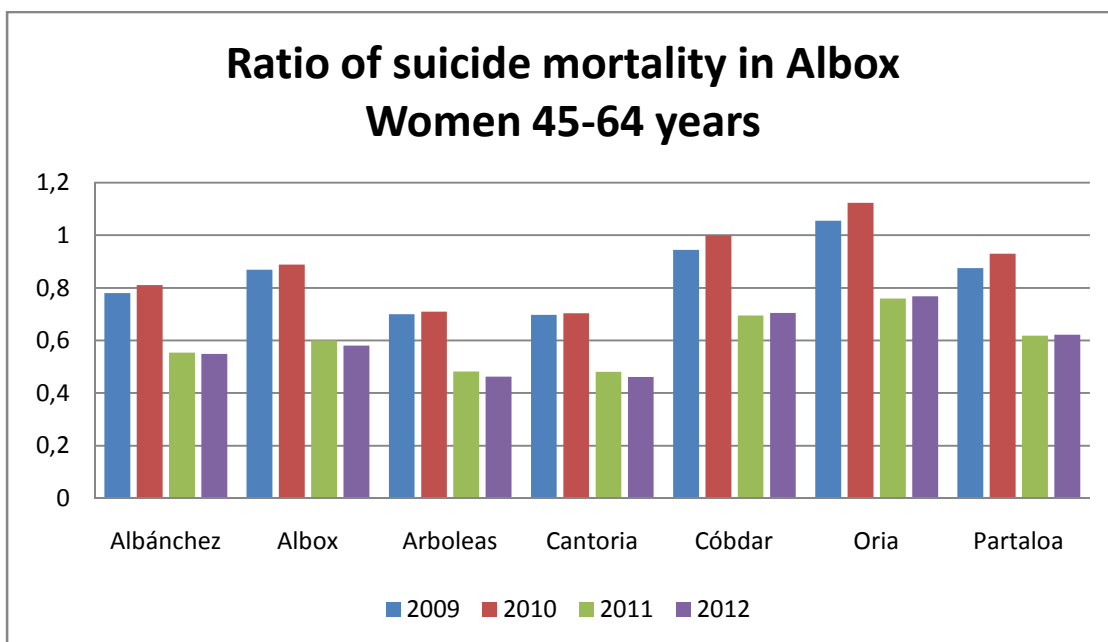


Figure 4.14. Ratio of Suicide Mortality in Albox per 10,000 Inhabitants [45]

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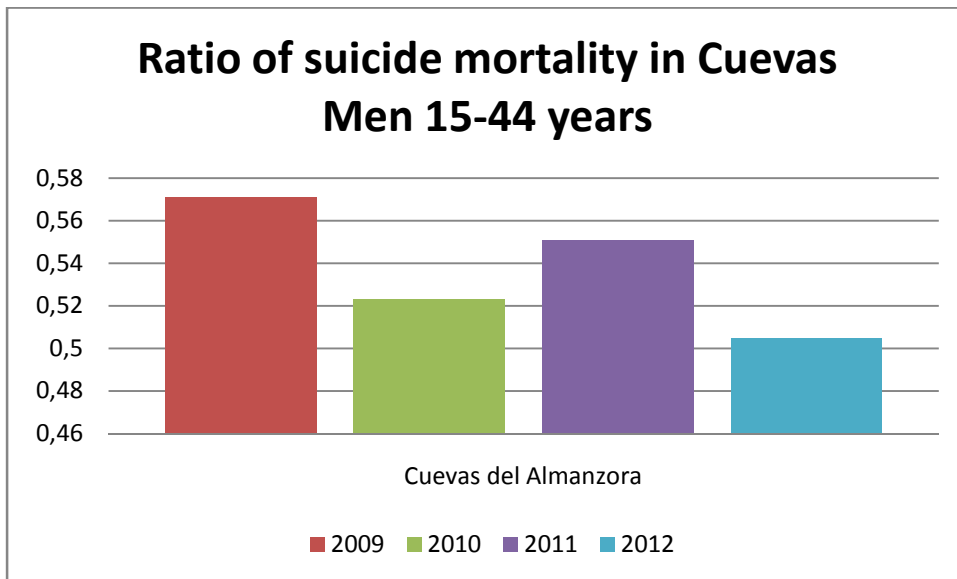


Figure 4.15. Ratio of Suicide Mortality in Cuevas per 10,000 Inhabitants [45]

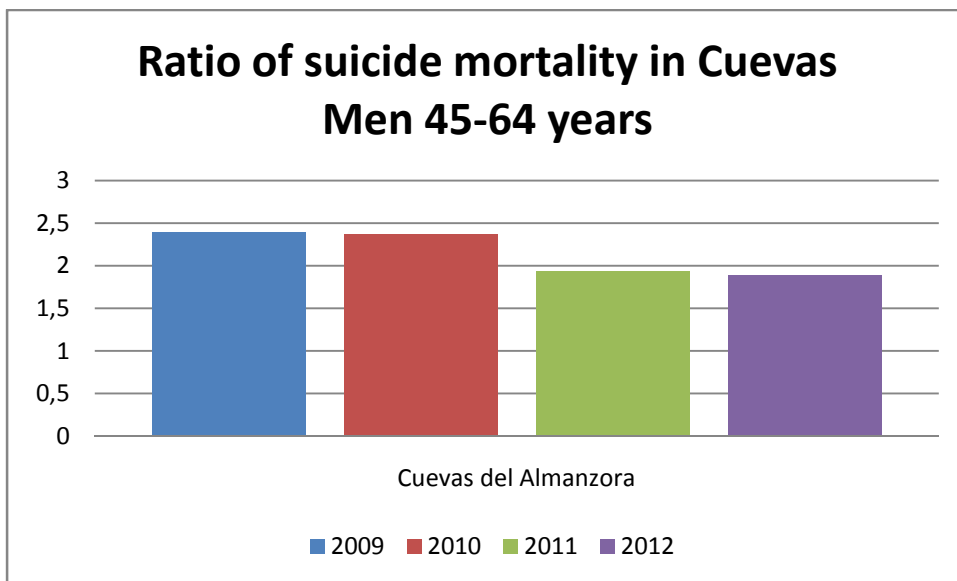


Figure 4.16. Ratio of Suicide Mortality in Cuevas per 10,000 Inhabitants [45]



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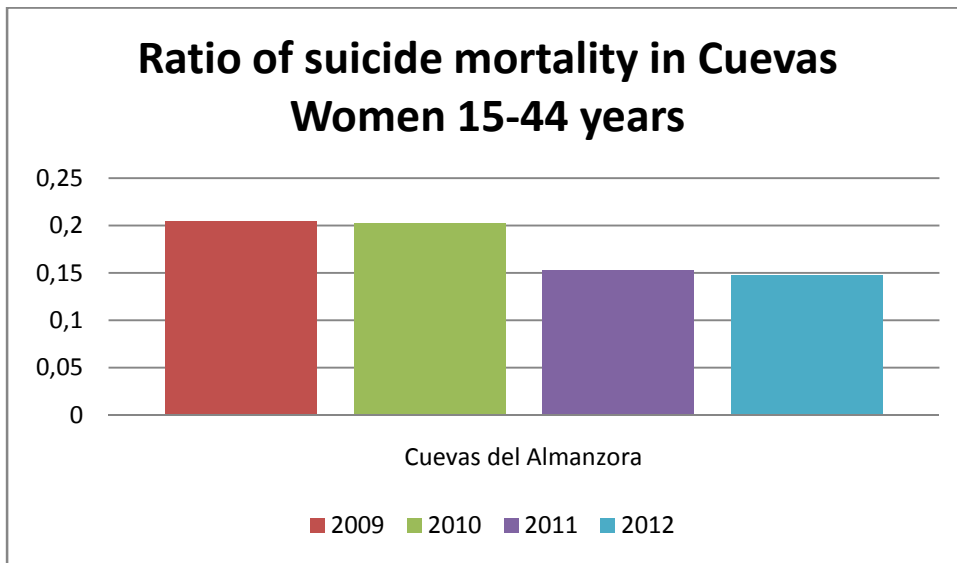


Figure 4.17. Ratio of Suicide Mortality in Cuevas per 10,000 Inhabitants [45]

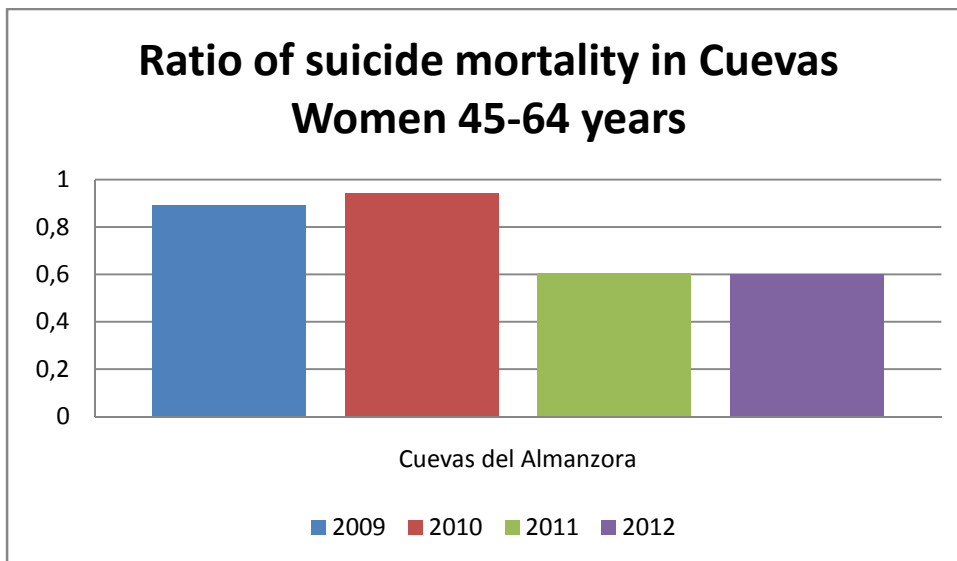


Figure 4.18. Ratio of Suicide Mortality in Cuevas per 10,000 Inhabitants [45]

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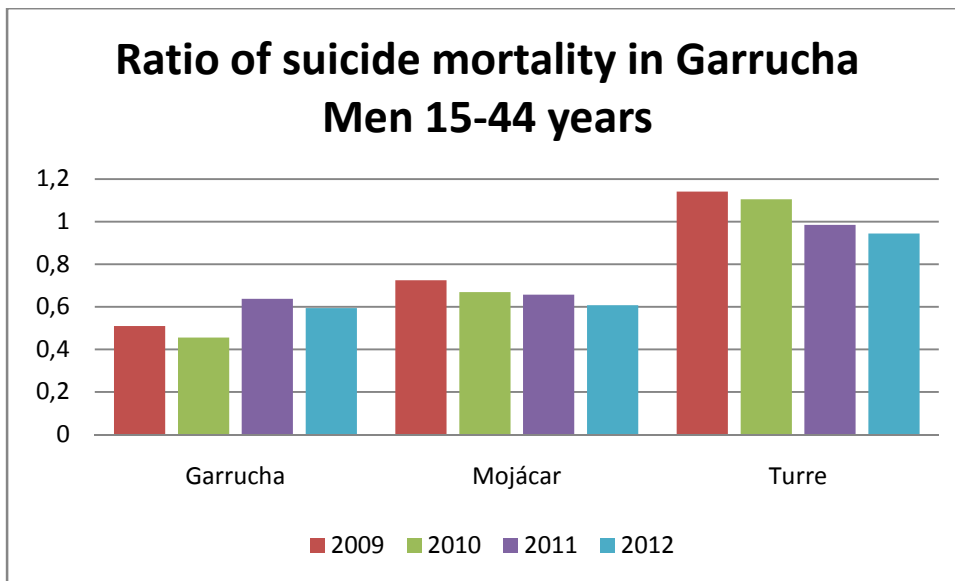


Figure 4.19. Ratio of Suicide Mortality in Garrucha per 10,000 Inhabitants [45]

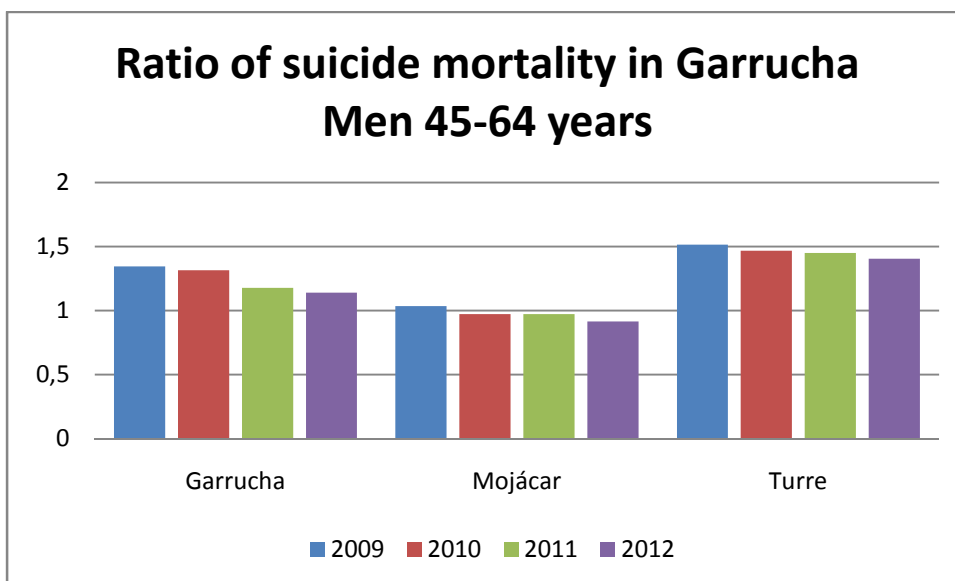


Figure 4.20. Ratio of Suicide Mortality in Garrucha per 10,000 Inhabitants [45]

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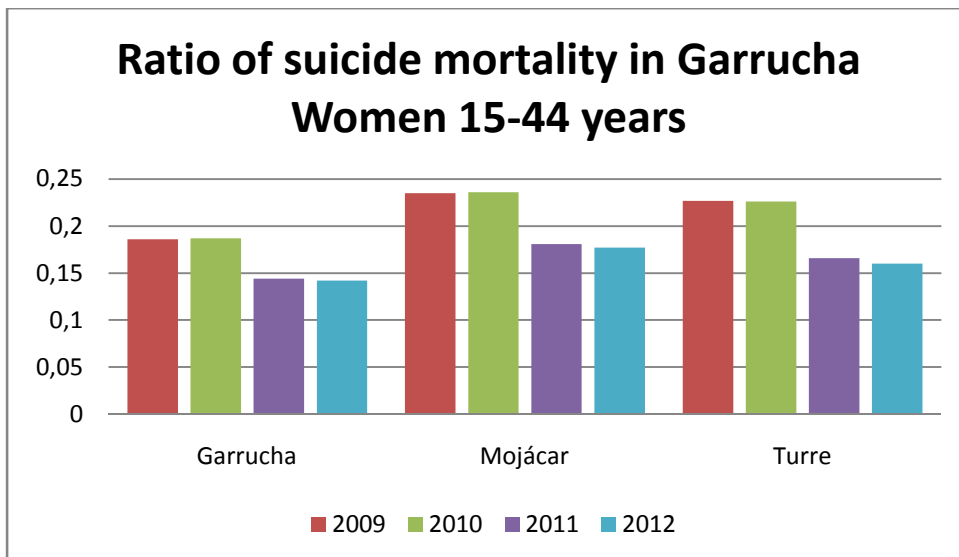


Figure 4.21. Ratio of Suicide Mortality in Garrucha per 10,000 Inhabitants [45]

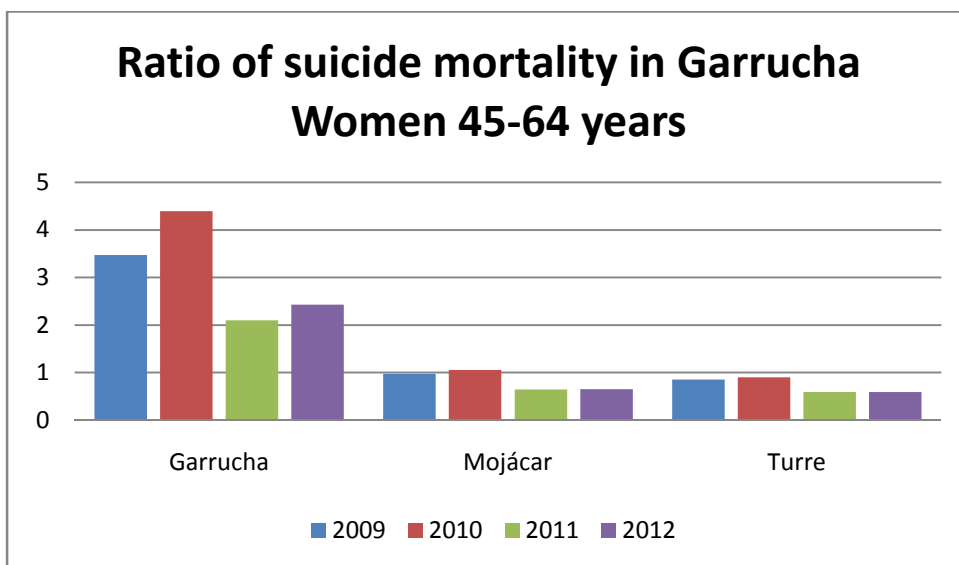


Figure 4.22. Ratio of Suicide Mortality in Garrucha per 10,000 Inhabitants [45]

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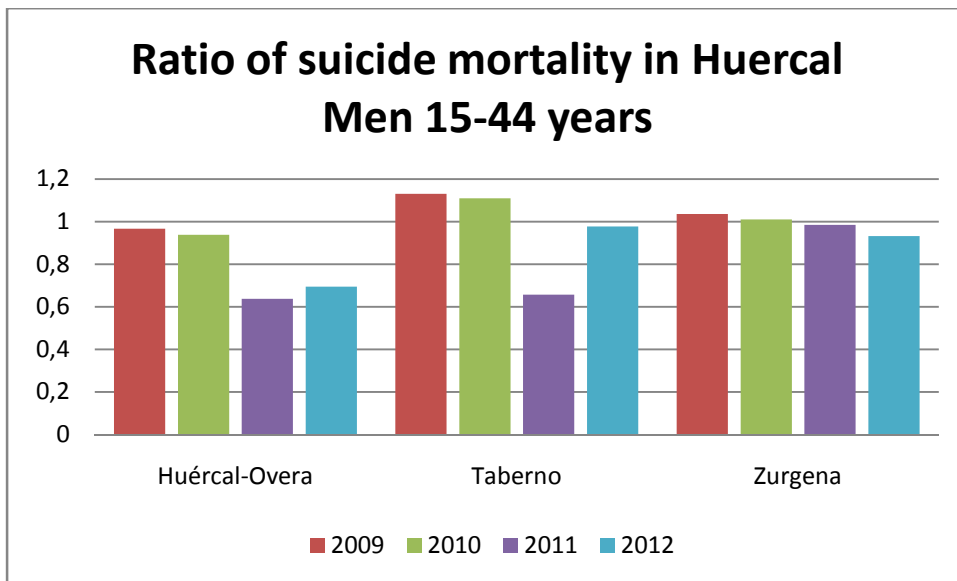


Figure 4.23. Ratio of Suicide Mortality in Huerca per 10,000 Inhabitants [45]

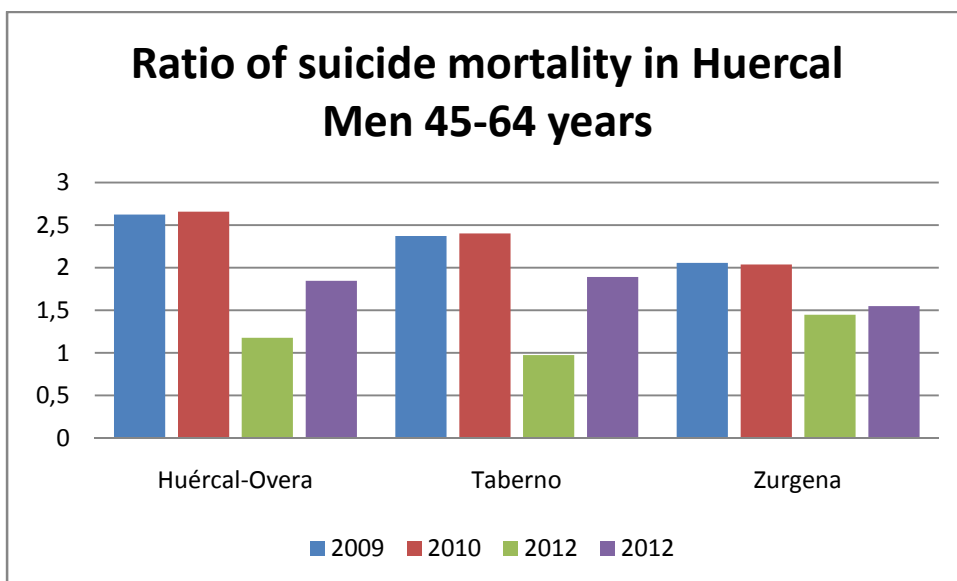


Figure 4.24. Ratio of Suicide Mortality in Huerca per 10,000 Inhabitants [45]

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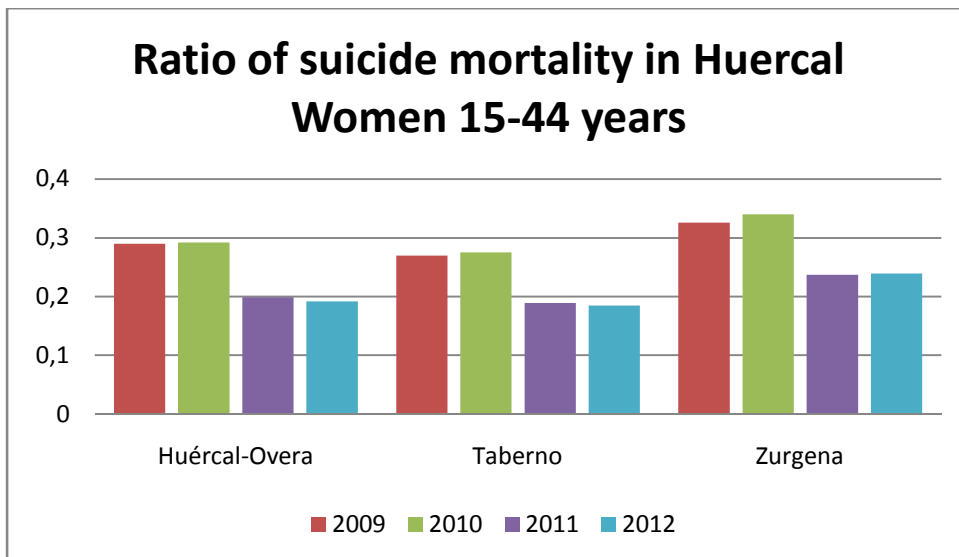


Figure 4.25. Ratio of Suicide Mortality in Huerca per 10,000 Inhabitants [45]

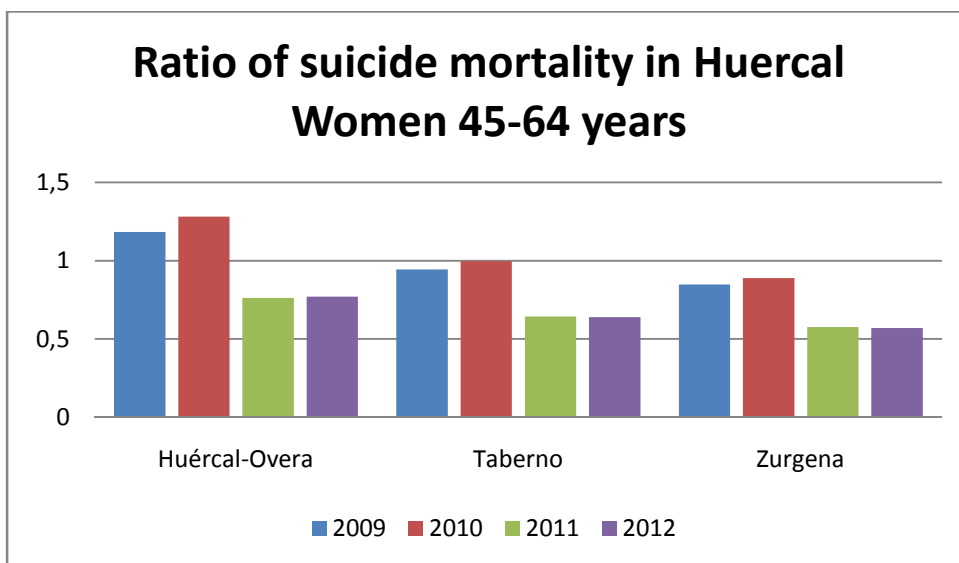


Figure 4.26. Ratio of Suicide Mortality in Huerca per 10,000 Inhabitants [45]

