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Editorial
Άρθρο σύνταξης

Social challenges of contemporary psychiatry

Psychiatriki 2017, 28:199–200

Psychiatry and society are interrelated and the biopsychosocial model continues to dominate the clinical psychiatric practice. Some doubts have been expressed in recent years about the value and the wide acceptance of the biopsychosocial model. Ghaemi (2009)[1] considers it to be anti-humanistic and advocates the use of less eclectic, less generic, and less vague alternatives. The fundamental changes that have been witnessed in our times across the spectrum of biology, psychology and sociology have made necessary that a conceptual clarity should prevail.

The remarkable advances in neurosciences, neurobiology and genetics tend to swing the emphasis towards a more biological basis. Psychosis for example is the condition often regarded as being biologically constructed and most independent of the social context. The symptoms, however, of hallucinations and delusions in psychosis have social meaning for the person experiencing them and are primarily defined socially.[2] Furthermore, vulnerability is often the result of social trauma, whether in the form of recent stressors that trigger onset, or earlier circumstances that shape cognitive and emotional style. Moreover, the approved treatment and management of long term psychiatric disorders has involved interventions that are either directly social, or psychosocial. Furthermore, doubts have also been raised by the endophenotype project,[3] related to the genetics of schizophrenia. Cohen[4] suggested that there may be more individual genotypic patterns associated with schizophrenia than people with schizophrenia on the planet. A recent alternative interpretation (network approach) is gaining some support. It suggests that a stressor causes symptoms that activate other symptoms, in a circular, self-reinforcing way.[5] This theory moves away from psychiatric disorders being traditionally conceptualised as categorical or dimensional models.

While psychiatry has shifted its focus to a more biological approach, social factors still have an important role in cross-cultural diagnosis, psychiatric disorders relating to social deprivation, rehabilitation and enabling social inclusion. The degree to which society is willing to accept people with mental health problems has an obvious impact on their quality of life. We live in a period of cataclysmic social changes with disastrous wars, increased poverty and growing income inequality. The consequences on mental health are phenomenal with epidemics of self-harm and suicidality, higher rates of depression, and intensifying diagnosis of mood and conduct disorders in children and young adults. Other adversities include the disproportional number of people with mental health problems in prisons and penal institutions, the massive escalation of dementia sufferers and the shortcomings of the aspirations of community mental health care. In addition, there is an escalating social pathology with significant numbers of refugees and asylum seekers and rising numbers of homeless particularly in urban areas of the developed world. We should not, however, overlook the better rates of treatment for mental health problems, the emphasis on human rights, the empowerment and the service users' participation and the development in global mental health.

All these social factors are important to contemporary psychiatry presenting complex challenges and demanding urgent attention and action.[6] There is a need to embrace the development of evidence-based mental health services and a pluralistic approach, which balances appropriately the relevance of biological, psychological and social factors associated with mental health problems. The concept Meta-Community mental health builds on the successes of biological, psycho-

logical, social and community psychiatry.[7] It incorporates neurosciences, sociology, psychology and anthropology and is delivered wherever the evidence shows that it makes a difference, whether in community or hospital, prisons, schools, court-room, place of work, refugee camp or battle-front.

New technologies should be included for public information and education together with e-mental health, training of providers, tele-psychiatry and self-help methods delivered via IT. The boundaries of mental health are enlarging very rapidly and indeed new stakeholders and partners should be welcomed. This opens exciting possibilities but also creates some risks and strong evidence base should continue to guide us. Likelihood of finding early diagnostic and individualized treatment for psychosis, autism and dementia are likely to be of high financial cost.

The importance of the social challenges of modern psychiatry was recognised by including mental health for the first time in the New Sustainable Development Goals of United Nations that will determine the global development by 2030 aiming at the promotion of life expectancy for all.[8] Strengthening the prevention and treatment of mental health problems is a massive task for sustainable development as mental health has a direct impact on the whole range of Sustainable Development Goals.

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Άρθρο σύνταξης
Editorial

Κοινωνικές προκλήσεις της σύγχρονης ψυχιατρικής

Ψυχιατρική 2017, 28:201–202

Η ψυχιατρική και η κοινωνία είναι αλληλένδετες και το βιοψυχοκοινωνικό μοντέλο συνεχίζει να κυριαρχεί στην κλινική ψυχιατρική, παρότι έχουν εκφραστεί αμφιβολίες τα τελευταία χρόνια σχετικά με την ευρεία αποδοχή του. Ο Ghaemi[1] θεωρεί ότι δεν είναι αρκετά ανθρωπιστικό και υποστηρίζει τη χρήση λιγότερο γενικών και αόριστων εναλλακτικών λύσεων. Οι θεμελιώδεις αλλαγές που παρατηρούνται στην εποχή μας και καλύπτουν όλο το ευρύ φάσμα της βιολογίας, της ψυχολογίας και της κοινωνιολογίας και καθιστούν αναγκαία την εννοιολογική σαφήνεια των χρησιμοποιούμενων όρων.

Οι αλματώδεις εξελίξεις στις νευροεπιστήμες –συμπεριλαμβανομένης της νευροβιολογίας και της γενετικής– τείνουν να δώσουν μεγαλύτερη έμφαση στην επίδραση των βιολογικών παραγόντων. Η ψύχωση για παράδειγμα θεωρείται συχνά ότι έχει καθαρό βιολογικό υπόστρωμα και ότι είναι ανεξάρτητη από κοινωνικές επιδράσεις. Ωστόσο, οι ψευδαισθήσεις και οι παραληρηματικές ιδέες στην ψύχωση έχουν κοινωνικό νόημα για το άτομο που τα βιώνει.[2] Επιπλέον, η θεραπεία και η διαχείριση μακροχρόνιων ψυχιατρικών διαταραχών περιλαμβάνει παρεμβάσεις που είναι είτε άμεσα κοινωνικές είτε ψυχοκοινωνικές. Αμφιβολίες έχουν εγερθεί από τα ευρήματα του ενδοφαινότυπου[3] που σχετίζονται με τη γενετική της σχιζοφρένειας. Ο Cohen[4] θεωρεί ότι μπορεί να υπάρχουν ακόμη και περισσότεροι ατομικοί γονότυποι που σχετίζονται με τη σχιζοφρένεια από ό,τι άνθρωποι με σχιζοφρένεια σε όλο τον πλανήτη. Μια πρόσφατη εναλλακτική ερμηνεία (δικτυακή προσέγγιση) κερδίζει κάποια υποστήριξη προτείνοντας ότι ένας στρεσογόνος παράγοντας προκαλεί συμπτώματα που ενεργοποιούν άλλα συμπτώματα, με έναν κυκλικό, αυτο-ενισχυτικό τρόπο.[5]

Ενώ η ψυχιατρική τείνει να μετατοπιστεί σε περισσότερο βιολογική προσέγγιση, οι κοινωνικοί παράγοντες εξακολουθούν να διαδραματίζουν σημαντικό ρόλο – κυρίως στη διαπολιτισμική διάγνωση, τη σχέση των ψυχιατρικών διαταραχών με τον κοινωνικό αποκλεισμό, την αποκατάσταση και την κοινωνική ένταξη. Ο βαθμός στον οποίο η κοινωνία είναι πρόθυμη να δεχτεί άτομα με προβλήματα ψυχικής υγείας έχει προφανή επίδραση στην ποιότητα ζωής τους.

Η εποχή μας χαρακτηρίζεται από περίοδο κατακλυσμικών κοινωνικών αλλαγών που συμπεριλαμβάνουν καταστροφικούς πολέμους, αυξημένη φτώχεια και αύξουσα εισοδηματική ανισότητα. Οι συνέπειες στην ψυχική υγεία είναι προφανείς, με αύξηση των αυτοκτονιών, υψηλότερα ποσοστά κατάθλιψης, καθώς και συναισθηματικές διαταραχές και διαταραχές συμπεριφοράς σε παιδιά και νέους. Επιπρόσθετα προβλήματα περιλαμβάνουν τον δυσανάλογο αριθμό ατόμων με προβλήματα ψυχικής υγείας στις φυλακές, τη μεγάλη κλιμάκωση των πασχόντων από άνοια, και τη μη εκπλήρωση όλων των προσδοκιών από τα προγράμματα κοινοτικής φροντίδας στην ψυχική υγεία. Επιπλέον, παρατηρείται σημαντική αύξηση στον αριθμό των προσφύγων, των μεταναστών και των αστέγων στις οικονομικά ανεπτυγμένες χώρες. Δεν πρέπει, ωστόσο, να παραβλέπουμε και τα θετικά σημεία όπως τα μεγαλύτερα ποσοστά θεραπείας ψυχικών διαταραχών, την έμφαση στα ανθρώπινα δικαιώματα, τη συμμετοχή των ληπτών των υπηρεσιών και την ανάπτυξη της παγκόσμιας ψυχικής υγείας.

Όλοι οι προαναφερθέντες κοινωνικοί παράγοντες αποτελούν μεγάλες προκλήσεις για τη σύγχρονη ψυχιατρική και απαιτούν επείγουσα αναθεώρηση.[6] Απαιτείται πλέον επείγουσα ανάγκη για την τεκμηριωμένη ανάπτυξη υπηρεσιών ψυχικής υγείας βασισμένων σε πλουραλιστική προσέγγιση, η οποία θα εξισορροπεί την αλληλεπίδραση των βιολογικών, ψυχολογικών και κοινωνικών παραγόντων. Η έννοια της Μετα-Κοινοτικής ψυχικής υγείας αναγνωρίζει και αξιοποιεί τις επιτυχίες της κοινοτικής φροντίδας, αλλά παραδέχεται εξίσου τους περιορισμούς, συμπεριλαμβανομένου του ευρέος φά-

σματος των περιπλοκών και προβλημάτων που έχουν παρατηρηθεί από την εμπειρία στην εφαρμογή της κοινοτικής φροντίδας. Στόχος της Μετα-Κοινοτικής ψυχικής υγείας είναι να δοθεί ένα εννοιολογικό πλαίσιο προβληματισμού ώστε να εξεταστούν νέες ή αναθεωρημένες θεραπευτικές πρωτοβουλίες και αναπτύξεις στην οργάνωση παροχής των υπηρεσιών.[7] Ταυτόχρονα η έννοια της Μετα-Κοινοτικής ψυχικής υγείας υποστηρίζει την παροχή υπηρεσιών όχι μόνον σε ιατρικούς χώρους αλλά και σε σχολεία, τόπους εργασίας, φυλακές, καταυλισμούς προσφύγων, εμπόλεμες ζώνες κ.λπ.

Οι νέες τεχνολογίες πρέπει να χρησιμοποιηθούν για την ενημέρωση και την εκπαίδευση του κοινού, συμπεριλαμβανομένης της τηλε-ψυχιατρικής και των μεθόδων αυτοβοήθειας. Τα όρια της σύγχρονης ψυχιατρικής διευρύνονται ταχύτατα και οφείλουμε να είμαστε ανοικτοί σε νέες ιδέες και συνεργασίες. Νέες ελπιδοφόρες δυνατότητες και ευκαιρίες μπορεί να εμφανίζονται αλλά δεν πρέπει να παραβλέπουμε και τους κινδύνους που μπορεί να εμπεριέχονται. Η ανάλυση και ερμηνεία της τεκμηριωμένης γνώσης αποτελεί ίσως την καλύτερη προστασία.

Η σημασία των κοινωνικών προκλήσεων της σύγχρονης ψυχιατρικής αναγνωρίστηκε με την ενσωμάτωση της ψυχικής υγείας για πρώτη φορά στους Νέους Στόχους Αειφόρου Ανάπτυξης των Ηνωμένων Εθνών που θα καθορίσουν την παγκόσμια ανάπτυξη έως το 2030 με στόχο την προώθηση του προσδόκιμου ζωής για όλους.[8] Ενίσχυση της πρόληψης και η αντιμετώπιση των προβλημάτων ψυχικής υγείας είναι ένα τεράστιο έργο για την αειφόρο ανάπτυξη, καθώς η ψυχική υγεία έχει άμεσο αντίκτυπο σε ολόκληρο το φάσμα των στόχων της αειφόρου ανάπτυξης.

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Research article
Ερευνητική εργασία

Assessing depression in Greek dementia patients: Which scale to use?

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Depression in dementia is known to deteriorate patients' cognitive function and Quality of Life and to increase the burden of care. Although detecting depression in dementia is crucial, there is no gold standard for its screening and diagnosis. We examined the psychometric properties of 3 different scales in detecting depression in dementia. Results will be useful as community services for dementia in the country are developing and the need for reliable detection of depression in dementia patients is urgent. Our sample consisted of 136 Greek dementia patients who consulted a memory clinic. For the diagnosis of depression, DSM-IV criteria for major depression and 3 different depression measures were used: a self-assessment scale (Geriatric Depression Scale; GDS), a caregiver assessment scale (Neuropsychiatric Inventory-Depression; NPI-D) and a clinician rated scale (Cornell Scale for Depression in Dementia; CSDD). For the evaluation of the screening performance of the three depression scales receiver operating characteristic curve (ROC) analysis was applied. The DSM-IV criteria served as the gold standard method for the diagnosis of major depression. CSDD showed the best psychometric properties for the diagnosis of depression in dementia. The ROC curve analysis revealed that among the three measures, the CSDD had the wider AUC (0.919), second in the width of the AUC was the GDS (0.871), and last was the NPI-D (0.812). The prevalence of depression ranged from 18.4% according to DSM-IV criteria to 42.6% using the NPI-D. Using the GDS (cut off point: 7/8) and the CSDD (cut off point: 6/7), depression was present in 26.9% and 33.1% of the patients, respectively. Correlations between scales used were significant (r from 0.432 to 0.660; $p<0.001$). Caregivers tend to report more depressive symptoms in dementia compared to patients' and clinicians' ratings. CSDD should be used in specialized centers, but GDS may be an alternative in patients able to complete the assessment. The need to establish valid criteria for the diagnosis of depression in dementia is urgent.

Key words: Depression, Alzheimer's disease, Cornell scale for depression in dementia, geriatric depression scale, neuropsychiatric inventory.

Introduction

Depression in dementia is known to deteriorate patients' cognition, functional status,[1] behavioral and psychological symptoms[1] and Quality of Life.[2] Moreover, depression is an independent predictor of early institutionalization of dementia patients,[3] of increases in the burden of care[4] and of caregiver's depression.[5] There is a debate over whether late-life depression is a prodrome to dementia[6] or whether depression is an independent risk factor for dementia.[7]

Although systematically detecting depression in dementia with suitable instruments is crucial, there is no gold standard for its diagnosis, and its prevalence differs substantially between studies. In one study,[8] the prevalence of depression was found from 0 to 86%, depending on the diagnostic criteria employed. In fact, depression and dementia share a common clinical picture; it is very difficult to distinguish whether physical and autonomic symptoms are secondary to depression or constitute dementia symptoms. Furthermore, apathy is commonly confused with depression, especially from inexperienced raters. As a result, depression remains undiagnosed in about half of demented patients.[9]

The main aims of the study were to estimate the prevalence of depression in a Greek dementia population using three different scales, as well as to evaluate their validity by calculating their intercorrelations and by applying a receiver operating characteristic curve (ROC) analysis that uses as gold standard the DSM-IV criteria for the diagnosis of major depression. In addition, the study examines the reliability of the scales used by calculating their internal consistency. This is one of the first studies of depression in dementia patients in Greece. Results will be useful as community services for dementia in the country are developing and the need for reliable detection of depression in dementia patients is urgent. Furthermore, we discuss important matters concerning the proper detection of depression in dementia in Greece.

Material and method

Participants and procedures

A consecutive series of consenting 136 patient-caregiver couples who visited two memory clinics between January and May 2008 were studied. All patients met diagnostic criteria for dementia according to DSM-IV-TR. Caregivers were primary, helping the patients for at least two hours, twice a week. The study took place in two memory clinics of the Non-Profit Organization "Nestor" Psychogeriatric Association in Athens, Greece. All services are free of charge for both patients and families. Informed consent was obtained from all caregivers and patients before their enrollment in the study.

Patients and caregivers were seen separately when they visited one of the consultation clinics for the first time. Demographic data were obtained and depression scales were administered to the patients by a neuropsychologist; caregiver demographic data and scales were completed by a senior psychiatrist. A geriatric psychiatrist who was unaware of the above completed the Cornell Scale for Depression in Dementia and made diagnoses of dementia and probable depression. All three professionals had at least 4 years working experience with dementia patients and received special training for scale administration.

Measures

For the diagnosis of major depression, the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) Axis I Disorders was used. Furthermore three different depression scales were used:

a. Geriatric Depression Scale (GDS;[10] is a self-rated depression scale. Its original form contained 30 items, but Sheikh et al,[11] developed a shorter, 15-item version of the scale. Fountoulakis et al[12] validated the scale for the Greek population and found excellent psychometric properties for cognitively intact persons. These properties were lost in those having a Mini Mental State Examination (MMSE) score of less than 18.

b. NPI-D, the depression item of the Neuropsychiatric inventory.[13] As with other items of the scale, the frequency and the intensity of depressive symptoms are rated on the basis of scripted questions administered to the patient's caregiver. The product of frequency and intensity gives a final score of item severity.

c. Cornell Scale for Depression in Dementia (CSDD).[14] CSDD is a 19-item instrument for measuring depressive symptoms in dementia. Both the patient and the caregiver are interviewed by a psychiatrist and the scale is clinician-rated. A score >12 is strongly correlated with a psychiatric diagnosis of a major depressive episode.[15]

In addition, basic demographic data were collected for patients and caregivers, as well as specific disease characteristics. The type of Dementia was diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders criteria (DSM-IV[16]) for the diagnosis of Alzheimer's disease (AD) and vascular dementia (VD), consensus criteria[17] for the diagnosis of dementia with Lewy bodies (DLB) and[18] criteria for the diagnosis of Frontotemporal dementia (FTD). We used the Greek version of validated scales, in order to assess patients' cognitive (MMSE);[19,20] functional (Katz Activities of Daily Living;[21] and behavioural (Neuropsychiatric Inventory (NPI);[13,22] status.

Data analyses

The Statistical Package for Social Sciences (SPSS), version 17 for Windows, was used for the analyses of the data. To analyse demographic factors and to investigate the prevalence of cognitive and psychiatric symptoms in persons with dementia and their caregivers, mean scores and standard deviations were calculated. Cronbach's alpha was estimated to assess the internal consistency of the scales used.

For the evaluation of the screening performance of the three depression scales, namely of the GDS, the NPI-D and the CSDD, receiver operating characteristic curve (ROC) analysis was applied. The DSM-IV criteria served as the gold standard method for the diagnosis of major depression. The ROC curve plots the sensitivity and the specificity of a measure on the Y-axis and the X-axis, respectively. The area under the ROC curve (AUC) is the most important summary index of the ROC curve, and its evaluation is performed by comparing it with the AUC of the diagonal line, which represents classification by chance (AUC=0.50). When the value of the AUC is above 0.8, the corresponding scale is considered to be an accurate measure. Moreover, as the AUC becomes bigger, the accuracy of the scale increases. Optimal cut-off points of the three depression scales regarding the degree of sensitivity and specificity were estimated from the empirical ROC curves. This was performed by selecting, for each scale, the combination of sensitivity and specificity values that have the minimal Euclidean distance from the ideal point (1.1). Sensitivity was defined as the probability of a positive screening for depression given that the individual met the DSM-IV criteria for major depression. Specificity was defined as the probability of a negative screening for depression given that the individual did not meet the DSM-IV criteria for major depression.

Results

All 136 patients included were community residing dementia patients. Their characteristics are listed in table 1. The study population was of advanced age (average age greater than 75 years old), a low educational level (less than 9 years of education on the average), and the majority of the patients were female (66.9%). Patients had dementia for an average of about 4 years, with 46.3% suffering from moderate (n=63) and 39.0% suffering from severe (n=53) de-

Table 1. Sociodemographic and clinical characteristics of patients with dementia (n=138).

Female patients (%)	91 (66.91)
Age (SD)	76.72 (7.15)
Married (%)	70 (51.47)
Years of education (SD)	8.58 (4.42)
Months with Dementia (SD)	46.15 (28.25)
Dementia type (%)	
AD	90 (66.18)
VD	26 (19.12)
DLB	9 (6.62)
FTD	9 (6.62)
PD	2 (1.47)
MMSE (SD)	11.50 (7.16)
ADL	4.05 (1.93)
NPI (SD)	28.09 (19.70)
GDS (SD)	4.86 (3.97)
NPI (SD)	2.37 (3.48)
CSDD (SD)	5.11 (4.58)

AD: Alzheimer's Disease, VD: Vascular Dementia, DLB: Dementia with Lewy Bodies, FTD: Frontotemporal Dementia, MMS: Mini Mental State Examination, ADL: Activities of Daily Living, GDS: Geriatric Depression Scale, NPI: Neuropsychiatric Inventory, CSDD: Cornell Scale for Depression in Dementia

mentia according to the MMSE scores (0–9 for severe and 10–19 for moderate dementia). Most caregivers were females (69.1%), patients' wives or daughters (28.7% and 30.9% respectively), and involved in the caregiving role for 73.32 hours per week on average.

The ROC curve analysis revealed that the AUC for the three depression scales is significantly greater than the diagonal line (p<0.001). Among the three measures, the CSDD the wider AUC (0.919), second in the width of the AUC was the GDS (0.871), and last was the NPI-D (0.812) (figure 1). Additionally the CSDD curve came closest to the left upper angle of the graph in comparison to the curves of the two other depression scales (figure 1). For distinguishing between depressed and non-depressed individuals the score of 6/7 was the ultimate cut-off point for the CSDD with 88.0% sensitivity and 79.3% specificity. With regards to the GDS the more accurate discrimination between depressed and non-depressed individuals was achieved at the cut-off score of 7/8 with 77.3% sensitivity and 86.6% specificity. Finally, the best cut-off score for the NPI-D was 0/1 with 88.0% sensitivity and 67.6% specificity.

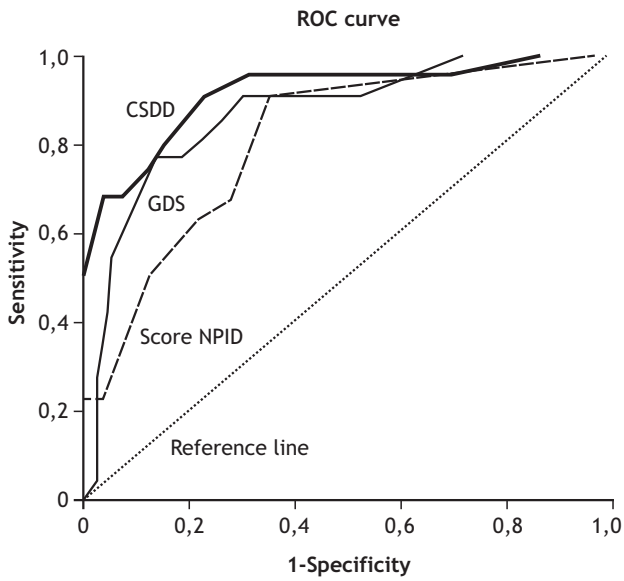

Figure 1. ROC curves (receiver operating characteristics curves) of the Geriatric Depression Scale (GDS, n=104), the Cornell Scale for Depression in Dementia (CSDD, n=136), and the Neuropsychiatric Inventory-Depression scale (NPID, n=136), for the detection of major depression in patients with dementia. DSM-IV criteria were used as the gold standard).

The prevalence of depression ranged from 18.4% according to DSM-IV criteria to 42.6% using the NPI-D. Using the GDS (cut off point: 7/8) and the CSDD (cut off point: 6/7), depression was present in 26.9% and 33.1% of the patients, respectively (table 2). Correlations between scales used were significant (r from 0.432 to 0.660, p<0.001) (table 3).

The internal consistency of the three depression scales was measured by using Cronbach's alpha. The values obtained are the following: GDS Cronbach's alpha=0.867; CSDD Cronbach's alpha=0.777; and NPI-D Cronbach's alpha=0.841. One hundred and four out of 136 patients (76.47%) completed the GDS. The mean MMSE of the non-completers was 3.65. All patients with MMSE>10 completed the scale. Cronbach's alphas were similar for completers with MMSE above 17 and below 18 (0.889 and 0.856, re-

Table 2. Internal consistency of three depression scales and prevalence of depression.

Scale	n	Dep. (%)	Cut-off	Cronbach's alpha
GDS (self-rated)	104	28 (26.9)	7/8	0.867
NPI-D (caregiver rated)	136	58 (42.6)	0/1	0.841
CSDD (clinician rated)	136	45 (33.1)	6/7	0.777
DSM-IV (clinician rated)	136	25 (18.4)		

DSM-IV: Diagnostic and Statistical Manual of Mental Disorders (used as the gold standard), GDS: Geriatric Depression Scale, CSDD: Cornell Scale for Depression in Dementia, NPI-D: Neuropsychiatric Inventory-Depression

Table 3. Pearson correlation coefficients between depression scales.

