

Research article Ερευνητική εργασία

Prevalence of mental disorders in a Greek island

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In Greece, the need for epidemiological data became evident at the beginning of the mental health reform during 1983 with the emergence of the necessity to develop community-based mental health services. This survey was conducted in 2005 by the Association for Regional Development and Mental Health (EPAPSY), supported by the local authorities. It followed the methodology of the survey "Mental Health in the General Population: Images and Realities" (MHGP), a large scale multisite epidemiological research conducted by the World Health Organization Collaborative Centre of Lille in France and other countries. The aim of this study was to assess prevalence, sociodemographic and comorbidity patterns of mental disorders in the general adult population of Evia Island, Greece. This was a cross-sectional survey investigating point, period and lifetime prevalence of mental disorders. The target population was the non-institutionalized adult population of island of Evia (population 230,000 people). The Mini International Neuropsychiatric Interview and a sociodemographic data questionnaire were administered by trained interviewers to 900 residents of Evia. The quota sampling method was used to obtain a sample representative of the target population. Lifetime prevalence of any disorder, as identified by the MINI, was 29%. The prevalence of depression was high, with 17.5% of women and 14.6% of men currently meeting the criteria for diagnosis. Affective and anxiety disorders were found to be more frequent in women than men, except for dysthymia, social phobia and post-traumatic stress disorder which were slightly more frequent in men. The prevalence of psychiatric disorders in Evia was much higher than the prevalence found by other epidemiological studies in Greece and among the highest in Southern Europe. The high prevalence of mental disorders found in Evia means that almost one third of the population will suffer from a clinically significant disorder in their lifetime. Therefore, the resulting social burden is very relevant and requires the inclusion of mental health care among the main goals of a public health strategy. Methodological issues concerning the comparison of results between different countries, the limitations of the study and the rates of alcohol use disorders discussed. High rates of mental disorders are related to demographic changes, such as the increasing size of elderly population, and probably to economic hardship and rise in unemployment. Results should be taken into consideration for the planning and development of interventions for vulnerable groups.

Key words: Psychiatric epidemiology, community survey, prevalence, mental disorders, Evia, Greece.

Introduction

Epidemiological research on incidence and prevalence of psychiatric disorders in a particular geographical region is considered one of the first steps in assessing the need for planning and developing new psychiatric service.¹ In Greece, the need for epidemiological data became evident at the beginning of the mental health reform during 1983 with the emergence of the necessity to develop community-based mental health services.² However, very few epidemiological surveys of mental disorders have hence been conducted in Greece. Therefore, data from large scale studies on prevalence of psychiatric disorders and disability in the general population are very limited, refer mainly to urban areas and have been conducted more than ten years ago,³⁻⁵ with the exception of one study focused on elderly population.⁶

Earlier data show that about 16% of the general population in Athens suffer from a mental disorder³ and women, widowed spouses and people of low, elderly socioeconomic status had highest rates.⁵ Furthermore, in the WHO collaborative study of mental illness in primary care, data from Athens site showed one-month prevalence of 22% and level of recognition of mental disorders by general practitioners of only 17%.⁴

Since no data on distribution of mental disorders outside Athens metropolitan area were available, the Scientific Association for Regional Development and Mental Health (EPAPSY), an NGO active in Greece the field of mental health since 1988, set up an epidemiological survey in the island of Evia aimed at determining the prevalence of psychiatric disorders in the general population, providing reference data for subsequent mental health care planning and describing the population's attitudes towards mental disorders and their treatments. In this paper we will present and discuss prevalence rates, sociodemographic correlates and comorbidity findings.

Material and method

Setting

Evia is a big island in the Aegean Sea (3,909 km²), situated along the coast line of Central Greece, about 80 km N-E of Athens. It is one of the most densely populated departments of the region with a population of 230,000 residents. Its population is a melting pot of different ethnic groups such as the old indigenous population, the mixed Greek-Turkish population (the

integration of this group became a conflicting issue after the declaration of independence of the Greek state), the populations from Psara and Samos islands, the Albanians (immigration from Albania during the 17th century), the Macedonians (internal immigration of workers), Romas (near the main town Halkida) and finally Greek refugees coming from the west coast of Turkey in 1922, as a consequence of the Greek-Turkish war.