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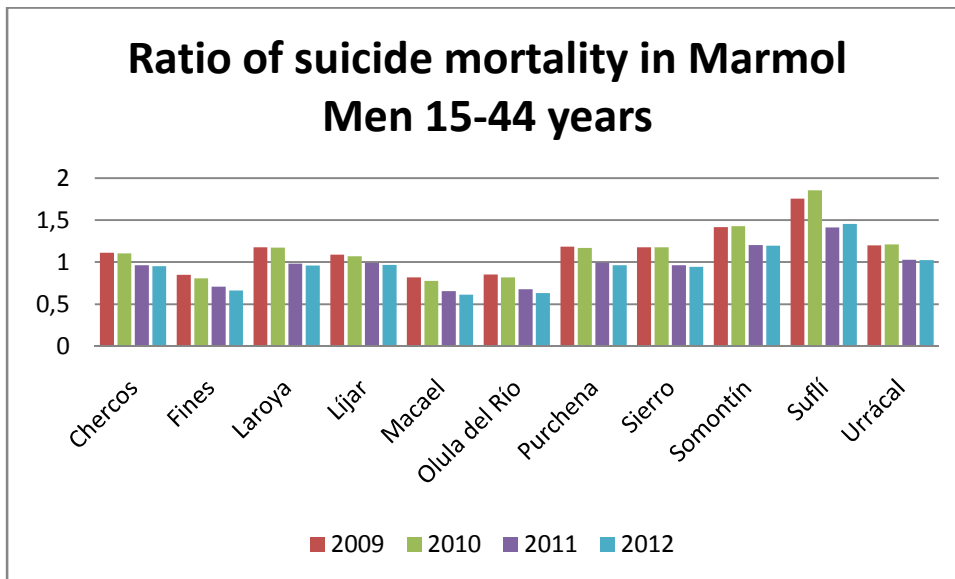


Figure 4.27. Ratio of Suicide Mortality in Marmol per 10,000 Inhabitants [45]

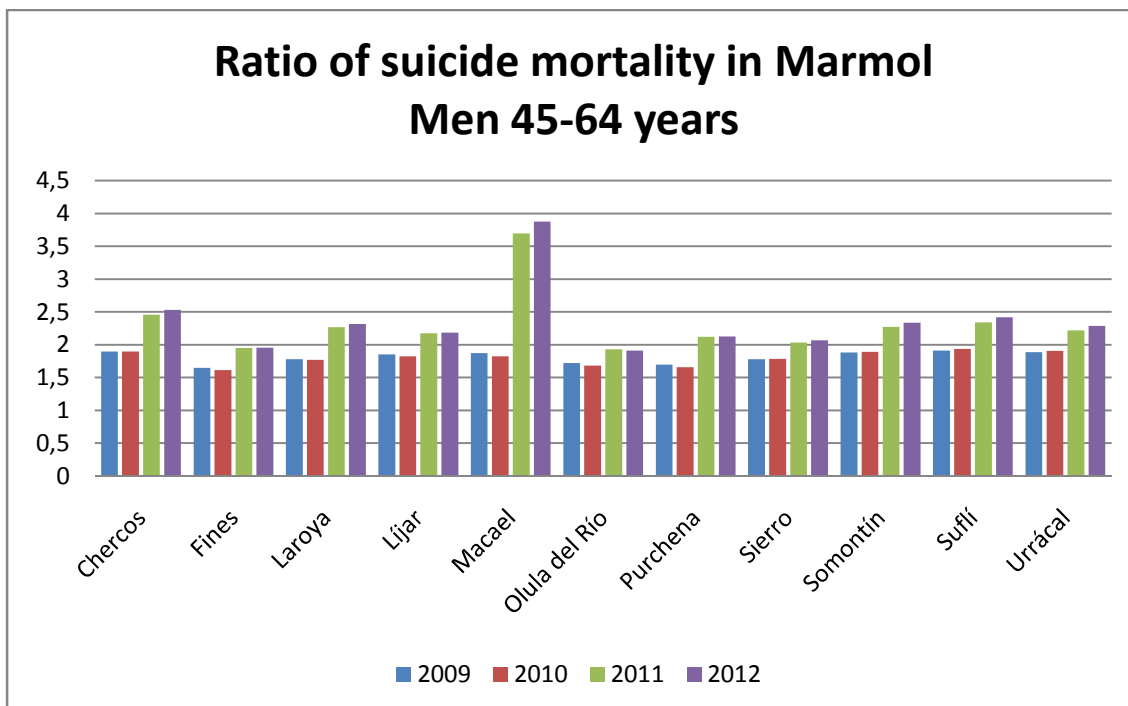


Figure 4.28. Ratio of Suicide Mortality in Marmol per 10,000 Inhabitants [45]

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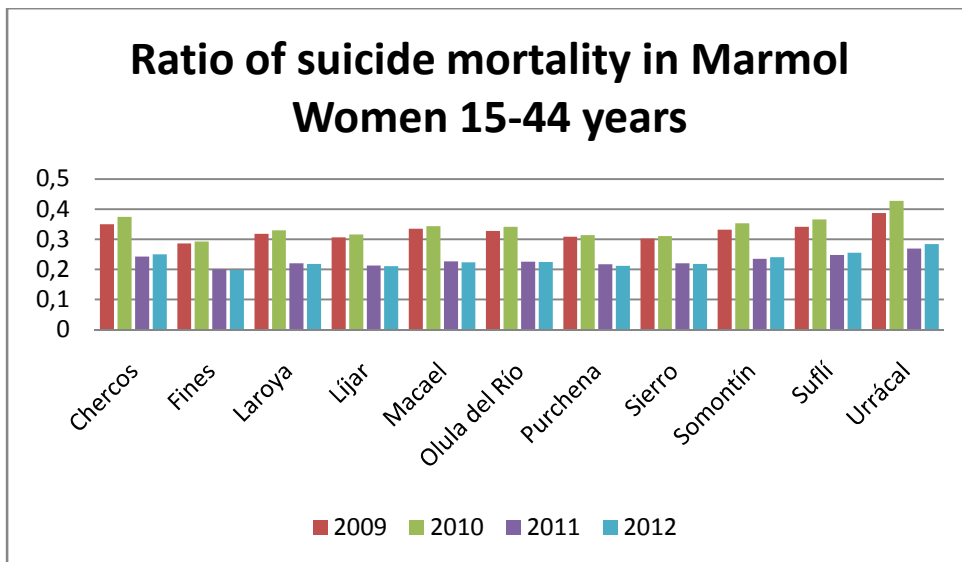


Figure 4.29. Ratio of Suicide Mortality in Marmol per 10,000 inhabitants [45]

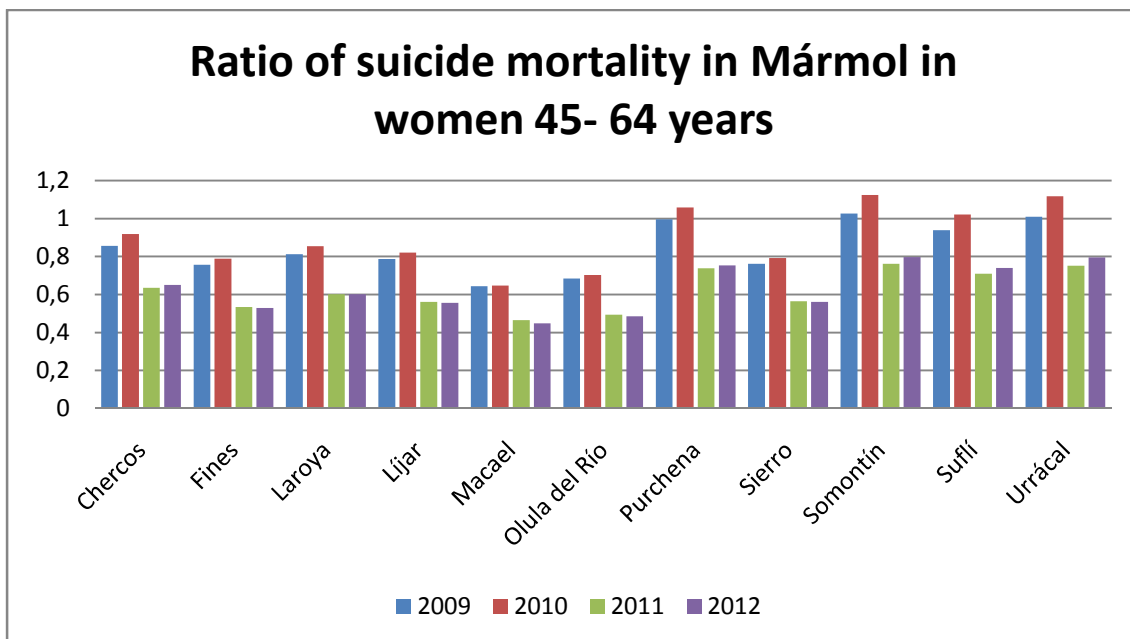


Figure 4.30. Ratio of Suicide Mortality in Marmol per 10,000 inhabitants [45]

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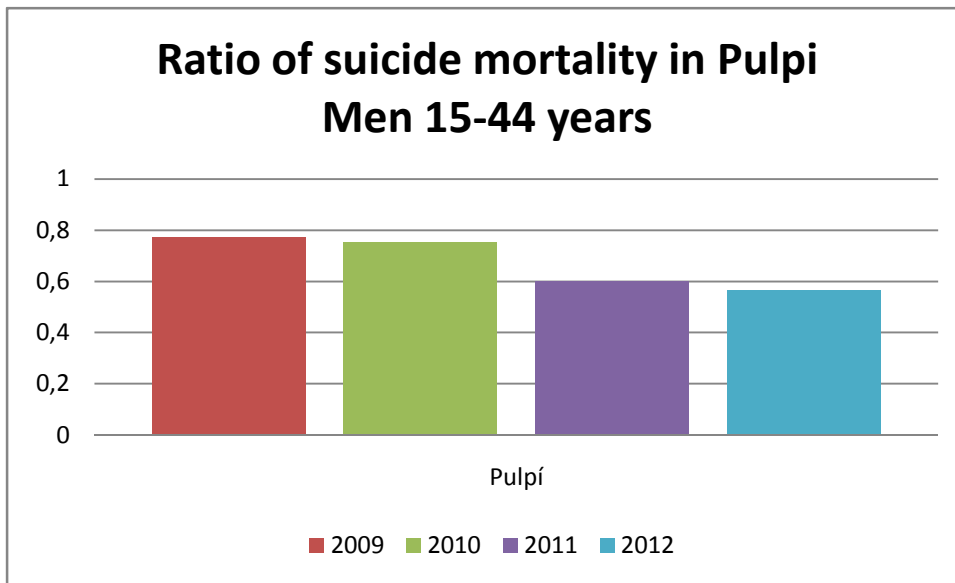


Figure 4.31. Ratio of Suicide Mortality in Pulpi per 10,000 Inhabitants [45]

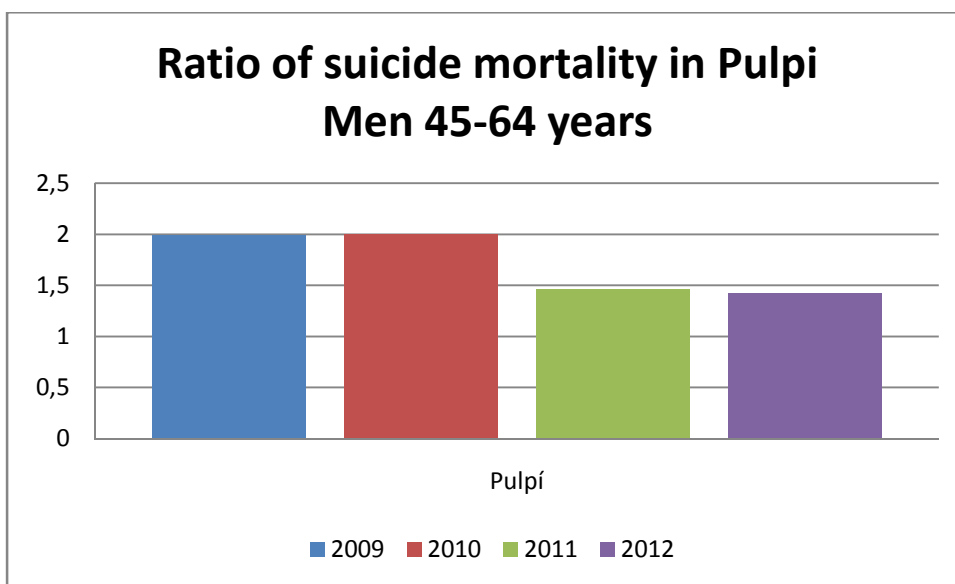


Figure 4.32. Ratio of Suicide Mortality in Pulpi per 10,000 Inhabitants [45]



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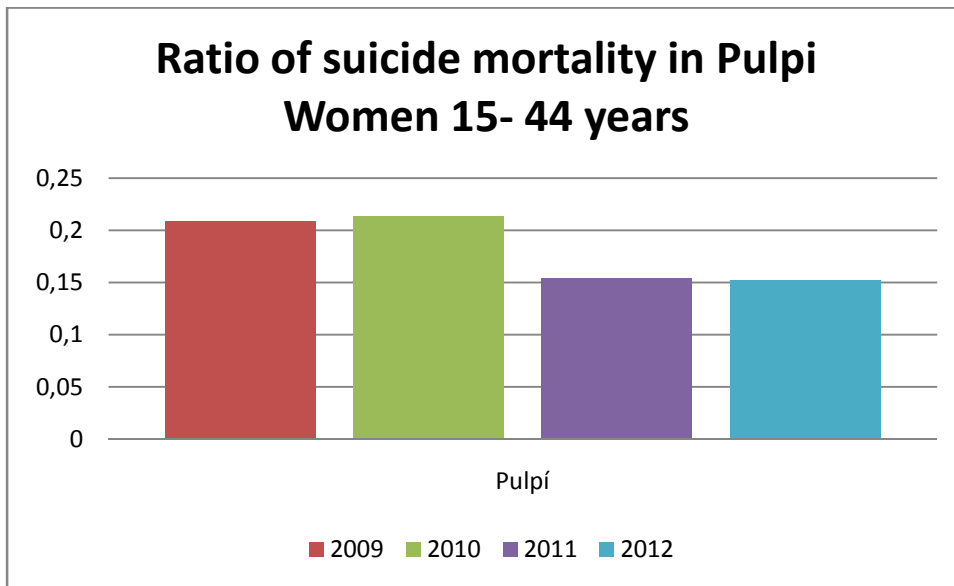


Figure 4.33. Ratio of Suicide Mortality in Pulpi per 10,000 Inhabitants [45]

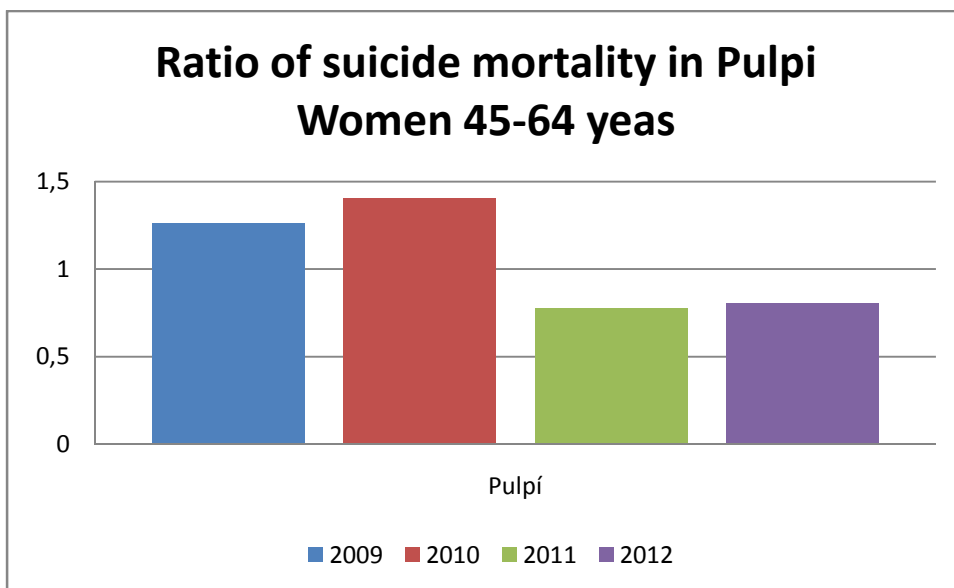


Figure 4.34. Ratio of suicide mortality in Pulpi per 10,000 inhabitants (Source: AIMA, Ocaña 2010)

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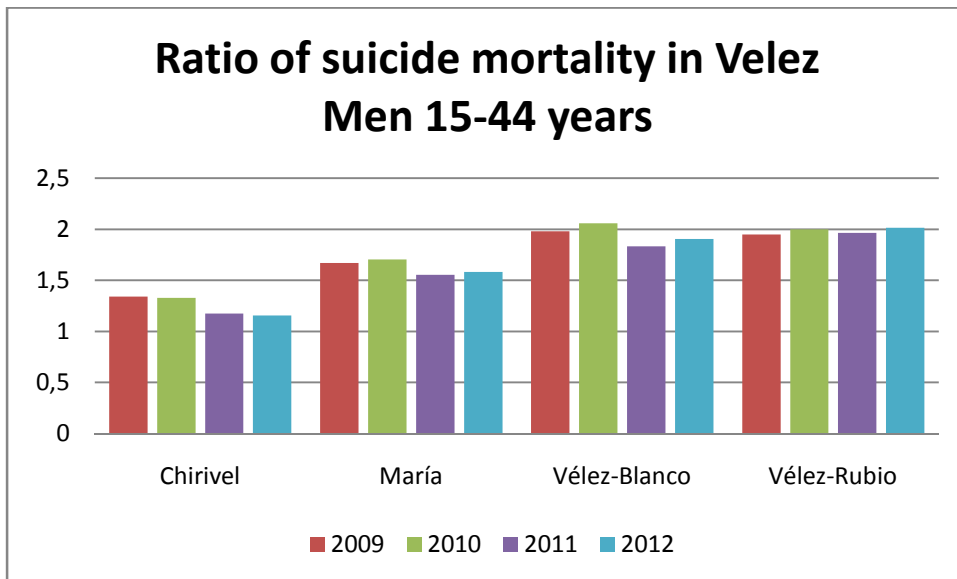


Figure 4.35. Ratio of Suicide Mortality in Velez per 10,000 Inhabitants [45]

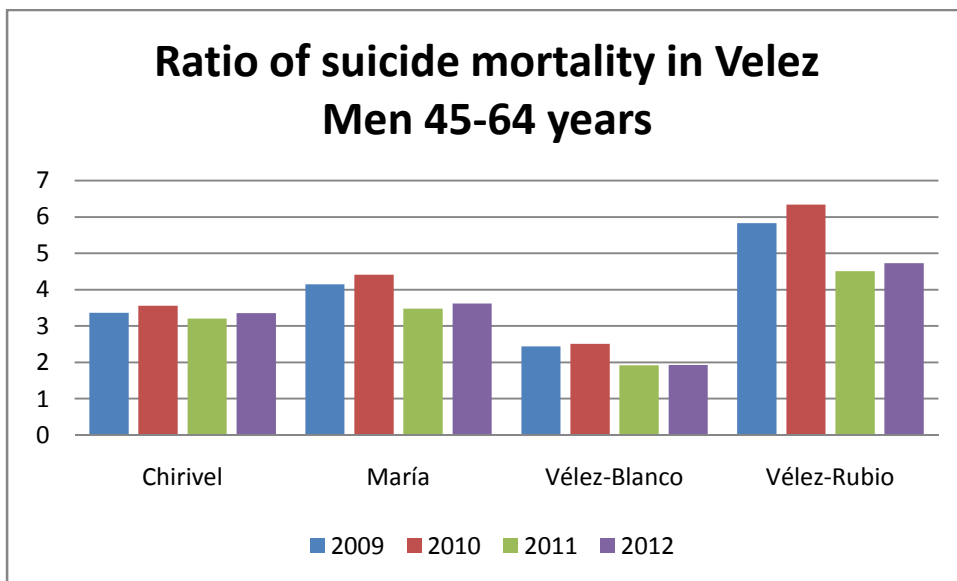


Figure 4.36. Ratio of Suicide Mortality in Velez 10,000 Inhabitants [45]

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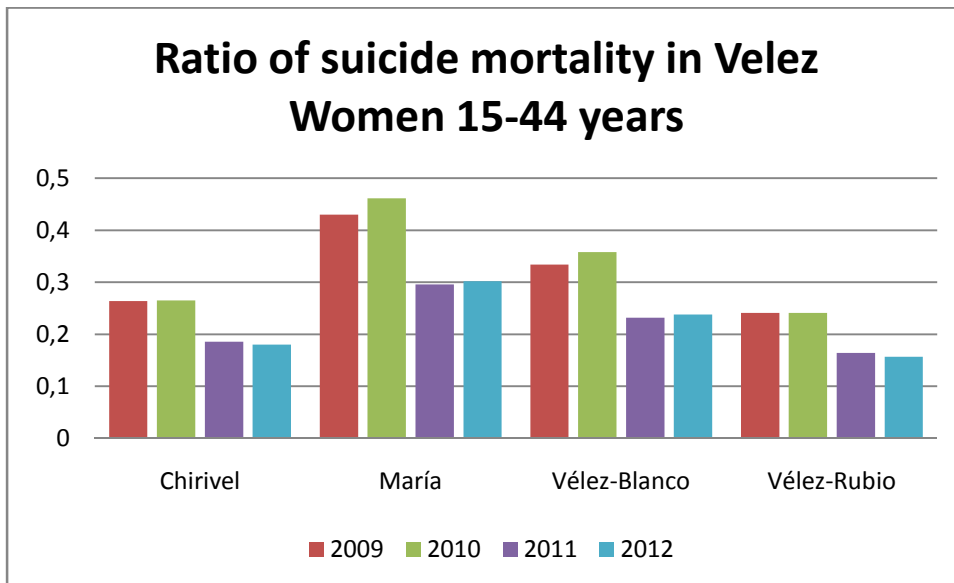


Figure 4.37. Ratio of Suicide Mortality in Velez per 10,000 Inhabitants [45]

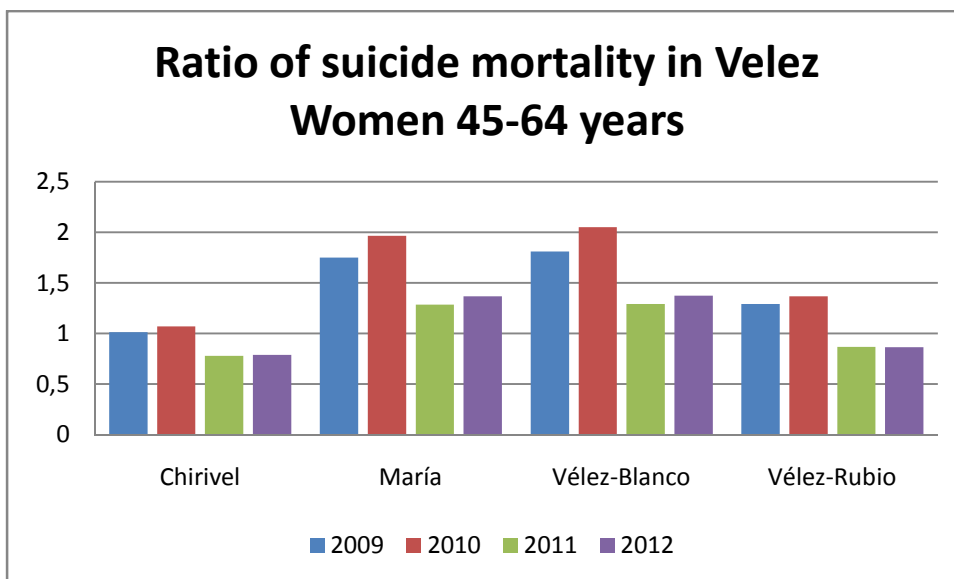


Figure 4.38. Ratio of Suicide Mortality in Velez per 10,000 Inhabitants [45]