Scale	CSDD	GDS	NPI-D
CSDD	1	0.555**	0.660**
GDS	0.555**	1	0.432**
NPI-D	0.660**	0.432**	1

GDS: Geriatric Depression Scale, CSDD: Cornell Scale for Depression in Dementia, NPI-D: Neuropsychiatric Inventory-Depression. *p<0.05, **p<0.01

Correlation analysis between CSDD and NPI-D was performed in 136 individuals. Correlations between GDS and the two other scales were performed in 104 individuals that managed to complete the GDS scale

spectively). Correlations between the GDS and the other scales used were significant for those patients with MMSE<18 (r=0.385, p≤0.001 between GDS and NPI-D; r=0.559, p≤0.001 between GDS and CSDD).

Discussion

The CSDD seems to have better psychometric properties, compared to the GDS and the NPI-D in the diagnosis of depression in dementia. The GDS may have better properties than previously thought, especially for not severely demented patients. In our study its specificity was excellent (86.6%), higher than that found for the CSDD. We also found that the prevalence of depression varied widely according to the scale used for its diagnosis. The prevalence was higher with the caregiver-rated NPI-D and lower with the application of the DSM-IV criteria.

In our sample, the prevalence of depression varied from 18.4% to 42.6%, according to the scale used. This confirms the great variation in the prevalence of depression reported in previous dementia studies.[23,24,8] WHO reported that the prevalence of depression in dementia varied from 0 to 86%, in the studies that they reviewed. A similar variation has been found in studies investigating the prevalence of depression amongst cognitively intact elderly people.[25] The great range of variation in the prevalence of depression may be attributed, among other factors, to differences in the definition of depression, the scales applied and the intrinsic characteristics of the populations studied. Moreover, as we will discuss subsequently, we are not fully aware of what constitutes depression in dementia.

Parza et al[26] reported that depression, mild cognitive impairment and dementia could represent a clinical continuum. In fact, dementia and depression share common symptoms, e.g. memory complaints, irritability, insomnia, fatigue and weight loss. Moreover, differentiating between the symptoms of depression and dementia can be difficult. Apathy, for example, one of the most common behavioral symptoms of dementia, is often misinterpreted as a symptom of depression. This substantial overlap in key symptoms, between dementia and depression, makes diagnosis of depression in dementia patients difficult. The picture is further obscured by the fact that antidepressants show good results in treating psychiatric symptoms of dementia,[27] while their effectiveness in treating depression in dementia is limited, at best.[28]

We used DSM-IV criteria as a gold standard, in order to examine the psychometric properties of three different scales. However, the use of DSM-IV criteria for the diagnosis of depression in dementia patients is largely criticized. According to Landes et al,[29] DSM criteria may increase the prevalence of major depression in dementia, since a depressed mood is not a prerequisite for a depression diagnosis and many DSM criteria for depression are symptoms of dementia as well. These factors may explain the observed increased prevalence of depression in dementia, more than 10% in most studies,[30,31] compared to the less than 5% prevalence of depression in the non-demented elderly.[25] On the other hand, the National Institute of Mental Health Provisional Diagnostic Criteria for Depression in Alzheimer disease,[32] largely overestimates the prevalence of depression.[30] The criteria include, for example irritability, an independent item in the NPI, which is very common in dementia, especially in severe stages of the disease.[33] If it is considered as a symptom of depression, inevitably it will increase its prevalence.

CSDD has been developed specifically to diagnose depression in dementia patients. Our results are in agreement with other studies[34] showing that CSDD is superior to other scales for diagnosing depression in dementia. Moreover, CSDD has been found to be more sensitive in detecting effects of drug treatment than other scales.[35] Physicians in Greece should be trained in CSDD administration, since its items take into account the unique symptoms of depression in dementia. On the other hand, CSDD is time consuming and can be administered only by physicians.

The use of the GDS in elders with cognitive impairment remains a controversial issue. In our study, GDS showed good psychometric properties for those who managed to complete the assessment. All patients with an MMSE above 10 completed the scale, with good sensitivity, specificity and internal consistency. Thus, in contrast with the findings of Fountoulakis et al,[12] our results support the use of the GDS in patients with moderate cognitive impairment. Also the optimal cut-off score of GDS in our study was 7/8, while Fountoulakis et al[12] reported a cut-off score of 6/7. This may be due to the fact that the optimal cut-off score of the GDS may be shifted

to higher values when moving from mild to the more advanced dementia, as Lam et al[36] noticed. Several other studies reported that the GDS can be used in patients with moderate dementia.[37] However, other studies showed exactly the opposite.[23] Concluding, our results support the use of the GDS in patients with dementia, when they manage to complete the assessment. Taking into consideration that the GDS is widely used, is less time consuming than the CSDD and can be administered by less experienced raters, GDS can offer an alternative to the CSDD, especially in primary health care settings.

NPI-D, as in other studies,[24] largely overestimated the prevalence of depression in dementia. This is probably because caregivers cannot reliably differentiate between the symptomatology of depression and dementia. Moreover, caregivers may incorporate in their assessments their own feelings. Depressed and highly burdened caregivers may report higher depressive symptoms for the patients they care for. On the other hand, NPI-D showed a very high sensitivity of 88%, for the diagnosis of depression. This indicates that caregivers should always be asked for the presence of depressive symptoms in the patients, although physicians should bear in mind that caregivers may overestimate their presence.

This study has a number of limitations. Our sample may not be representative of community patients with dementia because the study was conducted in a referral setting. The sample size, although large, did not allow us to explore depression diagnosis and scales psychometric properties between different degrees of dementia severity. DSM-IV criteria and CSDD were administered by the same rater and this may have overestimated the agreement between a DSM-IV and CSDD diagnosis. As mentioned above, the concept of depression is not fully understood in dementia. DSM-IV criteria and other scales have been criticized for their ability to accurately assess depressive symptoms in dementia. Moreover, these scales have been developed with the aim of screening or monitoring the depressive symptoms and not for diagnosing depression.

This is the first study evaluating depression in the context of dementia in Greece. Caregivers tend to overestimate depressive symptoms in dementia compared to patients' and clinicians' ratings. GDS may be reliable even in patients with severe dementia who are able to complete the assessment. CSDD shows the best psychometric properties and is the scale of choice for properly diagnosing depression in dementia.

Εκτίμηση της κατάθλιψης σε Έλληνες ασθενείς με άνοια: Ποια κλίμακα πρέπει να χρησιμοποιούμε;

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Η κατάθλιψη στην άνοια επιδεινώνει τη γνωστική λειτουργία του ασθενούς και την ποιότητα ζωής του. Ταυτόχρονα, αυξάνει την επιβάρυνση της φροντίδας που απαιτείται και συμβάλλει πολλές φορές στην πρόωρη ιδρυματοποίηση του ασθενούς. Παρόλο που η ανίχνευση της κατάθλιψης στην άνοια είναι καθοριστική και για πολλούς ένα πρόδρομο σημάδι της ασθένειας, δεν υπάρχει κάποιος χρυσός κανόνας για τον έλεγχο και τη διάγνωσή της. Εξετάσθηκαν οι ψυχομετρικές ιδιότητες, η ε-

γκυρότητα και η αξιοπιστία τριών διαφορετικών κλιμάκων για την ανίχνευση της κατάθλιψης στην άνοια, σε ελληνικό πληθυσμό. Το δείγμα αποτέλεσαν 136 Έλληνες ασθενείς με άνοια και οι φροντιστές τους, οι οποίοι επισκέφθηκαν τα δύο εξειδικευμένα κέντρα ελέγχου μνήμης της Ψυχογηριατρικής Εταιρείας «Ο Νέστωρ» στην Αθήνα. Για τη διάγνωση της κατάθλιψης, χρησιμοποιήθηκαν τα κριτήρια κατά DSM-IV για τη μείζονα κατάθλιψη, καθώς και 3 διαφορετικές κλίμακες κατάθλιψης: μία κλίμακα αυτοαξιολόγησης του ασθενούς (Geriatric Depression Scale, GDS), μία κλίμακα εκτίμησης καταθλιπτικών συμπτωμάτων από τον φροντιστή (Neuropsychiatric Inventory-Depression, NPI-D) και μία κλίμακα εκτίμησης από τον κλινικό ιατρό (Cornell Scale for Depression in Dementia, CSDD). Οι ασθενείς ήταν κυρίως γυναίκες (67%), άνω των 75 ετών (μ.ο. 77), με χαμηλό μορφωτικό επίπεδο (8,6 έτη εκπαίδευσης κατά μ.ο.). Η μέση τιμή του Mini Mental State Examination ήταν 11,5. Παρουσιάστηκε στατιστικώς σημαντική συσχέτιση μεταξύ των τριών κλιμάκων (r από 0,432 έως 0,660, p<0,001). Σύμφωνα με την κλίμακα GDS το 26,9% του δείγματος έπασχε από κατάθλιψη, σύμφωνα με τη CSDD το 33,1%, ενώ με τη χρήση της κλίμακας NPI-D, το 42,6% παρουσίαζε κατάθλιψη. Η κλίμακα με τις καλύτερες ψυχομετρικές ιδιότητες για τη διάγνωση της κατάθλιψης στο πλαίσιο της άνοιας ήταν η CSDD. Οι φροντιστές τείνουν να υπερεκτιμούν τα συμπτώματα της κατάθλιψης στην άνοια σε σύγκριση με τις αξιολογήσεις των ίδιων των ασθενών και των κλινικών ιατρών. Καταθλιπτικά συμπτώματα στους ίδιους τους φροντιστές και δυσκολία στη διαφοροδιάγνωση ανάμεσα στην κατάθλιψη και την απάθεια πιθανώς σχετίζονται με την υπερεκτίμηση αυτή. Η κλίμακα CSDD θα πρέπει να χρησιμοποιείται σε εξειδικευμένα κέντρα άνοιας για ασθενείς σοβαρότερου σταδίου, αλλά η GDS μπορεί να είναι μια εναλλακτική λύση σε ασθενείς που είναι σε θέση να αυτοαξιολογηθούν και βρίσκονται σε μεσαίο στάδιο άνοιας. Η ανάγκη για τη δημιουργία έγκυρων κριτήριων για τη διάγνωση της κατάθλιψης στην άνοια είναι επιτακτική.

Λέξεις ευρετηρίου: Κατάθλιψη, νόσος Alzheimer, κλίμακα Cornell για την εκτίμηση της κατάθλιψης στην άνοια, γηριατρική κλίμακα κατάθλιψης, ερωτηματολόγιο καταγραφής ψυχιατρικών συμπτωμάτων.

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Research article
Ερευνητική εργασία

Dysfunctional internet behaviour symptoms in association with personality traits

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Internet addiction is a matter of great interest for researchers, taking into consideration Internet's rapid spread and its ever growing use in children, adolescents and adults. It has been associated with multiple psychological symptoms and social difficulties, therefore raising even greater concerns for its adverse consequences. The present study that consists part of a broader research, aims to investigate the association between excessive Internet use and personality traits in an adult population. Specifically, the research examined the relation between dysfunctional internet behaviour and personality traits as neuroticism and extraversion, the two personality dimensions that have arisen as the most important ones in all relevant research. Our main hypotheses are that dysfunctional internet behaviour would be positively associated with neuroticism but negatively linked to extraversion. The 1211 participants aged over 18 years, completed the IAT (Internet Addiction Test) by Kimberly Young and the Eysenck Personality Questionnaire (EPQ) and some other questionnaires detecting psychopathology. Additionally, part of the administered questionnaires concerned socio-demographic characteristics of the participant subjects: specifically sex, age, marital status, education (educational years), place of residence –urban, semi-urban and rural–, whether they suffer from somatic or mental health disorder and if they take medication for any of the above categories. All the questionnaires have been electronically completed by each participant. Results showed that 7.7% showed dysfunctional internet behaviour that concerns both medium and severe degree of dependence by the use of Internet, as measured by the use of IAT. The univariate logistic regression analysis revealed that the individuals exhibiting symptoms of dysfunctional internet behaviour were more likely to suffer from a chronic mental health disorder, to use psychotropic medication and to score higher on neuroticism. In contrast, they were less likely to have children and be extraverted. Multiple logistic regression analysis confirmed that neuroticism and extraversion were independently associated with dysfunctional internet behaviour. Individuals with high scores on neuroticism were more likely to meet the criteria for dysfunctional inter-

net behaviour, while high scores on extraversion were associated with a lower probability of dysfunctional internet behaviour. Identification of personality traits that could be connected to some sort of "addictive personality" –particularly neuroticism and Introversion– might help researchers to identify and prevent internet addiction on the early stages and possibly could have a positive contribution to the therapeutic treatment of this addiction disorder.

Key words: Internet addiction, personality traits, neuroticism, extraversion.

Introduction

Internet addiction

Nowadays, Internet access is not a privilege to an elite group of people, but a given element of everyday life. As the Internet was growing more rapidly in the last two decades, its use or overuse was arising as a great concern and research topic. The first discussions concentrated on "Internet addicts", who spend excessive amounts of time online and their addiction has significant impact on their lives.[1,2] Pathological Internet users are more likely to be lonely and feel competent and more socially liberated when they communicate online.[3] It is widely acknowledged that Internet use can turn to misuse and cause disturbances in one's life, such as mood-altering use of the Internet, failure to fulfill major role obligations, guilt, craving,[3] problems with managing time and other symptoms similar to those found in addictive behaviours.[1] Furthermore, it could be detrimental to interpersonal relationships, occupational functioning and even one's economic status and physical health.[4]

Dysfunctional Internet Behaviour

While some have adopted the term "addictive",[5] others have talked about "dependent",[4] "problematic"[6] or "pathological"[3] in an effort to describe those who use internet excessively. Their identification is not based solely on the amount of time spent online, but also on their difficulty to control their usage. The newest edition of DSM-5[7] has introduced the term "Internet Addiction Disorder" (IAD), but only as an appendix in the main addictive disorders, which is identified by excessive or poorly controlled preoccupations, urges or behaviours regarding computer or Internet use that leads to impairment or distress.

Dysfunctional Internet Behaviour and personality traits

There is a general consensus and empirical verification of the Big Five model regarding its conceptual framework for personality and its factor structure.[8] One of them is "Neuroticism" which relates to emotional stability. Individuals with higher neuroticism scores tend to be nervous, sensitive, vulnerable and insecure.[9] They are also characterized by anxiety, negative emotionality and are more likely to engage on online interactions than face-to-face ones, in order to gain the social support they need.[10] Neuroticism has emerged as the most prominent personality trait that has been linked to pathological internet use.[11–16] Amiel and Sargent[17] reported that individuals with high scores on Neuroticism used the Internet for social motives, in order to feel less lonely because they belong to a group. A recent Greek study with 4-year medical students, also found that Neuroticism could predict the variability in Internet Addiction Disorder.[18]

On the other side "Extraversion" relates to sociability and positive emotionality. Extraverted individuals tend to be more talkative and friendly, warm and assertive, less reserved and shy.[9] They are characterized by positive emotionality, excitement-seeking and energetic behaviour, thus engaging in more direct social engagement compared to non-direct, such as online social exchanges.[10] Previous research on the association with Internet addiction data has been ambiguous: some studies have reported that it made introverts more introverted,[19,20] while others suggested that the results depend upon the functions Internet serves for users, thus for some users online relationships could be psychologically beneficial.[21] More current studies have shown that severe Internet users tend to score low on extraversion,[11,15,16]

preferring more traditional forms of social interaction.[10,12,19,20]

Aim of the present study

The objective of the present study was to examine the relationship between Dysfunctional Internet Behaviour and personality traits. We chose to examine two of the factors in relation to Dysfunctional Internet Behaviour, thus investigating the possibility that pre-existing and rather stable mechanisms affect internet usage and specifically Neuroticism and Extraversion. Based on previous evidence, we hypothesized that higher levels of Dysfunctional Internet Behaviour would be associated with higher symptoms of Neuroticism and lower symptoms of Extraversion.

Material and methods

Data collection

A sample of adults (18 years of age and above) of both genders who were Internet users were interviewed, particularly individuals who participated in fora or on social networking sites (especially facebook and other similar sites), through which they were originally approached, or other large traffic websites.

The way each population of the sample was recruited and examined is listed as follows: initially, an advertisement/announcement related to the research was published in fora/site/blogs or social networking sites, that were selected after communication with the person or persons responsible for each forum (the term "forum" is used to include all the above web sites), if there was one. The members of these fora that were willing to participate in the research were then referred to a specific email address, where they could fill and submit the self-administered questionnaires.

Data collection lasted three years, namely from 05.07.2011 until 01.06.2014.

Measures

IAT (Internet Addiction Test). The IAT was applied to assess the severity of self-reported compulsive internet use among adults. Specifically, the IAT evaluates the degree of preoccupation, compulsive use, behavioural problems, emotional changes, and impact upon functionality consequent to internet utilization.[22] The scale consists of 20 items, which provide scores ranging from 1 ("rarely") to 5 ("always"). The total IAT score may range from 20 to 100, according to which the higher score reflects the higher level of internet addiction and compulsivity. In order to evaluate the occurrence of internet addiction behavior (IAB), the following cutoff points were applied:[23] (1) no signs of IAB: IAT scores 0–30; (2) mild signs of IAB: IAT scores 31–49; (3) at risk for IAB: IAT scores 50–79, and (4) IAB: IAT scores 80–100. Both mild and severe IAB are Dysfunctional Internet Addiction Behaviour.

EPQ (Eysenck Personality Questionnaire)

EPQ (Eysenck Personality Questionnaire). The Eysenck Personality Questionnaire consists of 84 items, which provide "yes" or "no" scores. The questionnaire aims at investigating three personality dimensions: psychoticism (P), neuroticism (N), extroversion (E), lie (L). The validity of the scales P and L is dubious. The best studied scale is the N, which relates to the clinical diagnosis of neurosis and emotional instability or to personality with stomatic traits, according to the psychoanalytic terminology. The E scale corresponds roughly to personality with histrionic traits, sociability and impulsive elements, whereas the P scale corresponds to personality with obsessive-compulsive traits (it does not relate to psychosis). Finally, the L scale evaluates the degree of pretense from the part of the subject.[24] In the present study we employed the short version of the questionnaire, which assesses only the scales of neuroticism and extroversion.[25,26] Validated Greek version is available.[27,28] Time of administration: approximately 3΄.

Statistical analysis

Continuous variables are presented with mean and standard deviation (SD). Qualitative variables are presented with absolute and relative frequencies. The association of Dysfunctional Internet Behaviour with demographics and other factors was firstly investigated using univariate logistic regression analysis. Afterwards, multiple logistic regression analysis was conducted in order to find independent factors associated with the presence of Dysfunctional Internet Behaviour. Adjusted odds ratios (OR) with 95% confidence intervals (95% CI) were computed

from the results of the logistic regression analyses. Hypothesized interactions of variables in the model were not significant. All reported p values are two-tailed. Statistical significance was set at $p<0.05$ and analyses were conducted using SPSS statistical software (version 19.0).

Results

Data from 1211 participants were analyzed. Sample characteristics are presented in table 1.

Table 1. Sample characteristics.

	n	(%)
Age (years), mean ± SD	29.3±9.8	
Sex		
Men	625	51.7
Women	583	48.3
Place of residence		
Urban (>250,000 residents)	1043	86.3
Urban (>10,000 residents)	135	11.2
Semi-urban/rural (<10,000 residents)	30	2.5
Educational years, mean±SD	15.1±5.5	
Family status		
Single	956	79.1
Divorced	26	2.2
Married	194	16.1
Separated	32	2.6
Children		
No	1012	83.8
Yes	196	16.2
Somatic health disorder		
No	911	75.4
Yes	297	24.6
Taking medicine		
No	1041	86.2
Yes	167	13.8
Mental health disorder		
No	1135	94.0
Yes	73	6.0
Use of psychotropic medication		
No	1155	95.6
Yes	53	4.4
Neuroticism, mean±SD	5.1±2.3	
Extraversion, mean±SD	4.5±1.4	

Almost half of them were men (51.7%) and the sample mean age was 29.3 years (SD=9.8). Most participants were single with the percentage being equal to 79.1%. The mean educational years were 15.1 (SD=5.5). In addition, 86.3% of the participants lived in urban place with more than 250,000 residents. Chronic somatic health condition was present in 24.6% of the sample and chronic mental health problem was present in 6% of the sample. Also, 13.8% of the sample took medicine and 4.45 used psychotropic treatment; 71.2% of the participants had no signs of IAB, 21.1% had mild signs of IAB, 7.5% were at risk for IAB and 0.3% had IAB. Thus, 7.7% of the participants had Dysfunctional Internet Behaviour (figure 1).

Table 2 shows differences in the presence of Dysfunctional Internet Behaviour as derived by univariate logistic regression analysis. The odds for Dysfunctional Internet Behaviour were higher in subjects with Chronic mental health problem, in those using psychotropic treatment and lower in subjects that had children. Furthermore, greater scores on Neuroticism scale were positive associated with the presence of Dysfunctional Internet Behaviour, while greater scores on Extraversion scale were associated with lower odds for Dysfunctional Internet Behaviour in univariate analysis.

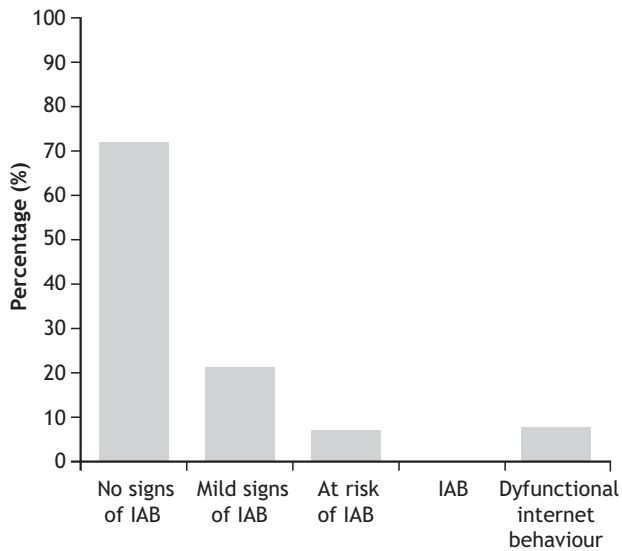

Figure 1. Proportion of participants with IAB signs.

Table 2. Proportion of subjects with Dysfunctional Internet Behaviour and associations derived by univariate logistic regression analysis.

	n	(%)	OR (95% CI)*	p
Age (years), mean±SD	28.9±9.3 vs 27.1±8.6		0.97 (0.95–1.00)	0.077
Sex	54	9.1	1.00**	
Men	35	6.3	0.67 (0.43–1.05)	0.079
Women	27.1±8.6		0.97 (0.95–1.00)	0.077
Place of residence				
Urban (>250,000 residents)	77	7.8	1.00	
Urban (>10,000 residents)	8	6.3	0.79 (0.37–1.68)	0.544
Semi-urban/rural (<10,000 residents)	4	13.8	1.90 (0.65–5.60)	0.244
Educational years, mean±SD	15.3±5.4 vs 16.2±4.3		1.04 (0.99–1.08)	0.117
Married				
No	81	8.3	1.00	
Yes	8	4.7	0.54 (0.26–1.15)	0.109
Children				
No	83	8.4	1.00	
Yes	6	3.8	0.43 (0.18–1.00)	0.050
Somatic health disorder				
No	77	8.5	1.00	
Yes	12	5.0	0.58 (0.31–1.08)	0.083
Taking medicine				
No	73	7.3	1.00	
Yes	16	11.0	1.58 (0.89–2.80)	0.116
Mental health disorder				
No	79	7.2	1.00	
Yes	10	19.6	3.15 (1.52–6.52)	0.002
Use of psychotropic medication				
No	83	7.5	1.00	
Yes	6	17.1	2.57 (1.04–6.37)	0.041
Neuroticism, mean±SD	4.9±2.3 vs 6.7±2.0		1.45 (1.30–1.62)	<0.001
Extraversion, mean±SD	4.5±1.3 vs 4.1±1.6		0.81 (0.69–0.94)	0.005

*Odds Ration (95% Confidence interval), **indicates reference category

When multiple logistic regression analysis was conducted (table 3) it was found that Neuroticism and Extraversion were independently associated with the presence of Dysfunctional Internet Behaviour. Specifically, adjusting for other variables greater scores on Neuroticism were associated with great-

Table 3. Results from multiple logistic regression analysis with dependent variable the presence of Dysfunctional Internet Behaviour.