This population bears a "fluid identity", with a great variety of cultural codes and patterns compared with other regions of continental Greece. A historical lack of homogeneity combined with the weakness and dysfunction of the social institutions and services, the lack of economic support and the absence of an effective developmental policy from the State have produced a fragile social cohesion and prevailing individualistic social attitudes.

In comparison with Greece, Evia's population is older (31% over 60) and less educated (52% primary school level or less). Outside the capital Halkida, with 53,000 inhabitants, it is scattered in many rural villages. During the last fifteen years, a very relevant downsizing of the industrial infrastructure took place, resulting in a rise of unemployment rates, which reached 25% of general population.⁷

Design

This was a cross-sectional survey investigating point, period and lifetime prevalence of mental disorders. It followed the methodology of the survey "Mental Health in the General Population: Images and Realities"(MHGP), a large scale multisite epidemiological research conducted by the World Health Organization Collaborative Centre of Lille (WHO-CC, Lille, France) in France and other countries.⁸⁻¹⁰ The Evia survey took place in 2005.

The target population was the non-institutionalized adult population of Evia. The quota sampling method was used to obtain a sample representing as closely as possible the Evia population. Therefore, the quotas formed were based on the structure of target population, according to gender, age, level of education and professional status, based on 2001 national Greek census. Weighing was applied to ensure that the sample was consistent with the population structure. The quota sampling method has been used in a number of epidemiological surveys¹¹ and has been considered the most cost-effective mean of obtaining a repre-

sentative sample when the resources are limited.¹² In order to achieve a sufficient number of subjects for the mental disorders explored, with a 5% alpha risk, a sample of 900 subjects was considered to be adequate to ensure accuracy in the analysis.

Measures

The following instruments were used:

1. The Mini International Neuropsychiatric Interview (MINI), a short diagnostic structured interview developed to assess psychiatric diagnoses according to DSM-IV and ICD-10 criteria.¹³ For the purpose of this study a validated Greek version of MINI was realized,¹⁴ to identify the presence of disorders belonging to the following ICD-10 categories:

- Affective disorders (depressive episode F32, recurrent depressive disorder F33, manic episode F30, dysthymia F34.1)
- Neurotic, stress-related and somatoform disorders (agoraphobia F40, social phobia F40.1, panic disorder F41, generalized anxiety disorder F41.1, post-traumatic stress disorder F43.1)
- Psychoactive substance use disorders F10-F19.

An ad hoc Sociodemographic Data Questionnaire to collect data on social and demographic characteristics of the subjects, including gender, age, year of birth, marital status, educational level, professional status, family income, religion and cultural reference group.

Procedures

Thirty mental health professionals (psychiatrists, psychologists, social workers, psychiatric nurses) participated in the research project as interviewers. Twenty-three of them were working in residential services in Evia managed by EPAPSY, four interviewers were working at the Mental Health Centre of Halkida (Evia) and three were volunteer participants. All interviewers were trained during a three-day seminar and performed pilot interviews under supervision. The MINI was administered in face-to-face interviews which lasted 25 minutes on average. The respondents were recruited in the streets and public places on "first to hand" basis, provided they lived in Evia and corresponded to the quotas given to each interviewer. Efforts were made to minimize selection bias by sampling from a wide range of sites. The interviewers explained the study and obtained verbal informed consent before beginning the interviews.

Data analysis

The data were coded and inserted in a data entry software program EPI-INFO, provided by the Department of Medical Research and Information of EPSM Lille-Metropole (DIRM). Data were sent to DIRM for verification. Descriptive statistics were used to study the frequency and percentage of the main sociodemographic characteristics as well as the prevalence of psychiatric disorders. Cross-tabulations were used to describe the prevalence in certain groups of the sample according to certain sociodemographic characteristics. Furthermore, logistic regression method was used to identify statistically significant variables associated with specific psychiatric disorders. Finally, χ^2 was used to explore the comorbidity.