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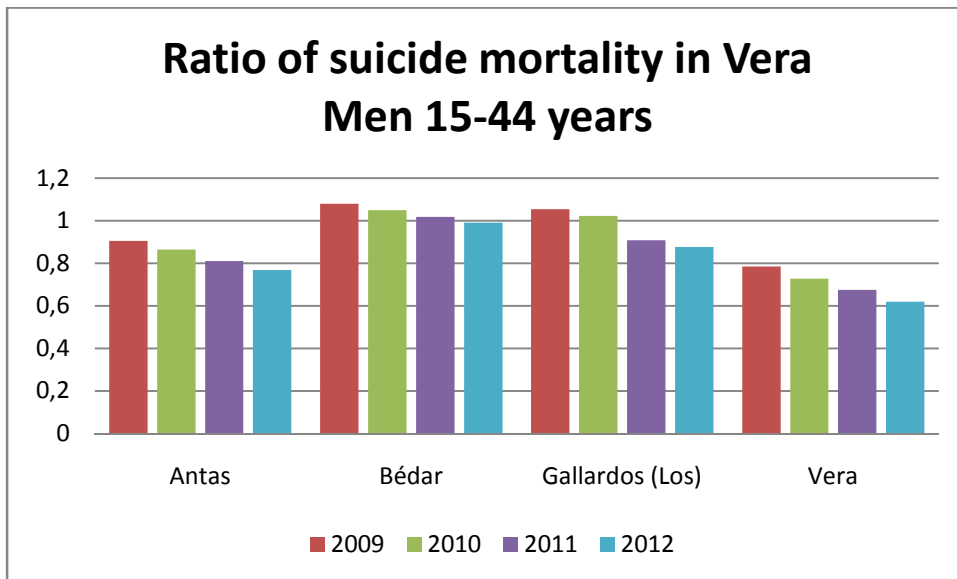


Figure 4.39. Ratio of Suicide Mortality in Vera per 10,000 Inhabitants [45]

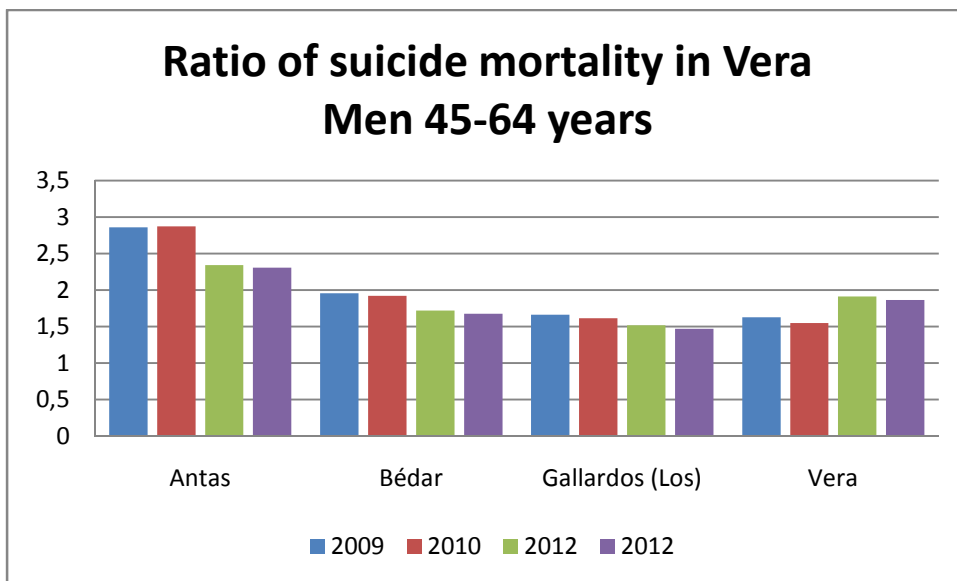


Figure 4.40. Ratio of Suicide Mortality in Vera per 10,000 Inhabitants [45]

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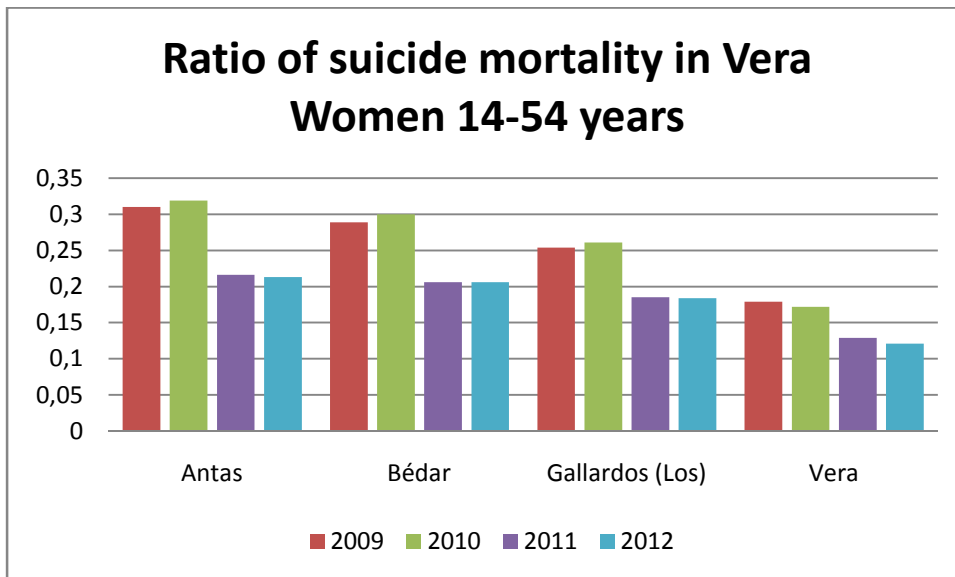


Figure 4.41. Ratio of Suicide Mortality in Vera per 10,000 Inhabitants [45]

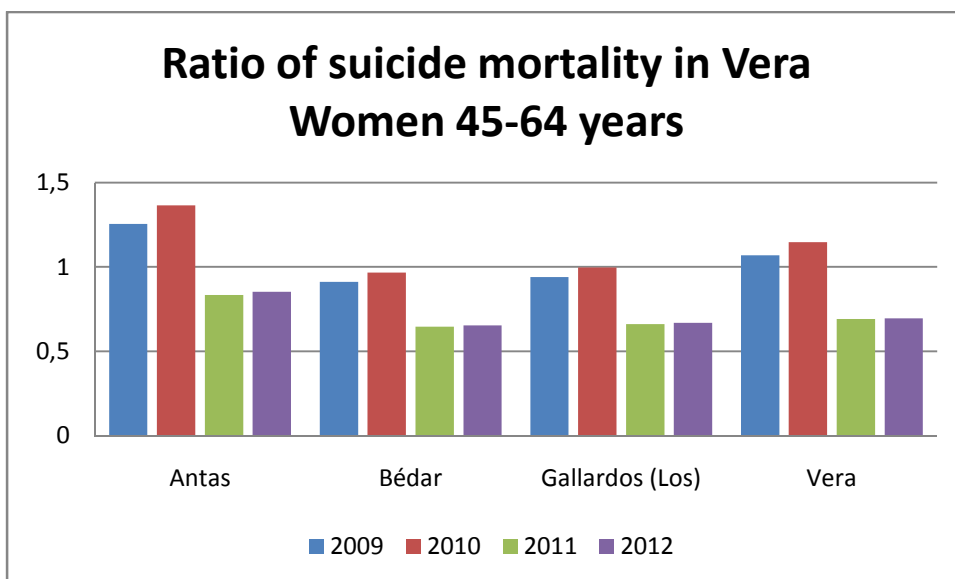


Figure 4.42 Ratio of Suicide Mortality in Vera per 10,000 Inhabitants [45]

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#### 4.2. Incidence Rate of Psychosis during study period.

Table 4.12. Rate of Psychosis in THE NORTH OF ALMERIA 2009 – 2013 per 10,000 inhabitants.

	<b>Crude Rate</b>	<b>Adjusted Rate</b>	<b>IC (95.0%)</b>	
2009	2.2567	2.2525	1.5391	3.1860
2010	0.9072	0.8983	0.4801	1.5450
2011	1.9977	2.0409	1.3641	2.9359
2012	1.4457	1.4439	0.8911	2.2134
2013	1.0479	1.0398	0.5804	1.7200

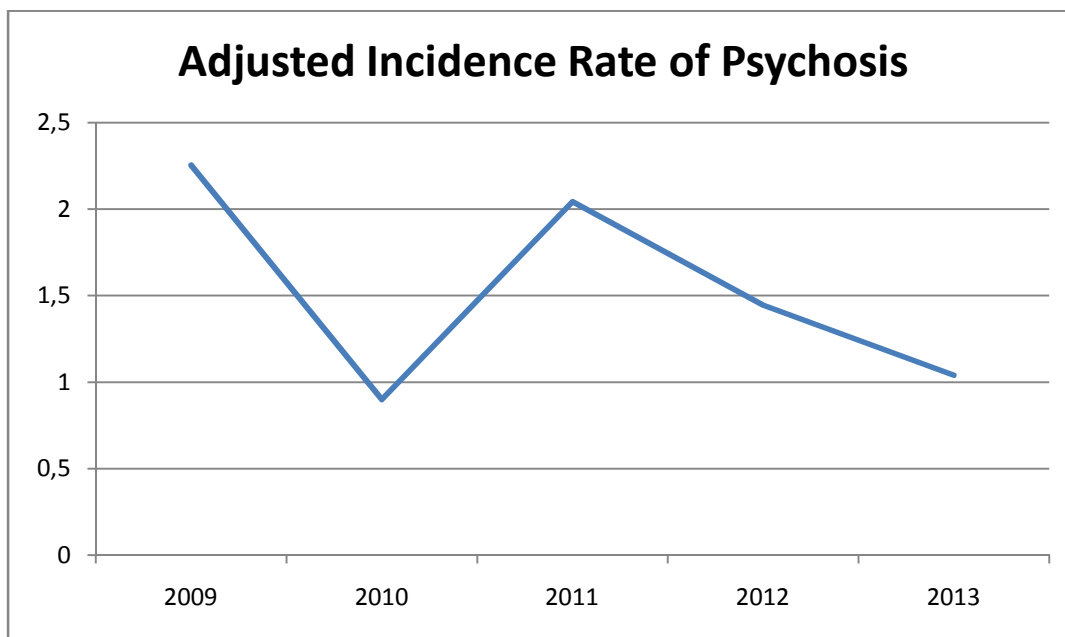


Figure 4.43. Adjusted Incidence Rate of Psychosis in North Almería.

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### 4.3. Adjusted Incidence Rate of Psychosis of THE NORTH OF ALMERIA for European population per 10,000 inhabitants.

Table 4.13. Incidence Rate of Psychosis in Albox per 10,000 inhabitants.

ALBOX		2009	2010	2011	2012	2013
<b>CRUDE INCIDENCE RATE</b>		2.0413	0.815	1.6131	2.8543	0.4237
<b>ADJUSTED INCIDENCE RATE</b>		2.0239	0.8157	1.6144	2.8044	0.4074
<b>95% CI</b>		0.6556 - 4.773	- 0.0972 - 2.9892	- 0.4401 - 4.1705	- 1.1274 - 5.825	- 00.111 - 2.3646

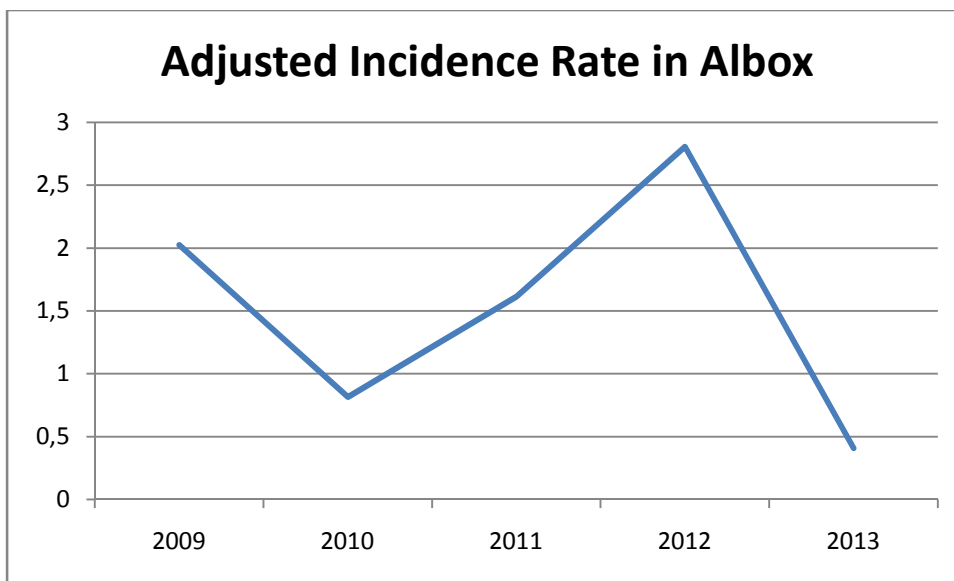


Figure 4.44. Adjusted Incidence Rate in Psychosis in Albox.

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Table 4.14. Incidence Rate of Psychosis in Cuevas per 10,000 inhabitants.

CUEVAS	2009	2010	2011	2012	2013
<b>CRUDE INCIDENCE RATE</b>	0.7678	1.5515	3.8029	0	1.5258
<b>ADJUSTED INCIDENCE RATE</b>	0.7156	1.4453	3.7626	0	1.5289
<b>95% CI</b>	0.0182 4.301	- 5.5	0.1733 8.9127	- 0	1.2169 5.6364

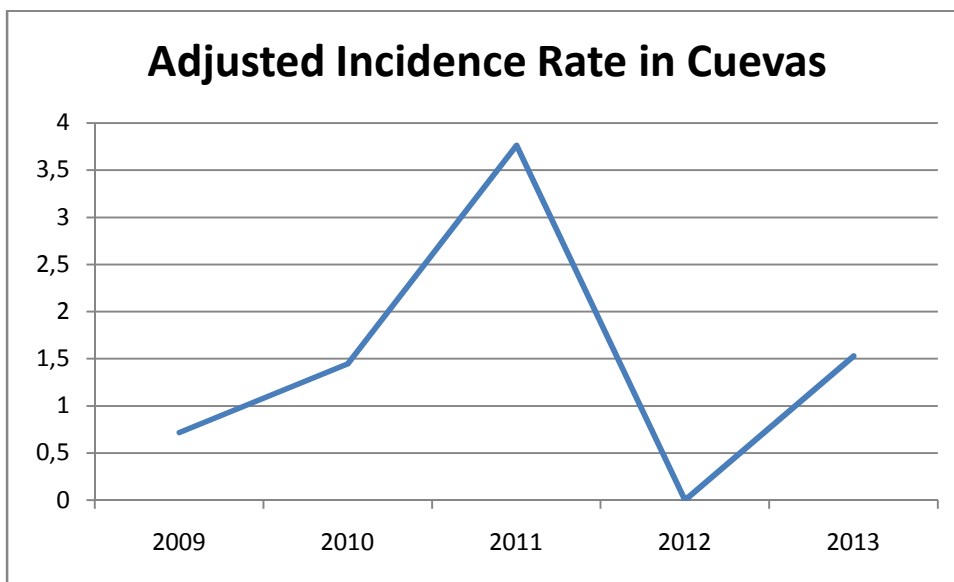


Figure 4.45. Adjusted Incidence Rate in Cuevas.



Table 4.15. Incidence Rate in Psychosis in Garrucha per 10,000 inhabitants.

GARRUCHA	2009	2010	2011	2012	2013
<b>CRUDE INCIDENCE RATE</b>	2.5211	1.5017	1.4551	1.4388	0
<b>ADJUSTED INCIDENCE RATE</b>	2.5511	1.479	1.4325	1.4646	0
<b>95% CI</b>	0.8262 - 5.998	0.3019 - 4.3979	0.2923 - 4.2602	0.299 - 4.3195	0

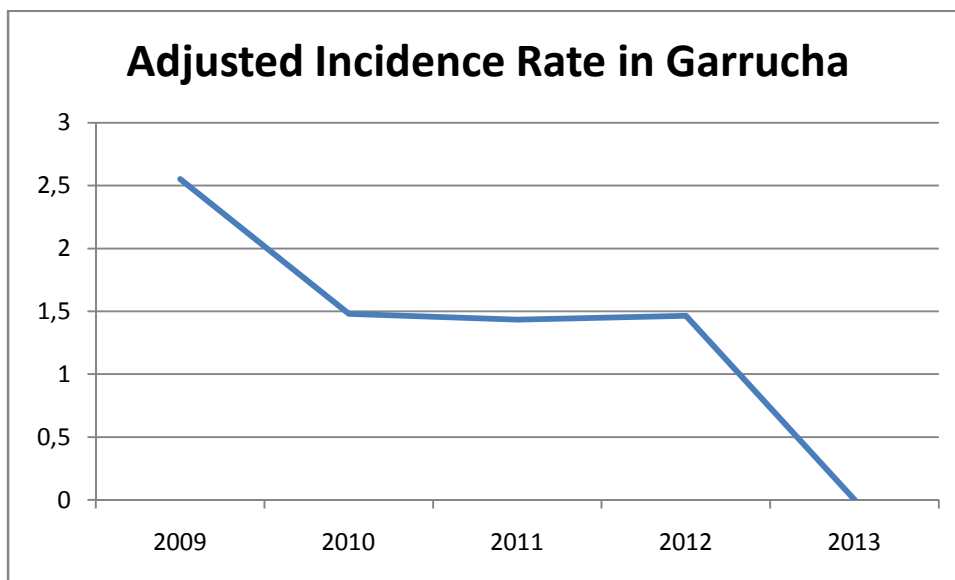


Figure 4.46. Adjusted Incidence Rate in Garrucha.

Table 4.16. Incidence Rate in Psychosis in Huercal per 10,000 inhabitants.

HUÉRCAL OVERA		2009	2010	2011	2012	2013	
<b>CRUDE INCIDENCE RATE</b>		2.747	0.4447	3.0544	1.7358	2.58	
<b>ADJUSTED INCIDENCE RATE</b>		2.7468	0.4543	3.0263	1.7358	2.5615	
<b>95% CI</b>		1.0074	- 0.013	- 1.2174	- 0.4731	- 0.9398	-
		5.9965	2.5296	6.2614	4.4642	5.5995	

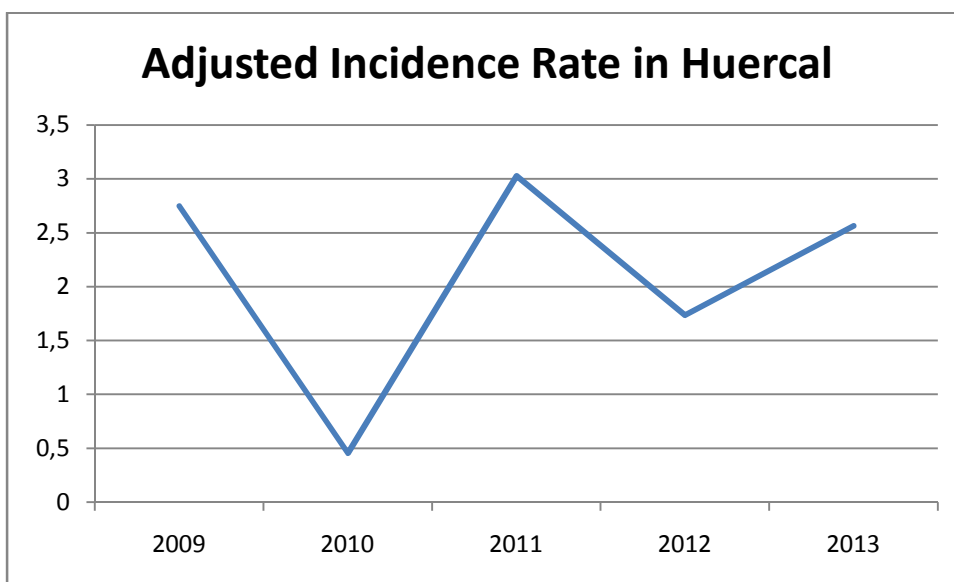


Figure 4.47. Adjusted Incidence Rate in Psychosis in Huércal Overa.

Table 4.17. Incidence Rate in Psychosis in Marmol per 10,000 inhabitants.

<b>MÁRMOL</b>		<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	
<b>CRUDE</b>	<b>INCIDENCE</b>	1.5349	0.5097	1.0348	2.1085	1.0753	
<b>RATE</b>	<b>ADJUSTED</b>	1.5668	0.4807	1.037	2.112	1.077	
<b>RATE</b>	<b>95% CI</b>	0.3246	- 0.014	- 0.1237	- 0.5744	- 0.1286	-
		4.6271	2.85	3.8246	5.471	3.9656	

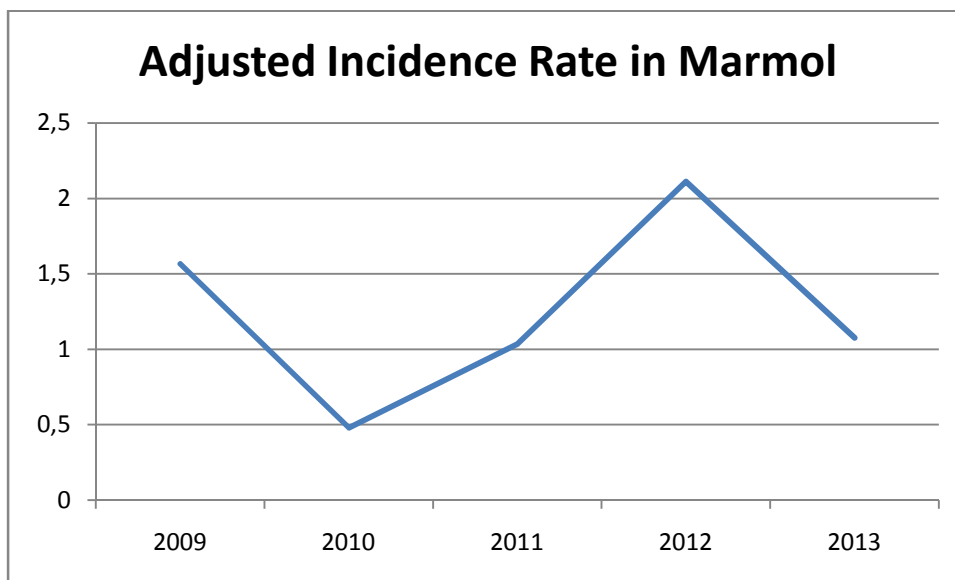


Figure 4.48. Adjusted Incidence Rate in Marmol.

Table 4.18. Incidence Rate in Psychosis in Pulpi per 10,000 inhabitants.

PULPÍ	2009	2010	2011	2012	2013	
<b>CRUDE INCIDENCE RATE</b>	2.4444	1.1864	3.438	0	1.1273	
<b>ADJUSTED INCIDENCE RATE</b>	2.682	1.2929	3.3672	0	1.0585	
<b>95% CI</b>	0.3265 9.6897	- 0.033 7.2032	- 0.6903 10.0965	- 0	0.027 6.3081	-

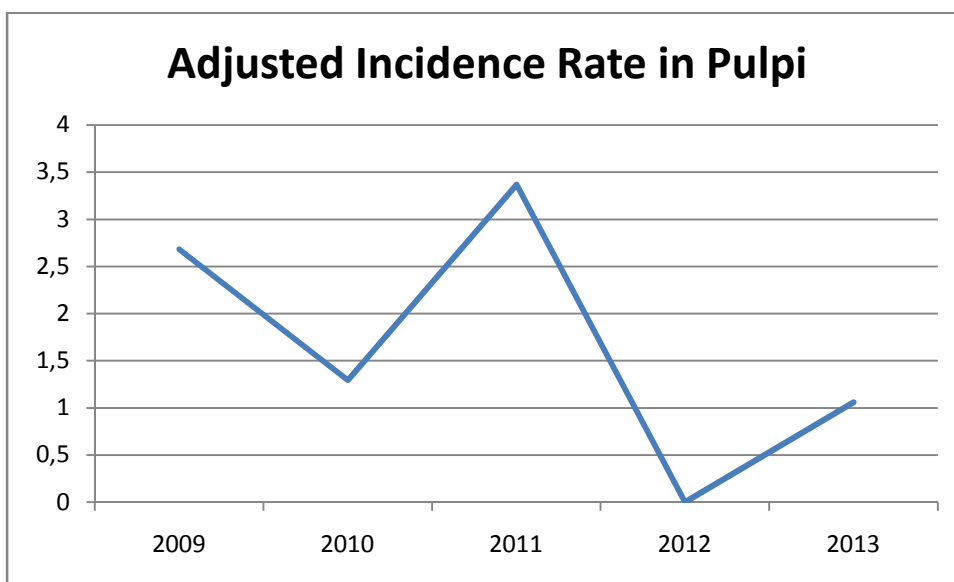


Figure 4. 49. Adjusted Incidence Rate in Psychosis in Pulpi.