	OR (95% CI)*	p
Age (years)	0.99 (0.95–1.04)	0.790
Sex	1.00**	
Men	0.68 (0.42–1.09)	0.109
Women	0.99 (0.95–1.04)	0.790
Place of residence		
Urban (>250,000 residents)	1.00	
Urban (>10,000 residents)	0.83 (0.38–1.82)	0.651
Semi-urban/rural (<10,000 residents)	1.76 (0.55–5.59)	0.338
Educational years	1 (0.93–1.08)	0.979
Married		
No	1.00	
Yes	1.31 (0.43–4.02)	0.632
Children		
No	1.00	
Yes	0.53 (0.14–1.96)	0.339
Somatic health disorder		
No	1.00	
Yes	0.48 (0.13–1.75)	0.264
Taking medicine		
No	1.00	
Yes	1.25 (0.61–2.56)	0.538
Mental health disorder		
No	1.00	
Yes	2.33 (0.82–6.66)	0.114
Use of psychotropic medication		
No	1.00	
Yes	1.14 (0.29–4.57)	0.852
Neuroticism	1.41 (1.26–1.58)	<0.001
Extraversion	0.85 (0.73–1)	0.048

*Odds Ration (95% Confidence interval), **indicates reference category

er likelihood for Dysfunctional Internet Behaviour, while greater scores on Extraversion were associated with lower likelihood for Dysfunctional Internet Behaviour.

Discussion

Internet's high level of accessibility and its range of services provide a potential for overuse. In our research 7.7% of the participants reported Dysfunctional Internet Addiction Behavior, which is in accordance to other recent studies.[16] The "addictive" group was more likely to score higher in mental health disorders and using psychotropic medication, a finding confirmed by multiple studies.[3,6,11]

Concerning our main research goal, Neuroticism and Extraversion emerged as important factors of Dysfunctional Internet Behaviour. Specifically in the mean of high Neuroticism which seemed to increase significantly the chances of being addicted to the Internet. This finding suggests that low emotional stability can predict, to a certain extent, Dysfunctional Internet Behaviour. These individuals may use the Internet as a substitute for traditional social interactions, a point that has been made by many other studies.[12,17]

On the other hand, Extraversion was negatively associated with Dysfunctional Internet Behaviour. Consequently, the more extraverted the individual was, the less he or she would engage in high levels of internet usage. As Landers and Lounsbury[20] suggested, introverted people may have more free time to be online or be more attracted to it than face-to-face interactions, because they can "…quietly immerse themselves in what is essentially solitary behavior". Extraversion seems to function as a protective factor, motivating individuals to spend time in more interpersonal activities rather than using the Internet to an excessive degree.

Identification of personality traits that could be connected to "addictive personality"[14] –neuroticism, introversion– may help researchers to identify and prevent internet addiction early on. In the future, it would be useful to study all of the Big Five traits, because this particular model grants researchers a vastly accepted measure for understanding personality dynamics across different settings.[20] Although causality is hard to determine, the impact of other factors on Dysfunctional Internet Behaviour could be further explored, after taking into account the personality effects.

Συμπτώματα δυσλειτουργικής συμπεριφοράς σε χρήστες του διαδικτύου σε σχέση με χαρακτηριστικά της προσωπικότητας

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Η εξάρτηση από το Διαδίκτυο είναι ένα θέμα με μεγάλο ενδιαφέρον για τους ερευνητές, λόγω της ταχείας εξάπλωσης του Διαδικτύου και της ολοένα αυξανόμενης χρήσης του από παιδιά, εφήβους και ενήλικες. Έχει συνδεθεί με πολλαπλά ψυχολογικά συμπτώματα και κοινωνικές δυσκολίες, δημιουργώντας μ' αυτόν τον τρόπο ακόμα μεγαλύτερες ανησυχίες για τις αρνητικές συνέπειές του. Η παρούσα έρευνα που αποτελεί μέρος μιας ευρύτερης έρευνας έχει στόχο να διερευνήσει τη σχέση μεταξύ της υπερβολικής χρήσης του διαδικτύου και χαρακτηριστικών της προσωπικότητας σε ενήλικες. Συγκεκριμένα, εξετάζεται η σχέση μεταξύ της δυσλειτουργικής διαδικτυακής συμπεριφοράς (dysfunctional internet behaviour) και του νευρωτισμού και της εξωστρέφειας, των δύο διαστάσεων της προσωπικότητας που έχουν θεωρηθεί οι πιο σημαντικές σε όλες τις σχετικές έρευνες. Οι κύριες υποθέσεις μας είναι ότι η δυσλειτουργική διαδικτυακή συμπεριφορά θα σχετίζεται θετικά με τον νευρωτισμό αλλά αρνητικά με την εξωστρέφεια˙ 1211 άτομα ηλικίας άνω των 18 ετών εξετάσθηκαν μέσω ηλεκτρονικά συμπληρούμενων από τον ίδιο τον συμμετέχοντα δομημένων ερωτηματολογίων που εμπεριείχαν μεταξύ άλλων το IAT (Internet Addiction Test) της Kimberly Young, το Eysenck Personality Questionnaire (EPQ) και κλίμακες ανεύρεσης ψυχοπαθολογίας. Επιπλέον, μέρος των χορηγηθέντων ερωτηματολογίων αφορούσε κοινωνικο-δημογραφικά χαρακτηριστικά των συμμετεχόντων ατόμων, και συγκεκριμένα φύλο, ηλικία, οικογενειακή κατάσταση, εκπαίδευση (έτη σπουδών), περιοχή διαμονής –αστική, ημιαστική ή αγροτική–, εάν πάσχουν από οργανικά ή ψυχιατρικά προβλήματα υγείας, και εάν λαμβάνουν για κάποια/ες από τις δύο κατηγορίες φαρμακευτική αγωγή. Σύμφωνα με τα ευρήματα, το 7,7% του δείγματος είχε δυσλειτουργική διαδικτυακή συμπεριφορά που συμπεριλαμβάνει τη μέτριου και σοβαρού βαθμού εξάρτηση από τη χρήση του διαδικτύου, σύμφωνα με το ερωτηματολόγιο IAT. Η μονοπαραγοντική ανάλυση λογιστικής παλινδρόμησης έδειξε ότι άτομα που εμφανίζουν συμπτώματα δυσλειτουργικής διαδικτυακής συμπεριφοράς είναι πιθανότερο να πάσχουν από μια χρόνια ψυχική διαταραχή, να κάνουν χρήση ψυχοτρόπων φαρμάκων και να έχουν υψηλότερες βαθμολογίες στον νευρωτισμό. Αντίθετα, ήταν λιγότερο πιθανό να έχουν παιδιά και να είναι εξωστρεφείς. Η πολυπαραγοντική ανάλυση λογιστικής παλινδρόμησης επιβεβαίωσε ότι ο νευρωτισμός και η εξωστρέφεια συσχετίσθηκαν ανεξάρτητα με τη δυσλειτουργική διαδικτυακή συμπεριφορά. Τα άτομα με υψηλή βαθμολογία στον νευρωτισμό είχαν αυξημένες πιθανότητες να πληρούν τα κριτήρια για δυσλειτουργική διαδικτυακή συμπεριφορά, ενώ η υψηλή βαθμολογία στην εξωστρέφεια συσχετίσθηκε με μικρότερη πιθανότητα για δυσλειτουργική διαδικτυακή συμπεριφορά. Ο εντοπισμός χαρακτηριστικών προσωπικότητας που θα μπορούσαν να συνδεθούν με κάποιο είδος «εθιστικής προσωπικότητας» –ο νευρωτισμός και η εσωστρέφεια συγκεκριμένα– θα μπορούσε να βοηθήσει τους ερευνητές να προσδιορίσουν έγκαιρα και έτσι να εμποδίσουν την ανάπτυξη του εθισμού στο διαδίκτυο, αλλά ενδεχομένως να συμβάλει θετικά και στη θεραπευτική αντιμετώπιση της διαταραχής εθισμού.

Λέξεις ευρετηρίου: Εξάρτηση από το διαδίκτυο, χαρακτηριστικά προσωπικότητας, νευρωτισμός, εξωστρέφεια.

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Research article
Ερευνητική εργασία

Translation and validation of the greek Psoriatic Arthritis Quality of Life Scale

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Psoriatic arthritis (PsA) is a chronic inflammatory disease that has a significant impact on patients' quality of life (QoL). The Psoriatic Arthritis Quality of Life (PsAQoL) Scale was developed in the UK to be specific to PsA patients and adopts the needs-based model of QoL. As a disease-specific measure, the PsAQoL is superior to generic measures of QoL in terms of relevance and sensitivity. The measure, which has been adapted into 50 languages, has not previously been available for use with Greek PsA patients. The aim of the study was to produce a Greek version of the PsAQoL that was suitable for native Greek speakers and that had comparable psychometric properties to the original UK version. The adaptation of the Greek PsAQoL consisted of three stages; translation, assessment of face and content validity and analysis of its psychometric properties. The translation stage adopted the dual panel methodology –a bilingual panel followed by a lay panel– to ensure conceptual equivalence of the scale to the original version. Cognitive debriefing interviews were conducted to determine the applicability and relevance of the adapted scale to patients. Finally, a postal validation survey was conducted to assess the psychometric properties of the draft measure, using the Nottingham Health Profile (NHP) as a comparator instrument. Non-parametric statistical analyses were performed to establish the reliability and construct validity of the PsAQoL. The translation panels produced a language version that sounded natural to native Greek speakers. Interviews revealed that patients found the measure comprehensible and appropriate. Only minor grammatical changes were made to the measure following these interviews. The Greek PsAQoL demonstrated good internal consistency (Cronbach's α=0.88) and excellent test-retest reliability (r=0.98). As expected, the measure correlated moderately highly with the Physical Mobility and Pain sections of the NHP and correlated moderately with other sections, indicating convergent validity. Known group validity was established by the ability of the measure to distinguish between patients who differed according to their perceived general health and disease severity. No significant differences in PsAQoL scores were observed between males and females or older and younger patients. The Greek PsAQoL was well-received by patients and demonstrated sound psychometric properties. It forms part of a growing body of disease-specific measures that are available in Greece. It is recommended for use in routine clinical practice, international clinical trials and research studies as a valid and reliable measure of QoL in PsA patients.

Key words: Psoriatic arthritis, quality of life, PsAQoL, disease-specific, psychometric test.

Introduction

Psoriatic arthritis (PsA) is an inflammatory rheumatic disease that is associated with the chronic skin condition psoriasis. Patients with PsA are usually affected with psoriasis before there are signs of arthritis.[1] Psoriasis is characterised by raised patches of inflamed skin that can be itchy or sore. PsA causes pain, swelling and stiffness in the joints and tendons in the body. The disease presents itself equally in males and females and, although it can develop at any age, it is most likely to affect adults between the ages of 45 and 64 years.[2] An epidemiological study in North West Greece found the prevalence of PsA to be 56.6 cases per 100,000 adults, half of that reported in research from Northern Europe.[2]

PsA is associated with poor physical and psychosocial functioning.[3,4] Lower employment rates for PsA patients compared to the general population have also been reported,[5] with the disease imposing an inevitable burden on quality of life (QoL).[6] In order to gain a complete picture of the impact of a health condition on the patient it is necessary to determine a patient's QoL.[7] The Psoriatic Arthritis Quality of Life (PsAQoL) scale was developed in the UK as a PsA-specific measure of QoL that adopted the needs-based model.[8] The model postulates that QoL is low when an individual is unable to satisfy certain human needs.[9] The content of the instrument was derived from in-depth qualitative interviews with PsA patients exploring the ways in which the illness prevented need fulfilment.

As a disease-specific measure of QoL, all items in the PsAQoL are relevant to these patients, thus maximising the scale's relevance and sensitivity. This is contrary to generic measures, such as the SF-36 and NHP, which show weak scaling properties and lack responsiveness.[10, 11] It is commonly believed that only generic measures can be used to make comparisons of outcomes between different diseases. However, it is possible to co-calibrate scores generated from different disease-specific measures.[12] This quality of needs-based measures makes them particularly valuable for comparative-effectiveness research.[12]

The PsAQoL has been adapted into 50 languages, for use in North and South America (10); Asia (14); Europe (24); Australia (1) and Africa (1). However, prior to this study the instrument had not been adapted for use in Greece. The aim of this study was to produce a Greek version of the PsAQoL that demonstrated psychometric properties equivalent to those of the original instrument.[8] This was necessary to confirm its suitability for use in international clinical trials and research.

Material and methods

Translation of the PsAQoL scale

The dual-panel methodology[13] was adopted for the translation of the PsAQoL into Greek. This process involves conducting two independent panels – a bilingual panel followed by a lay panel. The bilingual panel consisted of Greek professionals who were fluent in English and was attended by one of the PsAQoL developers. The purpose of this panel was to produce an initial Greek translation of the measure that was equivalent conceptually to the UK English original. This version was taken forward to a lay panel, consisting of monolingual Greek speakers of average educational attainment. Alternative translations could be taken to the lay panel for consideration. The lay panel could select from the alternatives or even suggest new words providing that the meaning was maintained. The comprehensiveness of items and whether they were of natural phrasing in the target language was assessed in the lay panel. Both panels were led by the same Greek researcher.

Psychometric assessment

Patients

Patients were invited to take part in the CDIs and postal validation survey if they were; aged 18 years or above, able to understand and complete the questionnaires and able to give written informed consent. An exclusion criterion was the presence of major comorbidity judged by the clinical team to be a significant influence on the patients' QoL. Participants were recruited through opportunity sampling by their clinician from one of the following locations:

- Rheumatology Clinic, Outpatient Department, St Paul General Hospital, Thessaloniki
- Outpatient Psoriasis Department, "Hospital of Skin and Venereal diseases", Aristotelian University Clinic, Thessaloniki
- Private Practice, Thessaloniki.

Ethics committee approval was obtained from St. Paul's Scientific Council.

Assessment of face and content validity

Face and content validity of the measure was assessed using cognitive debriefing interviews (CDIs) conducted with PsA patients.

The purpose of the CDIs was to assess the comprehension, ease of completion, relevance and comprehensiveness of the questionnaire. The interviews followed a face-to-face, semi-structured approach. Patients completed the questionnaire in the presence of an interviewer who observed and queried any difficulties in responding to the items. Patients were also asked to provide feedback on the questionnaire items, instructions and response format.

Postal validation survey

Finally, a postal validation survey was conducted to establish the psychometric properties of the Greek PsAQoL adaptation. The original UK version of the PsAQoL demonstrated excellent internal consistency (α=0.91), test-retest reliability (0.89), convergent and known group validity.[8] The measure has 20 items with a dichotomous "True/Not true" response option. The total number of "True" responses is summed to give the total score. The lowest and highest potential scores for the PsAQoL are 0 and 20 respectively, with a higher score indicating poorer quality of life.

At the first administration of the PsAQoL (Time 1), the Greek version of the Nottingham Health Profile[14] was included in the postal survey as a comparator instrument. The NHP assesses health status in six sections; energy level, physical mobility, pain, sleep, emotional reactions and social isolation. It includes 38 statements with dichotomous "Yes/No" response options. Scores for the NHP are calculated as a percentage of the items affirmed in each section. All six sections of the instrument have a minimum potential score of 0 and a maximum of 100, with high scores indicating worse health status. The Greek NHP demonstrates test-retest reliability coefficients above the minimum acceptable level of 0.70 and is sensitive to differences in patients' perceived disease severity.[14] Participants who completed and returned the PsAQoL and NHP at Time 1 were then sent the Greek PsAQoL approximately 14 days later (Time 2). Participants were allocated an ID number to ensure anonymity and to allow matching of respondents' data between administrations.

The internal consistency, test-retest reliability, convergent and known-group validity of the PsAQoL were determined from the postal survey data. As the data were at the ordinal level of measurement, non-parametric statistical analyses were performed. Internal consistency is a measure of the extent to which items in a scale are inter-related and is assessed by Cronbach's alpha coefficient. An alpha value below 0.7 indicates that the items do not work together to form a scale.[15] Test-retest reliability and convergent validity were measured using Spearman's rank correlations. The former provides an estimate of the measure's reproducibility over time by correlating scores on the scale on two occasions. A minimum value of 0.85 is required.[16] The latter assesses the level of association between scores on one scale and those on a comparator scale that measures a related construct. In this case, PsAQoL scores were correlated with scores on the NHP sections. A Mann-Whitney U test was used to assess known group validity. This tests the ability of the PsAQoL to distinguish between patients who differed according to their self-reported ratings of general health and PsA severity. The categories for general health were "very good/ good" and "fair/poor". PsA severity was grouped into "mild/moderate" versus "quite severe/very severe". Statistical analyses of the data were conducted using the Statistical Package for the Social Sciences (SPSS) version 19.0 software (SPSS Inc., Chicago IL, USA).

Results

Translation of the PsAQoL scale

The bilingual panel consisted of two males and three females aged between 25 and 57 years. The group produced the first Greek translation of the PsAQoL. Five of the items produced significant discussion but appropriate translations were produced that captured the intended concept. There was discussion in the bilingual panel concerning the response options, where "It is true" and "It is not true" was suggested before deciding on "I agree" and "I disagree".

The lay panel consisted of three males and three females aged from 21 to 62 years. The lay panel confirmed that the translations sounded natural in Greek and only minor changes were made to the questionnaire instructions. The lay panel amended the response options to "True" and "False" as it was considered this would work best with respondents.

Assessment of face and content validity

Ten patients participated in the CDIs, of whom 6 were female. Time taken to complete the questionnaire ranged from 5 to 8 minutes. Patients considered the in-

structions and all items to be clear, understandable and appropriately worded. Minor modifications were made to two of the items to correct grammatical errors.

Postal validation survey

Seventy-five patients completed the questionnaire package at Time 1. Sixty-one patients (81%) also completed the second administration of the PsAQoL. Data for those participants who did not return the questionnaire at Time 2 or who had missing responses were excluded from the statistical analyses. Table 1 presents demographic and disease information for this sample.

Patients' scores on the PsAQoL and NHP are shown in table 2. The median score for the Greek PsAQoL was 11.0 at both time points. No floor or ceiling effects (high number of patients scoring the minimum and maximum, respectively) were observed for the PsAQoL. For the NHP, respondents scored highest on the Energy level, Emotional reactions and Sleep sections.

Internal consistency

Cronbach's alpha coefficient for the PsAQoL was 0.88 at both administrations, indicating that the items are sufficiently inter-related.

Test-retest reliability (reproducibility)

The PsAQoL showed excellent test-retest reliability with a Spearman rank correlation coefficient of 0.98 ($p<0.01$). This shows that the scale demonstrates low levels of random measurement error.

Convergent validity

Correlations between PsAQoL scores and those on the six NHP sections at Time 1 can be seen in table 3. PsAQoL scores correlated strongly with the Physical Mobility and Pain scales of the NHP, showing the importance of these factors on QoL. There were also moderately high correlations between the PsAQoL and the NHP Emotional reactions and Sleep scales, suggesting that multiple factors influence QoL in PsA.

Known group validity

Figure 1 shows patients who rated their general health as fair or poor scored higher on the PsAQoL (Mdn=15.0; IQR=14.0–16.0) than those who rated their general health as very good or good (Mdn=6.0; IQR=3.75–8.0). This indicates significantly worse QoL in patients rating their general health less favourably (U=41.50, n=33, n=26, $p<0.01$, two-tailed). Also as expected, patients who evaluated their PsA severity as quite or very severe scored higher on the PsAQoL (Mdn=15.5; IQR=15.0–16.0) than patients who regarded their PsA severity as mild or moderate (Mdn=6.0; IQR=4.0–9.0) (figure 2). There was a significant difference between the two groups for PsA severity (U=32.00, n=35, n=24, $p<0.01$, two-tailed).

Table 1. Details of postal validation sample (n=61).

Age	**Years**	
Mean (SD)	46.0 (10.8)	
Median (IQR)	44.2 (37.3–56.8)	
Range	28.0–69.4	
Gender	**n**	**(%)**
Male	40	65.6
Female	21	34.4
Marital Status		
Married/Living as Married	33	54.1
Divorced	8	13.1
Widowed	3	4.9
Single	17	27.9
Work Status		
Full-time	7	11.5
Part-time	15	24.6
Homemaker	7	11.5
Retired	11	18.0
Unemployed	21	34.4
Patient-perceived general health		
Very good	5	8.2
Good	22	36.1
Fair	24	39.3
Poor	10	16.4
Patient-perceived PsA severity		
Mild	20	32.8
Moderate	17	27.9
Quite severe	18	29.5
Very severe	6	9.8

PsA: Psoriatic Arthritis

Demographic findings

The Mann Whitney U tests revealed no difference in PsAQoL scores between males (Mdn=14.0; IQR=6.0–15.0) and females (Mdn=8.5; IQR=3.25–15.0), or between older (Mdn=11.0; IQR=4.0–16.0) and younger patients (Mdn=12.0; IQR=6.5–15.0). Therefore, PsAQoL scores did not significantly differ between patients grouped by gender (U=311.5, n=39, n=20, p=0.21, two-tailed) or age group (U=427.5, n=30, n=29, p=0.91, two-tailed).

Table 2. Descriptive scores for the PsAQoL and NHP sections.

	n	Median (IQR)	Mean (SD)	Range	(%) scoring minimum	(%) scoring maximum
PsAQoL (Time 1)	59	11.0 (6.0–15.0)	10.6 (5.4)	1.0–19.0	0.0	0.0
PsAQoL (Time 2)	60	11.0 (6.0–15.0)	10.5 (5.5)	1.0–19.0	0.0	0.0
NHP						
Energy level	61	66.7 (16.7–66.7)	51.4 (36.3)	0.0–100.0	24.6	21.3
Pain	61	37.5 (0.0–75.0)	36.7 (35.9)	0.0–87.5	41.0	0.0
Emotional Reactions	61	44.4 (11.1–72.2)	44.6 (35.0)	0.0–100.0	14.8	14.8
Sleep	61	40.0 (0.0–100.0)	44.6 (43.9)	0.0–100.0	41.0	29.5
Social Isolation	61	40.0 (0.0–80.0)	40.7 (36.3)	0.0–100.0	27.9	14.8
Physical Mobility	61	37.5 (0.0–62.5)	32.6 (27.0)	0.0–87.5	29.5	0.0

PsAQoL: Psoriatic Arthritis Quality of Life scale, NHP: Nottingham Health Profile
Note: Participants with missing data were excluded from the analyses

Discussion

The Greek adaptation of the PsAQoL was successful. The measure reflected the same concepts as in the original UK version, was comprehensible and appropriate to patients and demonstrated excellent psychometric properties, comparable to those of the original UK PsAQoL.[8] The new language version has excellent internal consistency, reproducibility and is able to detect meaning differences in terms of general health status and perceived PsA severity.

The sensitivity and responsiveness of a measure is reduced with the presence of floor or ceiling effects. The absence of floor and ceiling effects for the Greek PsAQoL demonstrates that the measure is well targeted to the patients. This is in contrast to a significant proportion of patients scoring the minimum, and maximum in some cases, for the NHP sections. This means that the NHP is less able to discern meaningful differences between subjects at either extreme of the measure.[17]

The dual panel translation methodology[13] employed in the adaptation proved successful in overcoming potential difficulties related to English colloquialisms in the original measure. It also ensured that the final version would appeal to future Greek respondents. Research has shown that patients rate translations using the dual panel methodology as more satisfactory compared to forward-backward translations.[18]

The Greek PsAQoL adds to a growing body of disease-specific measures available for use in Greece

Table 3. Association between PsAQoL and NHP section scores (n=59).