Results

Sociodemographic characteristics

The sample sociodemographic characteristics are shown in table 1. Such characteristics were predefined at the beginning of the study, according to the quota method, based on data provided by the Greek National Statistical Service in 2001 census. Classification of professional status follows the indications of the International Labour Organization.¹⁵ Frequencies and percentages are presented in table 1. The mean family income of respondents ranged between 840 euro and 1300 euro per month. The overwhelming majority of the subjects were Greek Orthodox Christians (98%).

Prevalence of mental disorders

Data on prevalence of psychiatric disorders are shown in table 2. Lifetime prevalence of any disorder as identified by the MINI was 29%.

Generally, depressive and anxiety disorders were found to be more frequent in women than men, except for dysthymia, social phobia and post-traumatic stress disorders, which were slightly more frequent in men. The prevalence of depression was high, with 17.5% of women and 14.6% of men currently meeting the criteria for diagnosis. Substance use disorders were far more prevalent in men.

Table 3 shows prevalence by age and marital status. The highest percentage of any affective disorders was detected in the age group of over 75, while anxiety disorders were more frequent in the 18–39 year age groups. Both anxiety and affective disorders were prevalent in the divorced group.

Table 1. Sociodemographic characteristics.

	Males (n=455)		Females (n=445)		Total (n=900)	
	n	(%)	n	(%)	n	(%)
<i>Age</i>						
18–29	97	21.3	90	20.2	187	20.8
30–39	85	18.7	80	17.9	165	18.3
40–49	72	15.8	71	15.9	143	15.9
50–59	64	14.0	60	13.4	124	13.7
60–74	109	24.0	120	26.9	229	25.4
Over 75	27	5.9	24	5.3	51	5.6
Missing	1	0.2			1	0.01
<i>Marital status</i>						
Single	140	31.1	96	21.7	236	26.5
Married	262	58.3	268	60.7	530	59.5
Divorced	23	5.1	31	7.0	54	6.0
Widowed	24	5.3	46	10.4	70	7.8
Missing	6	1.4	4	0.9	10	1.1
<i>Education</i>						
Primary	171	37.5	173	38.8	344	38.2
Secondary	168	36.9	159	35.7	327	36.3
Tertiary	59	12.9	62	13.9	121	13.4
Uneducated	57	12.5	51	11.4	108	12.0
Missing	–	–	–	–	–	–
<i>Occupation</i>						
Clerks	80	17.5	88	19.8	168	18.6
Technicians and associate professionals	16	3.5	7	1.7	23	2.6
Agricultural and fishery workers	40	8.7	11	2.5	51	5.7
Craft and trade workers	56	12.3	43	9.6	99	11.0
Professionals	26	5.7	13	2.9	39	4.3
Retired	138	30.4	104	23.5	242	26.9
Students	24	5.2	15	3.3	39	4.4
Housewives	0	0	113	25.5	113	12.7
Other	9	1.9	2	0.4	11	1.2
Unemployed	66	14.6	48	10.8	114	12.6
Missing			1	0.2	1	0.1

Logistic regression analysis shows gender as the most important variable associated with depressive episodes ($p<0.05$). Marital status was found to be the most important variable related to social phobia ($p<0.05$) and to alcohol abuse ($p<0.05$), while for alcohol and drug abuse the most significant variable was unemployment ($p<0.05$).

Comorbidity

There was a statistically significant association ($\chi^2=15$, $p<0.01$) between agoraphobia and depres-

sive episodes; 41% of those suffering agoraphobia also suffered from a depressive episode at the time of the study. Depressive episodes were also often detected in people suffering from panic disorder (57% also suffered from depressive episodes, $\chi^2=69$, $p<0.01$). Furthermore, 36% of those suffering from generalized anxiety disorder suffered also from depressive episodes ($\chi^2=26$, $p<0.01$). Finally, a statistically significant association between depressive episodes and alcohol dependence was also detected ($\chi^2=9$, $p<0.01$).

Table 2. Prevalence of mental disorders.