Table 4. 19. Incidence Rate in Psychosis in Velez per 10,000 inhabitants.

VÉLEZ	2009	2010	2011	2012	2013
<b>CRUDE INCIDENCE RATE</b>	1.5715	0.7857	2.3644	0	0.8296
<b>ADJUSTED INCIDENCE RATE</b>	1.6029	0.8044	2.3443	0	0.8088
<b>95% CI</b>	0.1922- 5.7878	0.0205 - 4.4827	0.4843 - 6.9098	0	0.0206 - 4.6226

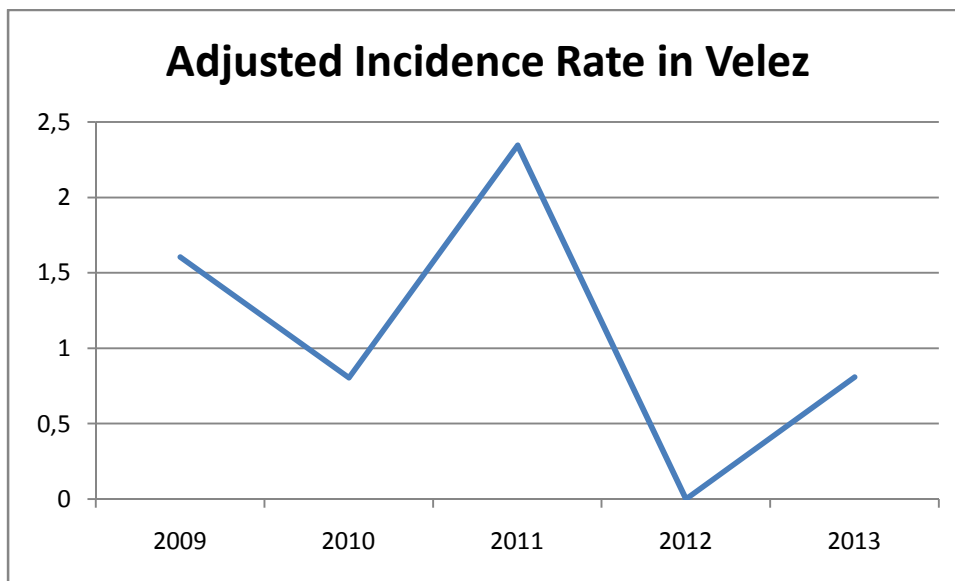


Figure 4.50. Adjusted Incidence Rate of Psychosis in Vélez.

Table 4.20. Incidence Rate in Psychosis Vera per 10,000 inhabitants.

VERA		2009	2010	2011	2012	2013	
<b>CRUDE INCIDENCE RATE</b>		1.3542	1.3258	1.7435	0.4304	1.3232	
<b>ADJUSTED INCIDENCE RATE</b>		1.3785	1.3056	1.7454	0.4493	1.3443	
<b>95% CI</b>		0.2814	- 0.2665	- 0.4750	- 0.0128	- 0.2745	-
		4.0656	3.8809	4.5130	2.5031	3.9620	

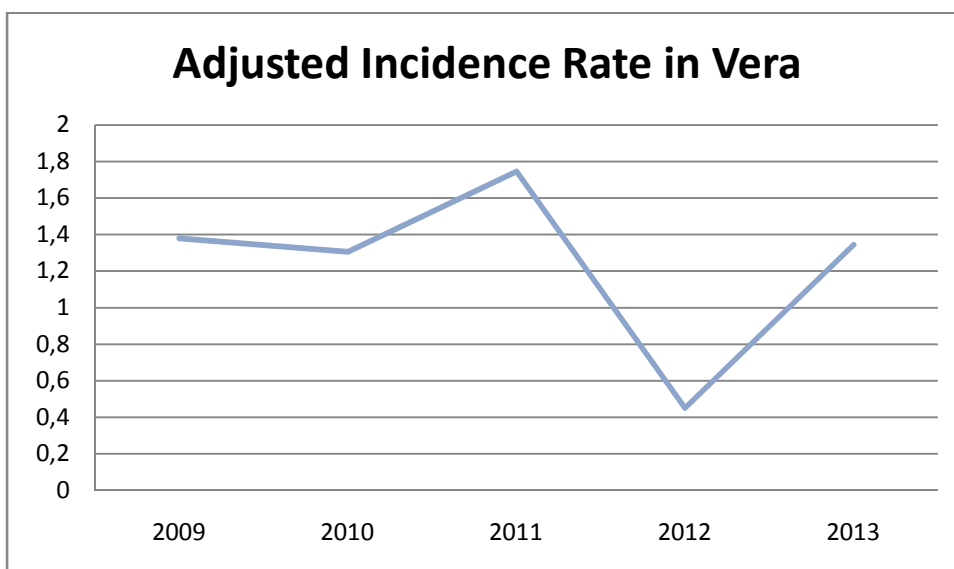


Figure 4.50. Adjusted Incidence Rate in Vera.

Table 4.21. Incidence Rate of Psychosis per unit.

	2009	2010	2011	2012	2013
ALBOX	2.0239	0.8157	1.6144	2.8044	0.4074
CUEVAS	0.7156	1.4453	3.7626	0	1.5289
GARRUCHA	2.5511	1.479	1.4325	1.4646	0
HUÉRCAL OVERA	2.7468	0.4543	3.0263	1.7358	2.5615
MÁRMOL	1.5668	0.4807	1.037	2.112	1.077
PULPÍ	2.682	1.2929	3.3672	0	1.0585
VÉLEZ	1.629	0.8044	2.3443	0	0.8088
VERA	1.3785	1.3056	1.7454	0.4493	1.3443

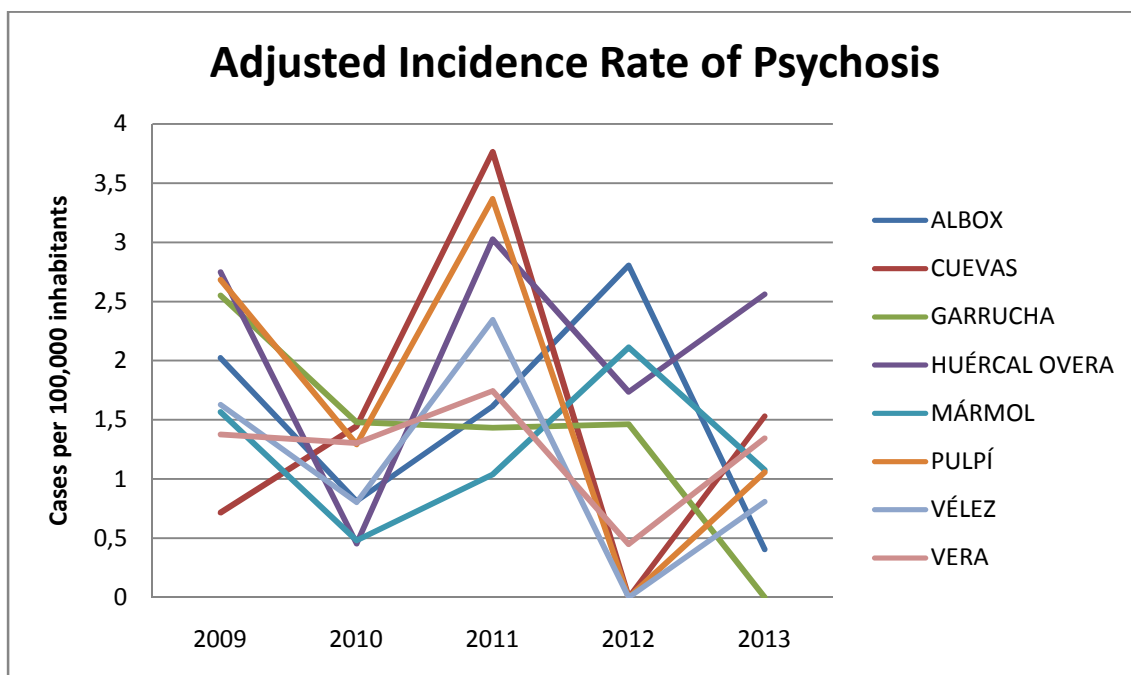


Figure 4.51. Adjusted Incidence Rate of Psychosis.

#### 4.4. Adjusted Incidence Rate of Psychosis by gender.

Table 4.22 . Adjusted Incidence Rate of Psychosis by gender in Albox per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	2.391	0.799	1.583	4.004	0.835
<b>WOMEN</b>	1.673	0.831	1.643	1.661	0

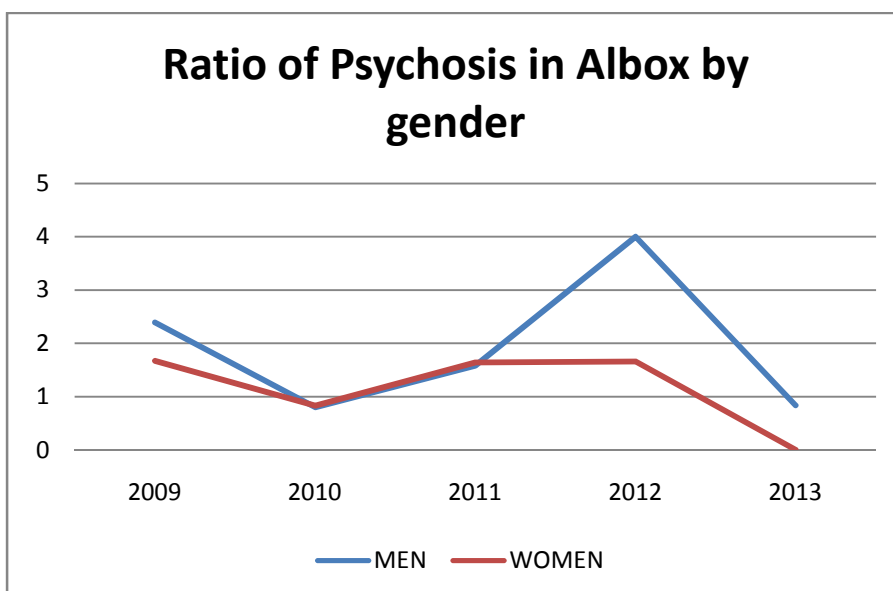


Figure 4.52. Adjusted Incidence Rate of Psychosis by gender in Albox.



Table 4.23. Adjusted Incidence Rate of Psychosis by gender in Cuevas per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	1.466	2.962	4.374	0	1.474
<b>WOMEN</b>	0	0	3.179	0	1.58

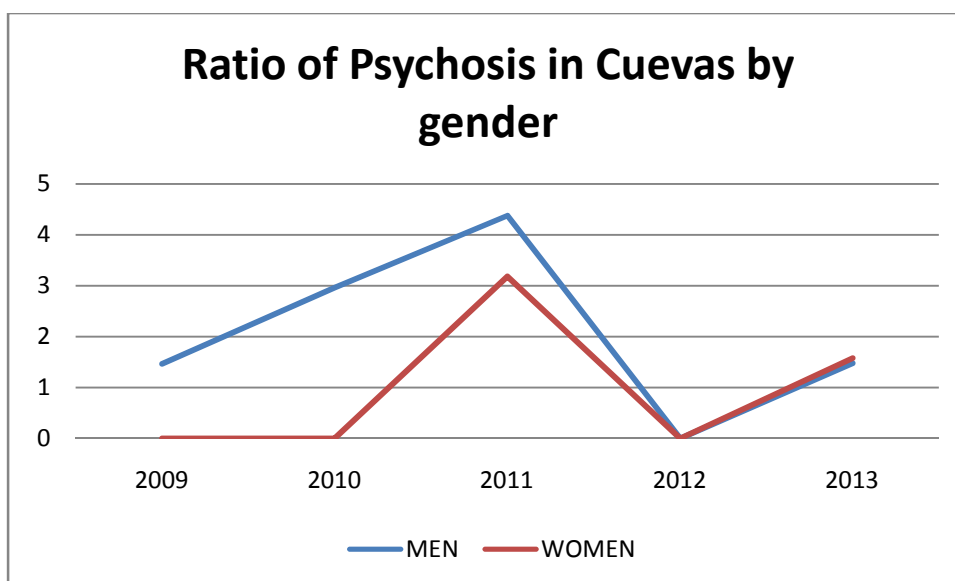


Figure 4.53. Adjusted Incidence Rate of Psychosis by gender.

Table 4.24. Adjusted Incidence Rate of Psychosis by gender in Garrucha per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	1.961	1.953	1.89	0.935	0
<b>WOMEN</b>	3.112	1.026	0.996	1.968	0

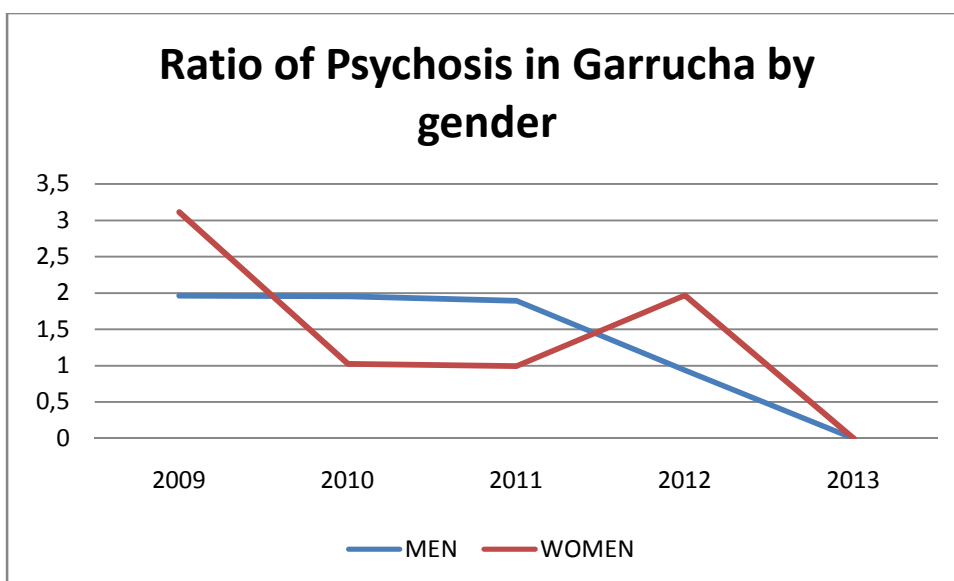


Figure 4.54. Adjusted Incidence Rate of Psychosis by gender Garrucha.

Table 4.25. Adjusted Incidence Rate of Psychosis by gender in Huercal per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	2.757	0	4.376	1.737	3.45
<b>WOMEN</b>	2.736	0.887	1.74	1.734	1.714

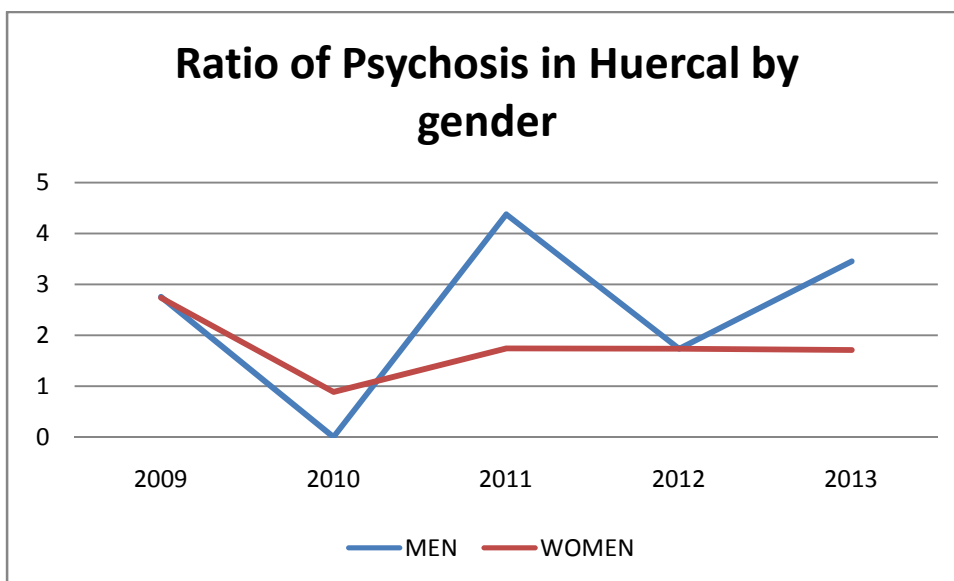


Figure 4.55. Adjusted Incidence Rate of Psychosis by gender in Huércal Overa.

Table 4.26. Adjusted Incidence Rate of Psychosis by gender in Marmol per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	0.991	0.985	0.998	2.046	1.044
<b>WOMEN</b>	2.115	0	1.073	2.174	1.108

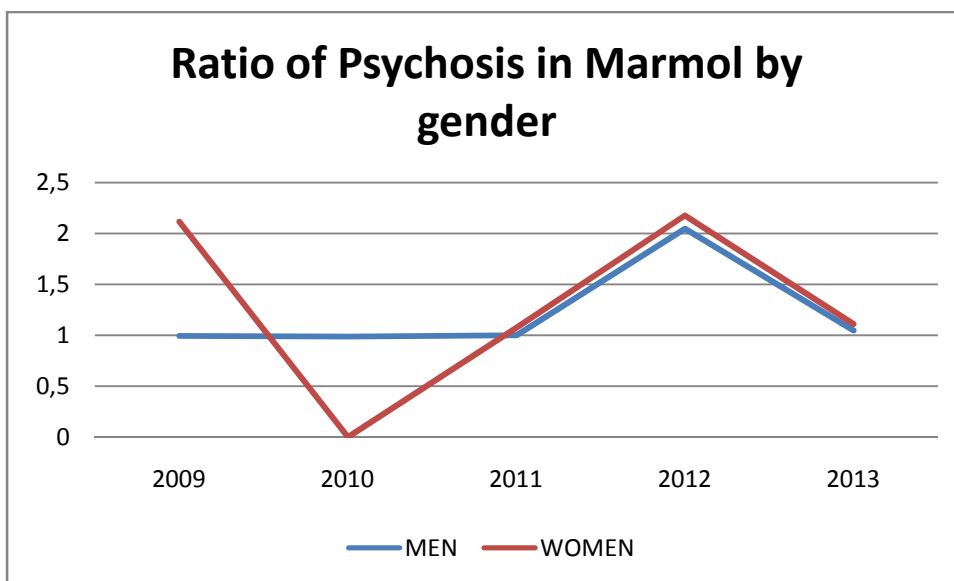


Figure 4.56. Adjusted Incidence Rate of Psychosis by gender in Marmol.

Table 4.27. Adjusted Incidence Rate of Psychosis by gender in Pulpi per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	0	0	4.375	0	2.169
<b>WOMEN</b>	5.236	2.524	2.406	0	0

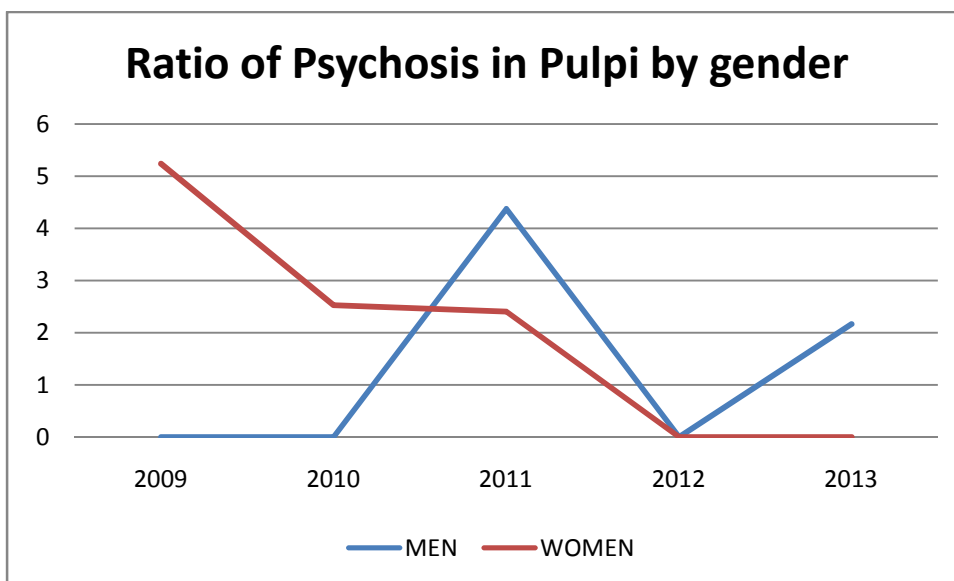


Figure 4.57. Adjusted Incidence Rate of Psychosis by gender in Pulpi.

Table 4.28. Adjusted Incidence Rate of Psychosis by gender in Velez per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	0	0	3.148	0	1.657
<b>WOMEN</b>	3.129	1.57	1.578	0	0

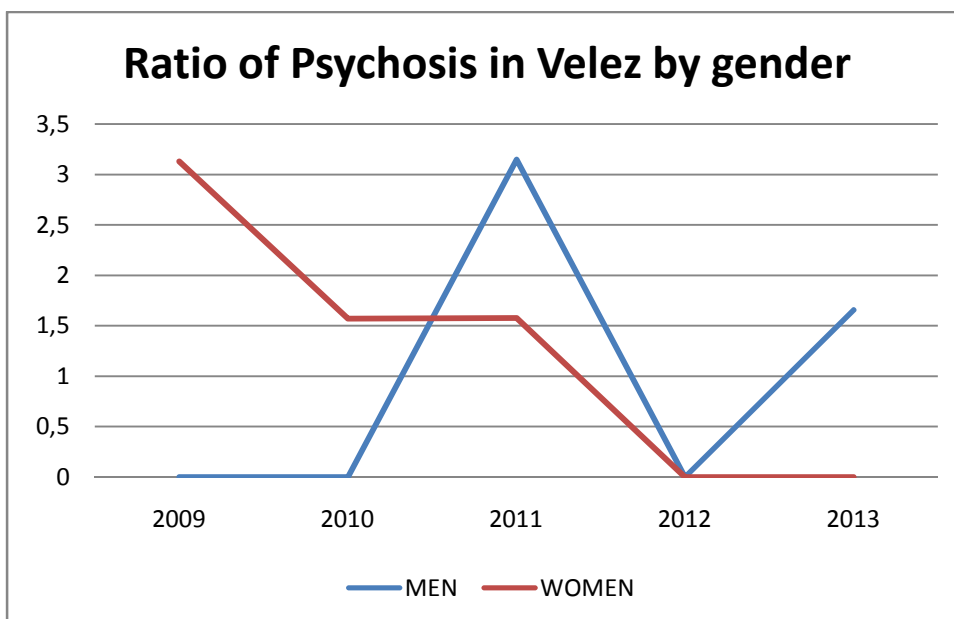


Figure 4.58. Adjusted Incidence Rate in Psychosis by gender in Velez.

Table 4.28. Adjusted Incidence Rate of Psychosis by gender in Vera per 10,000 inhabitants.