	PsAQoL
Energy Scale	0.63*
Pain Scale	0.83*
Emotional Reactions	0.71*
Sleep Scale	0.71*
Social Isolation	0.46*
Physical Mobility	0.82*

*Correlation significant at p<0.01 (Spearman rank correlation coefficient)

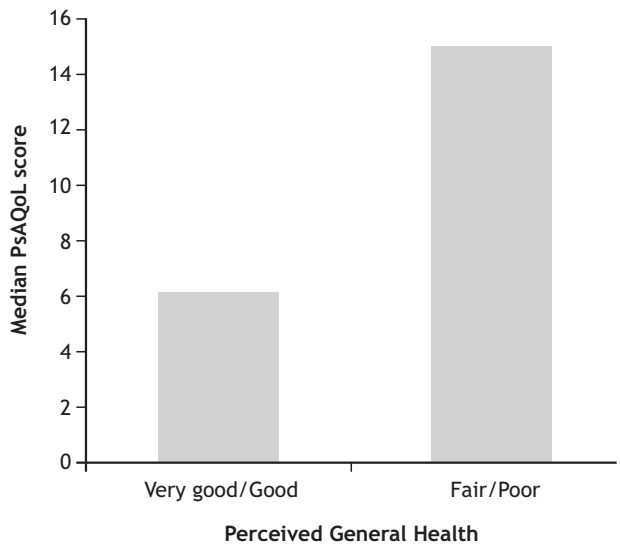

Figure 1. Median scores on the Psoriatic Arthritis Quality of Life (PsAQoL) scale by patient-perceived general health (n=59).*

*Association is significant at p<0.01 (Mann Whitney U test)

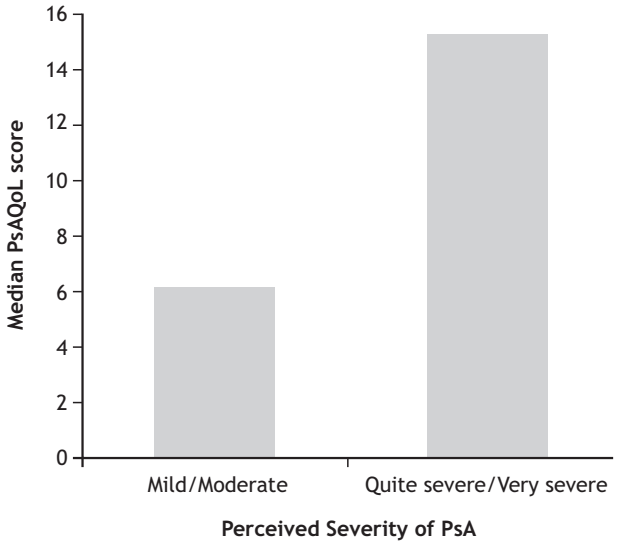

Figure 2. Median scores on the Psoriatic Arthritis Quality of Life (PsAQoL) scale by patient-perceived PsA severity (n=59).*

*Association is significant at $p<0.01$ (Mann Whitney U test)

that adopt the needs-based model of QoL. This includes the ACQLI (Alzheimer's Carer's Quality of Life Instrument), QoL-AGHDA (Quality of Life Assessment of Growth Hormone Deficiency in Adults) and ASQoL (Ankylosing Spondylitis Quality of Life scale; for example, see Graham[19]). As these measures have the same underlying theoretical construct, research using the Rasch model would allow for comparisons of QoL across different diseases.[12] Because of the small sample size employed in the current study, Rasch analysis was unable to be performed. While this does not compromise the psychometric properties of the Greek PsAQoL, it should be noted that further research is required to perform co-calibration and also to determine the responsiveness of the measure.

The Greek PsAQoL will prove a valuable tool for use in international clinical trials including Greece, in routine clinical practice and research studies as a valid and reliable measure of QoL in PsA patients.

Μετάφραση και προσαρμογή της ελληνικής έκδοσης της Κλίμακας Εκτίμησης της Ποιότητας Ζωής στην ψωριασική αρθρίτιδα

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Η ψωριασική αρθρίτιδα (ΨΑ) είναι χρόνια φλεγμονώδης νόσος που επηρεάζει σημαντικά την ποιότητα ζωής των ασθενών. Η κλίμακα εκτίμησης της ποιότητας ζωής ασθενών με ΨΑ αναπτύχθηκε στη Μεγάλη Βρετανία για τους αντίστοιχους πάσχοντες και υιοθετεί το μοντέλο της ποιότητας ζωής με βάση τις ανάγκες. Η κλίμακα αυτή PsAQoL είναι προσαρμοσμένη σε ένα νόσημα και είναι καλύτερη από τα εργαλεία γενικής χρήσης μέτρησης της ποιότητας ζωής όσον αφορά στην ειδικότητα και ευαισθησία. Το εργαλείο αυτό εκτίμησης της ποιότητας ζωής έχει προσαρμοστεί σε 50 γλώσσες, και μέχρι σήμερα δεν ήταν διαθέσιμο για χρήση σε Έλληνες ασθενείς πάσχοντες από ΨΑ. Σκοπός της εργασίας ήταν η παραγωγή ελληνικής έκδοσης της κλίμακας μέτρησης της ποιότητας ζωής ασθενών με ΨΑ με σκοπό τη χρήση της σε Έλληνες ασθενείς, η οποία να είναι ισοδύναμη με την αυθεντική κλίμακα που παρήχθη στη Μεγάλη Βρετανία. Η προσαρμογή της κλίμακας εκτίμησης της ποιότητας ζωής PsAQoL περιέλαβε τρία στάδια, της μετάφρασης, της εκτίμησης της εγκυρότητας του περιεχομένου και της ανάλυσης των ψυχομετρικών ιδιοτήτων της. Το μεταφραστικό στάδιο υιοθέτησε τη μεθοδολογία της διπλής ομάδας (μια δίγλωσση ομάδα και ομάδα ατόμων που δεν σχετίζονταν με τον χώρο της υγείας) για να εξασφαλισθεί η εννοιολογική ισοδυναμία της κλίμακας με την αρχική της έκδοση. Διεξήχθησαν

γνωστικές συνεντεύξεις για να προσδιοριστεί η εφαρμογή και η συνάφεια της κλίμακας σε ασθενείς με ΨΑ. Χρησιμοποιώντας το Nottingham Προφίλ Υγείας (NHP) ως μέσο σύγκρισης διεξήχθη ταχυδρομική έρευνα για να καθιερωθεί η αξιοπιστία και η εγκυρότητα της κλίμακας. Μη-παραμετρικές στατιστικές αναλύσεις πραγματοποιήθηκαν για να καθιερωθεί η αξιοπιστία και η δομική εγκυρότητα της κλίμακας PsAQoL. Οι ομάδες μετάφρασης παρήγαγαν μια γλωσσική έκδοση που ικανοποιούσε τους Έλληνες. Οι συνεντεύξεις έδειξαν ότι οι ασθενείς εκτίμησαν την κλίμακα ως εύληπτη και κατάλληλη. Μετά τις συνεντεύξεις έγιναν μόνο μικρές γλωσσικές αλλαγές στην κλίμακα. Η ελληνική έκδοση της κλίμακας PsAQoL έδειξε καλή εσωτερική συνοχή (Crohnbach's α=0,88) και καλή αξιοπιστία επαναληψιμότητας (r=0,98). Όπως αναμενόταν, το ερωτηματολόγιο έδειξε μέτρια συσχέτιση σε σχέση με τις ενότητες που αφορούσαν στη φυσική κινητικότητα και τον πόνο του NHP και μέτρια συσχέτιση με τις άλλες ενότητες, ευρήματα που συνηγορούν για την εγκυρότητά του. Η εγκυρότητα της κλίμακας εκτιμήθηκε από την ικανότητα του ερωτηματολογίου να διακρίνει τους ασθενείς ανάλογα με το πώς εκτιμούν τη γενική τους υγεία και τη σοβαρότητα της ασθένειάς τους. Δεν παρατηρήθηκαν διαφορές μεταξύ ανδρών και γυναικών ούτε μεταξύ ηλικιωμένων και νέων ασθενών. Η ελληνική κλίμακα PsAQoL έδειξε αξιόπιστες ψυχομετρικές ιδιότητες και ήταν αποδεκτή από τους ασθενείς. Εντάσσεται στον αυξανόμενο αριθμό ψυχομετρικών κλιμάκων που αφορούν σε συγκεκριμένα νοσήματα και είναι διαθέσιμες στην ελληνική γλώσσα. Οι ψυχομετρικές αυτές κλίμακες μπορούν να συνεκτιμηθούν με άλλες κλίμακες για την εκτίμηση της ποιότητας ζωής. Συνιστάται για χρήση στην καθημερινή κλινική πρακτική σε διεθνείς κλινικές μελέτες και στις συγκριτικές έρευνες αποτελεσματικότητας διαφόρων θεραπευτικών μεθόδων.

Λέξεις ευρετηρίου: Ψωριασική αρθρίτιδα, ποιότητα ζωής, PsAQoL, νόσος, ψυχομετρική δοκιμασία.

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Research article
Ερευνητική εργασία

Greek teachers' knowledge about attention deficit hyperactivity disorder

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Attention deficit hyperactivity disorder (ADHD) is a neurobiological disorder, which affects about 5.2% of school-aged children worldwide. Children with ADHD present teachers with a special challenge, since they interfere with teaching process and do not respond to typical classroom management techniques. In order to meet this challenge teachers must have accurate, up-to-date, information about the disorder so that they can respond to the needs of the student with ADHD. Studies that have examined teachers' beliefs and knowledge relating to ADHD highlighted the need for providing training to increase Greek teachers' knowledge and understanding of the disorder. Thus, the aims of the present study were: (a) to develop and evaluate brief ADHD training seminar for teachers; and (b) to investigate whether the training format (half-day versus two-day seminar) would have a differential effect on teachers' knowledge about ADHD. A total of 143 teachers formed the two sample groups; Group 1 (n=68) attended a half-day training (5 hours), and Group 2 (n=75) a two-day training (18 hours). Seminar topics included: (a) gaining basic knowledge about the symptoms, causes and natural history of ADHD, (b) understanding the key underlying cognitive deficits of the disorder and their impact on learning and behavior, (c) implementation of specific learning strategies for children with ADHD, (d) benefits and limitations of existing treatment approaches including the pharmacological treatment, and (e) available instruments for teachers that could inform their decision to refer the student to CAMHS for an assessment. A self-report ADHD Knowledge Questionnaire (ADHD-KQ), which covers four domains (clinical presentation, causes, cognitive deficits, interventions) was developed for the purpose of the present study, and was administered pre- and post-seminar. Teachers were generally knowledgeable about clinical presentation of ADHD, with more than 80% of the sample responding correctly to items pertaining to core symptoms. The internal consistency of the total ADHD-KQ scale measured by Cronbach's alpha coefficient was found to be good (0.89). The alpha coefficients for the sub-scales were acceptable (0.70 for the Symptoms/Diagnosis sub-scale, 0.73 for the Cognitive Deficits sub-scale, and 0.75 for the Intervention sub-scale), except for the Causes sub-scale, which was poor (0.59). In addition, each of the sub-scales showed a significant correlation with the total scales score (range r=0.66 to r=0.79), and there also was significant cor-

relation between the four sub-scales (range r=0.39 to r=0.45). As expected, gaps in knowledge were identified, particularly in the area of causes, pharmacological treatment and cognitive deficits associated with ADHD. The results, using paired samples t tests, showed a highly significant increase in ADHD-KQ total and all sub-scale scores in both groups ($p<0.001$), indicating an overall improved knowledge about ADHD irrespective of the training format, i.e. half-day versus two-day training seminar. One-way MANOVA revealed significant difference between the two training seminars in mean pre-post difference sub-scale scores considered simultaneously. Subsequent univariate tests of between-subjects effects revealed that the group (training format) had a statistically significant effect on ADHD knowledge of symptoms sub-scale only [$F(1,141)=10.46$, $p<0.01$], with those who participated in the two-day training seminar having significantly higher mean pre-post difference scores as compared to teachers who attended the half-day training seminar ($p<0.01$). The present findings merit replication and, if confirmed in larger samples, have important implications for undergraduate curriculum development and training of practicing teachers, so that to overcome specific knowledge gaps and misconceptions with regards to ADHD. Future study should incorporate the use of classroom interventions and teaching strategies for students with ADHD, before and after brief training seminar, for a more thorough evaluation of its effectiveness.

Key words: Attention deficit hyperactivity disorder, teachers, knowledge, training seminar.

Introduction

Attention deficit hyperactivity disorder (ADHD) is a commonly diagnosed neurobiological disorder in childhood, which affects about 5.2% of children worldwide.[1] More recent reviews[2,3] suggest even higher prevalence rate, ranging between 5.9 and 7.2%. A study[4] looking at the prevalence of ADHD in Greece indicated a rate 6% (8% for boys and 3.8% for girls) among primary school children, and concluded that the disorder was associated with impairment in social and educational functioning.

The question surrounding ADHD as a legitimate disorder has been a subject of controversy among child psychiatrists in Greece until the 90's, mainly due to prevailing influence of psychoanalytic thinking and psychodynamic model in clinical practice, placing importance on psychogenic factors in understanding and treating ADHD. The entry of the slow release methylphenidate (Concerta), and soon after atomoxetine, into the Greek market in 2005 shifted the change in conceptualization of the ADHD from a psychological to a neurobehavioural disorder, emphasizing the contribution of genetic, biological, cognitive but also environmental factors. Its wide impact on child's development, and in particular its interference with learning process, led the Greek Ministry of Education, in 2008, to include ADHD in the category of learning disorders with special educational needs.[5]

Children with ADHD present teachers with a special challenge. ADHD interferes with teaching process, typically affects school performance or disrupts the rest of the class, and does not respond to typical classroom management techniques. In order to meet this challenge teachers must have accurate, up-to-date, information about the disorder so that they can respond to the needs of the student with ADHD.[6] Teachers' factual knowledge about ADHD is extremely important for recognizing the disorder, as they are often the first ones to suspect it.

Only a few studies up to date have examined teachers' beliefs and knowledge relating to general issues of identification, diagnostic criteria, and treatment of students with ADHD in Greece. A study conducted by Kakouros et al[7] regarding teachers' beliefs about ADHD, using a case vignette, concluded the need for in service training for teachers regarding the disorder; teachers viewed the typical ADHD behaviours as a result of child's difficult temperament, inadequate parenting (e.g. neglect) or family dysfunction (e.g. divorce), and failed to recognize the importance of neurobiological factors and teaching environment

in the aetiology and outcome of the disorder respectively. A more recent study on Greek primary school teacher's knowledge about ADHD revealed that they were well informed about the symptoms of the disorder but lacked knowledge about causes and management of the ADHD.[8] Both studies highlighted the need for providing training to increase Greek teachers' knowledge and understanding of ADHD.

A thorough review of literature showed that no studies of teachers' training programs regarding ADHD in Greece have been published. Thus, the aims of the present study were: (a) to develop and evaluate an ADHD brief training seminar for teachers, and (b) to investigate whether the format of the training would have a differential effect on teachers' knowledge about ADHD.

Method

Participants

A total of 143 teachers, who attended an educational seminar on ADHD, formed the two sample groups, which were recruited using convenience sampling. The first sample (Group 1) consisted of 68 practicing nursery- and primary-school teachers (grade 0 to grade 6) working in state schools in the Piraeus Primary Education District, whereas the second sample (Group 2) comprised 75 teachers who attended a postgraduate training course in special education, provided by the University of Aegean, and were engaged in informal teaching activity (private tuition). Both groups attended an educational seminar on ADHD; the Group 1 a half-day (5 hours) training, and the Group 2 a two-day (18 hours) training. The demographic characteristics of the sample are presented in table 1.

Table 1. Demographic characteristics of the sample.

Variable	Group 1 (n=68)	Group 2 (n=75)
Gender (% female)	85.3%	85.5%
Age Group		
22–30 years old	56.6%	7.4%
31–40 years old	43.4%	23.5%
>41 years old	–	66.6%
Marital status		
Not Married	71.1%	26.5%
Married	27.6%	67.6%
Divorced	1.3%	5.9%
Having Children	18.4%	70.6%
Years of teaching experience: Mean (SD)	4.4 (3.5)	16.1 (7.4)
Teacher level		
Nursery teacher	32.4%	–
Primary school teacher	67.6%	56.6%
Secondary school teacher	–	43.4%
Post-graduate education	8.8%	
Master	10.3%	27.6%
Postgraduate seminars/ courses in ADHD		6.6%

Procedure

The educational seminar for teachers was designed, drawing from the Teach ADHD training program developed by Martinussen et al,[9] with the following aims: (a) to gain basic knowledge about the symptoms, causes and natural history of ADHD, (b) to gain a basic understanding of the key underlying cognitive deficits in ADHD and their impact on learning and behaviour (common school difficulties associated with ADHD), (c) to highlight strategies for teachers to help their students with ADHD be successful in school, (d) to gain understanding of the benefits and limitations of existing treatment approaches, including the pharmacological treatment, and (e) to become aware of existing screening instruments for teachers in Greece that could inform their decision to refer the student to CAMHS for an assessment. The two-day contrary to the half-day seminar, allowed for practicing case vignettes in small groups, whereby behaviour techniques and teaching strategies in some real-life situations were addressed more in depth. The first two authors were the main facilitators of the seminar.

Measures

A self-report ADHD Knowledge Questionnaire (ADHD-KQ), was developed for the purpose of the present study, drawing on from existing instruments assessing teachers' knowledge with regards to

ADHD[10,11] and taking into account cultural prevailing views on the disorder. It comprised two sections. The first contained multiple choice questions on demographic background (e.g. age, gender, qualifications), teacher level (nursery, primary, secondary), years of teaching experience, and prior attendance of a seminar or postgraduate course in special education. The second section included 29 items evaluating participants' knowledge of ADHD, with a three option (True/False/I don't know) response format. Correct answers receive 1 point and incorrect ones 0 points. So the range of possible scores goes from 0, the lowest level of knowledge, to 29, for the highest. The response "I don't know" is not included in calculation of the total score. The three option response format is chosen to overcome the limits of the dichotomous format (True/False) as it allows discerning those areas in which teachers have more knowledge, areas where they have the least knowledge and the areas in which they commit the greatest number of errors. The items were grouped into four sub-scale domains: Symptoms/Diagnosis of ADHD (8 items), Causes of ADHD (6 items), Cognitive deficits/Learning (7 items), Interventions/Treatment of ADHD (8 items). Panel of 12 experts in ADHD were asked to assign each item to one of the sub-scales provided by the authors. An item was considered as belonging to a particular sub-scale if at least 75% of the group was in agreement with the decision.

The internal consistency of the total ADHD-KQ scale measured by Cronbach's alpha coefficient was found to be good (0.89). The alpha coefficients for the sub-scales were acceptable (0.70 for the Symptoms/Diagnosis sub-scale, 0.73 for the Cognitive Deficits sub-scale, and 0.75 for the Intervention sub-scale), except for the Causes sub-scale, which was poor (0.59). In addition, each of the sub-scales showed a significant correlation with the total scales score (range r=0.66 to r=0.79), and there also was significant correlation between the four sub-scales (range r=0.39 to r=0.45). A significant difference found in teacher knowledge of ADHD (ADHD-KQ total score), between those who had attended courses in special education, as compared with those who either had a basic degree or a postgraduate degree, confirms the validity of the scale (Kruskall-Wallis chi-square= 23.13, $p<0.001$).

The ADHD-KQ was administered before and following the seminar in order to determine the improvement in knowledge of ADHD as a result of the training.

Results

Mean scores on the 29-item ADHD-KQ administered pre- and post-seminar are presented in table 2. The mean percentage of correct answers on ADHD-KQ was 55.9% and 52.1% for the Groups 1 and 2 respectively, whereas the mean percentage of "don't know" responses, indicating lack of knowledge, was 24.7% for the Group 1, and 31.8% for the Group 2. Tables 3 and 4 display the percentage of correct and "don't know" answers, respectively, on ADHD-KQ individual items.

Pre- and post-seminar scores on ADHD-KQ were compared, using paired samples t test, for each group separately. We found the difference of mean

Table 2. Participants mean scores by group and time.

	Pre-seminar		Post-seminar	
	Group 1 Mean±SE	Group 2 Mean±SE	Group 1 Mean±SE	Group 2 Mean±SE
Teacher ADHD-KQ total	16.1±0.59	15.9±0.55	23.1±0.32	23.9±0.33
Symptoms/Diagnosis sub-scale	5.2±0.19	4.4±0.21	6.5±0.13	6.7±0.13
Causation sub-scale	1.9±0.14	2.0±0.13	3.6±0.10	3.4±0.08
Cognitive/Learning sub-scale	4.1±0.23	4.3±0.21	6.5±0.16	6.8±0.14
Management sub-scale	5.7±0.21	5.7±0.20	7.0±0.14	7.0±0.14

Notes: Group 1 (n=68), Group 2 (n=75)

Table 3. Teacher ADHD-KQ items with >80% of correct answers.

Category		Group 1 (n=68)	Group 2 (n=75)
Q1. Children with ADHD present with hyperactivity, impulsivity and distractibility	Symptoms/diagnosis	90.8	97.1
Q4. Children with ADHD have good social skills	Symptoms/diagnosis	55.3	82.4
Q9. Students with ADHD can follow the instructions and organize complex tasks if they really want to	Cognitive	61.8	82.4
Q19. ADHD is a short-term disorder that gets better with time and doesn't require any intervention	Symptoms/diagnosis	67.1	80.9
Q27. Students with ADHD require the same teaching strategies as other students	Management	82.8	83.8
Q29. The teacher's role is limited in helping a student with ADHD	Management	88.2	94.1

score of 6.96±4.83 for the Group 1, and of 7.91±4.94 for the Group 2, which were statistically highly significant ($p<0.001$). Similar changes were seen across all ADHD-KQ sub-scales, indicating significantly improved ($p<0.001$) teacher's knowledge of ADHD in all domains (see table 5). In order to ascertain, whether the training format (half-day as opposed to two-day seminar) produced greater knowledge increase, a one-way MANOVA was used, with the group as a between subjects factor and the mean pre-post difference sub-scale scores as a within subjects factor. Wilk's lamda of 0.888 [$F(4,138)=4.37$, $p<0.01$] indicated significant difference between the two training seminars in mean pre-post difference sub-scale scores considered simultaneously. Subsequent univariate tests of between-subjects effects revealed

Table 4. Teacher ADHD-KQ statements with >33% indicating lack of knowledge (Don't know).

Category	Group 1 (n=68)	Group 2 (n=75)
Q11. Pharmacological treatment sedates children with ADHD and makes them more obedient	31.6	48.5
Q12. A child who concentrates on tasks of his choice, e.g. computer cannot have ADHD	34.2	34.2
Q13. Pharmacological treatment has no effects for ADHD symptoms	39.5	50
Q17. Child who doesn't show hyperactivity does not qualify for ADHD diagnosis	35.5	35.3
Q18. ADHD is an exclusively genetic disorder	39.5	36.8
Q20. Learning difficulties are due to child's limited capacity to encode and retain information information in their memory	30.3	39.7
Q21. Sugar or/and additives intake is responsible for the disorder	38.2	51.5
Q23. ADHD symptoms are secondary to generalized or specific learning (e.g. dyslexia) disability or conduct problems, thereof the diagnosis of ADHD does not apply	35.8	38.2

Table 5. Repeated measures t test comparing teacher's scores before and after seminar.

	t-test	df	p	Mean difference±SE	95% CI of the difference
Group 1					
Teacher ADHD-KQ total	11.869	67	000	6.96±0.89	5.7861–8.1257
Symptoms/Diagnosis sub-scale	6.679	67	000	1.32±0.20	0.9280–1.7190
Causation sub-scale	7.580	67	000	1.12±0.15	0.8233–1.4120
Cognitive/Learning sub-scale	9.283	67	000	2.46±0.26	1.9278–2.9839
Management sub-scale	8.309	67	000	1.59±0.19	1.2067–1.9698
Group 2					
Teacher ADHD-KQ total	13.852	74	000	7.91±0.57	6.7693–9.0440
Symptoms/Diagnosis sub-scale	10.162	74	000	2.31±0.23	1.8544–2.7589
Causation sub-scale	9.836	74	000	1.31±0.13	1.0420–1.5714
Cognitive/Learning sub-scale	10.141	74	000	2.52±0.25	2.0249–3.0151
Management sub-scale	5.822	74	000	1.27±0.22	0.8332–1.7001

that the group (training format) had a statistically significant effect on ADHD knowledge of symptoms sub-scale only [$F(1,141)=10.46$, $p<0.01$], with those who participated in the two-day training seminar having significantly higher mean pre-post difference scores as compared to teachers who attended the half-day training seminar ($p<0.01$).

Discussion

The results of the present study corroborated findings from previous studies worldwide.[10,12–15] The percentage of correct responses was found to be just above 50% as compared to a range of 76% in some studies[14] to less than 50% in other studies.[15] Overall teachers were generally knowledgeable about the "hallmark" symptoms of ADHD, with more than 80% of the sample responding correctly to items pertaining to core symptoms of ADHD. As expected, gaps in knowledge and misconceptions were identified, particularly in the area of causes, pharmacological treatment and cognitive deficits associated with ADHD.

The training seminar, irrespectively of its format (half- or two-day training seminar), was associated with an improved knowledge and awareness of symptoms, causes, cognitive deficits and pharmacological treatment of ADHD. However, the two-day training seminar produced greater knowledge increase of ADHD clinical presentation. The latter finding might be explicable in view of the participants having had the opportunity to practice case vignettes in small groups.

Despite these rather encouraging results, the study is not without its limitations. The small sample size, the heterogeneous nature of it (e.g. wide age range and different level of teaching experience), lack of a control group and follow up compromise the conclusions about the effectiveness of the brief training seminars. The present findings merit replication and, if confirmed in larger samples, have important implications for undergraduate curriculum development and training of practicing teachers, so that to overcome specific knowledge gaps with regards to ADHD. Such an improvement in knowledge could lead to an increased rate of recognition of children with ADHD and use of appropriate teaching and behaviour management strategies within the classroom. Future study evaluating effectiveness of brief training seminars should incorporate measures regarding the pattern of referral to CAMHS by the teachers for ADHD evaluation and the use of classroom interventions and teaching strategies for students with ADHD, before and after.