	<i>Males</i>		<i>Females</i>		<i>Total</i>	
	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>
<i>Lifetime</i>						
Any disorder	132	29.0	132	29.6	264	29.3
Recurrent depression	16	3.5	40	8.9	56	6.2
Manic episode	4	0.8	6	1.3	10	1.1
<i>2-year</i>						
Dysthymia	16	3.5	12	2.6	28	3.1
<i>1-year</i>						
Alcohol use disorders	23	5	3	0.6	26	2.8
Drug use disorders	6	1.3	1	0.2	7	0.7
<i>6-month</i>						
Generalized anxiety disorder	29	6.3	40	8.9	69	7.6
<i>Current</i>						
Depressive episode	54	11.8	78	17.5	132	14.6
Social phobia	11	2.4	9	2.0	20	2.2
Panic disorder	13	2.8	34	7.6	47	5.2
Agoraphobia	8	1.7	21	4.7	29	3.2
Post-traumatic stress disorder	5	1.0	4	0.8	9	1.0

Table 3. Prevalence of affective and anxiety disorders by age and marital status.

	<i>Affective disorders</i>		<i>Anxiety disorders</i>	
	<i>n</i>	<i>(%)</i>	<i>n</i>	<i>(%)</i>
<i>Age</i>				
18–29	33	17.7	37	19.8
30–39	30	18.2	35	21.2
40–49	27	18.9	23	16.1
50–59	13	10.4	18	14.5
60–74	38	16.6	36	15.7
75+	11	21.6	8	15.7
<i>Marital status</i>				
Single	40	17	42	17.8
Married	83	15.7	92	17.4
Divorced	15	27.8	32	5.9
Widowed	14	20	8	11.4

Discussion

The overall lifetime prevalence of mental disorders detected in Evia is slightly lower than the rate of 31.9% found in the French sample in the MHGP.⁹ However, it is higher than the rates found in other Mediterranean countries, such as Italy, Spain, Israel and Lebanon by the European study of the Epidemiology of Mental

Disorders (ESEMED) and other WHO surveys, which ranged from 17.6% (Israel) to 25.8% (Lebanon).¹⁶ Differences can be partly due to differences in case identification instruments: the WHO surveys used the Composite Diagnostic Interview (CIDI). The original validity study of MINI suggested that CIDI is as sensitive as the MINI, but more specific, thus likely to generating slightly lower prevalence figures.¹³ However, the comparison between the French rates found by MINI in MHGP (31.9%) and those found by CIDI in ESEMED (37.9%) shows an opposite trend.^{9,16} Even if we take into account differences due to assessment tools, Evia lifetime rates of mental disorders are among the highest ever found in Western European countries.¹⁶ Even the comparison with the old population survey realized in Athens⁵ shows higher rates in Evia.

The comparison with other surveys on individual disorders rates should be made with caution, because of differences in measures, methodology and type of prevalence assessed. However, some common patterns can be detected. Anxiety disorders are the most prevalent diagnostic group, followed by affective disorders, as found in almost all epidemiological investigations worldwide.¹⁶ Generally speaking, the rates of almost all disorders look high in Evia. If we look at the distribution and medians of all published European

one-year prevalence studies, we can see that for depression the interquartile prevalence range is 4.8–8% and for generalized anxiety disorders 0.8–2.2%.⁷ In Evia the 6-month prevalence of generalized anxiety disorders is 7.6%, and the 2-week prevalence of depression is 14.6%.

The rates of alcohol use disorders require a close examination. In the ESEMeD study the one-year prevalence of DSM IV alcohol abuse and dependence in six European countries (Belgium, France, Germany, Italy, Netherlands, Spain) was on average 1.7% in males and 0.3% in females.¹⁸ Evia figures for males are three times higher. A recent review examined general population studies findings on alcohol abuse from all over Europe, including countries not surveyed by ESEMeD, showing a one-year prevalence interquartile range 0.4–7.5% in males and 0.1–2.1% in females.¹⁹ Therefore, Evia rates are close to the upper end estimates.