	2009	2010	2011	2012	2013
<b>MEN</b>	0.88	1.724	1.704	0	0.864
<b>WOMEN</b>	1.853	0.906	1.784	0.877	1.801

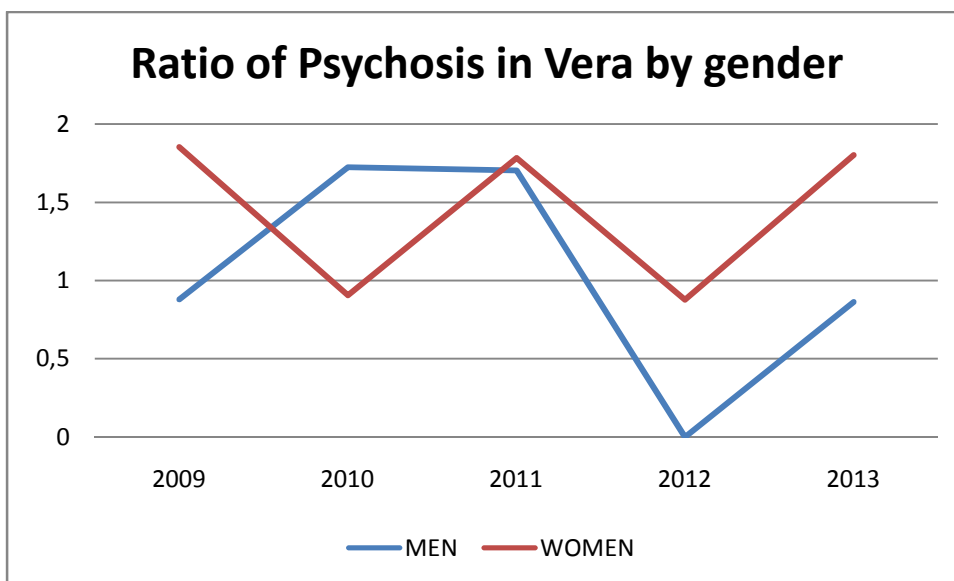


Figure 4.59. Adjusted Incidence Rate of Psychosis by gender in Vera.

Table 4.29. Adjusted Incidence of Psychosis in THE NORTH OF ALMERIA by men.

MEN	2009	2010	2011	2012	2013
ALBOX	2.391	0.799	1.583	4.004	0.835
CUEVAS	1.466	2.962	4.374	0	1.474
GARRUCHA	1.961	1.953	1.89	0.935	0
HUÉRCAL OVERA	2.757	0	4.376	1.737	3.45
MÁRMOL	0.991	0.985	0.998	2.046	1.044
PULPÍ	0	0	4.375	0	2.169
VÉLEZ	0	0	3.148	0	1.657
VERA	0.88	1.724	1.704	0	0.864

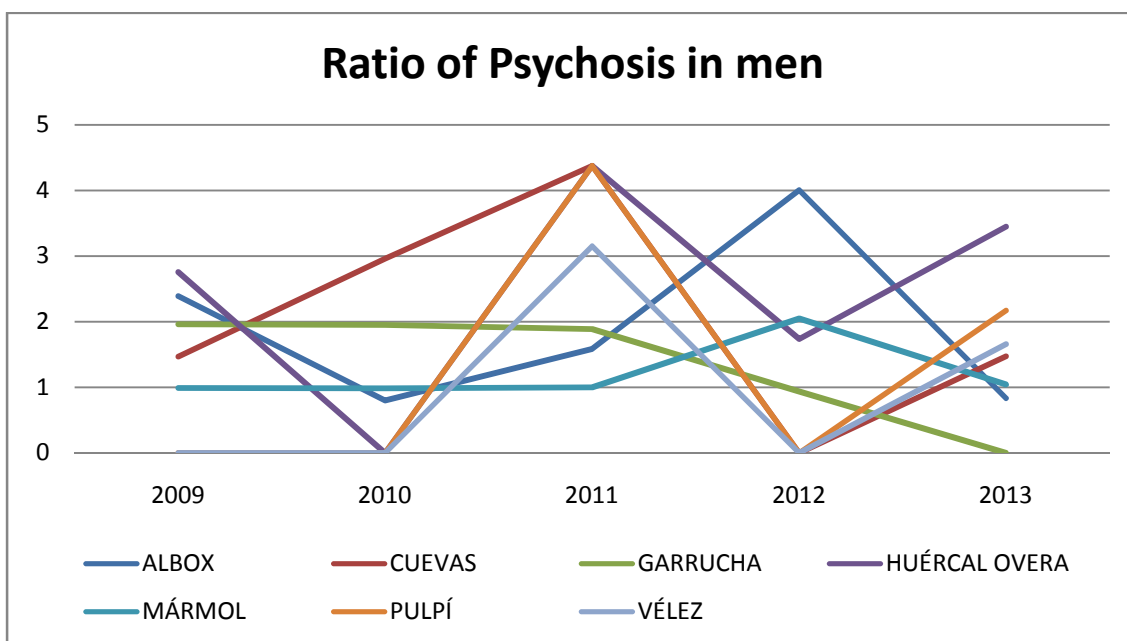


Figure 4.60. Ratio of Psychosis in Northern Almeria in Men.



Table 4.30. Adjusted Incidence Rate of Psychosis by women in THE NORTH OF ALMERIA.

WOMEN	2009	2010	2011	2012	2013
ALBOX	1.673	0.831	1.643	1.661	0
CUEVAS	0	0	3.179	0	1.58
GARRUCHA	3.112	1.026	0.996	1.968	0
HUÉRCAL OVERA	2.736	0.887	1.74	1.734	1.714
MÁRMOL	2.115	0	1.073	2.174	1.108
PULPÍ	5.236	2.524	2.406	0	0
VÉLEZ	3.129	1.57	1.578	0	0
VERA	1.853	0.906	1.784	0.877	1.801

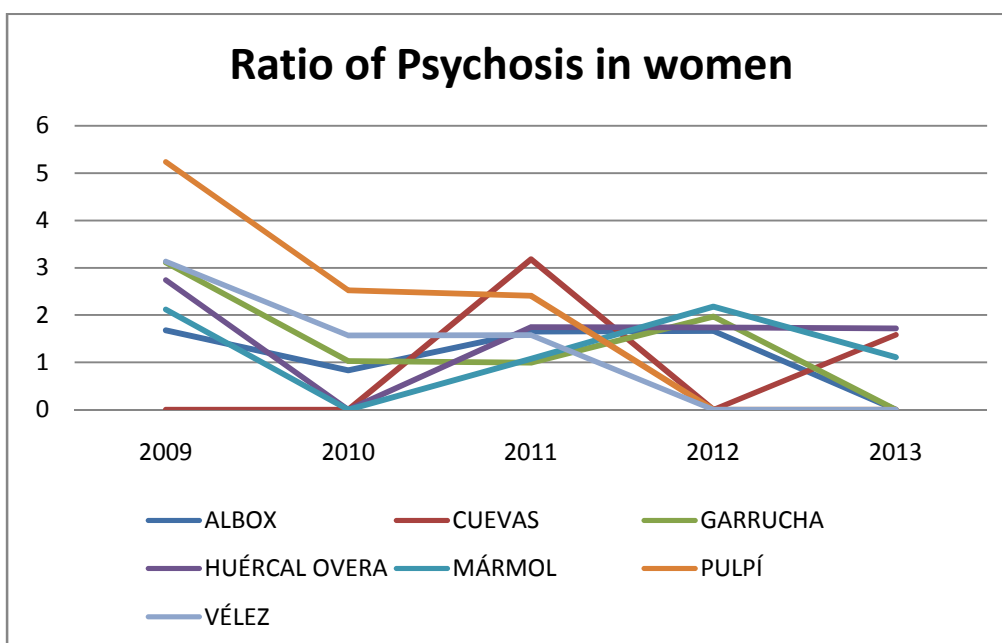


Figure 4.61. Ratio of Psychosis in women in THE NORTH OF ALMERIA.

## CHAPTER 5. RELATION BETWEEN UNEMPLOYMENT AND INCIDENCE OF PSYCHOSIS

The effects of independent variables (unemployment, sex and place of residence) on the dependent variable (incidence of psychosis) were assessed using multiple linear regression analyses.

The ability to make accurate predictions has important implications for the quality of services provided, as discussed assigning an expensive resource as a first psychotic episodes programme, it is important to predict which area and who will benefit most.

In Model 1, we created a simple regression analysis using unemployment as the independent variable. In this first model, we found that 17.6% (R<sup>2</sup>) of variability of the psychotic episodes rate (Y) can be explained by the variability of the values of unemployed individuals (X)

In this first model, we found that 17.6% (R<sup>2</sup>) of variability values of psychotic episodes rate (Y) can be explained by the variability of the values of unemployed individuals (X).

The remaining 72.4% is the variability arising from other sources.

The simple regression formula is:

$$Y = a + \text{Beta } X$$

$$\text{Psychosis (x 10,000 inhabitants)} = 5.480 + (-0.419 * \text{unemployment})$$

Y = incidence of psychosis

a = constant

Beta = slope of the line

X = independent variable, unemployment

Therefore, we find that for every one percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by 0.269.

Table 5.1. Summary of model

Model	R	Square R	Corrected Square R	Standard error of the estimate
1	0.419 <sup>a</sup>	0.176	0.176	2.154

a. Predictor variables: (Constant), unemployment.

### ANOVA<sup>b</sup>

Model		Sum of squares	Gl	Root median Square	F	Sig.
1	Regression	706553.423	1	706553,423	152260.424	<0.001 <sup>a</sup>
	Residual	3312643.247	713866	4.640		
	Total	4019196.670	713867			

a. Predictor variable: (Constante), Unemployment

b. Dependent variable: First Episode Psychosis

### Coefficients<sup>a</sup>

Model		Non-standardised coefficients		Standardised coefficients		Confiance Interval		
		B	Standard Error	Beta	T	Sig.	Lower limit	Upper limit
1	(Constant)	5.480	0.008		667.957	<0.001	5.464	5.496
	Unemployment	-0.269	0.001	-0.419	-390.206	<0.001	-0.270	-0.267

a. Dependent variable: First Episode Psychosis

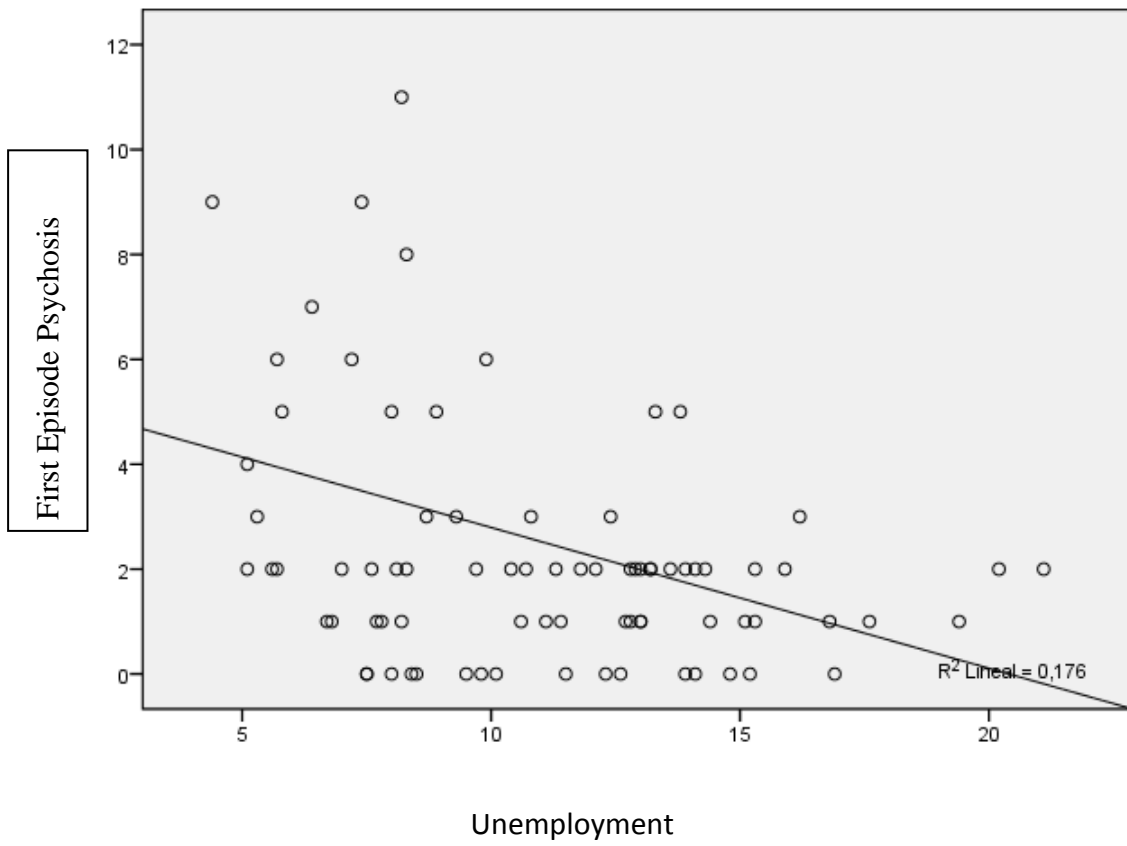


Figure 5.1. Relation between Unemployment and Psychosis.

Multiple regressions can be helpful to produce an equation that gives the best possible prediction given the correlations between the different variables.

Model 2 includes unemployment and gender as the independent variables that explained 22.3% (R2) of the variability of psychosis.

For every one percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by 0.308 to equal the other variables included in the model.

Men have an average rate of 1.074 more than women of first psychotic episodes.

First Psychotic Episodes rate (x10,000 inhabitants) =  $7.524 + (-308 * \text{unemployment}) + (-1074 * \text{gender})$

Model 3, includes unemployment, sex and area of residence as the independent variables that explained 50.5% of the variability of the rate of first psychotic episodes.

Average rate of psychosis (x10,000 inhabitants) =  $10.599 + (-0.565 * \text{Unemployed}) + (1.594 * \text{GENDER}) + (0.841 * \text{CUEVAS}) + (0.8 * \text{GARRUCHA}) + (1.81 * \text{HUÉRCAL}) + (2.892 * \text{MARMOL}) + (-2.802 * \text{PULPÍ}) + (2258 * \text{Velez}) + (0.693 * \text{VERA})$

For every percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by 0.565 to equal the other variables included in the model.

Women have an average rate of 1.594 less than men of first psychotic episodes.

Thus, it was found that Cuevas, Garrucha, Huercal, Marmol and Vera have an increase in cases regarding the reference unit (0.841; 1.810, 2.892; 0.63 more cases, respectively), in comparison to Albox (reference category).

On the contrary, Pulpi and Velez have fewer cases than Albox (2.802 and 2.258 cases less).

Table 5.2. Summary of model 3.

Model	Statistics of change								
	R	Square R	Corrected Square R	Standard error of estimate	Squared R Changed	Changing in F	gl1	gl2	Signification Change in F
1	0.419 <sup>a</sup>	0.176	0.176	2.154	0.176	152260.424	1	713866	<0.001
2	0.472 <sup>b</sup>	0.223	0.223	2.091	0.047	43532.967	1	713865	<0.001
3	0.711 <sup>c</sup>	0.505	0.505	1.669	0.282	58105.388	7	713858	<0.001

- a. Predictor variables: (Constant), Unemployment  
 b. Predictor variables: (Constant), Unemployment, Gender.  
 c. Predictor variables: (Constant), Unemployment, Gender, VERA, HUÉRCAL, CUEVAS, PULPÍ, GARRUCHA, LOS\_VÉLEZ, MÁRMOL

Table 5.3. ANOVA d

Model		Sum of Squares	Gl	Median of Square	F	Sig
1	Regression	706553.423	1	706553.423	152260.424	<0.001 <sup>a</sup>
	Residual	3312643.247	713866	4.640		
	Total	4019196.670	713867			
2	Regression	896954.237	2	448477.118	102539.161	<0.001 <sup>b</sup>
	Residual	3122242.433	713865	4.374		
	Total	4019196.670	713867			
3	Regression	2030220.885	9	225580.098	80962.352	<0.001 <sup>c</sup>
	Residual	1988975.784	713858	2.786		
	Total	4019196.670	713867			

- a. Predictor variables: (Constant), Unemployment  
 b. Predictor variables: (Constant), Unemployment, Gender.  
 c. Predictor variables: (Constant), Unemployment, Gender, VERA, HUÉRCAL, CUEVAS, PULPÍ, GARRUCHA, LOS\_VÉLEZ, MÁRMOL  
 d. Dependent variable: First Episode Psychosis.



Table 5.4. Coefficients of Model 3.

Model 3	Coefficients No-Standards		Standardized Coefficients		Sig	Confidence Interval of 95%	
	B	Standard Error	Beta	T		Lower limit	Upper Limit
(Constant)	10.599	0.012		912.733	<.001	10.576	10.621
Unemployment	-0.565	0.001	-0.881	-751.286	<.001	-.566	-0.563
Gender	-1.594	0.004	-0.336	-376.888	<.001	-1.602	-1.585
CUEVAS	0.841	0.009	0.102	94.900	<.001	.824	0.859
GARRUCHA	0.800	0.008	0.117	105.144	<0.001	.785	0.815
HUÉRCAL	1.810	0.007	0.277	249.286	<0.001	1.795	1.824
MÁRMOL	2.892	0.009	0.417	330.267	<0.001	2.875	2.910
PULPÍ	-2.802	0.009	-0.279	-295.781	<0.001	-2.821	-2.784
VÉLEZ	-2.258	0.008	-0.271	-276.229	<0.001	-2.274	-2.242
VERA	0.693	0.007	0.106	96.961	<0.001	.679	0.707

a. Dependent Variable: First Episode Psychosis

In model 4, it was observed with multiple linear regression that 68.8% of the values of the rate of first psychotic episodes can be explained by the variability of the values of unemployment, gender, area of residence and suicide.

$$\text{Average rate of psychosis (x10,000 inhabitants)} = 11.636 + (-0.946 * \text{Unemployed individuals}) + (-1.433 * \text{Gender}) + (1.193 * \text{Suicide}) + (2.677 * \text{CUEVAS}) + (2.668 * \text{GARRUCHA9}) + (2.985 * \text{HUÉRCAL}) + (4.673 * \text{MÁRMOL}) + (-2.422 * \text{PULPÍ}) + (-3.241 * \text{LOS VÉLEZ}) + (2.686 * \text{VERA})$$

For every percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by 0.946 to equal the other variables included in the model.

Women have an average rate of 1.433 less than men of first psychotic episode.

For every percentage point increase in the rate of suicide, the number of first psychotic episode increased by 1.193 per 10,000 inhabitants.

The suicide and migration variables had high co-linearity, the suicide variable was exclusively included in multivariate model 4. In addition, they were used in the bivariate model with other variables.

Table 5.5. Coefficients of Model 4.

Model 4	Non-standardized coefficients		Standard coefficients	t	Sig.	Confiance interval 95.0%		Statistical collinearity	
	B	Standard error	Beta			Lower limit	Upper limit	Tolerance	FIV
(Constant)	11.365	0.027		415,810	0.000	11.311	11.419		
Unemployment	-0.946	0.001	-1.120	-894.335	0.000	-0.948	-0.944	0.470	2.128
Gender	-1.433	0.010	-0.256	-138.337	0.000	-1.454	-1.413	0.216	4.631
Suicide	1.193	0.010	0.235	116.050	0.000	1.173	1.213	0.180	5.566
CUEVAS	2.677	0.011	0.274	238.800	0.000	2.655	2.698	0.558	1.793
GARRUCHA	2.668	0.010	0.328	275.445	0.000	2.649	2.687	0.518	1.930
HUÉRCAL	2.985	0.009	0.384	328.385	0.000	2.967	3.003	0.538	1.860
MÁRMOL	4.673	0.011	0.575	444.422	0.000	4.653	4.694	0.440	2.275
PULPÍ	-2.422	0.012	-0.202	-209.837	0.000	-2.445	-2.400	0.794	1.260
LOS VÉLEZ	-3.241	0.013	-0.331	-246.634	0.000	-3.267	-3.216	0.409	2.444
VERA	2.686	0.009	0.348	298.382	0.000	2.668	2.704	0.541	1.847

b. Dependent variable: First episode psychosis

Table 5.6. Correlation of bivariante analysis.

		First episode of psychosis	Unemployment	Suicide	Migration
First episode psychosis	Pearson correlation	1	-0.419**	0.026**	0.318**
	Sig. (bilateral)		0.000	0.000	0.000
	N	857012	713868	423444	143296
Unemployment	Pearson correlation	-0.419**	1	0.168**	-0.234**
	Sig. (bilateral)	0.000		0.000	0.000
	N	713868	713868	423444	143296
Suicide	Pearson correlation	0.026**	0.168**	1	-0.193**
	Sig. (bilateral)	0.000	0.000		0.000
	N	423444	423444	423444	143296
Migration	Pearson correlation	0.318**	-0.234**	-0.193**	1
	Sig. (bilateral)	0.000	0.000	0.000	
	N	143296	143296	143296	143296

\*\* Correlation is significant at the 0.01 level (bilateral).

In multiple regression, R shows the strength of the relationship between the various independent variables and the dependent variable of first psychotic episodes, but not the direction of the relationship, this being a limitation of the study, although it is shown with the slope of this curve ie Beta coefficient. In fact, future research will be conducted with cohort studies analyzing the causality of the phenomenon.

The statistical R squared (R2) indicates the proportion of the variance in Y (psychosis), which is explained by the simultaneous and combined influence of the independent variables.

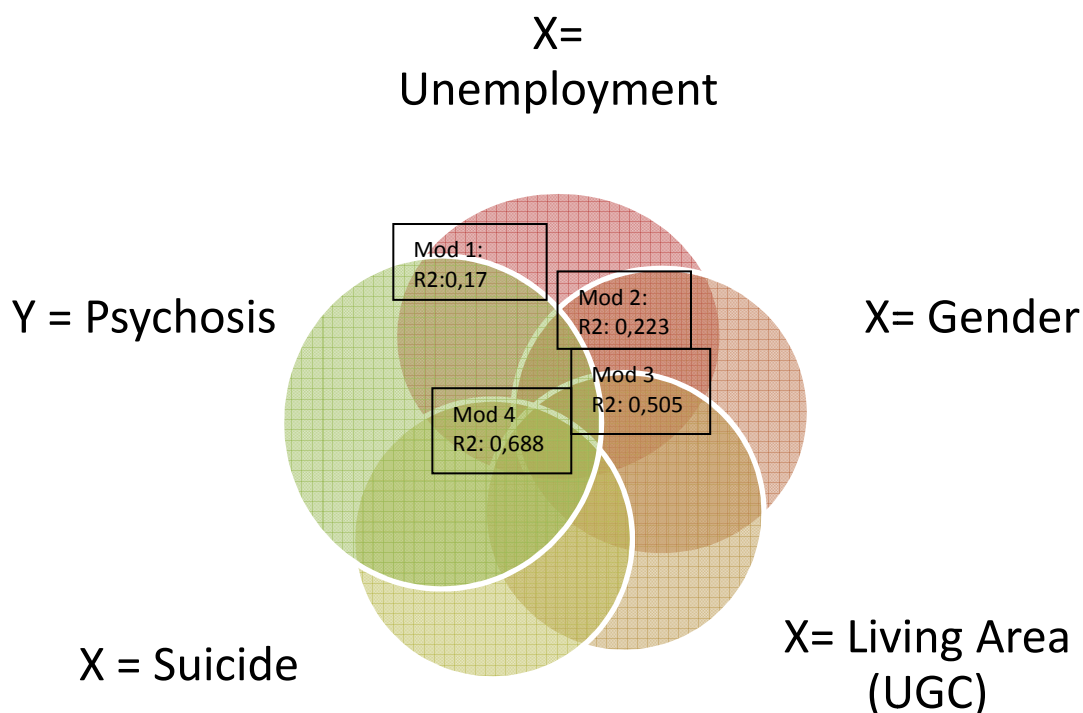


Figure 5.2. Relation between independent variables and dependent variables.

It should be noted that as independent variables are added to the multiple regression equation, the increase of R tends to decrease. It is rare to find many predictor variables that correlate well with a measure of discretion and which have only a slight correlation. Redundancy is difficult to avoid as more variables are added to the prediction equation.

Including independent variables beyond the first four or five usually presents very little increase in the proportion of explained variance or accuracy of prediction.

Diagnosis of the models was performed in order to ensure the goodness of fit and the fulfilment of implementation conditions. Generalised standard-error inflation factors were used to verify the absence of co-linearity between independent variables, while homoscedasticity was tested by residual plotting against fitted values. The linearity of quantitative independent variables was checked with partial regression plots, and the normality of errors was verified by normal QQ plots with 95% confidence intervals.

The significance level was set at  $p \leq 0.05$ . Data was stored and processed using the R statistical computing environment v3.0 (<http://www.r-project.org/>).