Γνώσεις Ελλήνων εκπαιδευτικών σχετικά με τη διαταραχή ελλειμματικής προσοχής και υπερκινητικότητας

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Η διαταραχή ελλειμματικής προσοχής και υπερκινητικότητας (ΔΕΠΥ) είναι μια νευροβιολογική διαταραχή που επηρεάζει περίπου το 5,2% των παιδιών σχολικής ηλικίας παγκοσμίως. Οι μαθητές με ΔΕΠΥ αποτελούν πρόκληση για τους εκπαιδευτικούς καθώς παρεμποδίζουν τη μαθησιακή διαδικασία, αποδιοργανώνουν με τις συμπεριφορές τους την ομαλή λειτουργία της τάξης και δεν ανταποκρίνονται στις συνήθεις διδακτικές προσεγγίσεις και στρατηγικές διαχείρισης δύσκολων συμπεριφορών μέσα στην τάξη. Προκειμένου οι εκπαιδευτικοί να ανταποκριθούν σε αυτήν την πρόκληση πρέπει να έχουν ακριβή πληροφόρηση για τη διαταραχή, βασισμένη σε σύγχρονα επιστημονικά δεδομένα, η οποία θα τους βοηθήσει να κατανοήσουν καλύτερα τις ανάγκες ενός μαθητή με ΔΕΠΥ και να αποκτήσουν επιδεξιότητα στην αντιμετώπιση αυτών. Οι μελέτες που έχουν διερευνήσει τις αντιλήψεις και τις γνώσεις των εκπαιδευτικών για τη ΔΕΠΥ στην Ελλάδα έχουν επισημάνει την ανάγκη για επιμόρφωση των δασκάλων σε θέματα που αφορούν στη διαταραχή και τις δυσκολίες που απορρέουν από αυτήν. Σκοπός της παρούσας πιλοτικής μελέτης ήταν: (α) η κατάρτιση και αξιολόγηση εκπαιδευτικού σεμιναρίου για δασκάλους σχετικά με τη ΔΕΠΥ, και (β) η συγκριτική διερεύνηση της αποτελεσματικότητας ενός σύντομου (5ωρου) έναντι διήμερου (18 ωρών) σεμιναρίου στην αύξηση της γνώσης των δασκάλων για τη ΔΕΠΥ. Συνολικά 143 εκπαιδευτικοί συμμετείχαν στο πρόγραμμα: Ομάδα 1 (n=68) παρακολούθησε 5ωρο σεμινάριο (μισή ημέρα), ενώ η Ομάδα 2 (n=75) παρακολούθησε 18ωρο (διήμερο) σεμινάριο για τη ΔΕΠΥ. Η θεματολογία του περιελάμβανε: (α) βασικές γνώσεις σχετικά με τη φύση των συμπτωμάτων ΔΕΠΥ και την πορεία τους στον χρόνο, καθώς και τα αίτια της διαταραχής, (β) κατανόηση των βασικών γνωστικών ελλειμμάτων που σχετίζονται με τη ΔΕΠΥ και την επίδρασή τους στη μάθηση και τη συμπεριφορά, (γ) εφαρμογή ειδικών διδακτικών προσεγγίσεων για τα παιδιά με ΔΕΠΥ, (δ) τα οφέλη και τους περιορισμούς των διαθέσιμων θεραπευτικών παρεμβάσεων συμπεριλαμβανομένης της φαρμακευτικής αγωγής, (ε) διαθέσιμες κλίμακες στους εκπαιδευτικούς για την εντόπιση μαθητών με πιθανή ΔΕΠΥ. Για τους σκοπούς της παρούσας έρευνας κατασκευάστηκε Ερωτηματολόγιο Γνώσης για τη ΔΕΠΥ (ADHD-KQ), το οποίο καλύπτει τέσσερεις τομείς (κλινική εικόνα, αίτια, γνωστικά ελλείμματα, παρεμβάσεις). Η αξιοπιστία εσωτερικής συνοχής της συνολικής κλίμακας ADHD-KQ με συντελεστή Cronbach's alpha coefficient ήταν ικανοποιητική (0,89), ενώ των υποκλιμάκων αποδεκτή (0,70 για την κλινική εικόνα, 0,73 για τα γνωστικά ελλείμματα, 0,75 για τις παρεμβάσεις) με εξαίρεση την υποκλίμακα για τα αίτια (0,59). Η συσχέτιση της κάθε υποκλίμακας με τη συνολική κλίμακα ήταν στατιστικά σημαντική και κυμαινόταν από r=0,66 μέχρι r=0,79, ενώ οι συσχετίσεις μεταξύ των τεσσάρων υποκλιμάκων ήταν επίσης στατιστικά σημαντικές (από r=0,39 έως r=0,45). Οι συμμετέχοντες συμπλήρωσαν το ερωτηματολόγιο πριν και μετά τη λήξη του σεμιναρίου. Σύμφωνα με τα αποτελέσματα, πριν την έναρξη του σεμιναρίου, η συντριπτική πλειοψηφία του δείγματος (>80%) διέθετε καλή γνώση των βασικών συμπτωμάτων της ΔΕΠΥ. Ωστόσο, η πληροφόρησή τους σχετικά με τα αίτια, τα γνωστικά ελλείμματα και τις παρεμβάσεις, ειδικότερα τη φαρμακευτική αγωγή, ήταν ελλιπής. Σύμφωνα με τα αποτελέσματα που προέκυψαν από τη δοκιμασία paired samples t test, και οι δύο ομάδες εμφάνισαν σε όλες τις υποκλίμακες του ADHD-KQ στατιστικά σημαντικά υψηλότερη βαθμολογία μετά τη λήξη του σεμιναρίου (p<0,001). Η πολυπαραγοντική ανάλυση one-way MANOVA της μεταβολής της βαθμολογίας μετά τη λήξη του σεμιναρίου στις υποκλίμακες του

ADHD-KQ, μεταξύ των δύο ομάδων, έδειξε μεγαλύτερη αύξηση της μεταβολής της βαθμολογίας στην υποκλίμακα που καλύπτει την κλινική εικόνα της ΔΕΠΥ στην ομάδα που συμμετείχε στο διήμερο σεμινάριο [F(1,141)=10,46, p<0,01]. Η επιβεβαίωση των αποτελεσμάτων της παρούσας πιλοτικής εφαρμογής του εκπαιδευτικού προγράμματος για τη ΔΕΠΥ σε μεγαλύτερα δείγματα εκπαιδευτικών θα επέτρεπε την ενσωμάτωσή του κατά τη διάρκεια των προπτυχιακών σπουδών (διήμερο σεμινάριο), αλλά και στα προγράμματα συνεχιζόμενης κατάρτισης των εν ενεργεία εκπαιδευτικών (5ωρο σεμινάριο), με στόχο την κάλυψη των κενών γνώσης και την αποκατάσταση των λανθασμένων αντιλήψεων σχετικά με τη ΔΕΠΥ.

Λέξεις ευρετηρίου: Διαταραχή ελλειμματικής προσοχής υπερκινητικότητας, δάσκαλοι, γνώση, εκπαιδευτικό σεμινάριο.

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Review article
Ανασκόπηση

Substance abuse and cancer

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Substance abuse is a health problem with serious psychological and psychiatric dimensions and multiple social and economic consequences. Cancer is a disease that threatens not only life and physical integrity but mental health as well. Oncology patients suffer from mental disorders in high rates, especially from depression and anxiety. The role of substance abuse in the pathogenesis of cancer is studied systematically, since there are research data supporting the mutagenic effects of certain substances. It has been supported that a possible dysregulation of the immune system is linked to the oncogenic processes induced by substances of abuse. Specifically, opioids are the first addictive substances that have been identified as oncogenic factors. However, conflicting results have been offered by experimental animal studies, which showed that opioids, such as morphine, depending on the dosage administered, may not only enhance the process of tumor growth, but also inhibit it. Additionally, research data indicate that the use of cannabis may be associated with cancer, either as an independent factor or in relation to other mutagenics, although it is not yet clear to which extent these effects may be connected to the disease, especially once the consumption of tobacco and alcohol by these patients are taken into account. However, it has been argued that certain cannabinoids may have biological –anticancer– activities which could be used therapeutically without being accompanied by the corresponding 9-tetrahydrocannabinol psychoactive effects. It is well known that alcohol is a risk factor for developing head and neck cancer, and epidemiological studies indicate that the higher the consumption of alcohol, the more mortality due to cancer increases. In addition, it is suggested that there is no safety level for alcohol consumption regarding the risk of developing cancer; that is even a minimum daily consumption is associated with the occurrence of certain types of cancer. Specific components have been identified in tobacco, which are considered to be carcinogenic and responsible for tumor development in various sites. Moreover, complicated psychiatric problems arise due to substance abuse in cancer patients, either in the context of pain treatment, or under pre-existing dependence. The rational use of opioid analgesics, when it is medically required as suggested by the health professionals specialized in the treatment of acute pain in cancer patients, could be a therapeutic option. Substance abuse reduces treatment compliance, worsens cancer prognosis and seems to be a negative factor for the quality of life of these patients. Current literature highlights the importance of appropriate psychiatric interventions to address substance abuse in cancer patients.

Key words: Substances abuse, alcohol, smoking, cancer, immune system, pain.

Introduction

The use and the abuse of addictive substances –legal and illegal– are among the greatest public health problems of the developed world and may lead to serious social complications. The use of alcohol and other substances has been associated with reduced productivity, absence from work and accidents which may lead to financial hardship.[1] Furthermore, the significant health problems that accompany substances abuse lead to a serious burden on the health system, especially in countries such as Greece, where the health system is still in development and maturation process. The comorbidity of mental disorders with other medical conditions in patients with substance abuse disorders constitutes a major health problem that requires targeted medical interventions and the securing of financial resources.

Cancer is the most common cause of death after heart disease. These patients experience high levels of stress and –depending on each person's vulnerability– they suffer from mental disorders at high rates such as depression and anxiety disorders.[2] Cancer is not only a life-threatening disease, but it also constitutes a psychotraumatic factor that may trigger negative feelings and affect functionality.

Many environmental factors have been studied and implicated for their mutagenic action.[3,4] Current research offers some scientific evidence supporting the link of addictive substances with cancer.[5] Moreover, both these serious health problems are investigated in the light of psychosocial issues which result from the substance abuse by cancer patients, either in the context of pain management, or under a preexisting psychiatric history of dependency.

The role of addictive substances in pathogenesis of cancer

Opioids

Opioids are the first substances which were identified as oncogenetics. Research studies support that opioid receptors, mainly the μ-receptors, are associated with the increase and growth of cancer cells and the enhancement of angiogenesis and metastasis. These data refer to the endogenous opioids but also to the exogenous opioids which are administered to cancer patients for pain management.[6,7] It is under question if drugs which act as antagonists of opioid receptors could inhibit, in some degree, the carcinogenesis process.[8]

Heroin

Early cytogenetic studies show that the use of heroin affects and leads to significant changes in the chromosomes. The withdrawal from heroin use and the admission into a drug treatment program are associated with a significant reduction of chromosomal damage within a year.[9] Indeed, studies with newborns of mothers addicted to heroin showed that the chromosome alterations were six to seven times more compared to the control group with newborns of normal mothers. Previous studies showed a high prevalence of approximately 10% of these alterations in cells that were studied prenatally and postpartum in mothers who had used heroin or were in methadone treatment program.[10] Similar findings were reported in primates that received heroin. Chromosome damage of these newborns was ten times more than newborns of healthy animals.[11] A study showed the association of heroin with carcinogenesis. Specifically, it showed an unexpected increase in the CNS of M2 protein in patients with acute myeloid leukemia which is associated with heroin addiction in the past.[12] In a recent study, 44,000 patients attended a program for heroin over 10 years. In this program, high death rates from cancer were reported, which according to the authors may be related to the increased frequency of infections due to immunosuppression and with the significant consumption of tobacco and alcohol.[13] However, it should be considered that the earliness of deaths among heroin users might not permit a full research regarding its influence in the development of neoplasms.

Morphine

Morphine is a derivative of heroin and is mainly used for the treatment of pain. In *in vivo* studies (animal studies), its impact on the chromosome was confirmed, while it wasn't possible to confirm these findings by in vitro studies. Morphine is classified as a co-mutagenic and it is supported that it could act in a long term through inhibition of copying or in relation to procedures of the repair of mutations leading to the conversion of temporary changes in permanent mutations.[14] In animal studies, it was shown that morphine does not cause the development of new tumors but increases the growth of existing neoplasms, thus reducing the life of the animal.[15] However, research data are conflicting, since there

are both *in vivo* and *in vitro* studies which support not only the enhancement but also the reduction of tumors. It seems that the difference in the results is associated with the administered dose of this opioid. Specifically, larger doses for significant periods of time may limit the tumor's growth, while lower doses may be associated with adverse effects.[16] Moreover, the immunosuppressive activity and the effect of morphine in cell apoptosis may be involved in the biological pathways that lead to carcinogenesis.[17,18]

Codeine

Due to its widespread and systematic use as an analgesic, codeine has been included in the substances for evaluation by the National Cancer Institute and the FDA in the United States' national research program for the effects of toxic substances on public health. No evidence was found regarding carcinogenesis, however it is considered to belong to the substances that may potentially cause cancer in laboratory animals.[19,20]

Cocaine

Cocaine is known for its teratogenic properties, the disruption of the neurotransmitters function, and its concomitant alterations in brain structures such as cortical areas.[21] Furthermore, cocaine is associated with severe perinatal lesions and with abortions.[22] In laboratory animals it causes severe liver damage accompanied by significant changes in DNA.[23] Although the carcinogenetic properties of cocaine have not been established, the automated electronic evaluation [Computer Automated Structure Evaluation (CASE)] classifies cocaine among carcinogenic agents. This is an advanced artificial intelligence program that identifies molecular infrastructure which is responsible for different biological activities.[24] Furthermore, the adulteration of cocaine with levamisole, a powerful and toxic anti-inflammatory and anti-cancer agent, causes many side effects such as agranulocytosis, while studies estimating the danger of mixing the two substances are in progress.[25] Additionally, the cocaine use has been found to reduce the response to the administration of chemotherapeutic agents, such as imatinib in patients with chronic myeloid leukemia, probably because of cocaine's effect on cytochrome P450.[26]

Cannabis

Cannabis, also known as marijuana, originates from the plant Cannabis Sativa and is used as a psychoactive substance, as well as a pharmaceutical agent. The component with the principal psychoactive activity is 9-tetrahydrocannabinol which is one of the 483 known components. Eighty three are cannabinoids.[27] Research data indicate that cannabis smoking may be involved in carcinogenesis, either as an independent factor, or in connection with other mutagens, especially in studies concerning the respiratory and gastrointestinal system of young adults.[28] Indeed, important histopathologic and molecular changes have been observed in the bronchial epithelium of systematic hashish smokers. In particular, in systematic smokers, more histopathologic lesions were identified compared to the control group which included non-smokers.[29] However, from a recent meta-analysis of 6 case-control studies which included 2,150 patients who suffered from lung cancer, only some indications were found as concerns the association of lung cancer with chronic cannabis, taking into consideration the tobacco smoking and the severity of cannabis abuse,[30] Although research data support the adverse effects of cannabis in the respiratory system, it is not clear yet to what extent these effects are associated with cancer.[31] Additionally, the findings of epidemiological studies regarding the risk of head and neck cancer are contradicting, especially after controlling for tobacco and alcohol use in these patients.[32] Similar studies have also been conducted as regards other cancer types, such as the testicular cancer. A study indicated that among the oncological patients, those who had a history of cannabis use were twice as like to develop certain histological types of cancer with worse prognosis, compared to patients who had no relevant history.[33] However, some preclinical animal studies showed that certain cannabinoids such is cannabidiol (CBD), may have biological effects, which can be used therapeutically as anti-cancer, anti-inflammatory and analgesic substances, without 9-tetrahydrocannabinol psychoactive effect. The anticancer effects of cannabinoids are related to a variety of mechanisms such as the reduction of apoptosis in healthy cells, the inhibition of proliferation in cancer cells, and the minimization of tumor angiogenesis and metastasis process. In particular, *in vitro* studies of breast and lung cancer cells, it has been argued that CBD through its action in receptors, such as the receptor cannabinoid type 1(CB1) and the intercellular adhesion molecule-1 (ICAM-1 is associated with the immune system) may restrict the survival of cancer cells, with small effect on health cells, while it reduces the migration of malignant cells. Moreover, there is strong evidence from *in vitro* studies that this specific cannabinoid increases the chemo-

preventive action of certain drugs, and helps the uptake of chemotherapeutic agents into tumor cells.[34]

Alcohol

It is known that the abuse and alcohol dependence is one of the greatest and most intractable public health problems with high costs and serious social effects. The degree of consumption and the frequency of abuse are related to a variety of physical and psychological problems. Furthermore, according to the World Health Organization it is one of the five major risk factors internationally associated with disease, disability and death. Additionally, it constitutes a causative agent for more than 200 diseases, with cancer among them.[35] Indeed, there is evidence that the prenatal fetal exposure to alcohol increases in adulthood the probability of dependence behaviors through mechanisms that cause changes in neurotransmitters' function and eventually neurophysiological changes with adverse effects on learning processes.[36] In this context it appears that early brain exposure to alcohol during its primary development stages increases indirectly carcinogenesis, since it is a risk factor for alcoholism.

A review of genetic epidemiology studies of head and neck cancer showed that these types of cancer are associated with polymorphisms in the alcohol metabolism genes. Specifically, they are associated with three variants of ADH (Alcohol dehydrogenase) gene, which controls the metabolism of ethanol. This risk can be modified by the genes that control ADH, especially polymorphisms ADH1B and ADH1C, which oxidizes ethanol to its carcinogenic metabolite, acetaldehyde.[37]

Epidemiological studies indicate that the higher the consumption of alcohol, the greater the mortality from cancer, and furthermore that there is no security level in alcohol use in relation to the risk of cancer development. Even a minimum daily consumption is associated with the occurrence of certain types of cancer.[38]

It is well known that alcohol is a risk factor for head and neck cancer, especially in the oral cavity, pharynx, larynx and esophagus.[39] The results of various studies show that stopping alcohol consumption is associated with a reduced risk of cancer development in the larynx and pharynx. A study concludes that for the heavy drinkers 35 years of discontinuing consumption are required, so that the relative risk would become equal to that of individuals' who do not consume alcohol. However, it is noteworthy that significant reduction of risk is recorded in a short time, which demonstrates the major importance of discontinuing alcohol in order to prevent cancer.[40] Also, alcohol consumption is a risk factor for various other cancer types; such are in upper digestive tract, liver, bowel and in breast.[41–43] Indeed, an even small dose of ethanol increases the risk for breast cancer. Specifically, moderate alcohol consumption is found to increase the risk for breast cancer by 4%, while heavy consumption increases it by 40–50%. It has been suggested that alcohol increases the levels of estrogen and thus enhances carcinogenic effect of hormones in mammary gland. Also, the role of acetaldehyde and some epigenetic changes that involve methyl-1-transferase which affect the life cycle cell are studied.[44] Prevention strategies should be designed to include early detection of alcohol abuse in women in order to reduce the risk for breast cancer. A significant proportion of depressive women abuse alcohol and that may not be recognized by mental health professionals.[45] Furthermore, the results of a recent meta-analysis support the existence of a casual relationship between heavy alcohol consumption and an increased risk for colon cancer, and also provide further evidence for the association between moderate alcohol intake and a relative risk for colon cancer. Nevertheless, many issues remain unsolved, including the quantification of consumption, since there are indications of risk even for mild consumption (a drink per day). However, moderate (2–3 drinks/day) alcohol consumption was found to increase by 21% the development of cancer and heavy one (>4 drinks/day, which is equivalent to >50 gr/day of ethanol) is associated with 52% increased risk for colorectal cancer.[46] The aforementioned findings along with the fact that a great number of women and especially men consume alcohol in a regular basis as well as with the high global incidence of colorectal cancer (particularly in developed countries) are of great significance due to their impact on public health. Abstinence from alcohol should be included in prevention strategies for colon cancer.

Smoking

In tobacco, specific components are identified which are considered to be carcinogenic and responsible for the development of disease in various locations on the head, neck, lung, prostate and kidney.[47] Indeed, a total of 30% of cancers are thought to be related to smoking and tobacco consumption.[48] Smoking has been implicated in the development of lung cancer and studies have explored the correla-

tion of specific histological types such as adenocarcinoma which is related to lower diversification in smokers.[49] In fact, lung cancer patients who smoke report higher levels of stress in comparison with cancer patients suffering from any other type of cancer, which is associated with strong feelings of guilt and shame about their behavior and the casual relationship of this behavior with lung cancer.[50]

Abuse of addictive substances in cancer

The use of addictive substances has been studied in adult patients who have survived from cancer that appeared in childhood. One study suggested that cancer survivors, who were diagnosed in older age, were at greater risk for substance abuse and the appropriate psychiatric interventions could reduce this risk.[51]

The use of opioids analgesics to control pain in cancer

Cancer is accompanied by serious and persistent physical complaints including chronic pain which is an important negative prognostic factor for survival in cancer patients.[52] The use of opioids as analgesics to treat cancer is a common treatment option. However, various clinical issues arise related to their administration, particularly in terminally ill patients. Frequently, due to their concern that their patients may develop dependence, doctors avoid to administer analgesics to such an extent that the patients cannot experience the therapeutic benefits of analgesia. Moreover, the patient's relatives, based on the same rationale, may also feel concerned and thus may reject the idea of their family member using opioids. Therefore, the fear of stigma may influence and hinder medical care.[53]

Additionally, the use of opioids for pain treatment and specifically acute pain or pain at terminally ill patients is associated with lower risk for developing abuse behaviors. In contrast, the use of these drugs in chronic pain and especially in patients with substance abuse history, increase the relative risk, which generally is identified in 8 to 17% of cancer patients who receive opioids for treating chronic pain.[54] When medically necessary, the careful use of opioids analgesics for acute pain management in cancer patients is suggested.[55] The appropriate education and training of healthcare professionals is necessary in order to ensure an integrative medical approach, free from prejudiced beliefs.[56]

Alcohol abuse in cancer patients

Alcohol abuse is a risk factor for certain cancers types; such are head and neck cancer. Some of the patients continue to abuse alcohol even after their cancer's diagnosis and that is a frequent practice with bad consequences both in the quality of life and in the survival of these patients.[57] Indeed, a study which assessed the habits of cancer patients with head–cervical cancer according to alcohol, found that half of these patients continued to consume alcohol.[58] Psychiatric interventions in these patients aiming at psycho-educating them regarding the possible consequences of alcohol use, as well as treating depressive symptoms, that often appear in cancer patients who abuse alcohol, could lead to the reduction of alcohol intake, with beneficial results in the prognosis of cancer.[59]

Tobacco use in cancer patients

Many patients despite being diagnosed with cancer continue to smoke or relapse quickly in case they had quit smoking. Specifically, a study which recorded the behavior of smoker patients with non-small cell lung cancer during a four-year period found that only almost 40% of them had permanently quit smoking in the first two years.[60] It has been observed that critically ill patient quit smoking more frequently and more constantly than those with less serious disease. Indeed, in a study for smoking cessation of patients with head and neck cancer, patients who were treated with a surgery as laryngectomy, had significantly higher rates of abstinence from smoking compared with those who received radiotherapy.[61] Therefore, several factors may influence smoking cessation and the duration of abstinence in cancer patients, such as the stage of the disease and the treatment selected. Moreover, it has been suggested that the time period during the diagnosis of cancer could be used in order to implement the appropriate interventions, since the high motive and the therapeutic relationship may facilitate smoking cessation. Also, it is required to address possible problems that follow smoke cessation, such as depression and weight gain. The use of drug therapies, such as nicotine replacement therapy (e.g., skin patches or nicotine gum) and problem solving training may be used in combination to achieve the best possible therapeutic result.[62]

Conclusions

The abuse of legal and illegal substances through direct and indirect mechanisms increases inflammatory activity at a molecular level.[63] Meanwhile, evidence from epidemiological, preclinical and clinical studies, suggest that dysregulated inflammatory activity plays a central role in a variety of chronic diseases, including cancer. These inflammatory processes may be triggered by a number of environmental factors as well as by unhealthy lifestyle that includes tobacco use, stress, bad diet, obesity and alcohol use. The aforementioned factors are believed to be involved in the development of 90% of all cancer types.[64] Therefore, it seems that the odds of developing cancer are significantly affected by our lifestyle choices. Several uncontrollable risk factors are involved in the majority of cancer types; however we can change our daily habits in order to reduce this threat.