The accuracy of data about alcohol use disorders in epidemiological surveys have recently been a matter of concern, especially in relation to the low rates obtained in the ESEMeD.²⁰ It is possible that ICD-10 definition of alcohol harmful used is broader than DSM-IV definition of alcohol abuse, thus leading to higher estimates of alcohol disorders.¹⁹ It is also possible that use of MINI produces higher rates than CIDI, as indicated by the 4.2% rate found in France by MHGP, in contrast with 0.7% rate found by ESEMeD in the same country.^{9,21} However, this is not necessarily the case, because in Italy a survey carried out in Florence the MINI found low rates similar to ESEMeD findings in the Italian site.²² A more substantial criticism has been raised on the capacity of detecting alcohol disorders in general psychiatric surveys, especially in southern European countries, where the social acceptance of alcohol consumption might discourage subjects from reporting their use.²⁰ Actually, a recent investigation using a technique specifically focused on alcohol use reported much higher rates in an area of Northern Italy.²³

All in all, rates of alcohol use disorders are more likely to be biased low than high and this strengthens the public health importance of rates found in Evia.

The higher prevalence in women rather than men for affective and anxiety disorders, as well the higher rates of affective disorders in the elderly are in accordance with most findings from international studies.¹⁸ It should be noted that there was not an assessment

of organic psychiatric disorders, which are common in the elderly. Affective symptoms may be a consequence of organic disorders or may be comorbid with them. A recent Greek study assessed the prevalence and correlates of depression in a sample of people over the age of 60 in a rural town of Greece.⁶ It found a prevalence of 27% for mild depression and 12% for moderate to severe depression, rates remarkably similar to the ones found in Evia. Cognitive impairment was strongly associated with increased risk for depression. The rapidly ageing of population in Greece will be therefore associated with an epidemiological pattern that will increase mental health care needs and must concern public health policymakers.

Regarding comorbid disorders, high comorbidity of generalized anxiety disorder and affective disorders was also found by a study in Greek psychiatric outpatients.²³ 65% of patients suffering from generalized anxiety disorder also had another diagnosis, with panic disorder, dysthymia and depression being the most frequent. The results of our study are also in accordance with the ESEMeD findings, which showed the same patterns.²⁵

A relevant issue is the significant correlation between unemployment and substance use disorders, already noted in other countries.^{20,27} The growing levels of unemployment of Evia in last years may therefore be a risk factor which could partly explain the high rates of such disorders.

Before drawing the conclusions, we should acknowledge the limitations of our study: First of all the use of quota sampling instead of probability sampling. Given the available resources (i.e. limited economic support of the study, limited time available) the quota method was chosen instead of other sampling methods considered to be more accurate; second, the lack of assessment of a number of diagnostic categories, such as psychoses, personality disorders, eating disorders, obsessive compulsive disorders, organic disorders and disorders in children and adolescents, third, the exclusion from the survey of people in institutions.

Despite such limitations, we think this study has important implications. The high prevalence of mental disorders found in Evia means that almost one third of the population will suffer from a clinically significant disorder in their lifetime. Therefore, the resulting social burden is very relevant and requires the inclusion of mental health care among the main goals of a pub-

lic health strategy. The high rates of mental disorders are related to demographic changes, such as the increasing size of elderly population, and probably to economic hardship and rise in unemployment. The lack of recent epidemiological data from other Greece makes it impossible to generalize the findings from the Evia to other areas of the country. The replication of this survey in areas with different levels of service provisions and different sociodemographic characteristics would give a relevant contribution to the implementation of a mental health policy at national level.

At local level, this study was conceived as a first step towards the planning of mental health care at lo-

cal level through the detection of the size of mental health problems in the general population and was realized with the involvement of local authorities and the mobilization of local resources.

The data gathered points out the need for the implementation of specific interventions for vulnerable groups, including promotion of mental health, prevention, treatment and rehabilitation. Further research in the next years will have to show to what extent mental health services in Evia have been implemented, to investigate changes over time in prevalence rates and to study treated prevalence patterns with the goal of assessing access of population to mental health care.