## CHAPTER 6. DISCUSSION

### I. VARIABLES.

The character of the THE NORTH OF ALMERIA population has been found to have an almost homogeneous distribution of **psychosis incidence by gender**; nearly half for men and half for women during this study period. The proportion of 1.31: 1 (males: females) in THE NORTH OF ALMERIA is similar to other studies.

The mean age of the THE NORTH OF ALMERIA population for Incidence of Psychosis Cases is around the age of thirty.

Nevertheless, the mean age of the Kirkbride study [9] shows a similar proportion (0.6 for THE NORTH OF ALMERIA and 0.8 for England) and a lower proportion than Canadian population [42](1.12 for Canada)

In recent literature men and women have a peak of incidence of psychosis before the age of 45 years old, and more often between 16 to 20 years. [6]In THE NORTH OF ALMERIA the high age level may be due to this being a rural area, without a university, with many young people moving away to a bigger city to carry on with their studies, jobs or apprenticeships.

In relation to the **diagnosis**, the most common category is affective psychosis with schizophrenia just below. These disorders show the inverse relation when gender is observed. In fact, affective psychosis is more frequent in women (1: 1.16) and schizophrenia is more frequent in men (1.23: 1).

Substance abuse psychosis and brief psychosis are higher in men, and this is congruent with the literature. [31] In Spain and other European countries, the ICD 10 is used for diagnosis codification. Either the substance abuse or brief psychosis diagnosis is not usually maintained after one month. [32] After this period of time, these diagnoses sometime change to schizophrenia.

Moreover, one-quarter of patients who presented with first episode psychosis were given a different diagnosis at the four-year follow-up. The most common change was to a diagnosis of schizophrenia. Patients with an initial diagnosis of drug- induced

psychosis, psychosis not otherwise specified, or schizophreniform disorder were the most likely to evidence this change.[107]

Nevertheless, this study has confirmed all cases. The instability of diagnosis is common in many studies, even in those using for example the same coding type (ICD 10) or location of the same study (inpatient unit).[22]

The first study was carried out in mental health epidemiology developed by a health care system with a large sample followed over 10 years. [26]These authors analysed the importance of stability in the diagnostic criteria in a hospital setting and found differences between the classification and what happens in real practice.

That could be a limitation of this study. In fact, despite being a retrospective study, the OPCRIT has been used to ensure inter-rater reliability, besides confirming the diagnosis.

On the other hand, the stability of diagnosis in our area could be due to the fact that the training of professionals is quite homogeneous, and the wide diversity of diagnostic stability in ICD10 is very high (95-100%).[34]

Psychotic disorders of substance use are 13% of the incidence of the area. This data is similar to that found in a cross-sectional study conducted in inpatient units in Spain. [35] Nonetheless, it is a low incidence when compared to other previous studies considering that the population is young and concerns first episodes.

For example, cannabis or alcohol abuse or dependence was reported in approximately 50% of CAMEO (Early Intervention in Psychosis Cases) first episode psychosis patients. These findings were also replicated in first episode psychosis samples from other countries. [31]

**Raised rates of psychotic disorder in ethnic minority groups** are still one of the most controversial public health challenges.



The present study identified rates of psychotic disorder across several migrant groups. In THE NORTH OF ALMERIA nearly 25% of residents are foreigners, mostly European. This high number of migrants contrasts with those found in other countries.

For instance, in France migrant populations (mostly from Sub-Saharan Africa but including Europeans) make up nearly 8% of the general population. They come from French-speaking countries, are young men and many have migrated before the age of twenty. They usually come for work or as refugees, living alone or without their family in the host country. [77]

In Italy migrants represented 7.4% of the resident population in 2013. They are from European countries (both European, 27.4% and non-European 23.4%), and 22.2% from Africa, followed by Asia (18.8%) and Latin/South American (8.3%). [108]

Moreover, when the incidence of psychosis in the North of Almeria was studied, it found that **16% of cases were migrants, mostly from non- European countries.**

In fact, a difference of a migrant in THE NORTH OF ALMERIA was explained by relative risk. Non- European and Asian had higher risk of having a psychotic disorder than Spanish and other migrant groups such as the Latin/South American and African population.

Besides, **it found that migration had a positive bilateral correlation with the incidence of first episode of psychosis increase (Pearson correlation: 0.318,  $p < 0.001$ )**

There was emerging evidence of raised rates amongst people of second- third generation descendants, however this is not relevant to this study.

In this sense, **resettlement stress** such as unemployment, low ethnic density and achievement expectation mismatch have been largely described as risk factors in the migrant population.

A number of early hypotheses focused on the possibility that first generation migrants were more likely to be predisposed to psychosis. This was due to the **process of migration** as it may lead to considerable social stress for some individuals, perhaps increasing risk of psychosis. However, other studies have also found an increase in prevalence in the countries of origin. [36]

Another theory is about **misdiagnosis** as a potential explanation of higher rates in minority groups living in THE NORTH OF ALMERIA. It was argued that this is supported by evidence that people from ethnic minorities are more likely to access services through the justice system and more likely to undergo compulsory admission to hospital. [36]

Indeed, misinterpretation of symptoms may have serious consequences such as over-prescription of antipsychotic drugs and a negative influence on the prognosis of this group. [37]

Therefore, knowledge about the cultural background of the patient and the use of principles of cultural formulation for a valid evaluation of symptoms in ethnic and culturally different populations is of vital importance. However, professionals in THE NORTH OF ALMERIA are familiar with the countries of origin of migrants to this area resulting in a smaller gap in culture differences.

The health system in THE NORTH OF ALMERIA is public with free access to natives and migrants. However there is no inpatient unit to admit them and that limitation was resolved checking the diagnosis with OPCRIT.

**Moving deeper into the subject, in areas with less ethnic density** (defined by the proportion of an ethnic group living in an area), the risk of psychosis is over five times greater than the majority of the white population. [82]

In fact, they described the existence of a **dose effect for the ethnic density** in psychotic disorders. There is a lower incidence of psychotic disorder for ethnic minorities in high

ethnic density areas compared to the ethnic majority and higher incidence in low density areas.

In THE NORTH OF ALMERIA most minority groups usually live in areas with low ethnic density. This could justify the effect of a high incidence rate of psychosis.

The variance in the findings for different ethnic minorities within and across studies is testament to the notion that ethnic minorities are not a homogeneous group. A limitation of this study is that the Spanish category included a “white population” with no different intra-group. For example, the gypsy population, which is a minority group, could be studied as the intra-group.

Despite a **focus on ethnicity** as a self-ascribed identity that encompasses a share of “community of sentiment and cultural heritage”, it is likely to be a better reflection of reality than a focus on race.[20]

Future studies also need to reflect that this is likely to be a neighbourhood level effect rather than a national or regional level effect.

Measures of ethnicity and ethnic density need to reflect the complexity of ethnic minority groups such as drawing on both objective and subjective measures to overcome the limitations of each.

On the other hand, these minority groups with high rates of incidence of psychotic disorders **in THE NORTH OF ALMERIA do not have the same pattern** as others found in the latest review. They do not have black skin and they are from countries with high rates of unemployment and poverty, but not low-economies.

In theory, the immigrants have arrived at a place that is likely to be protected from psychosis, because they live in a rural area. But the rural area does not protect them from having a high risk of incidence of psychosis, because immigrants suffer with stressors such as experiences of racism or rejection with more frequency.

However, complex socio- cultural and socio- environmental experiences may be relevant to understanding variation in rates of psychotic disorders according to ethnicity. For example, the lack of social capital may make it harder to enter local

labour markets or develop social support networks to protect against both non-racial and racial social stressors. [38]

A recent publication from the “Moving To Opportunities Group” study has found moving to less deprived neighbourhoods in adulthood increased subjective wellbeing, suggesting that neighbourhood environments can shape mental health over the entire life course. [80]

In this group it identified market spatial variation in the relative risk of psychotic disorder in East London. By using appropriate spatial multilevel models, they demonstrated that incidence was independently associated with increased deprivation, income inequality and population density.

Nevertheless this study proposed that the main factor associated with variation in risk of psychosis in THE NORTH OF ALMERIA is unemployment.

**With regard to the economy**, THE NORTH OF ALMERIA is similar to Andalusia, but has less agriculture than the rest of the province of Almeria. This is not relevant data, if compared to **unemployment** figures.

In effect, the initial point of unemployment in THE NORTH OF ALMERIA is higher than the rest of Almeria and Andalusia up to the year 2006. From 2007 onwards there is an increase in unemployment in THE NORTH OF ALMERIA, Almeria and Andalusia.

These figures do not vary much in THE NORTH OF ALMERIA in 2009. But continue to grow in Almeria and Andalusia.

Some authors consider that there are two different periods: the “acute” phase, in which the onset of the recession began (years 2008 – 2009), the worst from an economic point of view, and the “chronic” phase which started in the following years and is still ongoing [39]

Moreover, you can argue that **THE NORTH OF ALMERIA still behaves as if it is in the chronic phase.**

**Unemployment rates were higher among people with mental health problems compared to those without.**

The gap in unemployment rates between individuals with and without mental health problems widened in 2010 compared to 2006.

For individuals with mental health problems, gender and level of education were particularly important determinants of employment status. The recession seemed to have a disproportionately higher negative impact on their likelihood of being employed especially in the case of men and those with less education. This study also showed that stigmatizing attitudes, specifically beliefs regarding individuals with mental health problems who are considered dangerous, could be an important mediator in the relationship between unemployment and mental health problems following the recession.

Additionally, when the **study population is observed, it found that 73% are unemployed.**

This cannot affirm whether the situation of unemployment is prior to the symptoms of psychosis or if on the other hand, symptoms are difficult to incorporate into working life or both. But individuals who moved from unemployment into employment reported significant improvement in their general mental health. [40]

Finally, **suicide** was the last variable analysed in THE NORTH OF ALMERIA during the study period.

According to the review, more than 800,000 people die due to suicide every year in the world, and suicide has become a major public health and social issue. By 2020, suicide will constitute 2.4% of total disease burden, while the proportion was only 1.8% in 1998. So suicide has led to a serious economic burden all over the world.

[109]

Key stressors include job loss, debt, house repossession and the strains put on relationships by employment and financial worries. These may be exacerbated by government austerity measures such as cuts in welfare spending and health care budgets.

Less than half of the rise in suicide that occurs during periods of recession can be explained by increases in unemployment.

Recession, employment and financial-related difficulties such as job loss contributed substantially to 13% of suicides.[110]

It is well known that the impact of the crisis was reported to have been felt most strongly by men aged 15-24 in European countries, and men aged 45-64 were most affected in Latin/South American countries. [30]

Nevertheless, the main age range affected is between 25 – 44 years in Andalusia, Almeria and THE NORTH OF ALMERIA.

In relation to suicide, a slightly higher ratio of suicide is found in the younger group of people aged 15-24 than in those aged 25-44 as well as the range aged affected by the crisis. [30]

In this first relation between suicide and crisis by age group, **in all areas of THE NORTH OF ALMERIA, in relation to the ratio of suicide an increase has been observed in men between 45-64 years.** This is not congruent with the theory that increased suicide must be due exclusively to financial issues in this study, except in small towns such as Sufli, Somontin, Bedar, Los Gallardos, Turre and Taberno a high rate of suicide is found in people between the ages of 15-44. This elevation was greatest at the onset of the economic crisis, the impact or rise in unemployment was even more abrupt.

This figure was higher in the years 2009 and 2010 and less in 2011 and 2012. The only city with a different model is Marmol, where there was an elevation in the last two years (2011 – 2012) In reality, Marmol is a town with many companies dealing in marble and has suffered greatly from the crisis.

In this study, **it found that a positive linear relationship occurred between suicide and both of the other main variables: unemployment and early psychotic episodes.**

In fact, this connects with the theory that explains the relationship between the crisis, unemployment and suicide.[90]

When you consider that there is a high rate of unemployment in THE NORTH OF ALMERIA, and that for every annual increase of 10% unemployment male suicide is

increased by 1.4%, this could explain why the suicide rate is higher in THE NORTH OF ALMERIA than in other parts of Spain or Europe.

For this reason, suicide was one of the main variables used in a multivariate model. Suicide is one of the main causes of excess death in psychotic disorders. The risk in schizophrenia is estimated to be 13 times greater than in the general population. Reducing the risk of suicide amongst patients with psychosis is an international public health priority and considerable work has been done to identify specific risk factors.[111]

The importance of male gender in suicide risk in psychosis reinforces the findings from almost all previous studies. [111] A notable exception is from China where both the prevalence of psychotic illness and risk of suicide are higher in women than in men.

The literature reports that there are more cases on female suicide attempts in the age group of 45-64 years.[93]

The prevalence of suicide attempts among Chinese adolescents for each study was calculated and ranged from 0.94% to 9.01%.[112] Adolescents in rural areas had a slightly lower prevalence of suicide attempts than those in rural areas.

However, most authors argue that there is no link between suicide in women and unemployment.[23]

In THE NORTH OF ALMERIA, there exists a striking increase in suicide among women aged 45-64 years especially in the Huerca, Garrucha, Pulpi, Velez and Vera populations.

Also in small towns like Cobdar, Oria, Purchena, Somontín, Sufli, Chirivel, Maria and Antas, suicide was higher in the years 2009 and 2010.

Data of suicide attempts in THE NORTH OF ALMERIA had not been available to this research. Thus, this limitation will be considered in future investigations. Nevertheless, the OPCRIT items may be used as the main source of clinical risk factor variables. [111] Clinicians should assess suicidal risk in the initial prodromal phases of psychosis as well as during the period of the treatment and finally throughout the course of illness. [113]





## II. INCIDENCE OF PSYCHOSIS.

The incidence rates from different countries show a range between 15.2 to 51 per 100,000 person/ year in individuals with psychotic disorders and a wide age group (15 – 35 or 15 – 64 years, respectively).[42]

These rates are established with a meta- analysis study from the United Kingdom [11] that found the overall incidence of psychosis was 31.7 per 100,000 persons/ year in individuals aged 16 – 64. But it is important to take into account factors such as: urban area, migration and younger people.

The few studies that have investigated incidence rates in Spain have provided figures for schizophrenia of 8 - 24 (for the ages 15-54). They focused on urban areas such as Barcelona and Cantabria. [14] [43][13]

It was decided that the present study should include not only the diagnostic category of schizophrenia, but of psychotic disorders.

**Based on results of THE NORTH OF ALMERIA, it has been estimated that incidence of psychosis in those aged 15- 64 was 20 cases per 100,000 individuals per year (although the range is 8 – 22).**

Studies with high figures of incidence usually have early intervention groups where detection is higher.

Some literature considers that incidences of psychotic disorder seen through early intervention services is generally three times greater than the figure upon which such services were commissioned. [11] In THE NORTH OF ALMERIA there is no a specialist service. This is a fact that has important implications for the provision of a Mental Health Service.

Based on a review of the scientific literature, the decision was also taken to investigate the question of whether there is a difference in the incidence of psychosis depending

on area of **residence** and whether this is lower in rural Almeria than the rate found in studies conducted in urban areas.

Faris and Dunham in 1939 found high rates of schizophrenia and substance abuse disorder “in the deteriorated regions in and surrounding the centre of Chicago’s city, no matter what race or nationality inhabited that region”. They argued that the lack of social integration in socially disorganised communities (in addition to individual level characteristics and pathologies) contributed to the “confused, frustrated and chaotic” behaviour that characterised mental disorders. [69]

Residents of disorganised communities found it difficult to develop and maintain positive affiliations with the family members, neighbours and local institutions, thus increasing their sense of social isolation, a variable which Faris and Dunham concluded was important to the onset and course of mental disorders. [69]

The expected incidence of psychosis in THE NORTH OF ALMERIA was lower than was actually found, due to this being a rural area.

In relation to the adjusted rates by unit, we find that an **increased incidence of psychosis in 2011** exists in most of them (Cuevas, Huercal and Pulpi, and less so in Velez) **and in 2012** (Albox and Marmol).

This could be explained because individuals with symptoms of psychosis or high risk mental states suffered serious impairment in social, occupational or academic functioning prior to a first episode psychosis diagnosis. Moreover, individuals with high risk of psychosis were found to suffer a wide range of psychiatric disorders and mild psychotic symptoms, reported more suicidal ideation, depressive and anxiety symptoms and presented worse levels of functioning quality of life and employment status than healthy people. [28]

Thus, it is possible that we have a later peak of psychosis in individuals with high risk or pre- psychosis. Besides, Marmol and Albox are two units with a high rate of unemployment.

The analysis of psychosis rates adjusted for sex and unity revealed that the highest incidence of psychosis is in men. Indeed, Albox, Cuevas, Pulpi and Huercal presented these results.

In the unit of Garrucha, the adjusted rate of psychosis incidence did not go up other than in 2012 and 2013.

The findings in regard to the incidence of psychotic disorders by age and gender are consistent with the wider international literature.

This study identified variation in the incidence of psychosis in a rural Andalusian region. The overall incidence was higher than typically reported in first-episode psychosis studies of the entire adult age range (16- 64 years).

Incidence decreases with age and is twice as high in men as in women. There is an interaction between age and gender; the risk of psychosis decreases with age faster in men than in women. Thus, for schizophrenia, the incidence rate is twice as high in men under 45 years and similar in both genders after that. [114]

As this study refers to psychotic disorders in a young population, it has to consider the mobility of the subjects due to university studies and occupational training. They could therefore first be seen elsewhere, and not enter our system until later. However, as this is a more rural area, there is no parallel private healthcare network that could affect our detected incidence rate.

But this is to be expected given our lower age limit (35 years). This is a positive aspect of this study as it gives a wide regard of psychosis during all periods of adult life.

On the other hand, a previous study of first episode psychosis was mostly done by group experts in psychosis to try to avoid a specific diagnosis thereby providing a wider diagnosis such as psychosis spectrum.

### III. RELATION BETWEEN UNEMPLOYMENT, SUICIDE AND PSYCHOSIS.

This study analysed the link between the ratio of unemployment and psychosis. Indeed, unemployment is more common in people with psychosis. Nevertheless, it cannot be assumed that unemployed individuals do not have other mental disorders. In fact, this is a limitation of this study. However future research may assess the morbidity in people of THE NORTH OF ALMERIA.

In THE NORTH OF ALMERIA the ratio of unemployment is higher than others parts of Andalusia and Spain. These high rates of unemployment before the onset of psychosis may dissemble prodromal symptoms.

**For each percentage point increase in the unemployment rate, the number of first episodes of psychosis decrease by 0.946.**

This could be rationalised because, firstly, this population has prodromal symptoms or high risk state before they arrive at the health services and, secondly, other authors have considered that the Duration of Untreated Psychosis (DUP) is longer in unemployed people. [44]

A very long DUP was associated with unemployment.

The rate of unemployment is nine times the local rate. Longer DUP and negative symptoms are associated with unemployment at presentation. Standardised reporting of employment status would greatly assist research in this area. [96]

The association between (a) long DUP and unemployment and (b) poorer quality of life and unemployment provided a new perspective. [96] Those with longer DUP had poorer quality of life, due in part to being unemployed.

Further research is needed regarding effective means to reduce duration of untreated psychosis. Although psychosis services are guided to promote early intervention with access through community engagement, this may not be an effective use of their limited resources. [115]

Some individuals experience a significant delay in diagnosis and treatment of psychosis and psychosis affective after initiation of specialist mental healthcare, particularly those who have prior diagnoses of alcohol and substance misuse disorders. Prior diagnoses of other psychiatric disorders were associated in psychosis affective with increased diagnostic delay, particularly alcohol and substance misuse disorders. Prior diagnosis of schizophrenia and psychotic depression were associated with reduced treatment delay.[116]

Therefore, people in THE NORTH OF ALMERIA who are unemployed could have longer DUP, and subsequently later detection and diagnosis.

According to this theory, in some areas of North Almeria the incidence of psychosis in a year could be lower and increase later, for instance in Cuevas, Pulpi and Velez in 2012 or Garrucha in 2013.

This is a relevant fact that determines the health policies and the design and implementation of a programme of first psychotic episodes. These specialised programmes should allocate resources in areas that may be of higher risk.

The duration of untreated psychosis can be alarmingly long. Some studies find that longer DUP is associated with increased risk for suicidal behaviour.[87] Confined to the period of untreated psychosis, 31.2% had suicidal ideation while 14.1% had attempted suicide. This is in line with a recent study reporting an association between early onset of psychosis and higher rates of lifetime suicidality, and indicates a need to pay particular attention to first episode psychotic patients with illness onset at an early age. For every percentage point increase in the rate of suicide, the number of first psychotic episodes increased by 1.193 per 10,000 inhabitants.

A limitation of this study is that there is no causal link or psychosis justification due to these variables.

**However, it has been established that approximately 70% of the incident rates of psychosis could be explained by four variables: unemployment, gender, neighbourhood and suicide.**

In this regard, based on the Cambridge group and AIMA [29], a geographical map has been designed with areas with a higher predicted risk of psychosis.

This is crucial, because in a period of economic crisis and diminishing resources, programmes must seek to be ever more efficient.

On the other hand, it is known that there is negative socio-cultural impact on the person and their environment when they are unemployed.

The significance of not having a job is different for men and women.

Unemployment in women is explained by factors such as employment status at baseline and strength of prior workforce connection, as well as several measures of socio- economic disadvantage.

In fact, this is interpreted as an effect of men's higher identification with the job role, stronger breadwinning obligations and / or better jobs and thus more to lose from unemployment.

Both unemployment and the fear of unemployment may have negative consequences on the general health of individuals. In particular they can determine an increase in all of the following causes of mortality: cardiovascular, male suicide, daytime drinking, and traffic accidents. [39]

The rate of unemployment was associated with the number and percentage of male completed and attempted suicides due to financial issues.

Finally, unemployment is a cause of isolation. Either because of the rejection or stigma, or fear of not finding work or because they have already suffered prodromal symptoms.

Taking into account the area in which THE NORTH OF ALMERIA is situated, there are geographical differences when compared to other research describing incidence rates of psychosis, the majority of which were conducted in the United Kingdom, Australia and Denmark. [46][117]

None was exclusively in Spain. Despite the limitations of comparing such a diverse geographical spread of incidence of psychosis and with a limited sample size, this study represents a useful contribution to the literature.

## CHAPTER 7. CONCLUSIONS

1. The distribution of psychosis incidence by gender in THE NORTH OF ALMERIA is homogeneous, nearly half for men and half for women during the study period.
2. The mean age of the THE NORTH OF ALMERIA population for incidence of psychosis cases is around the age of thirty, older than other studies.
3. The most common category of diagnosis is affective psychosis with schizophrenia just below.
4. The OPCRIT instrument has been used to ensure inter-rater reliability, besides confirming the stability of the diagnosis in this study.
5. The incidence of psychosis in this area was studied and it found almost a quarter of cases were migrants. Non-Europeans and Asians had a higher risk of having psychotic disorder than the Spanish, Latin/South American and African population in this area.
6. In THE NORTH OF ALMERIA, most minority groups usually live in areas with low ethnic density. This could justify the effect of a high incident rate of psychosis. It found that migration had a positive bilateral correlation with first episode of psychosis.



7. Unemployment rates were higher among peoples with mental health problems compared to those without. For every percentage point increase in the unemployment rate, the number of first psychotic episodes decreased by nearly a point.
8. In all areas of THE NORTH OF ALMERIA, in relation to the ratio of suicide an increase has been observed in men between 45-64 years. The figure was higher in the years 2009 and 2010 when the impact of a rise in unemployment was even more abrupt. For every percentage point increase in the rate of suicide, the number of first psychotic episodes increased by one point.
9. In THE NORTH OF ALMERIA, it has been estimated that incidence of psychosis in those aged 15-64 years was 20 cases per 100,000 individuals per year (range 8-22).
10. The expected incidence of psychosis in THE NORTH OF ALMERIA was lower than what was actually found, due to this being a rural area. Increased incidences of psychosis in 2011 exist in most units and in 2012 in two of them.
11. In THE NORTH OF ALMERIA the ratio of unemployment is higher than others parts of Andalusia and Spain. These high rates of unemployment before the onset of psychosis may dissemble prodromal symptoms.

12. For each percentage point increase in the unemployment rate, the number of first episodes of psychosis decrease by nearly one point. People in THE NORTH OF ALMERIA who are unemployed could have longer DUP, and subsequently later detection and diagnosis.