The use of opioids analgesics for pain management in cancer patients constitutes an appropriate therapeutic option when medical reasons dictate it, such as in acute pain. Providing information to the patients and their relatives regarding the treatment plan contributes to a higher level of compliance and reduces the risk of abusing these drugs.

Tobacco and alcohol abuse in cancer patients aggravates the prognosis of cancer and acts as a negative factor for the quality of life of these patients. These data highlight the need for the development and implementation of appropriate interventions regarding these patients.

Εξαρτήσεις και καρκίνος

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Η χρήση των εξαρτησιογόνων ουσιών αποτελεί, μεταξύ πολλών άλλων, ένα υγειονομικό πρόβλημα με σοβαρές ψυχολογικές και ψυχιατρικές διαστάσεις, ενώ συνοδεύεται από δυσμενέστατες κοινωνικές και οικονομικές επιπτώσεις. Παράλληλα, ο καρκίνος είναι μία νόσος απειλητική όχι μόνο για τη ζωή και τη σωματική ακεραιότητα, αλλά και για την ψυχική υγεία. Οι ογκολογικοί ασθενείς εμφανίζουν ψυχικές διαταραχές σε υψηλά ποσοστά, με προεξάρχουσα την κατάθλιψη και τις αγχώδεις διαταραχές. Ο ρόλος των εξαρτησιογόνων ουσιών στην αιτιοπαθογένεια του καρκίνου μελετάται συστηματικά, αφού υπάρχουν ερευνητικά δεδομένα που υποστηρίζουν τη μεταλλαξιογόνο δράση ορισμένων από αυτές. Η διαταραχή της λειτουργίας του ανοσοποιητικού συστήματος, που πιθανόν προκαλούν ορισμένες από τις ουσίες αυτές, φαίνεται να σχετίζεται με την ογκογενετική τους δράση. Ειδικότερα, τα οπιούχα είναι οι πρώτες εξαρτησιογόνες ουσίες που ταυτοποιήθηκαν ως παράγοντες ογκογένεσης. Ωστόσο, από μελέτες πειραματοζώων έχουν υποστηριχθεί αντικρουόμενα αποτελέσματα· για παράδειγμα παρατηρήθηκε όχι μόνον ενίσχυση αλλά και αναστολή της διαδικασίας της αύξησης των όγκων, ανάλογα με τη δόση του χορηγούμενου οπιοειδούς, όπως της μορφίνης. Επιπροσθέτως, υπάρχουν ερευνητικά δεδομένα τα οποία δείχνουν ότι η χρήση της ινδικής κάνναβης μπορεί να σχετίζεται με τον καρκίνο είτε ως αυτόνομος παράγοντας είτε σε σχέση με άλλα μεταλλαξιογόνα, όμως δεν είναι ακόμη σαφές σε ποιον βαθμό αυτές οι δράσεις της ουσίας μπορεί να συνδέονται με τη νόσο, ειδικά αφού συνυπολογισθούν η κατανάλωση καπνού και αλκοόλ στους συγκεκριμένους ασθενείς. Παρόλ' αυτά έχει υποστηριχθεί ότι ορισμένα κανναβινοειδή πιθανόν να έχουν βιολογικές δράσεις που μπορούν να αξιοποιηθούν θεραπευτικά, όπως είναι οι αντικαρκινικές, χωρίς να συνοδεύονται παράλληλα από την αντίστοιχη ψυχοδραστική επίδραση της 9-τετραϋδροκανναβινόλης. Είναι γνωστό εδώ και πολλά χρόνια ότι το αλκοόλ αποτελεί παράγοντα κινδύνου για την ανάπτυξη καρκίνου στην κεφαλή και στον τράχηλο, ενώ επιδημιολογικές μελέτες δείχνουν ότι όσο μεγαλύτερη είναι η κατανάλωση του αλκοόλ, τόσο αυξάνει η θνησιμότητα από καρκίνο, και επιπλέον ότι δεν υπάρχει επίπεδο ασφαλείας στην κατανάλωση του αλκοόλ σε σχέση με τον κίνδυνο ανάπτυξης καρκίνου, δηλαδή έστω και η ελάχιστη ημερήσια κατα-

νάλωση συνδέεται με την εμφάνιση ορισμένων μορφών της νόσου. Στον καπνό έχουν αναγνωριστεί συγκεκριμένα συστατικά που θεωρούνται καρκινογόνα και υπεύθυνα για την ανάπτυξη της νόσου με διάφορες εντοπίσεις. Επίσης, επιπλεγμένα ψυχιατρικά προβλήματα προκύπτουν από την κατάχρηση των ουσιών στους ογκολογικούς ασθενείς, είτε στα πλαίσια της αντιμετώπισης του πόνου είτε στα πλαίσια προϋπάρχοντος ψυχιατρικού ιστορικού εξάρτησης. Η λελογισμένη αξιοποίηση των οπιοειδών αναλγητικών, με διαφορετική προσέγγιση όπως προτείνεται από τους ειδικούς στην αντιμετώπιση του οξέος πόνου από τον χρόνιο πόνο των ογκολογικών ασθενών, υπαγορεύει μία προσεκτική μεν, αλλά και χωρίς δισταγμούς χρήση τους εφόσον αυτή απαιτείται ιατρικά. Παράλληλα, η κατάχρηση ουσιών όχι μόνο δυσχεραίνει τη συμμόρφωση στη θεραπεία και επιβαρύνει την πρόγνωση του καρκίνου, αλλά και αποτελεί αρνητικό παράγοντα για την ποιότητα ζωής των εν λόγω ασθενών. Η σύγχρονη σχετική βιβλιογραφία αναδεικνύει τη σημασία των κατάλληλων ψυχιατρικών παρεμβάσεων για την αντιμετώπιση της χρήσης στους ογκολογικούς ασθενείς.

Λέξεις ευρετηρίου: Εξαρτησιογόνες ουσίες, αλκοόλ, κάπνισμα, καρκίνος, ανοσοποιητικό σύστημα, πόνος.

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Review article
Ανασκόπηση

Body dysmorphic disorder: Latest neuroanatomical and neuropsychological findings

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Body dysmorphic disorder (BDD) is characterized by a preoccupation with a perceived defect or flaw in physical appearance that is not observable or appears slight to others. It leads to severe distress and functional impairment. Cognitive-behavioural and neurobiological similarities to obsessive compulsive disorder (OCD) have led to its newly conceived classification as an obsessive compulsive related disorder (OCRD). In the process of investigating the neurobiology of BDD, neuroimaging and neuropsychological studies have been conducted. This review presents the most recent research findings and their connection with BDD clinical features. Imaging studies have shown increased total white matter volume and caudate volume asymmetry in BDD patients. These findings are consistent with the striatal topography model of OCRDs. Other studies have showed perfusion deficits in bilateral anterior-medial temporal and occipital regions and asymmetric perfusion in parietal lobes. In addition, correlation between symptom severity and left inferior frontal gyrus volume reflects the degree of detailed, analytic encoding that occurs on day-to-day basis when viewing others and themselves, and that likely underlies their symptoms. Finally, positive correlation between right amygdala volume and symptom severity signifies pathological fear circuitry engagement, hypervigilance and heightened sensitivity to social situations. Neuropsychological studies of BDD reveal deficits in strategic organization, learning and free recall after short and long delays. Executive function deficits are related to spatial working memory and subsequent thinking speed as well as impaired higher level planning ability. BDD patients' organizational strategies tend to focus on detail rather than on larger, global clustering features. They are characterized by abnormal visual processing of both details and global elements, inaccurate processing of global elements and reduced flexibility in switching visual attention between global and local features. Moreover, BDD patients seem to have deficits in identifying facial emotional expressions and they tend to misinterpret expressions of disgust (and others) as anger. Poor insight and ideas of reference, common in BDD, might be related to emotion recognition biases for angry expressions. These findings have been supplemented by combined neuroimaging and neuropsychological studies. Left hemisphere hyperactivity for low and normal spatial frequency face tasks and abnormal activation of the amygdala for high and low spatial frequency face tasks suggests detail encoding and analysis in BDD. Patients may primarily perceive details but they are impaired in their ability to contextualize them holistically.

Key words: Body dysmorphic disorder, neurobiology, neuropsychology.

Introduction

Body dysmorphic disorder (BDD) has been described for over a century.[1] DSM-III first included BDD as "dysmorphophobia", an atypical somatoform disorder. In DSM-IV BDD was classified as a somatoform disorder, while in DSM-5 it is included in the section of Obsessive Compulsive and Related Disorders. BDD is characterized by a preoccupation with a perceived defect in appearance, that is not observable or appears slight to others. BDD causes significant distress and functional impairment but remains under-recognized. Investigation of its neurobiological substrates remains a challenge.

Definition-Clinical features (table 1)

BDD is associated with high levels of anxiety, social avoidance, depressed mood, neuroticism and perfectionism as well as low extroversion and low self-esteem. Most patients receive cosmetic treatment, dermatological, surgical and dental being the most common. BDD appears to respond poorly to such treatments and sometimes deteriorates. Some patients take legal action or are violent towards the clinician because they are dissatisfied with the cosmetic outcome. Many patients have ideas or delusions of reference, believing that other people take special notice or mock them because of their appearance. BDD patients experience impaired psychosocial functioning; about 20% of youths with BDD drop out of school because of their symptoms, while a high proportion of adults and adolescents have been psychiatrically hospitalized.

Table 1. Body Dysmorphic Disorder: DSM 5 Diagnostic Criteria.

A. Preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others.
B. At some point during the course of the disorder, the individual has performed repetitive behaviours (e.g. mirror checking, excessive grooming, skin picking, reassurance seeking) or mental acts (e.g. comparing his or her appearance with that of others) in response to the appearance concerns.
C. The preoccupation causes clinically significant distress or impairment in social, occupational or other important areas of functioning.
D. The appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder.

Specifier: With muscle dysmorphia: The individual is preoccupied with the idea that his or her body is too small or insufficiently muscular. This specifier is used even if the individual is preoccupied with other body areas.
Specifier: Degree of insight.
With good or fair insight: The individual recognizes that the body dysmorphic disorder beliefs are definitely or probably not true or that they may or may not be true.
With poor insight: The individual thinks that the body dysmorphic disorder beliefs are probably true.
With absent insight/delusional beliefs: The individual is completely convinced that the body dysmorphic disorder beliefs are true.

Course and development

Epidemiologic studies report prevalence of 0.7–2.4% in the general population, 9–12% in dermatology settings, 3–16% in cosmetic surgery settings, 8–37% in OCD, 11–13% in social phobia, 26% in trichotillomania and 14–20% in atypical major depressive disorder. Two thirds of individuals have illness onset before age 18. More severe symptoms at intake, longer duration of illness, and the presence of a comorbid personality disorder at intake predict a lower likelihood of remission from BDD.[2] Individuals with disorder onset before 18 are more likely to attempt suicide and their comorbidity is higher.[3] Approximately 80% of individuals with BDD report past or current suicidal ideation, and about 25% have attempted suicide. Approximately 33% report violent behavior that they attribute primarily to BDD (e.g., attacking someone or damaging property). Anger and violence seem to be fueled by anger about looking "deformed", inability to fix the "defect", delusions of reference and dissatisfaction with cosmetic procedures. According to one survey, 12% of plastic surgeons reported they had been threatened physically by a dissatisfied BDD patient.[4] Comorbidity of BDD includes Major Depression (75%), substance use disorders (30–48.9%), OCD (32–33%) and Social Phobia (37–39%).

Neurobiology

Neuroimaging

A recent MRI study found leftward shift in caudate volume asymmetry and greater total white mat-

ter volume in BDD patients compared to controls.[5] Increased total white matter volume, in the absence of increased grey matter volume, might reflect increased volume of myelin per fiber or an increased proportion of glia; these abnormalities could be due to primary developmental processes. Likewise, abnormalities in caudate asymmetry might reflect abnormal developmental processes, asymmetric degeneration or asymmetric anomalies in growth, synaptic plasticity or arborization. These results are consistent with 'the striatal topography model' of Obsessive-Compulsive Spectrum Disorders (OCSD).

A SPECT study showed discrepant findings; relative perfusion deficits in bilateral anterior-medial temporal and occipital regions and asymmetric perfusion in parietal lobes.[6] (Abnormalities in parietal circuits are consistent with the core feature of disturbed perception of body form). From T1 magnetic resonance images, brain volumes of 12 unmedicated subjects with BDD were compared to 12 controls using voxel-based morphometry.[7] There were no differences in total white or grey matter between groups. There were no differences for the inferior frontal gyrus (IFG), amygdala and caudate. However there was a positive correlation between symptom severity (scores on the BDD-YBOCS scale) and left IFG volume. There was also a positive correlation between right amygdala volume and BDD-YBOCS score. The observation of the left IFG varying with severity of BDD symptoms could be a reflection of the degree of detailed, analytic encoding when viewing others and themselves, and that likely underlies the BDD patients' symptoms. Hyperactive amygdala in response to emotional and neutral faces has been found in social phobia, particularly on the right side.[8] Amygdala hyperactivity in BDD may also be related to right amygdala volume, as it varied in proportion to symptom severity.

In another MRI study, brain region volumes of 12 BDD patients were compared to 12 controls.[9] Results showed smaller mean orbito-frontal cortex and anterior cingulate volumes, a trend towards increased thalamic volume and larger mean white matter volume in BDD patients. Findings may be accumulatively interpreted as further evidence for the inclusion of BDD in the OCSD.

Table 2 summarizes the previous results.

Neuropsychology

Deckersbach et al[10] investigated the nature of memory dysfunction in BDD, on 17 BDD patients and 17 controls using the Rey-Osterrieth Complex Figure Test and the California Verbal Learning Test (CVLT), which measure non verbal and verbal memory respectively. BDD patients showed deficits in strategic organization, learning and free recall after short and long delays. However, they did not show problems in storing previously learned information. In the BDD group free recall deficits were statistically mediated by the organizational strategies used during learning trials, focusing on isolated details rather than on global organizational features. These organiza-

Table 2. Neuroimaging studies.

Study	Sample	Method	Results
Rauch et al (2003)	n:16 (BDD 8, C8)	Comparative volumetric MRI study	BDD: ↑Total white matter volume Leftward shift in caudate volume asymmetry
Carey et al (2004)	n:6 (BDD)	SPECT imaging	↓perfusion in bilateral anterior-medial temporal and occipital regions Asymmetrical perfusion in parietal lobes
Feusner et al (2009)	n:24 (BDD 12, C 12)	Comparative volumetric MRI study	↑score BDD-YBOCS → ↑left inferior frontal gyrus and amygdala volume
Atmaca et al (2010)	n:24 (BDD 12, C 12)	Comparative volumetric MRI study	BDD: ↓orbito-frontal cortex and anterior cingulate volume Trend towards ↑ thalamic volume ↑mean white matter volume

tional deficits affected both verbal and non verbal memory performance. These findings are consistent with frontostriatal etiologic models and support the hypothesis that BDD may be conceptualized as an OCSD.[11,12]

On the other hand, recognition deficits of BDD patients in CVLT do not rule out additional involvement of other brain regions, including medial temporal cortex, in the memory deficits observed in BDD patients.

Based on the hypothesis that focus on specific body parts might impair overall face recognition, Buhlmann et al[13] investigated the ability to identify facial expressions of emotion and to discriminate single facial features in BDD patients, OCD patients and controls. The Short Form of the Benton Facial Recognition Test[14] was used, which requires matching a target face with up to three pictures of the same person in a six-stimuli array of faces that vary in terms of angles and lighting. The three groups exhibited no neuropsychological deficits in facial feature processing. BDD patients compared to OCD patients and controls, performed worse at identifying and interpreting emotional facial expressions. BDD patients were as accurate as OCD patients and controls in identifying angry expressions, but they misinterpreted other facial expressions, especially disgusted ones more often as angry. Poor insight and ideas of reference, common in BDD, might be related to emotion recognition biases for angry expressions.

Buhlmann and al[15] investigated whether BDD patients are characterized by recognition biases for threatening facial expressions and whether they exhibit this recognition bias in self-referent or in other-referent situations. BDD patients were less accurate in identifying emotional expressions in self-referent but not in other-referent scenarios. Furthermore they were less accurate in identifying neutral expressions, misinterpreted more neutral expressions as contemptuous and angry, and showed a tendency towards interpreting neutral expressions as disgust.

In order to investigate executive function, Dunai et al[16] assessed 14 BDD patients and 14 controls with tests selected from the Cambridge Neuropsychological Test Automated Battery. Results demonstrated that BDD patients exhibit deficits in executive function related to spatial working memory and subsequent thinking speed. On tasks assessing short-term memory capacity, motor speed and visual memory, patients' performance was similar to controls. There was no association between symptom severity and performance. BDD patients' spatial short-term memory capacity was not compromised, suggesting that the ability to hold spatial information "on line" is not reduced in BDD. However, when they needed to manipulate increasing amounts of spatial information, BDD participants made more errors than controls.

The Stockings of Cambridge task indicated that patients solved fewer problems overall, solved fewer problems in the minimum number of moves and made more moves to solve a problem. This pattern has been observed in schizophrenia[17] and OCD[18] and is thought to be a consequence of poor initial planning, leading to mistakes and pauses for further planning. Poor planning and mistakes could be due to BDD patients' decreased ability to use online processing to manipulate spatial information, indicated by spatial working memory deficits. The executive function deficits suggest frontal involvement in BDD, which is consistent with the idea of BDD as an OCSD.

In order to investigate local and global visual information processing and set-shifting, Kerwin et al[19] recruited 18 BDD patients and 17 controls. Two local-global tasks were used; The Embedded Figures Task (EFT) consists of a complex figure comprised of smaller "embedded" figures; participants were required to select the complex figure that contained an embedded target shape. The Navon task consists of global letters made out of local letters; participants were required to detect a target letter, either at the global or local level, while ignoring information at the other level. Anxiety levels during the tasks were higher in the BDD group. On the EFT BDD patients showed slower and less accurate processing of shapes embedded within complex figures, and slower processing of local as well as global letter stimuli. This can be explained by a possible perceptual strategy in BDD, that consists of piecemeal detail-to-detail scanning of the complex figures whereas the controls may have been aided by a fast global "template" that allows details to be located more easily within it. There was also an inverse relationship between poor insight and performance on the Navon and EFT tasks in the BDD group. The above findings

may be consistent with a bias for attention to high levels of detail, although associated with slower rather than faster processing. On the Navon task the effect of set-shifting between local and global stimuli was examined. The BDD group was slower on switch trials. They were also slower on non-switch trials, but the effect was greater for switch trials and greatest for global-to-local trials. These results suggest abnormal visual processing of both details and global elements, inaccurate processing of global elements and reduced flexibility in switching visual attention between global and local features. BDD patients might spend excessive time fixated on or have problems shifting attention away from local information, which correlates with clinical observations implicating a preoccupation with details in appearance. Slower perceptual processing of local stimuli could lead to explicit awareness of minor flaws that could subsequently exacerbate and maintain BDD symptoms by a ruminative focus on detailed information.

Table 3 presents the main findings of the previous studies.

Neuropsychology and neuroimaging

The first functional imaging study to compare BDD patients to controls examined visual information processing of faces with respect to spatial frequency.[20] Twelve BDD patients and 12 controls underwent f-MRI while matching photographs of faces. Some of the faces were digitally altered to remove the high or low spatial frequencies, which created images that contained configural or detailed information respectively. BDD patients showed greater left hemisphere activity for all face tasks, particularly in lateral aspects of the prefrontal cortex and the temporal lobe. They also activated dorsal anterior cingulate gyrus for the

Table 3. Neuropsychological studies.

Study	Sample	Method	Results
Deckersbach et al (1999)	n=34, (BDD 17, C 17)	RCFT, CVLT	BDD: deficits in strategic organization, learning and free recall Organizational strategies focusing on isolated details rather than on global organizational features
Buhlmann et al (2004)	n=60, (BDD 20, OCD 20, C 20)	BFRT ERT	No neuropsychological deficits in facial feature processing in BDD, OCD and controls BDD: Difficulty in identifying facial expressions, especially disgusted ones BDD: Difficulty in interpreting facial expressions Misinterpretation of disgusted expressions as angry
Buhlmann et al (2006)	n=36, (BDD 18, C 18)	ERQ	BDD: Difficulty in identifying emotional expressions in self-referent scenarios Misinterpretation of neutral expressions as contemptuous and angry.
Dunai et al (2009)	n=28, (BDD 14, C 14)	CANTAB (Spatial Span, Spatial Working Memory, Stockings of Cambridge, Pattern Recognition)	BDD: SWM: more errors, greater effect of task difficulty. Poor information preservation and manipulation SOC: fewer problems solved overall, fewer problems solved in the minimum number of moves, significantly more moves Significant deficits in thinking speed. Poor initial planning
Kerwin et al (2014)	n=35 (BDD 18, C 17)	Embedded Figures Task, Navon Task	BDD: Increased anxiety levels, slower response time, lower accuracy ↑ BABS scale score → slower response time

low spatial frequency (LSF) face task. Controls activated left-sided prefrontal cortex and dorsal anterior cingulate gyrus only for the high spatial frequency (HSF) face task. Greater left-sided activity for LSF and normal faces suggests a predominance of detail encoding and analysis, a pattern evident in controls only for the HSF faces. This suggests that BDD patients may process faces in a piecemeal manner, while controls' perception of faces may be more configural and holistic. These laterality patterns in BDD suggest a bias for local or detail-oriented processing of faces over global processing.

Another finding in the BDD group was abnormal activation of amygdalae for the LSF and HSF tasks. The controls showed activation of the amygdalae for the NSF task, but reduced activity or deactivation for the LSF and HSF tasks. This suggests an abnormal hyper-responsivity of the amygdala that appears specific to LSF and HSF visual information.

Results suggest that BDD participants show fundamental differences from controls in visual processing, with different laterality of activation patterns in areas representing an extended visual processing network, and abnormal amygdala activation. These abnormalities may be associated with BDD patients' perceptual distortions; they may focus on excruciating detail on specific facial features and lose the larger, overall context of the whole face.

Feusner et al[21] studied 17 BDD patients and 16 controls using f-MRI while subjects viewed photographs of their own faces and a familiar face as control stimulus, that were unaltered, altered to include only high spatial frequency, or altered to include only low spatial frequency. Mean aversiveness ratings across all own-face stimuli were higher in BDD patients, regardless of stimuli spatial frequency. BDD patients demonstrated greater activation for the NSF own-face vs familiar-face contrast in the left orbitofrontal cortex (OFC) and the bilateral head of the caudate. The controls demonstrated greater activation for the LSF own-face vs. oval contrast in the left occipital cortex.

Severity of symptoms was positively associated with activation in the right OFC, right head of the caudate, right precentral and postcentral gyri and right dorsal occipital cortex for the NSF own-face vs. familiar-face contrast. Symptom severity was also positively associated with activity in the bilateral head of the caudate and the left OFC. When directly examining the relationship between aversiveness ratings and brain activity within the BDD group, there were significant results only for the LSF own-face vs oval contrast. BDD patients had abnormal brain activation patterns when viewing their own face, showing hypoactivity in primary and secondary visual processing regions for LSF faces and hyperactivity in frontostriatal systems for NSF faces. These suggest aberrant processing of configural and holistic information, which the LSF images convey. Clinically this may account for the impaired ability to perceive the visual gestalt, contributing to distorted perceptions of the individuals' appearance when viewing their face. The individuals may primarily perceive details and are impaired in their ability to contextualize them configurally or holistically.

Feusner et al[22] investigated how viewing faces with emotional expressions affected perception on an identity-matching task. They included BDD and controls, and three stimuli conditions; emotional faces, neutral faces and ovals/circles. BDD patients were less accurate at identity-matching of faces with emotional expressions and had more than twice the error rate for the matching task with emotional faces. The BDD group showed the greatest difference in reaction time from healthy controls for emotional faces, followed by neutral faces and then ovals/circles. However, there was no differential effect on the BDD group of any specific emotion type. In total, these findings suggest that BDD patients have abnormalities in speed and accuracy of processing faces with emotional expressions. This builds on findings from previous studies of abnormal interpretation of emotions,[13,15] to suggest that there may be more fundamental abnormalities for perception of faces with emotional expressions. If BDD subjects excessively rely on details for processing emotional faces as well, this slower strategy may account for delayed reaction times and lower accuracy. The fact that there was no significant group by stimulus effect for the different types of emotion supports a face-processing deficit that occurs for faces with emotional expressions in general, rather than an influence of emotion per se. To respond quickly and accurately to match emotional faces, participants must attend to the facial identity while implicitly inhibiting atten-

tion to the emotional valence. The fact that the BDD group had approximately twice the error rate for the emotional faces suggests that they may have had a more marked failure in inhibition than controls.