Επιπολασμός ψυχικών διαταραχών σε ένα ελληνικό νησί

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Στην Ελλάδα, η ανάγκη για επιδημιολογικά δεδομένα με σκοπό τη δημιουργία κοινοτικών δομών ψυχικής υγείας έχει διαπιστωθεί από την έναρξη της ψυχιατρικής μεταρρύθμισης το 1983. Η έρευνα πραγματοποιήθηκε το 2005 από την Εταιρεία Περιφερειακής Ανάπτυξης και Ψυχικής Υγείας (ΕΠΑΨΥ) με την υποστήριξη της τοπικής αυτοδιοίκησης. Ήταν μέρος της έρευνας «Ψυχική υγεία στον γενικό πληθυσμό: εικόνες και πραγματικότητες» του Συνεργαζόμενου Ερευνητικού Κέντρου του Παγκόσμιου Οργανισμού Υγείας της Lille που πραγματοποιήθηκε σε διάφορες περιοχές στη Γαλλία και σε άλλες χώρες. Στόχος της μελέτης αυτής ήταν η εκτίμηση του επιπολασμού, του κοινωνικο-δημογραφικού προφίλ και της συνοσηρότητας των ψυχικών διαταραχών στον γενικό πληθυσμό της Εύβοιας. Ο πληθυσμός στόχος ήταν ο μη νοσηλεύμενος ενήλικος πληθυσμός της Εύβοιας (πληθυσμός: 230.000). Εκπαιδευμένοι ερευνητές χορήγησαν τη Mini International Neuropsychiatric Interview και ένα ερωτηματολόγιο κοινωνικο-δημογραφικών δεδομένων σε 900 κατοίκους της Εύβοιας. Χρησιμοποιήθηκε η μέθοδος της κατά στρώματα δειγματοληψίας (quota sampling). Ποσοστό 29% του πληθυσμού δήλωσαν ότι υποφέρουν από τουλάχιστον μία ψυχιατρική διαταραχή. Ο επιπολασμός των διαταραχών διάθεσης ήταν υψηλός, καθώς 17,5% των γυναικών και 14,6% των ανδρών πληρούσαν τα κριτήρια του διαγνωστικού εργαλείου. Οι συναισθηματικές και αγχώδεις διαταραχές εμφάνισαν υψηλότερη συχνότητα στις γυναίκες, με εξαίρεση τη δυσθυμία, την κοινωνική φοβία και το μετα-τραυματικό άγχος. Ο επιπολασμός των ψυχιατρικών διαταραχών στην Εύβοια ήταν πολύ υψηλότερος από τον αντίστοιχο που βρέθηκε σε άλλες επιδημιολογικές μελέτες στην Ελλάδα και ανάμεσα στις υψηλότερες στη Νότια Ευρώπη. Ο υψηλός επιπολασμός που καταγράφηκε στην Εύβοια δείχνει ότι το ένα τρίτο του πληθυσμού έχει υποφέρει κατά τη διάρκεια της ζωής του από κάποια ψυχιατρική διαταραχή. Αυτό συνεπάγεται υψηλή κοινωνική επιβάρυνση και τονίζεται η ανάγκη συμπερίληψης της ψυχικής υγείας στις πολιτικές και στρατηγικές της δημόσιας υγείας στη χώρα. Στη συζήτηση εξετάζονται η δυνατότητα σύγκρισης των

αποτελεσμάτων της έρευνας με αποτελέσματα άλλων ερευνών, οι μεθοδολογικοί περιορισμοί της έρευνας καθώς και τα υψηλά ποσοστά κατάχρησης αλκοόλ. Τα υψηλά ποσοστά που διαπιστώνονται συσχετίζονται με δημογραφικές αλλαγές, όπως το αυξανόμενο μέγεθος γηράσκοντος πληθυσμού, και πιθανότατα με οικονομικούς παράγοντες και την αύξηση της ανεργίας. Τα δεδομένα πρέπει να ληφθούν υπόψη για τον σχεδιασμό των υπηρεσιών και την ανάπτυξη δράσεων για ευπαθείς πληθυσμούς.

Λέξεις ευρητηρίου: Ψυχιατρική επιδημιολογία, κοινοτική έρευνα, επιπολασμός ψυχικές διαταραχές, Εύβοια, Ελλάδα.

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