## CHAPTER 8. CONCLUSIONES

1. La distribución de la incidencia de psicosis por género en el área Norte de Almería es homogénea, la mitad para hombres y algo menor para las mujeres.
2. La media de edad de los casos de incidencia en psicosis en el área Norte de Almería es rondando los treintena, más mayores que en otros estudios.
3. La categoría diagnóstica más común es la psicosis afectiva, seguido de la esquizofrenia.
4. El OPCRIT ha sido usado para asegurarse la fiabilidad diagnóstica inter-jueces, además de confirmar la estabilidad diagnóstica en este estudio.
5. La incidencia de psicosis en esta área es estudiada, siendo cerca un cuarto de los casos inmigrantes. Los inmigrantes no-europeos y asiáticos tienen un mayor riesgo de tener trastornos psicóticos que los españoles, los americanos y los africanos en esta área.
6. En el Norte de Almería la mayoría de los grupos minoritarios normalmente viven en áreas con baja densidad étnica. Esto podría justificar el efecto de que exista una tasa alta de incidencia de psicosis. Se encuentra que existe una correlación positiva entre migración y primeros episodios psicóticos.

7. La tasa de desempleo era más alta en las personas con trastorno mental comparadas con aquellas sin ello. Por cada punto de incremento en la tasa de desempleo, el número de primeros episodios psicóticos decrece cerca de un punto.
8. En todas las zonas del Norte de Almería, en relación a la tasa de suicidio existe un incremento en los hombres de 45-64 años. Esta incidencia fue mayor en los años 2009 y 2010, cuando el impacto de un aumento en el desempleo fue incluso más abrupto. Por cada punto de porcentaje incrementado en la tasa de suicidio, el número de primeros episodios psicóticos incrementa en casi un punto.
9. En el Norte de Almería, se ha estimado que la incidencia de psicosis en el rango de edad de 15-64 años era de 20 casos por 100,000 individuos por año (rango 8-22)
10. La incidencia esperada de psicosis en el Norte de Almería era menor que la que actualmente se ha encontrado ya que se trataba de un área rural. Además, se ha encontrado que hay un incremento de incidencia en el año 2011 en la mayoría de las unidades, y en 2012 en un par de ellas.
11. En el Norte de Almería la tasa de desempleo es mayor que en otras partes de Andalucía y España. Estas tasas tan altas de desempleo antes del inicio de la psicosis podrían enmascarar síntomas de pródromos de psicosis.

12. Por cada punto de porcentaje que incrementa en la tasa de desempleo, el número de primeros episodios psicóticos decrece la mitad de un punto. La población del Norte de Almería que está desempleada podría tener un mayor DUP y consecuentemente un retraso en la detección y en el diagnóstico.

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## CHAPTER 10. APPENDIX

### APPENDIX I: Table 1.2 Diagnosis difference between ICD 10 – DMS 5.

(Author's prepared)

ICD 10	DSM 5
<p>Schizophrenia. F20</p> <p><b>The schizophrenic disorders are characterized in general by fundamental and characteristic distortions of thinking and perception, and affects that are inappropriate or blunted. Clear consciousness and intellectual capacity are usually maintained although certain cognitive deficits may evolve in the course of time. The most important psychopathological phenomena include thought echo; thought insertion or withdrawal; thought broadcasting; delusional perception and delusions of control; influence or passivity; hallucinatory voices commenting or discussing the patient in the third person; thought disorders and negative symptoms.</b></p> <p><b>The course of schizophrenic disorders can be either continuous, or episodic with progressive or stable deficit, or there can be one or more episodes with complete or incomplete remission.</b></p> <p>F20.0 Paranoid schizophrenia</p> <p><b>Paranoid schizophrenia is dominated by relatively stable, often paranoid delusions, usually accompanied by hallucinations, particularly of the auditory variety, and perceptual disturbances. Disturbances of affect, volition and speech, and catatonic symptoms, are either absent or relatively inconspicuous.</b></p> <p>F20.1 Hebephrenic schizophrenia</p> <p><b>A form of schizophrenia in which affective changes are prominent, delusions and hallucinations fleeting and fragmentary, behavior irresponsible and unpredictable, and mannerisms common. The mood is shallow and inappropriate, thought is disorganized, and speech is incoherent. There is a tendency to social isolation. Usually the prognosis is poor because of the rapid development of "negative" symptoms,</b></p>	<p><b>Schizophrenia, 295.90</b></p> <p>A. Two (or more) of the following (at least one of these must be (1), (2), or (3)):</p> <ol style="list-style-type: none"> <li>1. Delusions.</li> <li>2. Hallucinations.</li> <li>3. Disorganized speech</li> <li>4. Grossly disorganized or catatonic behavior.</li> <li>5. Negative symptoms (i.e., diminished emotional expression or avolition).</li> </ol> <p>B. For a significant portion of the time since the onset of the disturbance, level of functioning in one or more major areas, such as work, interpersonal relations, or self-care, is markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, there is failure to achieve expected level of interpersonal, academic, or occupational functioning).</p> <p>C. Continuous signs of the disturbance persist for at least 6 months.</p> <p>D. Schizoaffective disorder and depressive or bipolar disorder with psychotic features have been ruled out because either 1) no major depressive or manic episodes have occurred concurrently with the active-phase symptoms, or 2) if mood episodes have occurred during active-phase symptoms, they have been present for a minority of the total duration of the active and residual periods of the illness.</p> <p>E. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.</p> <p>F. If there is a history of autism spectrum disorder or a communication disorder of childhood onset, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations, in addition to the other required symptoms of schizophrenia, are also present for at least 1 month (or less if successfully treated).</p>

particularly flattening of affect and loss of volition. Hebephrenia should normally be diagnosed only in adolescents or young adults.

#### F20.2 Catatonic schizophrenia

Catatonic schizophrenia is dominated by prominent psychomotor disturbances that may alternate between extremes such as hyperkinesia and stupor, or automatic obedience and negativism. Constrained attitudes and postures may be maintained for long periods. Episodes of violent excitement may be a striking feature of the condition. The catatonic phenomena may be combined with a dream-like state with vivid scenic hallucinations.

#### F20.3 Undifferentiated schizophrenia

Psychotic conditions meeting the general diagnostic criteria for schizophrenia but not conforming to any of the subtypes.

#### F20.4 Post-schizophrenic depression

A depressive episode, which may be prolonged, arising in the aftermath of a schizophrenic illness. Some schizophrenic symptoms, either "positive" or "negative", must still be present but they no longer dominate the clinical picture. These depressive states are associated with an increased risk of suicide.

#### F20.5 Residual schizophrenia

A chronic stage in the development of a schizophrenic illness in which there has been a clear progression from an early stage to a later stage characterized by long-term, though not necessarily irreversible, "negative" symptoms, underactivity; blunting of affect; passivity and lack of initiative; poverty of quantity or content of speech; poor nonverbal communication by facial expression, eye contact, voice modulation and posture; poor self-care and social performance.

#### F20.6 Simple schizophrenia

A disorder in which there is an insidious but progressive development of oddities of conduct, inability to meet the demands of society, and decline in total performance.

#### – Specify if:

- The following course specifications are only to be used after a 1-year duration of the disorder and if they are not in contradiction to the diagnostic course criteria.
- First episode, currently in acute episode: *acute episode, Partial, Full remission.*
- Multiple episodes, currently in acute episode: Multiple episodes may be determined after a minimum of two episodes (i.e., after a first episode, a remission and a minimum of one relapse).
- Multiple episodes.
- Continuous: Symptoms fulfilling the diagnostic symptom criteria of the disorder are remaining for the majority of the illness course, with subthreshold symptom periods being very brief relative to the overall course.
- Unspecified.
- *Specify* if with catatonia.
- *Specify* current severity.

F20.9 Schizophrenia, unspecified	
<p>F20.8 Other schizophrenia</p> <p><b>Cenesthopathic schizophrenia</b></p> <p>Schizophreniform:</p> <ul style="list-style-type: none"> <li>• <b>disorder NOS</b></li> <li>• <b>psychosis NOS</b></li> </ul>	<p><b>Schizophreniform Disorder, 295.40</b></p> <p>A. Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated). At least one of these must be (1), (2), or (3):</p> <ol style="list-style-type: none"> <li>1. Delusions.</li> <li>2. Hallucinations.</li> <li>3. Disorganized speech (e.g., frequent derailment or incoherence).</li> <li>4. Grossly disorganized or catatonic behavior.</li> <li>5. Negative symptoms (i.e., diminished emotional expression or avolition).</li> </ol> <p>B. An episode of the disorder lasts at least 1 month but less than 6 months.</p> <p>C. Schizoaffective disorder and depressive or bipolar disorder with psychotic features have been ruled out because either 1 ) no major depressive or manic episodes have occurred concurrently with the active-phase symptoms, or 2) if mood episodes have occurred during active-phase symptoms, they have been present for a minority of the total duration of the active and residual periods of the illness.</p>
<p>F21 Schizotypal disorder</p> <p><b>A disorder characterized by eccentric behaviour and anomalies of thinking and affect which resemble those seen in schizophrenia, though no definite and characteristic schizophrenic anomalies occur at any stage. The symptoms may include a cold or inappropriate affect; anhedonia; odd or eccentric behaviour; a tendency to social withdrawal; paranoid or bizarre ideas not amounting to true delusions; obsessive ruminations; thought disorder and perceptual disturbances; occasional transient quasi-psychotic episodes with intense illusions, auditory or other hallucinations, and delusion-like ideas, usually occurring without external provocation. There is no definite onset and evolution and course are usually those of a personality disorder.</b></p>	<p><b>301.22 Schizotypal (Personality) Disorder</b></p> <p>Criteria and text for schizotypal personality disorder can be found in the chapter "Personality Disorders." Because this disorder is considered part of the schizophrenia spectrum of disorders, and is labeled in this section of ICD-9 and ICD-10 as schizotypal disorder, it is listed in this chapter and discussed in detail in the DSM-5 chapter "Personality Disorders."</p>
<p>F22 Persistent delusional disorders</p> <p><b>Includes a variety of disorders in which long-standing delusions constitute the only, or the most conspicuous, clinical characteristic and</b></p>	<p><b>Delusional Disorder, 297.1.</b></p> <p>A. The presence of one (or more) delusions with a duration of 1 month or longer.</p> <p>B. Criterion A for schizophrenia has never been</p>

<p>which cannot be classified as organic, schizophrenic or affective.</p> <p>F22.0 Delusional disorder</p> <p><b>A disorder characterized by the development either of a single delusion or of a set of related delusions that are usually persistent and sometimes lifelong. The content of the delusion or delusions is very variable. Clear and persistent auditory hallucinations (voices), schizophrenic symptoms such as delusions of control and marked blunting of affect, and definite evidence of brain disease are all incompatible with this diagnosis. However, the presence of occasional or transitory auditory hallucinations, particularly in elderly patients, does not rule out this diagnosis, provided that they are not typically schizophrenic and form only a small part of the overall clinical picture.</b></p> <p>F22.8 Other persistent delusional disorders</p> <p><b>Disorders in which the delusion or delusions are accompanied by persistent hallucinatory voices or by schizophrenic symptoms that do not justify a diagnosis of schizophrenia</b></p> <p>F22.9 Persistent delusional disorder, unspecified</p>	<p>met.</p> <p>C. Apart from the impact of the delusion(s) or its ramifications, functioning is not markedly impaired, and behavior is not obviously bizarre or odd.</p> <p>D. If manic or major depressive episodes have occurred, these have been brief relative to the duration of the delusional periods.</p> <p>E. The disturbance is not attributable to the physiological effects of a substance or another medical condition and is not better explained by another mental disorder, such as body dysmorphic disorder or obsessive-compulsive disorder.</p> <p><b>Specify whether:</b></p> <ul style="list-style-type: none"> <li>– Erotomanie, Grandiose, Jealous, Persecutory, Somatic, Mixed, Unspecified type</li> <li>– <i>Specify if</i> with bizarre content</li> <li>– <i>Specify if:</i> The following course specifies are only to be used after a 1 -year duration of the disorder: <i>Acute episode; Partial remission; Full remission</i></li> </ul>
<p>F23 Acute and transient psychotic disorders</p> <p><b>A heterogeneous group of disorders characterized by the acute onset of psychotic symptoms such as delusions, hallucinations, and perceptual disturbances, and by the severe disruption of ordinary behavior. Acute onset is defined as a crescendo development of a clearly abnormal clinical picture in about two weeks or less.</b></p> <p>F23.0 Acute polymorphic psychotic disorder without symptoms of schizophrenia</p> <p><b>An acute psychotic disorder in which hallucinations, delusions or perceptual disturbances are obvious but markedly variable, changing from day to day or even from hour to hour. Emotional turmoil with intense transient feelings of happiness or ecstasy, or anxiety and irritability, is also frequently present. These disorders often have an abrupt onset, developing rapidly within a few days, and they frequently show</b></p>	<p><b>Brief Psychotic Disorder, 298.8</b></p> <p>A. Presence of one (or more) of the following symptoms. At least one of these must be (1), (2), or (3):</p> <ol style="list-style-type: none"> <li>1. Delusions.</li> <li>2. Hallucinations.</li> <li>3. Disorganized speech (e.g., frequent derailment or incoherence).</li> <li>4. Grossly disorganized or catatonic behavior.</li> </ol> <p>B. Duration of an episode of the disturbance is at least 1 day but less than 1 month, with eventual full return to premorbid level of functioning.</p> <p>C. The disturbance is not better explained by major depressive or bipolar disorder with psychotic features or another psychotic disorder such as schizophrenia or catatonia, and is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.</p> <ul style="list-style-type: none"> <li>– <i>Specify if</i> with /without marked stressors</li> </ul>

<p><b>a rapid resolution of symptoms with no recurrence.</b></p> <p>F23.1 Acute polymorphic psychotic disorder with symptoms of schizophrenia <b>Some symptoms typical of schizophrenia are also in evidence for the majority of the time.</b></p> <p>F23.2 Acute schizophrenia-like psychotic disorder <b>Less than about one month; the polymorphic unstable features.</b></p> <p>F23.3 Other acute predominantly delusional psychotic disorders <b>Acute psychotic disorders in which comparatively stable delusions or hallucinations are the main clinical features, but do not justify a diagnosis of schizophrenia.</b></p> <p>F23.8 Other acute and transient psychotic disorders</p> <p>F23.9 Acute and transient psychotic disorder, unspecified</p> <p><b>Brief reactive psychosis NOS</b> <b>Reactive psychosis</b></p>	<ul style="list-style-type: none"> <li>- With postpartum onset: If onset is during pregnancy or within 4 weeks postpartum.</li> <li>- <i>Specify</i> if with catatonia</li> <li>- <i>Specify</i> current severity.</li> </ul>
<p>F24 Induced delusional disorder</p> <p><b>A delusional disorder shared by two or more people with close emotional links. Only one of the people suffers from a genuine psychotic disorder; the delusions are induced in the other(s) and usually disappear when the people are separated.</b></p>	
<p>F25 Schizoaffective disorders</p> <p><b>Episodic disorders in which both affective and schizophrenic symptoms are prominent but which do not justify a diagnosis of either schizophrenia or depressive or manic episodes. Other conditions in which affective symptoms are superimposed on a pre-existing schizophrenic illness, or co-exist or alternate with persistent delusional disorders of other kinds, are classified under F20-F29. Mood-incongruent psychotic symptoms in affective disorders do not justify a diagnosis of schizoaffective disorder.</b></p> <p>F25.0 Schizoaffective disorder, manic type</p> <p><b>A disorder in which both schizophrenic and manic symptoms are prominent so that the</b></p>	<p><b>Schizoaffective Disorder, 295.70.</b></p> <p>A. An uninterrupted period of illness during which there is a major mood episode (major depressive or manic) concurrent with Criterion A of schizophrenia. A1 : Depressed mood.</p> <p>B. Delusions or hallucinations for 2 or more weeks in the absence of a major mood episode (depressive or manic) during the lifetime duration of the illness.</p> <p>C. Symptoms that meet criteria for a major mood episode are present for the majority of the total duration of the active and residual portions of the illness.</p> <p>D. The disturbance is not attributable to the effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.</p>

<p><b>episode of illness does not justify a diagnosis of either schizophrenia or a manic episode. This category should be used for both a single episode and a recurrent disorder in which the majority of episodes are schizoaffective, manic type.</b></p> <p>F25.1 Schizoaffective disorder, depressive type</p> <p><b>A disorder in which both schizophrenic and depressive symptoms are prominent so that the episode of illness does not justify a diagnosis of either schizophrenia or a depressive episode. This category should be used for both a single episode and a recurrent disorder in which the majority of episodes are schizoaffective, depressive type.</b></p> <p>F25.2 Schizoaffective disorder, mixed type</p> <p><b>Cyclic schizophrenia</b></p> <p><b>Mixed schizophrenic and affective psychosis</b></p> <p>F25.8 Other schizoaffective disorders</p> <p>F25.9 Schizoaffective disorder, unspecified</p> <p><b>Schizoaffective psychosis NOS</b></p>	<ul style="list-style-type: none"> <li>- <i>Specify</i> whether: <ul style="list-style-type: none"> <li>- Bipolar type</li> <li>- Major depressive episodes</li> <li>- Depressive type</li> </ul> </li> <li>- <i>Specify</i> if with catatonia</li> <li>- <i>Specify</i> if: The following course specifiers are only to be used after a 1 -year duration of the disorder and if they are not in contradiction to the diagnostic course criteria. <ul style="list-style-type: none"> <li>- First episode, <i>acute episode, Partial, Full remission.</i></li> <li>- Multiple episodes.</li> <li>- Unspecified</li> </ul> </li> <li>- <i>Specify</i> current severity.</li> </ul>
<p>F28 Other nonorganic psychotic disorders</p> <p><b>Delusional or hallucinatory disorders that do not justify a diagnosis of schizophrenia, persistent delusional disorders, acute and transient psychotic disorders, psychotic types of manic episode, or severe depressive episode.</b></p> <p>F29 Unspecified nonorganic psychosis</p>	
<p>F10 Substance Psychosis</p>	<p><b>Substance / Medication Induced Psychotic Disorder, 292.</b></p>
<p>F 06. Medical Induced Psychosis</p>	<p><b>Medical Induced Psychosis, 293.81</b></p>
<p>Mood [affective] disorders F30-F39</p>	<p>Bipolar disorder, 296.41; 296.80.</p>
<p>F30 Manic episode</p> <p><b>All the subdivisions of this category should be used only for a single episode.</b></p> <p>F30.0 Hypomania</p> <p>F30.1 Mania without psychotic symptoms</p> <p>F30.2 Mania with psychotic symptoms</p> <p><b>Mood is elevated out of keeping with the patient's circumstances and may vary from carefree joviality to almost uncontrollable</b></p>	<p><b>Manic Episode. 296.4x</b></p> <p>A. A distinct period of abnormally and persistently elevated, expansive, or irritable mood and abnormally and persistently increased goal-directed activity or energy, lasting at least 1 week and present most of the day, nearly every day.</p> <p>B. During the period of mood disturbance and increased energy or activity, three (or more) of the following symptoms (four if the</p>

**excitement. Elation is accompanied by increased energy, resulting in overactivity, pressure of speech, and a decreased need for sleep. Attention cannot be sustained, and there is often marked distractibility. Self-esteem is often inflated with grandiose ideas and overconfidence. Loss of normal social inhibitions may result in behavior that is reckless, foolhardy, or inappropriate to the circumstances, and out of character.**

**Delusions (usually grandiose) or hallucinations (usually of voices speaking directly to the patient) are present, or the excitement, excessive motor activity, and flight of ideas are so extreme that the subject is incomprehensible or inaccessible to ordinary communication.**

Mania with:

- mood-congruent psychotic symptoms
- mood-incongruent psychotic symptoms

Manic stupor

F30.8 Other manic episodes

F30.9 Manic episode, unspecified

**Mania NOS**

mood is only irritable) are present to a significant degree and represent a noticeable change from usual behavior:

1. Inflated self-esteem or grandiosity.
  2. Decreased need for sleep
  3. More talkative than usual or pressure to keep talking.
  4. Flight of ideas or subjective experience that thoughts are racing.
  5. Distractibility, as reported or observed.
  6. Increase in goal-directed activity or psychomotor agitation.
  7. Excessive involvement in activities that have a high potential for painful consequences.
- C. The mood disturbance is sufficiently severe to cause marked impairment in social or occupational functioning or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

#### **Hypomania Episode, 296.4x**

#### **Major Depressive Episode, 296.5**

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

1. Depressed mood most of the day, nearly every day.
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.
3. Significant weight loss when not dieting or weight gain or decrease or increase in appetite nearly every day.
4. Insomnia or hypersomnia nearly every day.
5. Psychomotor agitation or retardation nearly every day.
6. Fatigue or loss of energy nearly every day.
7. Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
8. Diminished ability to think or concentrate, or indecisiveness, nearly every day.
9. Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a



	<p>suicide attempt or a specific plan for committing suicide.</p> <p>B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.</p> <p>C. The episode is not attributable to the physiological effects of a substance or another medical condition.</p>
<p>F31 Bipolar affective disorder</p> <p><b>A disorder characterized by two or more episodes in which the patient's mood and activity levels are significantly disturbed, this disturbance consisting on some occasions of an elevation of mood and increased energy and activity (hypomania or mania) and on others of a lowering of mood and decreased energy and activity (depression). Repeated episodes of hypomania or mania only are classified as bipolar.</b></p> <p>F31.0 Bipolar affective disorder, current episode hypomanic</p> <p>F31.1 Bipolar affective disorder, current episode manic without psychotic symptoms</p> <p>F31.2 Bipolar affective disorder, current episode manic with psychotic symptoms</p> <p><b>The patient is currently manic, with psychotic symptoms, and has had at least one other affective episode (hypomanic, manic, depressive, or mixed) in the past.</b></p> <p>F31.3 Bipolar affective disorder, current episode mild or moderate depression</p> <p>F31.4 Bipolar affective disorder, current episode severe depression without psychotic symptoms</p> <p>F31.5 Bipolar affective disorder, current episode severe depression with psychotic symptoms</p> <p><b>The patient is currently depressed, as in severe depressive episode with psychotic symptoms, and has had at least one authenticated hypomanic, manic, or mixed affective episode in the past.</b></p> <p>F31.6 Bipolar affective disorder, current episode mixed</p> <p>F31.7 Bipolar affective disorder, currently in remission</p> <p>F31.8 Other bipolar affective disorders</p>	<p><b>Bipolar I Disorder, 296.4x</b></p> <p>A. Criteria have been met for at least one manic episode (Criteria A-D under “Manic Episode” above).</p> <p>B. The occurrence of the manic and major depressive episode(s) is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified or unspecified schizophrenia spectrum and other psychotic disorder.</p> <p><b>Specify.</b></p> <ul style="list-style-type: none"> <li>With anxious distress</li> <li>With mixed features</li> <li>With rapid cycling</li> <li>With melancholic features</li> <li>With atypical features</li> </ul> <p><b>With mood-congruent psychotic features</b></p> <p><b>With mood-incongruent psychotic features</b></p> <ul style="list-style-type: none"> <li>With catatonia</li> <li>With peripartum onset</li> <li>With seasonal pattern</li> </ul> <p><b>Bipolar II Disorder, 296.89</b></p> <p>A. Criteria have been met for at least one hypomanic episode (Criteria A-F under “Hypomanic Episode” above) and at least one major depressive episode (Criteria A-C under “Major Depressive Episode” above).</p> <p>B. There has never been a manic episode.</p> <p>C. The occurrence of the hypomanic episode(s) and major depressive episode(s) is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified or unspecified schizophrenia spectrum and other psychotic disorder.</p> <p>D. The symptoms of depression or the unpredictability caused by frequent alternation between periods of depression and hypomania</p>