Table 4 summarizes the results of the aforementioned studies.

Conclusions

In the process of investigating the neurobiology of BDD, neuroimaging and neuropsychological studies have been conducted during the last two decades. Imaging studies have showed increased total white matter volume and caudate volume asymmetry in BDD patients. These findings are consistent with the striatal topography model of OCSD. Another important finding is the perfusion deficits in bilateral anterior-medial temporal and occipital regions and asymmetric perfusion in parietal lobes. Furthermore, abnormalities in parietal circuits are consistent with the core feature of disturbed perception of body form. In addition, correlation between symptom severity and left inferior frontal gyrus volume reflects the degree of detailed, analytic encoding that occurs on day-to-day basis when viewing others and themselves, and that likely underlies their symptoms. Finally, positive correlation between right amygdala volume and symptom severity signifies pathological fear circuitry engagement, hypervigilance and heightened sensitivity to social situations.

Neuropsychological studies reveal deficits in strategic organization, learning and free recall after short and long delays. Executive function deficits are related to spatial working memory and subsequent thinking speed as well as impaired higher level planning ability. BDD patients' organizational strategies tend to focus on detail rather than on larger, global clustering features. The executive function deficits suggest frontal involvement in BDD, which is consistent with the idea of BDD as an OCSD involving frontal-striatal dysfunction. They are characterized by abnormal visual processing of both details and global elements, inaccurate processing of global elements and reduced flexibility in switching visual attention between global and local features. These findings also suggest that there are significant neuropsychological similarities between BDD and OCD. Moreover, BDD patients seem to have deficits in identifying facial emotional expressions and tend to misinterpret expressions of disgust (and others) as anger. Poor insight and ideas of reference might be related to emotion recognition biases for angry expressions. This hypothesis is further enhanced by BDD patients' tendency to interpret emotional expressions as con-

Table 4. Combined neuroimaging and neuropsychological studies.

Study	Sample	Method	Results
Feusner et al (2007)	n=25 (BDD 12, C 13)	fMRI while matching high, low and normal spatial frequency pictures of faces	BDD: ↑ left hemisphere activity, particularly in lateral aspects of the prefrontal cortex and the temporal lobe for all tasks and in dorsal anterior cingulate gyrus for LSF tasks Controls: ↑ left-sided prefrontal cortex and dorsal anterior cingulate gyrus activity only for HSF tasks
Feusner et al (2010)	n=33 (BDD 17, C 16)	fMRI while matching high, low and normal spatial frequency pictures of the participants' own faces	BDD: ↑ left orbitofrontal cortex and bilateral head of the caudate activation when viewing NSF own pictures Controls: ↑ left occipital cortex activation when viewing LSF own pictures Symptom severity was positively correlated with increased frontostriatal activity
Feusner et al (2009)	n=23 (BDD 12, C 11)	Identity matching task when viewing faces with emotional expressions, neutral expressions and ovals and circles	BDD: twice the error rate for the matching task with emotional faces

temptuous more often in self-referent scenarios than in other-referent ones.

These findings have been supplemented by combined neuroimaging and neuropsychological studies. Left hemisphere hyperactivity for low and normal spatial frequency face tasks and abnormal activation of the amygdala for high and low spatial frequency face tasks suggests detail encoding and analysis in BDD. These abnormalities may be associated with BDD patients' apparent perceptual distortions; they may focus on excruciating detail on specific facial features and lose the larger, overall context of the whole face. Individuals with BDD have abnormal brain activation patterns when viewing their own face, showing hypoactivity in primary and secondary visual processing regions for LSF faces and hyperactivity in frontostriatal systems for NSF faces. Abnormal activation in primary and secondary cortical regions suggests aberrant processing of configural and holistic information, which the LSF images convey. Clinically this may account for the impaired ability to perceive the visual gestalt, contributing to distorted perceptions of the individuals' appearance when viewing their face. The individuals may primarily perceive details and are impaired in their ability to contextualize them configurally or holistically.

Διαταραχή σωματικής δυσμορφίας: Νεότερα νευροανατομικά και νευροψυχολογικά δεδομένα

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Η διαταραχή σωματικής δυσμορφίας (ΔΣΔ) χαρακτηρίζεται από υπερβολική ενασχόληση του ατόμου με ένα φανταστικό ή αδιόρατο από άλλους ελάττωμα της εξωτερικής του εμφάνισης και οδηγεί σε σημαντική δυσφορία και λειτουργική έκπτωση. Οι γνωσιακές-συμπεριφορικές και νευροβιολογικές ομοιότητες της ΔΣΔ με την Ιδεοψυχαναγκαστική Διαταραχή (ΙΨΔ) έχουν οδηγήσει στην ένταξή της στη νεοσυσταθείσα στο DSM-5 διαγνωστική κατηγορία των σχετιζόμενων με την ΙΨΔ διαταραχών. Η παρούσα ανασκόπηση παρουσιάζει τα ευρήματα των πιο πρόσφατων νευροαπεικονιστικών και νευροψυχολογικών μελετών και τη σύνδεσή τους με τα κλινικά χαρακτηριστικά της ΔΣΔ. Οι μελέτες απεικόνισης έχουν αναδείξει αυξημένο όγκο λευκής ουσίας και ασυμμετρία κερκοφόρου πυρήνα σε ασθενείς με ΔΣΔ, ευρήματα που είναι συμβατά με το μοντέλο εντόπισης των διαταραχών του ψυχαναγκαστικού φάσματος στο ραβδωτό σώμα. Επίσης έχουν αναδείξει ελλείμματα αιμάτωσης σε πρόσθιες-έσω κροταφικές και ινιακές περιοχές αμφοτερόπλευρα και ασύμμετρη αιμάτωση στους βρεγματικούς λοβούς. Επιπλέον, η συσχέτιση μεταξύ σοβαρότητας των συμπτωμάτων της ΔΣΔ και του όγκου της αριστερής κάτω μετωπιαίας έλικας αντανακλά τον βαθμό στον οποίο οι ασθενείς επεξεργάζονται με αναλυτικό τρόπο την όψη του εαυτού τους και των άλλων στην καθημερινότητά τους, υπογραμμίζοντας ουσιαστικά τα συμπτώματά τους. Τέλος, η θετική συσχέτιση μεταξύ όγκου της δεξιάς αμυγδαλής και σοβαρότητας συμπτωμάτων σηματοδοτεί την παθολογική λειτουργία κυκλωμάτων φόβου, υπερεπαγρύπνηση και αυξημένη ευαισθησία σε κοινωνικές συνθήκες. Από τις νευροψυχολογικές μελέτες φαίνεται ότι οι ασθενείς με ΔΣΔ χαρακτηρίζονται από ελλείμματα σε στρατηγική οργάνωση, μάθηση και ελεύθερη ανάκληση μετά από μικρή ή μεγάλη χρονοκαθυστέρηση. Τα ελλείμματα στην εκτελεστική λειτουργία αφορούν στη χωρική μνήμη εργασίας και την επακόλουθη ταχύτητα σκέψης, καθώς και τη μειωμένη ικανότητα σχεδιασμού υψηλότερου επιπέδου. Οι οργανωτικές στρατηγικές των ασθενών με ΔΣΔ εστιάζουν σε λεπτομέρειες και όχι σε γενικά, ολιστικά χαρακτηριστικά ομαδοποίησης. Συγκεκριμένα χαρακτηρίζονται από ανωμαλίες στην οπτική επεξεργασία λεπτομερειών και συνόλου, ανακριβή επε-

ξεργασία συνολικών στοιχείων, και μειωμένη ευελιξία στην αλλαγή οπτικής προσοχής μεταξύ συνολικών και μερικών γνωρισμάτων. Ακόμη, οι ασθενείς με ΔΣΔ εμφανίζουν ελλείμματα στην αναγνώριση συναισθηματικών εκφράσεων του προσώπου και συγκεκριμένα στην αναγνώριση εκφράσεων αηδίας, τις οποίες (όπως και άλλες) τείνουν να παρερμηνεύουν ως εκφράσεις θυμού. Η πτωχή εναισθησία και οι ιδέες αναφοράς, συχνές στη ΔΣΔ, θα μπορούσαν να σχετίζονται με την τάση των ασθενών να ερμηνεύουν εκφράσεις του προσώπου ως θυμωμένες. Τα παραπάνω ευρήματα στοιχειοθετήθηκαν περαιτέρω από μελέτες συνδυασμού νευροψυχολογίας και απεικόνισης. Συγκεκριμένα, η μεγαλύτερη ενεργοποίηση του αριστερού ημισφαιρίου για χαμηλής και κανονικής χωρικής συχνότητας εικόνες και η ανώμαλη ενεργοποίηση της αμυγδαλής για υψηλής και χαμηλής συχνότητας δοκιμασίες υπονοούν ότι στη ΔΣΔ κυριαρχεί η λεπτομερειακή κωδικοποίηση και ανάλυση. Τα άτομα με ΔΣΔ μάλλον αντιλαμβάνονται τις λεπτομέρειες αλλά αδυνατούν να τις εντάξουν σε ένα γενικό, ολιστικό πλαίσιο.

Λέξεις ευρετηρίου: Διαταραχή σωματικής δυσμορφίας, νευροανατομία, νευροψυχολογία.

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Review article
Ανασκόπηση

Association of maternal depression with children's attention deficit hyperactivity disorder

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Family problems are considered to be the main risk factor leading to the development of behavioural problems during childhood and adolescence as well. A well documented fact in the current literature is that psychopathology of any kind in parents may influence behaviour, personality and appearance of psychopathology in their children. The permanent interaction between children's psychopathology or any kind of developmental disorder on one hand and parental psychopathology on the other, is considered to be one of the most important fields of research during the last decades. The aim of the present study was to review research concerning the relationship between maternal depressive disorder and children's attention deficit hyperactivity disorder (ADHD) among members of the same family, the influence that each disorder has in the appearance and development of the other, and the way that the mother-child relationship is influenced by both. We conducted an electronic search through PubMed to detect articles concerning the association of maternal depressive disorder and children's ADHD among the members of the same family published in English from January 1980 to December 2015. The choice was strictly limited to articles concerning exclusively emotional disorders in mothers and ADHD in their children. This process concluded with the electronic research of bibliographic citations of the identified articles, or related articles, in order to locate additional sources. Considering as a fact the interaction between this developmental disorder, ADHD, and mother's psychological profile which is maternal depression for the present research, we report the following: among the 27 articles found, 24 concerned the influence of the mother's depression to the child's ADHD, and the remaining 3 concerned their genetic association. There were important limitations found as well. Despite the fact that all the studies included a control group, many of them did have a follow-up and were short-term studies. Their results were mostly heterogenous and therefore their meta-analysis proved impossible. There was evidence concerning the association between the two disorders as both maternal depressive disorder and children's ADHD influence each other through multiple psychosocial and biological factors. Nevertheless, more data is needed from well structured, homogenous studies, especially in the field of genetics, in order to document this association.

Key words: Depression, mother, child, ADHD, maternal depression, children.

Introduction

Attention deficit hyperactivity disorder (ADHD) is considered to be among the most common (studied) disorders of childhood. Hyperactivity, concentration, attention deficit and compulsivity comprise its most common characteristics under controllable conditions, for example in the classroom, and under non-controllable conditions as well as during school break-time. Those behaviours are not in accordance with the age and the developmental stage of the child and as a result everyday functioning is often severely compromised.

Research based on questionnaires revealed that the prevalence in the general population ranged between 10% and 20%.[1] Research based on DSM-IV or V criteria showed a lower percentage of 5% to 10%,[2] while research not based on comorbid disorders showed that the incidence in the population was 1–2%. From epidemiological data, we know that ADHD is more frequent among boys (3/1:boys/girls).

The second group of psychiatric disorders studied in this article was Mood Disorders of mothers who raise a child with ADHD. According to DSM-IV criteria, Mood Disorders include Depression Disorders, such as Major Depression Disorder, Dysthymic Disorder and Depression Disorder Not Otherwise Specified, Bipolar Disorders which include Bipolar Disorder I, Bipolar Disorder II, Cyclothymia, Bipolar Disorder Not Otherwise Specified and two disorders based on their causality, which are Mood Disorder due to General Medical Situation and Mood Disorder due to Substance Abuse. The last two were not studied in this review. There is also Mood Disorder Not Otherwise Specified.

Depressed mood for most of the day, in some cases, may influence every single dimension of behaviour, the perception of the world as well as social and interpersonal relationships. Consequently, parent-child relationships and raising a child may be influenced as well.

Often, ADHD is considered to be a result of inappropriate upbringing, which according to scientific data, does not seem to be the case. ADHD symptoms influence parents' behaviour and renders child upbringing difficult. Nevertheless, it is well documented in the literature that ADHD is not related with the quality of upbringing or with the parents' behaviour. It may provoke problems concerning parent-child relational disorder, problems that may remain unresolved for the rest of life and they demand careful evaluation and appropriate help.

Moreover, according to the literature, when parents suffer from Depression it is more probable for their children to develop ADHD. On the other side, a mother of a child with ADHD is more likely to develop a Depression Disorder during her life than a mother whose child does not suffer from ADHD.

In conclusion, this review aimed to study the association between the two disorders, how each one influences the other's appearance and development, and the way that both influence the mother-child relationship, the intra-familial relationships and family functioning.

Material and method

We performed a systematic literature research using PubMed for studies concerning maternal depression and children's ADHD from January 1980 to December 2015. We used different combinations of "depression", "mother", "maternal depression", "child", "children", "ADHD". References of included articles, related citations and relevant reviews were screened for additional articles. After filtering duplicates, articles were screened by one reviewer (S.S.) on title and abstract using predefined inclusion and exclusion criteria. Inclusion criteria were: (1) sample size of at least ten mothers with depression or at least ten children with ADHD; (2) the diagnosis of depression and ADHD had to be proven by clinical interviews based on accredited assessment tools; (3) only studies written in English were included. The article selection was strictly restricted to those referring to maternal depression and children's ADHD. We excluded those study cohorts that referred to the two disorders as a part of a wider psychopathology and those that did not include the key words in the title. The quality of the studies' methodology was assessed according to the following variables. We defined a study as high quality based on predefined criteria, namely, prospective, population-based sample size, demographic representation of indicators, evaluator credibility and blindness, direct vs indirect assessment, control groups, diagnostic criteria and assessment tools, and follow up.

A total of 206 studies were found, 181 were excluded from the review. 170 were excluded because they did not refer to the key-words of the inclusion criteria and 11 were excluded as they referred to maternal depression or children's ADHD as a part of a wider psychopathology. The data of the included studies proved to be mostly heterogeneous and therefore their meta-analysis proved impossible.

Results

Effects of the two disorders on each other

Twenty two studies were found[3–24] assessing how the two disorders affect each other. The first three and the sixth one referred to the influence that maternal Mood Disorder (depression included) exerted on the child's ADHD. The seventeenth deals with the same topic as well, by focusing on parental depressive and anxiety symptoms during pregnancy, though. The fourth and fifth studies researched two different family factors that affected both maternal depression and childhood ADHD. From the seventh to the thirteenth, authors studied the way that the child's ADHD influenced the appearance and the development of maternal depression. The eighteenth study deals with the same topic as well, while focusing on maternal self-esteem reactivity among mothers (with a history of depression) of children with ADHD. The fourteenth study deals with the fact that child's ADHD influenced the appearance and the development of depression in the children as comorbidity and on their parents as well. The nineteenth, twentieth and twenty-first deal with the parent-child interactions in families where maternal depression and child's ADHD coexist. The fifteenth, the sixteenth and the twenty-second studied the way that maternal depression under medical treatment influenced the child's ADHD.

The results of the first sub-group showed that maternal (or parental) Mood Disorder, in general, raised the possibility of development of ADHD for at least one of the children of the family (hyperactivity and/or attention deficit). The fourth study showed that parental management of various conditions and the locus of control increased the chances of maternal depression and child ADHD, while in the fifth study factors resulting in a higher chance of developing ADHD were lower socioeconomic status and instability in married life.

The studies from the seventh to the thirteenth showed that children's ADHD correlated with a higher possibility of development of maternal or parental Mood Disorders and especially depression. The seventeenth showed that the apparent intrauterine effect of maternal depression and anxiety on offspring behavioural may be partly explained by residual confiding. There was little evidence of a difference between the strength of association of maternal and paternal symptoms during pregnancy with offspring who has attention problems. That maternal symptoms after childbirth were also associated with offspring behavioural problems may indicate a contribution of genetic influences to the association. The fourteenth study showed that children with ADHD and their mothers developed higher levels of depression than the control groups. As far as the sub-group of studies which deals with parent-child interaction is concerned, the nineteenth study showed that currently depressed mothers were least likely to reinforce child compliance and responded most coercively to child noncompliance relative to the group of depressed mothers who are currently remitted and the group of mothers who have never been depressed. Remitted mothers in this sample were more coercive than never clinically depressed mothers, but were more likely to follow through with commands than never clinically depressed mothers. In the same subgroup the twentieth study showed that children with ADHD whose mothers were depressed were less positive in their parent-child interaction than the group of children with ADHD and mothers without depression and the group of children without ADHD and mothers without depression. The twenty-first study concluded to the fact that mothers who used corporal punishment showed significantly higher scores on the Beck Depression Inventory than mothers who did not.[23] Moreover maternal depression contributed to the use of corporal punishment in ADHD children. The fifteenth study showed that after a course of coping with depression the depressed mothers of children with ADHD improved their symptoms of depression, their self-confidence, their relationship with their children and family functioning. The tenth studied mothers under medical treatment with bupropion during their pregnancy and showed a significant increase in the chance of children suffering from ADHD, compared to those who did not take bupropion. The twen-

ty-second study showed that the Integrated Parenting Intervention for ADHD (IPI-A) produced effects of small to moderate magnitude relative to Behavioural Parent Training (BPT) on maternal depressive symptoms, observed negative parenting, observed child deviance and child impairment at posttreatment and on maternal depressive symptoms, child disruptive behaviour, child impairment and family functioning at follow up. Contrary to expectations, the BPT group demonstrated moderate to large effects relative to IPI-A on observed positive parenting at follow up.[24]

Depression in mothers of ADHD children affects the assessments of ADHD when completing diagnostic questionnaires

Three articles were found: the first[25] studied the fact that parent's and teacher's evaluations of ADHD children via questionnaires had a low informant agreement. They also studied how much the parent's evaluation was influenced by parental depressed mood (or parenting stress). The second[26] examined the extent to which indirect maternal references (by completing questionnaires) for comorbid depression in children suffering from ADHD were affected by a history of depression themselves. The first one did not include a control group, while the second one had a control group of non-ADHD individuals. The third one[27] investigated the Depression-Distortion hypothesis by examining the effects of depressive symptoms on cross informant discrepancies in reports of child behaviour problems and several measures of parent-child relationships such as child characteristics, self-reports of maternal depressive symptoms, parenting practices and laboratory mother-child interactions.

The first one used questionnaires evaluating children's ADHD, completed by their parents and by their teachers, as well as questionnaires that evaluated parenting stress and depression disorder. The second one used a multivariate regression in order to examine the influence of maternal depression on the direct and the indirect effects concerning Major Depression on children with ADHD.

In conclusion, the first one showed that parenting stress and not maternal depression was responsible for the disagreement between parents and teachers. The second one showed an important interaction between maternal depression and the references, especially for the non-ADHD control group. ADHD remained a risk factor for the development of major depression independent of maternal references or even the existence of maternal depression. The third one showed that elevations in maternal depressive symptoms were associated with maternal reports of negative parenting style but not with observed laboratory interactions. Mother's levels of depressive symptoms predicted negative biases in their reports of their child's ADHD symptoms, general behaviour problems and their own negative parenting style. Whereas levels of depressive symptoms did not predict observed parenting behaviours, maternal distortions did predict problematic parent-child interactions.

The genetic factor

The possible genetic correlation between maternal depression and children's ADHD was detected in one study.[28] This study dealt with the Mood Disorder of parents of adopted teenagers suffering from ADHD. The control group included 692 adopted and 416 non-adopted teenagers. Clinical interviews based on DSM-IV criteria were used in order to evaluate the patients. Teenagers, whose parents suffered from major depression, had higher chances of developing major depression or behaviour disorders in the two sub-groups as well. The presence of paternal depression was not associated with the development of any psychiatric disorder in adolescents, with the sole exception of ADHD in adolescent adoptees. The study concluded that the risk for the development of psychopathology in adolescence was significantly increased in families with depressed mothers, but not in families with depressed fathers

A second study was also a case control study.[29] It explored families of mothers suffering from serotonin's composition disorder. Serotonin is indispensable for the development of the human brain. The study included 459 adult patients suffering from ADHD and 187 controls. Clinical interviews based on DSM-IV criteria were used to evaluate the patients. The authors then detected the mother's mutations of TPH1 and TPH2 that caused the serotonin's composition disorder. The results of the study showed that the offspring of mothers with TPH1 mutations showed 1.5 to 2.5 higher ADHD scores in children in structured tests and related symptomatology compared to the control group. In conclusion, the study

showed that reduced maternal serotonin production appeared to increase the risk of ADHD and related symptoms in offspring.

Discussion

Effects of the two disorders on each other

From the studies in this category, as mentioned in the results of this review (as one can examine on the respective table), only ten had a control group and only four had a follow-up. The ages of patients with ADHD varied from toddlers to adults (and this fact impacted all the data included in the studies) and the diagnostic tools that were used differed in all. Specifically, some studies[3,7,9–12,15,16] used diagnostic tools that based on DSM-III and the rest of the studies –except for one[8] in which the tool is not mentioned– used DSM-IV. In the second and fifteenth studies, the patients were receiving a medication treatment with stimulants; furthermore in the third and fifteenth the parents were also being treated with medication (in the third lithium, in the fifteenth antidepressant, anxiolytics and antipsychotics). Moreover, the first, third, fourth, seventh, eighth, ninth, tenth, fourteenth referred to parents, while the remaining exclusively to mothers. Finally the first, third, fourth, sixth, eighth, ninth, tenth, fourteenth also referred to emotional disorders in comorbidity with ADHD, the eleventh included mothers exhibiting anxiety disorder in comorbidity with depression and the rest of the studies referred solely to children with ADHD in relation to depression in mothers.

Regarding the limitations of the studies included in this chapter, we emphasise that more than half of the studies, as already mentioned, included disorders in comorbidity with either depression or ADHD and were not exclusive to these two disorders. Several studies even reported additional disorders or a history of various disorders and the respective influence of these disorders were not measured or were not taken into account in the results. Also parental behaviour was not taken into account, or not evaluated in any way. There were several limitations in terms of the statistical results of these works; for example in many of these statistically insignificant effect was found due to the reduced power of the sample.

In addition, environmental factors have not always been taken into account and sometimes the studies did not involve even the gender of the children, which can potentially affect both different behaviours and the occurrence or progression of various psychopathological conditions. In some studies there was no mention of statements from the children about themselves. Only parents or teachers made statements about the children and in many cases not both, while there were several limiting factors in these measurements. It should also be noted that in many cases the validity or reliability of the diagnoses was disputed. The reason is that in many studies the diagnosis was based on questionnaires and there were no personal psychiatric interviews. In one study[15] it was stated that the interview was conducted by telephone, with the disadvantage of lack of assessment of nonverbal communication, and also lack of assessment of both parents; in addition it was not mentioned if it referred to a single parent family or not, which is mainly important for studies that concentrate exclusively on mothers. Moreover, psychiatric disorders which in some cases might coexist in both mothers and children were not assessed nor measured (sometimes they were mentioned without being taken into account in the evaluation of the results), as well as various behaviours (in children and mothers) or the different ways of parenting.

In most of cases, individually reported symptoms were not categorised and the stage of life of a mother that suffered from a psychiatric condition, whether it was an episode or chronic condition or at what stage of the child's life the condition appeared, were not taken into consideration. Moreover, the data for the studies were collected only during the first year. Symptoms of children are not always objective and in some cases are not typical for the condition, especially when it comes to pre-pubertal children. Moreover, as the same symptoms can occur in ADHD, bipolar disorder, Anxiety disorder, disturbed domestic environment or life event, a significant differential diagnostic problem arises in some of the studies.

Another important observation is that almost none of the studies took into account how the concentration and attention skills were developed in the groups of children under study, nor how parents and teachers contributed to the process during the various stages of their development. Also the socioeconomic background of the families varied in each study and they generally did not include

families from every socioeconomic group, thus the results of the studies cannot be generalised without strong reservations. Furthermore, the study observers –such as health experts (including private doctors)– were not always blinded, and they were often predisposed towards the patients studied or –in some studies– there was only one examiner so that the whole study was based solely on their own knowledge, experience and skills. Finally, in the studies where therapeutic interventions were provided for the mothers, it should be noted that the interventions solely targeted Depression and no other psychopathological conditions which may coexist. According to the twenty seventh study, future studies should examine whether this integrated intervention improves long term developmental outcomes for children with ADHD.