<p><b>Bipolar II disorder</b>  <b>Recurrent manic episodes NOS</b>  F31.9 Bipolar affective disorder, unspecified  <b>Manic depression NOS</b></p>	<p>causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.  <b>Specify:</b>  With rapid cycling  <b>With mood-congruent psychotic features, 296.43</b>  <b>With mood-incongruent psychotic features</b>  With catatonia  With peripartum onset  With seasonal pattern</p>
<p><b>F32.3 Severe depressive episode with psychotic symptoms</b>  An episode of depression with the presence of hallucinations, delusions, psychomotor retardation, or stupor so severe that ordinary social activities are impossible; there may be danger to life from suicide, dehydration, or starvation. The hallucinations and delusions may or may not be mood-congruent.  Single episodes of:</p> <ul style="list-style-type: none"> <li>• major depression with psychotic symptoms</li> <li>• psychogenic depressive psychosis</li> <li>• psychotic depression</li> <li>• reactive depressive psychosis</li> </ul> <p>F32.8 Other depressive episodes  <b>Atypical depression</b>  <b>Single episodes of "masked" depression NOS</b>  F32.9 Depressive episode, unspecified</p>	<p><b>Disruptive Mood Disregulación Disorder 296.99</b>  A. Severe recurrent temper outbursts manifested verbally (e.g., verbal rages) and/or behaviorally (e.g., physical aggression toward people or property) that are grossly out of proportion in intensity or duration to the situation or provocation.  B. The temper outbursts are inconsistent with developmental level.  C. The temper outbursts occur, on average, three or more times per week.  D. The mood between temper outbursts is persistently irritable or angry most of the day, nearly every day, and is observable by others (e.g., parents, teachers, peers).  E. Criteria A-D have been present for 12 or more months. Throughout that time, the individual has not had a period lasting 3 or more consecutive months without all of the symptoms in Criteria A-D.  F. Criteria A and D are present in at least two of three settings (i.e., at home, at school, with peers) and are severe in at least one of these.  G. The diagnosis should not be made for the first time before age 6 years or after age 18 years.  H. By history or observation, the age at onset of Criteria A-E is before 10 years.  I. There has never been a distinct period lasting more than 1 day during which the full symptom criteria, except duration, for a manic or hypomanic episode have been met.  J. The behaviors do not occur exclusively during</p>

	<p>an episode of major depressive disorder and are not better explained by another mental disorder (e.g., autism spectrum disorder, post traumatic stress disorder, separation anxiety disorder, persistent depressive disorder [dysthymia]).</p> <p>K. The symptoms are not attributable to the physiological effects of a substance or to another medical or neurological condition.</p>
<p><b>F33.3 Recurrent depressive disorder, current episode severe with psychotic symptoms</b>  A disorder characterized by repeated episodes of depression, the current episode being severe with psychotic symptoms.  Endogenous depression with psychotic symptoms  <b>Manic-depressive psychosis, depressed type with psychotic symptoms</b>  <b>Recurrent severe episodes of:</b></p> <ul style="list-style-type: none"> <li>• major depression with psychotic symptoms</li> <li>• psychogenic depressive psychosis</li> <li>• psychotic depression</li> <li>• reactive depressive psychosis</li> </ul>	<p><b>Depressive disorder, recurrent with psychotic characterized, 296.34.</b></p>

## APPENDIX II. DATA COLLECTION.

## CODIFICATION

## YEAR OF DIAGNOSIS:

INDEPENDENT VARIABLES	CHARACTERISTICS	TYPES
Age	Years	Quantitative
Gender	Male, female	Dichotomic qualitative
Living area		Qualitative categorical
Primary Healthcare Center		Qualitative categorical
Immigrant:	First generation (born outside Spain) Second generation (one or both parents foreign)	Dichotomic qualitative
Country of origin	Spain, Eastern Europe, United Kingdom, Morocco, Latin America, others	Qualitative, categorical
Employment data	Employment Unemployment	Quantitative
Diagnosis	<ol style="list-style-type: none"> <li>1. Affective psychosis</li> <li>2. Delusional disorder</li> <li>3. Brief psychosis</li> <li>4. Schizophrenia Schizophreniform disorder</li> <li>5. Substance abuse-induced psychosis</li> <li>6. Non-specified psychosis</li> <li>7. Schizoaffective disorder</li> </ol>	Qualitative, categorical

## OPCRIT:

DIAGNOSIS CONFIRMED: Yes / No

## APPENDIX III. CODIFICATION OF DIAGNOSIS (Relation of ICD10 and DSMIV- 5)

DIAGNOSTIC CRITERIA	ICD 10	DSM IV – DSM 5	CODIFICATION
Affective psychosis	F30.2 F31.2 F33.3	296.x4, 296.4, 296.89 296.34	1
Delusional disorder	F22.0	297.1	2
Brief psychosis	F23.9	298.8.	3
Schizophrenia Schizophreniform	F20	295.xx 295.40	4
Schizoaffective	F25	295.70	7
Substance abuse-induced psychosis	F10 (Alcohol) F12 (Cannabis) F14 (Cocaine) F15 (Amphetamines) F16 (Hallucinogens)	291, 292, 298.9.	5
Medical Induced psychosis	F06	293.81, 293.82	8
Non-specified psychosis	F29	298.8	6
Schizotypal disorder	F21	301.22	9

## APPENDIX IV. CODIFICATION BY OPCRIT TOOL.

## OPCRIT:

MAIN RATING SCALES (Subject ID: 12 ):

DSM-III ..... Schizophrenia  
 DSM-III-R ..... Psychotic disorder not otherwise specified  
 DSM-IV ..... Psychosis not otherwise specified (atypical psychosis)  
 ICD-10 ..... Schizophrenia  
 Taylor & Abrahms ..... Schizophrenia  
 RDC ..... Narrow schizophrenia  
 Carpenter ..... Level 6 schizophrenia  
 Schneider FRS ..... FRS-Schizophrenia

## SUB TYPES (if any):

Farmer ..... P type  
 Crow ..... Mixed type  
 Tsuang & Winokur . Hebephrenic

CHAPTER 11. MAP OF PSYCHOSIS IN THE NORTH OF ALMERIA

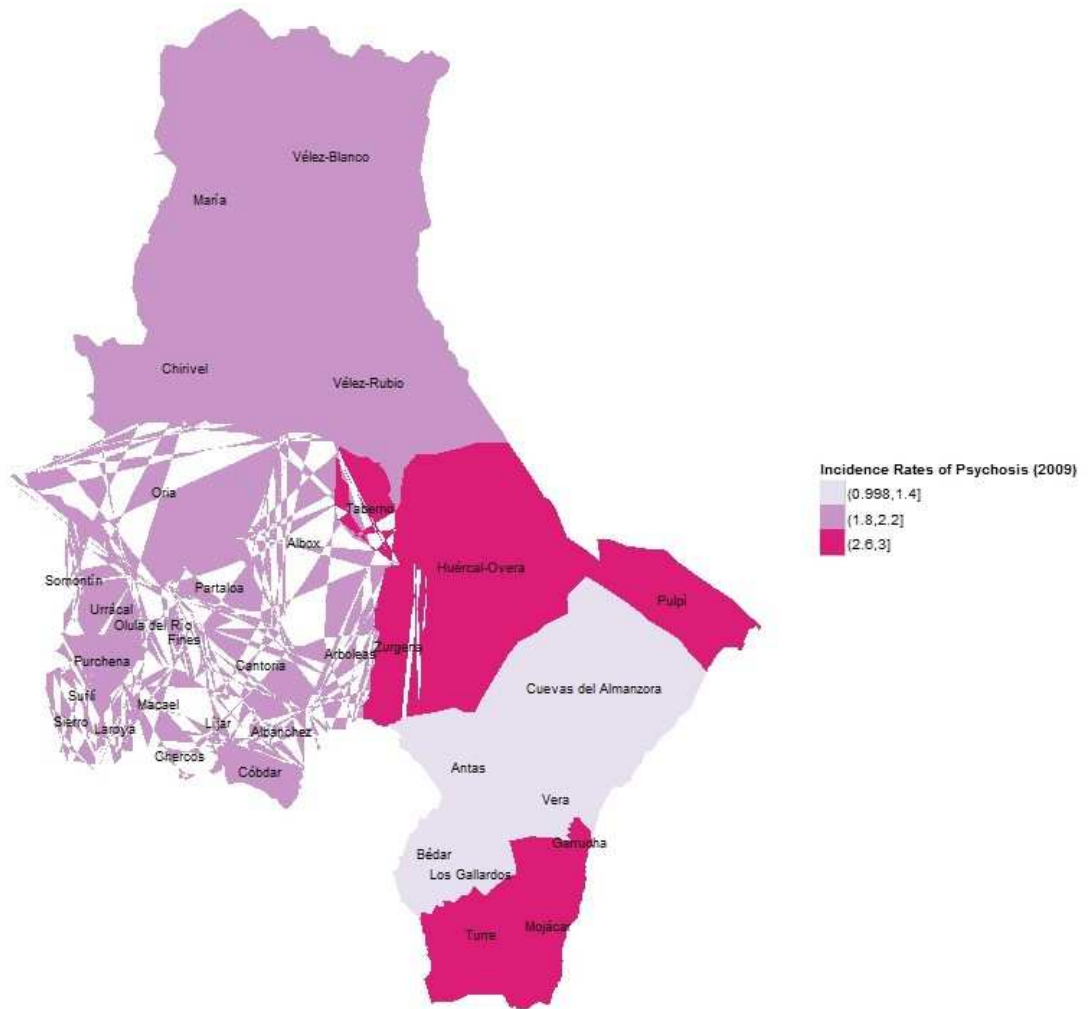


Figure 11.1. Incidence rate of psychosis in the Northern Almeria in 2009.

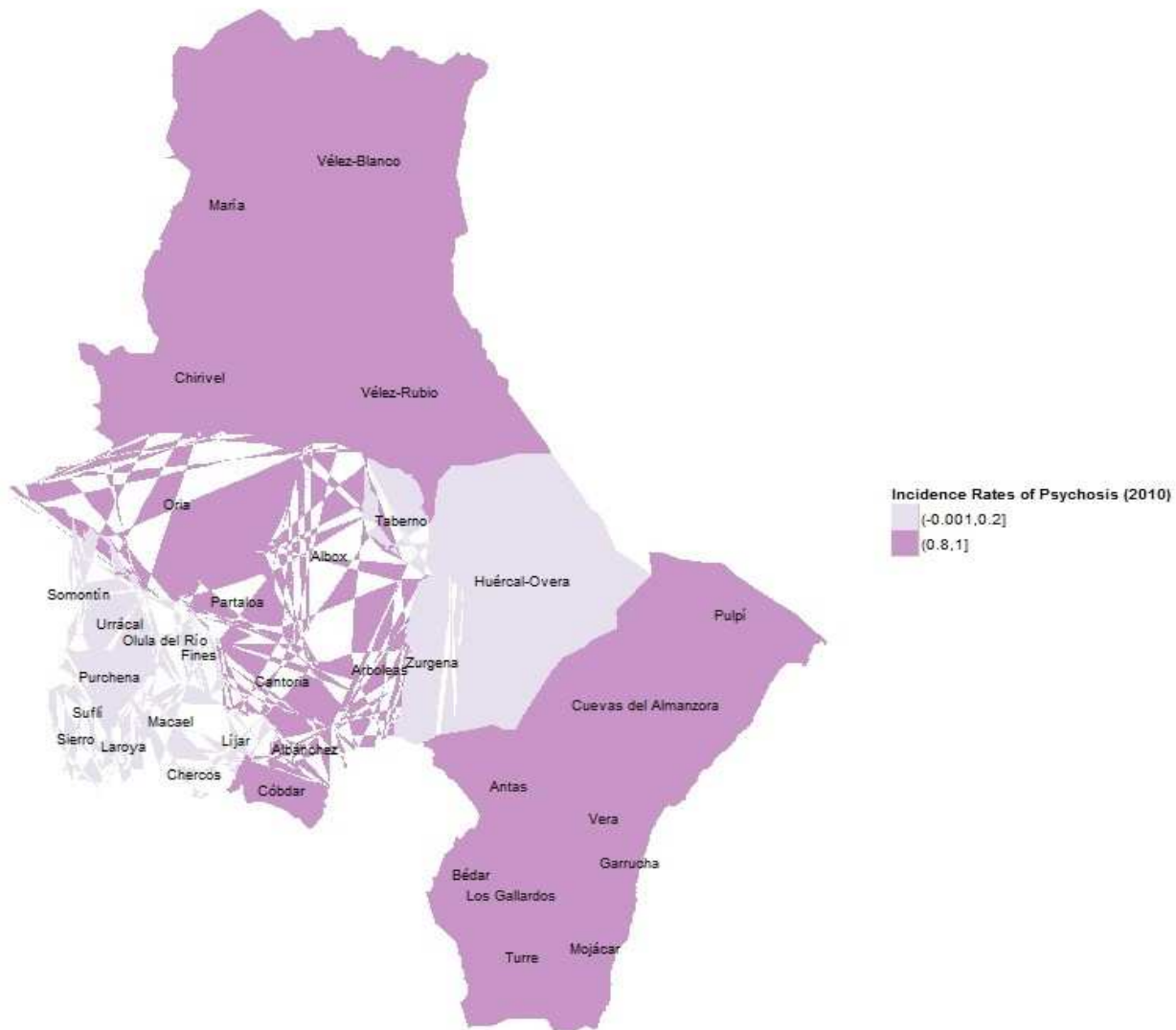


Figure 11.2. Incidence rate of psychosis in the North of Almeria in 2010



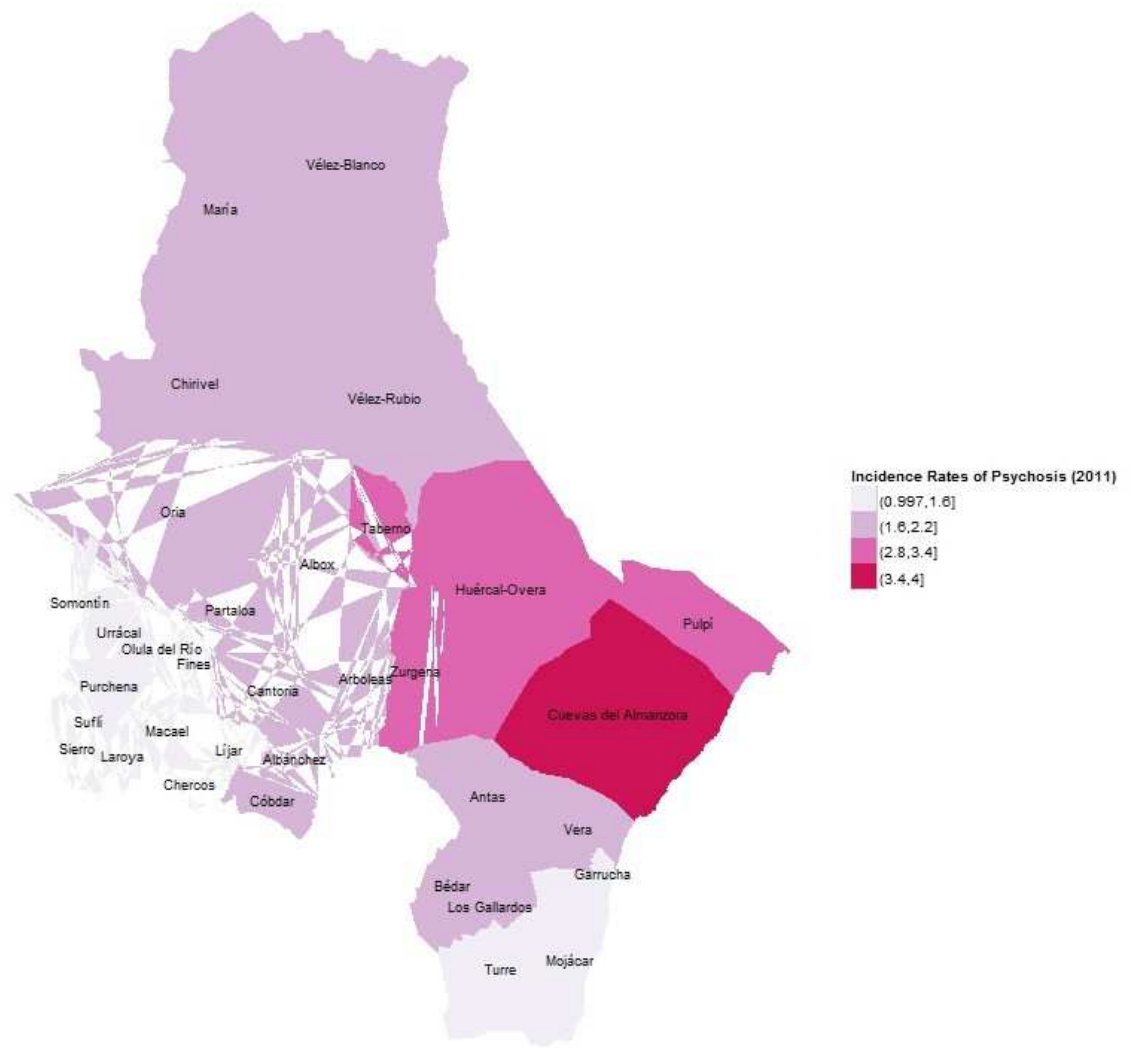


Figure 11.3. Incidence rate of psychosis in the North of Almería in 2011

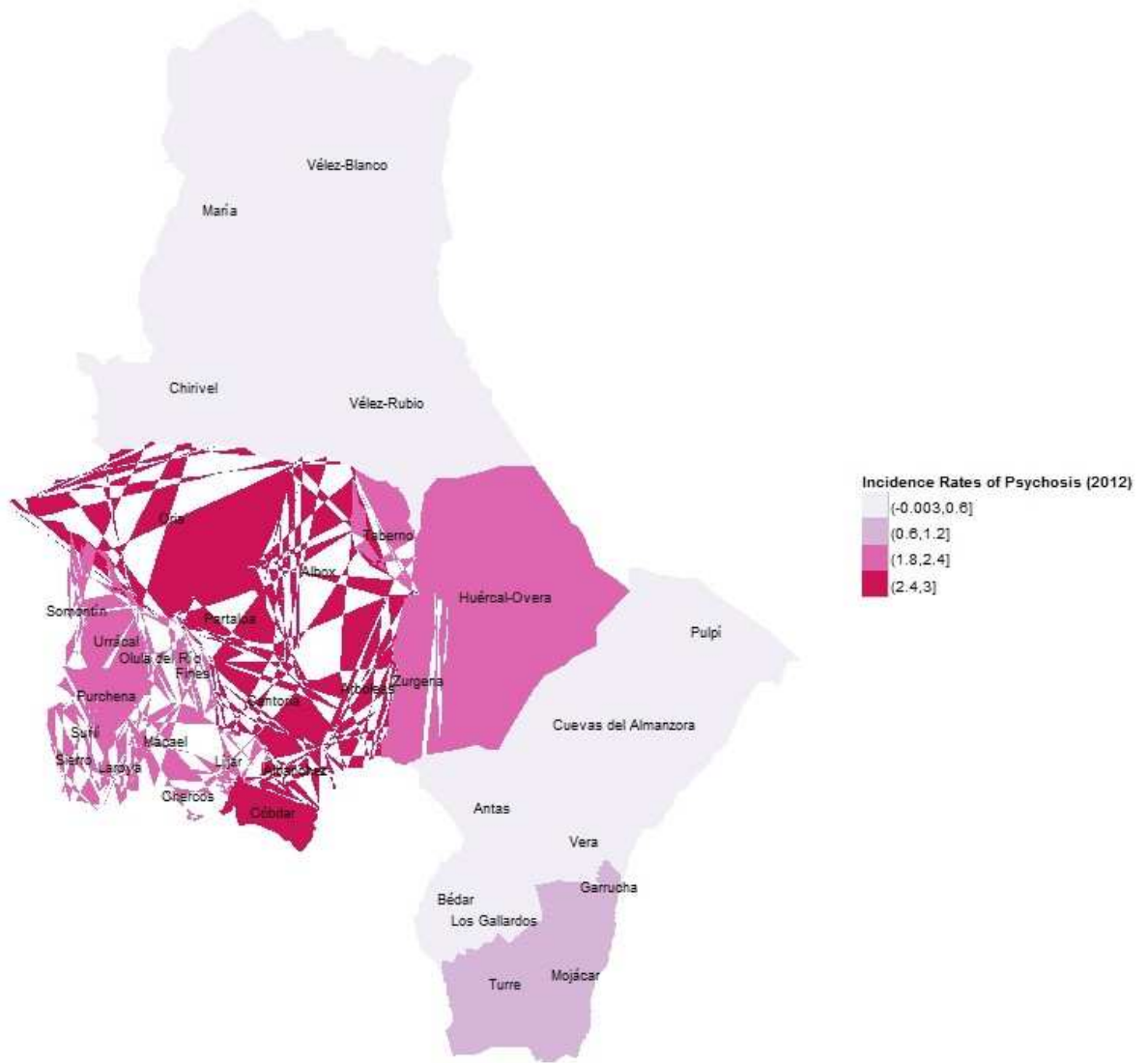


Figure 11.4. Incidence rate of psychosis in the North of Almeria in 2012

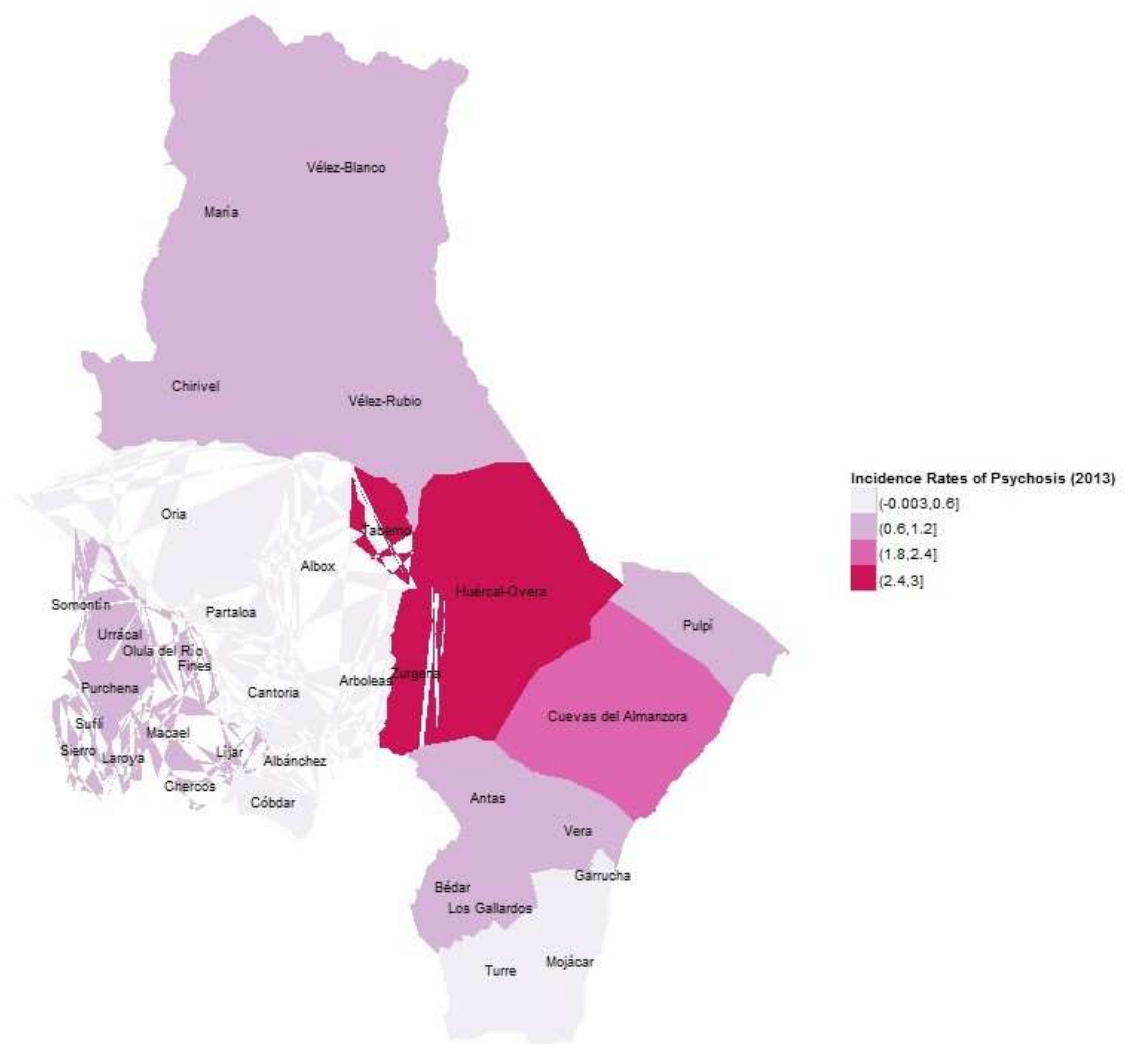


Figure 11.5. Incidence rate of psychosis in the North of Almería in 2013