Depression in mothers of children with ADHD affects the assessment of ADHD when completing diagnostic questionnaires

One study[25] concerned a sample of 65 parents (58 boys, 7 girls) of children with ADHD aged 8–12 years. Thirty four of the children presented comorbidity with oppositional defiant disorder and 2 of them also with conduct disorder. Sixteen of these children were also under treatment with stimulant medication. In this study, no follow up was conducted. Furthermore, in the limitations of this study it should be noted that only the psychological state of the parents and not that of the teachers was taken into account. Also, the completion of the questionnaires did not take into consideration the fact that the teachers assessed behaviours in school while parents at home.

The second study[26] compared the reports of the mothers with those of the children themselves for themselves. It basically involved the presentation of two works (case control family studies).[30,31] The 1996 study[30] had a duration of 16 years, while the study in 1999[31] had a duration of 6 years. Also the 1996 study had follow ups in 1998 and 2000. As already mentioned above, it had a control group, studying a sample of mothers of children with and without ADHD. The age of the children ranged between 12 and 18 years. The limitations of this study were on the one hand the fact that their hypothesis required that they modelled 2-way and 3-way interactions which resulted in covariate patterns with 2 subjects. Thus the statistical power to detect small effects was low and non-significant; the findings cannot be considered conclusive. On the other hand, it included reports only from mothers and their children and not from a third party, as for example, the teachers.

Finally, we must also note that different diagnostic tools were used in both studies; the first one was based on DSM-III and the second one was based on DSM-IV. Mainly, because of the limited patients included in the studies found and because of some methodological imperfections in them, it seems that further data is needed from new studies, with larger study populations and better study designs, in order to support their results.

The third one[27] investigated a sample included ninety-six 6 to 10 years old diagnosed with ADHD-combined type and their mothers, who provided baseline data before participating in a randomized clinical trial.

The genetic factor

The fact that only two studies were found concerning the genetic correlation between the two disorders is a limiting factor on the generalisation of their results due to the limited number of patients included. One study[28] examined adolescents, whereas the other study[29] examined adult patients with ADHD and the number of both patients and control group were limited. The young age of patients, in the first study, further limited the reliability of the results, because many of the mental disorders may potentially occur in adulthood. Also, adopted children did not have a common descent but different nationalities and this further complicated the results. In the second study, the reported mutation TPH1 predisposed in many different behaviours and symptoms associated with ADHD and affective disorders, which can also be influenced by other genetic and environmental factors (for example other mutations, maternal stress, diet, hormonal agents etc.). In both studies, it was evident that the characteristics of the children affected both the appearance and the development of depressive disorders in parents. In conclusion, due to the limited number of studies, the genetic correlation of depression and ADHD would be a suitable field of further research

Συσχέτιση της μητρικής κατάθλιψης με τη διαταραχή ελλειμματικής προσοχής και υπερκινητικότητας στα παιδιά

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Τα οικογενειακά προβλήματα αποτελούν παράγοντα κινδύνου για οποιοδήποτε πρόβλημα συμπεριφοράς στο παιδί. Είναι άλλωστε βιβλιογραφικά τεκμηριωμένο ότι η ύπαρξη οποιουδήποτε είδους ψυχοπαθολογίας στους γονείς ενός παιδιού σχετίζεται με τη συμπεριφορά, την προσωπικότητα και –πιθανώς– με την εμφάνιση ψυχοπαθολογίας στο παιδί. Η διαρκής αλληλεπίδραση μεταξύ γονικής και παιδικής ψυχοπαθολογίας ή αναπτυξιακής διαταραχής από τη μία πλευρά και ψυχοπαθολογίας γονέων από την άλλη, αποτελεί ένα από τα σημαντικότερα πεδία ερευνών των τελευταίων χρόνων. Σκοπός της εργασίας είναι η ανάδειξη της σχέσης ανάμεσα στη μητρική καταθλιπτική διαταραχή και στην παιδική/εφηβική διαταραχή ελλειμματικής προσοχής και υπερκινητικότητας (ΔΕΠΥ), μεταξύ ατόμων της ίδιας οικογένειας, και κυρίως η επιρροή που ασκεί η μία στην εμφάνιση και την εξέλιξη της άλλης, όπως και η επιρροή και των δύο στη σχέση γονέα-παιδιού και κυρίως μητέρας-παιδιού. Διενεργήθηκε βιβλιογραφική έρευνα για τον εντοπισμό άρθρων που να συσχετίζουν τη μητρική καταθλιπτική διαταραχή με τη ΔΕΠΥ σε τουλάχιστον ένα από τα παιδιά της ίδιας οικογένειας, δημοσιευμένων στην αγγλική γλώσσα από τον Ιανουάριο του 1980 έως τον Δεκέμβριο του 2015. Η επιλογή περιορίστηκε αυστηρά σε άρθρα που αφορούν στις Συναισθηματικές Διαταραχές στις μητέρες και στη ΔΕΠΥ στα παιδιά τους. Η διαδικασία αυτή συμπληρώθηκε με ηλεκτρονική έρευνα των βιβλιογραφικών παραπομπών των άρθρων που εντοπίστηκαν, ή των συναφών ανασκοπήσεων, ώστε να βρεθούν πρόσθετες πηγές. Με δεδομένη τη διαρκή αλληλεπίδραση ανάμεσα στην εκδήλωση και στην πορεία της συγκεκριμένης αναπτυξιακής διαταραχής (ΔΕΠΥ) και του ψυχολογικού προφίλ της μητέρας, που στην προκειμένη περίπτωση αφορά στην Καταθλιπτική Διαταραχή στις μητέρες, συνοψίζονται τα εξής: Εντοπίστηκαν 27 άρθρα, εκ των οποίων τα 24 αφορούν στον τρόπο με τον οποίο η μία διαταραχή (ΔΕΠΥ στο παιδί/κατάθλιψη στη μητέρα) επηρεάζει την εμφάνιση και την πορεία της άλλης, ενώ οι τρεις αφορούν στη μεταξύ τους συσχέτιση σε γενετικό επίπεδο. Υπάρχουν βέβαια και κάποιοι περιορισμοί. Αν και όλες σχεδόν οι εργασίες περιλαμβάνουν ομάδα ελέγχου, σε πολλές από αυτές δεν υπάρχει επανεξέταση (follow up) και είναι βραχυχρόνιες. Τα αποτελέσματά τους, επίσης, είναι ετερογενή, πράγμα που δυσχεραίνει τη μετα-ανάλυσή τους. Παρά τους περιορισμούς, φαίνεται ότι η παιδική/εφηβική ΔΕΠΥ και η μητρική κατάθλιψη αλληλοεπηρεάζονται με ποικίλους μηχανισμούς, τόσο ψυχοκοινωνικούς όσο και βιολογικούς. Παρόλ' αυτά είναι προφανής η ανάγκη περισσότερων ερευνητικών δεδομένων από καλές δομημένες ομοιογενείς μελέτες, κυρίως σε γενετικό επίπεδο, προκειμένου να τεκμηριωθεί περισσότερο η εν λόγω συσχέτιση.

Λέξεις ευρετηρίου: Κατάθλιψη, μητέρα, παιδί, ΔΕΠΥ, μητρική κατάθλιψη, παιδιά.

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Special article
Ειδικό άρθρο

Employment insecurity, mental health and suicide

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With the economic crisis an increase in suicidality has been reported across Europe but especially in Greece. These reports hit the mass media headlines and were also included in the debate among political parties. The literature suggests that during periods of deep economic crisis, there is an increase specifically in suicides but causality remains unclear. The prevailing picture both in the scientific literature and in the mass media is that the economic crisis acts as a more or less generic risk factor on the entire population putting at risk literally anybody. Two recent studies clearly dispute it by reporting that suicides had increased several months before unemployment increased. Additionally and specifically concerning Greece, where the economic crisis is deeper and more prolonged, the detailed inspection of age and gender specific rates are not in accord with a "male gender" by "unemployment" interaction. Taking into consideration the above and since the rise in suicides also affects prospering countries without high unemployment, including Germany and Norway, another possible explanation is that the changes in the socioeconomic environment and especially in the employment conditions have overstressed vulnerable populations (e.g. mental patients) leading to the increased suicide rates. The problem is that in the majority of the literature the economic crisis/austerity is considered to be a generic risk factor affecting the entire population and subsequently generic horizontal measures are proposed. Unfortunately patients at risk to commit suicide are not considered as such; instead they are rather considered as normal healthy people from the general population who respond with suicide to generic adverse events.

Key words: Employment insecurity, mental health, suicide, financial crisis.

Introduction

After the 2008 global economic crisis and the beginning of the crisis in Europe, an increase in suidality has been reported across Europe and especially in Greece. Several authors expressed concern on the effect of austerity on health care and especially on suicidality. It is widely believed that crises of this kind increase suicides,[1–7] with men of working age being at the highest risk. There are several studies published until now, suggesting such a pattern concerning the impact of the economic crisis in European countries[6,8–18] Asia[19,20] and the US[15] although different and more complex interpretations also exist.[21–26]

These reports hit the mass media headlines and were also included in the debate among political parties. However it seems that the variability and the fluctuation of suicide rates across countries encumber the identification of the time point this increase has begun to occur. It is well known that suicidal rates vary considerably among European countries and the reasons for this are unknown although several theories have been proposed. The effect of climate has previously been discussed but has not been investigated in a systematic way across countries.

The relationship between austerity and suicidality

One suggestion is that only after 2010 a rise in suicides is clearly visible[17,21–23] while, on the contrary, other authors suggest it started already after 2007.[10,13,14,27,28] The development of suicidal rates vs. unemployment in Greece during the last 35 years is shown in figure 1.

The critical issue is of course the causality. Concern has been expressed on the possible adverse effects of austerity on healthcare with specific focus on mental health.[6,10,28–39] It is well known that mental patients constitute a vulnerable group in the population and it is believed to be at a higher risk to be affected by such a crisis. Additionally, the literature suggests that during periods of deep economic crisis, a deterioration in general mental health happens with an increase in depression and anxiety. This has been reported after the economic crisis in Hong Kong,[40] south Australia,[41] Greece,[42] UK[39] and Spain,[11] and the effect seemed more severe in population groups who experienced unstable employment or financial problems.[11,40,41] However these studies could not differentiate between general distress and clinically defined mood disorders, and therefore their conclusions cannot be considered reliable since many factors could act as confounders towards either a type I or a type II error.

More consistent are the data showing that economic crises and austerity increase specifically suicides[1–7] but again causality remains unclear. In his seminal work in 1979, Brenner reported that for every 10% increase in unemployment there is an increase of 1.2% in total mortality, including an increase by 1.7% in suicidality.[43] In the past, economic crises have been correlated with increases in suicides, like the Great depression,[2,4,44,45] the Russian crisis in the early 1990s[14] (although the data are not published reliably) and the Asian economic crisis in the late 1990s.[19,20] There are several studies published until now, suggesting a similar pattern concerning the impact of the economic crisis on suicidality in European countries[6,8–18] and the US.[15]

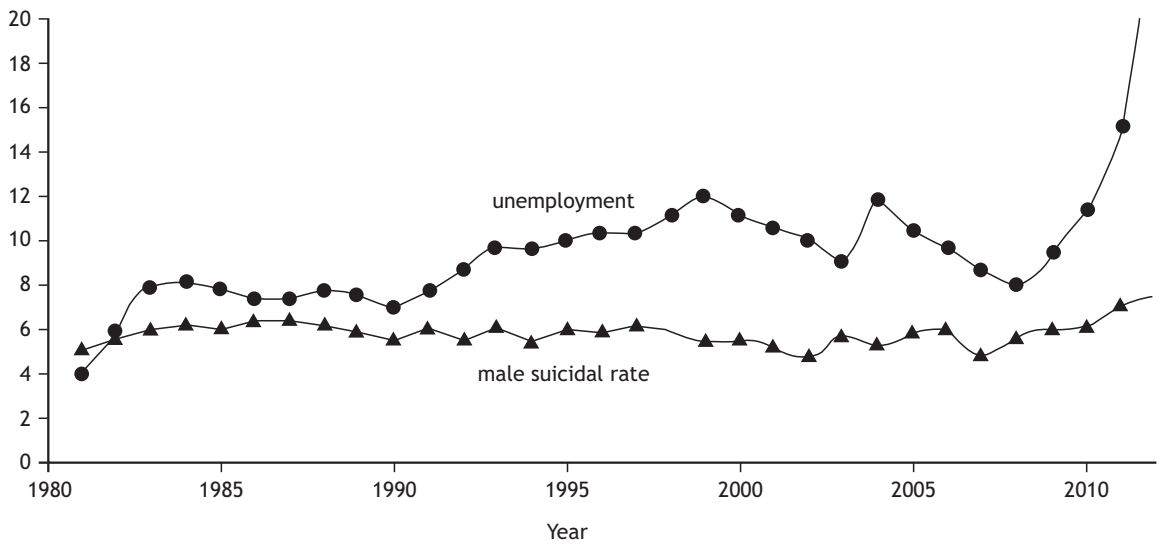

Figure 1. Chart of unemployment and male suicide rates for the years 1981–2012 in Greece during the last 35 years.

In line with this assumption it has been proposed that the variations in suicidal rates relate to the severity of the recession as well as to varying social support and labour market protections in different countries,[14,36,46] and consequently a reduction of unemployment through governmental action should lead to a reduction in suicidality.[46]

Thus, the prevailing picture both in the scientific literature and in the mass media is that the economic crisis acts as a more or less generic risk factor on the entire population putting at risk literally anybody. It is to be noted that the vast majority of papers are published by authors experienced in general public health and health economics but with little background in clinical or research psychiatry.

The problem is that correlation does not always imply causality and the causal relationship between the increase in unemployment and increase in suicides has been recently questioned both for the US and Europe[21–24] (figure 2). The Hungarian data present with a similar picture also.[47] Two recent studies clearly dispute it by reporting that suicides increased several months before unemployment increases.[26,48] Essentially in all papers publish until today, a temporal advance of the suicide increase in relationship to the increase in unemployment is observed, although not always reported or commented. Thus the temporal sequence and correlation of events (suicidal rise first, economic recession follows, synchronization of suicidal rate changes across both continents) suggests there is probably a close relationship between the economic environment and suicidal rates; however this relationship is not that of a direct cause and effect between unemployment and suicidality. One could argue that those people who are going to lose their jobs are stressed months before this happens, but "fear" of unemployment is quite different from unemployment per se, especially since such an assumption suggests that employed people do commit suicide before they become unemployed and nobody knows if they would had lost their jobs eventually if they remained alive.

Additionally and specifically concerning Greece, where the economic crisis is deeper and more prolonged, the detailed inspection of age and gender specific rates suggests that for males the increase

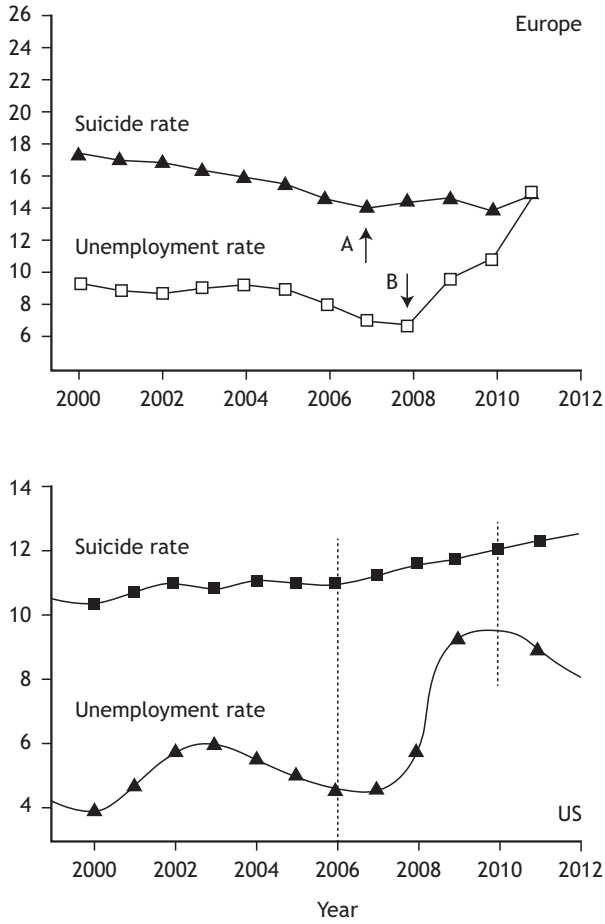

Figure 2. Unweighted average changes in suicide rates and unemployment across 29 European countries and the US. Suicide rates increase before an increase in unemployment is evident. The US charts come from Reeves et al 2012.
A: Time point of the increase in suicidal rate
B: Time point of the increase in unemployment rate

in suicidal rates is present in all age groups except <14, 25–29 and >80. For females the increase is also present in all age groups except 40–54 and 65–69. However, and this is of outmost importance, the greatest increase in the rates from 2003–2010 in comparison to 2011–2 is seen in females aged 15–19 (149.18%), 20–24 (148.65%), 35–39 (86.24%) and 55–59 (60.74%). In comparison the highest rate for males was seen in the age group 55–59 (61%). These results are not in accord with a "male gender" by "unemployment" interaction. Also, for the years 1981–2012 the correlation of male suicidal rate to unemploy-

ment is 0.54 but for 1981–2010 is –0.09, suggesting that there is no linear relationship.

In figure 1 there is a chart of unemployment and male suicidal rates from 1981–2012. In this chart it is clear that it is very difficult to decide when suicides started increasing. Three time points are possible and these are the years 2003, 2007 and 2010, depending on the interpretation of the pattern.

Possible causal relationships

Taking into consideration the above and since the rise in suicides also affects prospering countries without high unemployment, including Germany and Norway, another possible explanation is that the changes in the socioeconomic environment and especially in the employment conditions (e.g. flexible employment, more rigid rules) which are now in place almost in every country irrespective of its economic status, have overstressed vulnerable populations (e.g. mental patients). Increased suicide rates are probably a consequence of this disproportionate stress. If this is so, prosperity in general will not bring a fall in the suicide rates unless it is accompanied by targeted interventions to support these vulnerable groups which are disproportionally stress by recession. The problem is that in the majority of the literature the economic crisis/austerity is considered to be a generic risk factor affecting the entire population and subsequently generic horizontal measures are proposed. Unfortunately patients at risk to commit suicide are not considered as such; instead they are rather considered as normal healthy people from the general population who respond with suicide to generic adverse events.

There is an increasing need for the establishment of a central European Union authority for the monitoring of suicides and the design of specific measures. Probably in many countries (especially in North-Eastern Europe) suicides can be dramatically reduced, but only if interventions with proven efficacy are applied. Unfortunately most interventions applied so far are of questionable efficacy or not efficacious at all.[49–52]

Εργασιακή ανασφάλεια, ψυχική υγεία και αυτοκτονία

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Με την εμφάνιση της οικονομικής κρίσης αναφέρθηκε μια αύξηση των αυτοκτονιών σε ολόκληρη την Ευρώπη αλλά ειδικότερα στην Ελλάδα. Οι αναφορές αυτές δημιούργησαν αίσθηση και κατέλαβαν τα πρωτοσέλιδα των ΜΜΕ, αλλά επίσης αποτέλεσαν πεδίο πολιτικής αντιπαράθεσης μεταξύ των κομμάτων. Η διεθνής βιβλιογραφία υποστηρίζει ότι σε περιόδους βαθιάς οικονομικής κρίσης εμφανίζεται ειδικά μια αύξηση των αυτοκτονιών αλλά η αιτιολογία της παραμένει ασαφής. Η κυρίαρχη εικόνα τόσο στην επιστημονική βιβλιογραφία όσο και στα ΜΜΕ είναι ότι η οικονομική κρίση δρα ως ένας μη-ειδικός παράγων κινδύνου πάνω σε ολόκληρο τον πληθυσμό και αυξάνει τον κίνδυνο αυτοκτονίας κυριολεκτικά για τον καθένα. Δύο πρόσφατες μελέτες το αμφισβητούν, αναφέροντας ότι οι αυτοκτονίες αυξήθηκαν αρκετούς μήνες προτού αυξηθεί η ανεργία. Επιπροσθέτως –και ειδικά για την Ελλάδα όπου η οικονομική κρίση είναι βαθύτερη και περισσότερο παρατεταμένη– η λεπτομερής επισκόπηση των ειδικών για φύλο και ηλικία ρυθμών αυτοκτονίας δεν συνάδει με μια αλληλεπίδραση «ανδρικό φύλο» επί «ανεργία». Λαμβάνοντας υπόψη τα παραπάνω και καθώς η αύξηση των αυτοκτονιών παρατηρείται και σε χώρες με ακμάζουσα οικονομία χωρίς υψηλή ανεργία, συμπεριλαμβανομένης της Γερμανίας και της Νορβηγίας, μπορεί να υποτεθεί ότι οι αλλαγές στο

κοινωνικοοικονομικό περιβάλλον και ειδικά στις συνθήκες εργασίας έχουν αυξήσει την πίεση πάνω σε ευάλωτους πληθυσμούς (π.χ. ψυχιατρικοί ασθενείς) οδηγώντας σε αύξηση των αυτοκτονιών. Το πρόβλημα είναι ότι στην πλειοψηφία της βιβλιογραφίας η οικονομική κρίση και η λιτότητα θεωρούνται μη-ειδικοί παράγοντες κινδύνου που επιδρούν στον συνολικό πληθυσμό και ως συνέπεια προτείνονται μη-ειδικά οριζόντια μέτρα αντιμετώπισης. Δυστυχώς οι ασθενείς που βρίσκονται σε αυξημένο κίνδυνο να αυτοκτονήσουν δεν θεωρούνται ως ασθενείς αλλά αντίθετα θεωρούνται μάλλον ως υγιείς άνθρωποι από τον γενικό πληθυσμό που αντιδρούν με αυτοκτονικότητα σε μη-ειδικά αρνητικά γεγονότα.

Λέξεις ευρετηρίου: Εργασιακή ανασφάλεια, ψυχική υγεία, αυτοκτονία, οικονομική κρίση.

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General article
Γενικό άρθρο

Compulsory admissions in southwest Greece 2010–2011: A descriptive report

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Compulsory admissions represent a significant proportion of psychiatric hospitalizations. A wide variation seems to exist internationally regarding legal frameworks, administrative procedures, detention rates and clinical practice. The aim of the present study is to describe qualitative and quantitative features of compulsory admissions in a large administrative area in southwest Greece, in order to identify targets for future research and possible remediation. Involuntary assessments and admissions in the Department of Psychiatry of the University Hospital of Patras were retrospectively assessed, during a 12-month period, for demographic features and data regarding legal procedures. Diagnoses following compulsory first assessment and at discharge were recorded for the patients who were admitted in our department. During the period of observation, 218 compulsory assessments were made, corresponding to 190 patients and resulting in 183 compulsory admissions. Thirty five cases (16.1%) were assessed as not justifying hospitalization and corresponded mainly to the diagnoses of alcohol and/or substance abuse or dependence. Involuntary hospitalizations represented 44.9% of all psychiatric admissions in our department. Diagnosis at first assessment was most frequently psychosis (68.4%). Diagnoses at discharge were most often schizophrenia (52.8%) and bipolar disorder (21.3%). A history of multiple hospitalizations (>5) was observed in 17 (15.8%) patients, whereas 46 patients (42.6%) were hospitalized for the first time, and 13 (11.7%) exhibited their first psychotic episode. Of the 108 patients who were admitted in our department, 88 (81.5%) declared that they did not wish to attend the court hearing, 7 (6.5%) were not able to attend due to severe health condition, and only 13 (12.0%) actually presented in court. Concluding, current situation regarding legal procedures, involuntary admissions and mental health care in Greece is rather far from satisfying. Future directions should include the systematic recording of mental health care parameters, such as compulsory hospitalizations, as well as efforts to improve these parameters and the existing legal framework and procedures.

Key words: Compulsory, admissions, psychosis, law, Greece.

Background

Compulsory placements represent a significant proportion of psychiatric admissions, posing strains on the therapeutic relationship and restrictions on the patients' freedom.[1] The Law has to protect the civil rights of the patient and at the same time provide the context for the patients' optimal treatment.[2] A wide variation seems to exist regarding legal frameworks, administrative procedures, detention rates and clinical practice, across Europe and elsewhere, as well as a significant lack of data or comparability of statistics among countries.[3–5] Particularly in Greece, there is a paucity of data regarding compulsory admissions, for example rates or quotas, whereas clinical practice and implementation of the law presents remarkable diversity.[4] Currently, the rate of involuntary admissions is roughly estimated around 50/100,000 inhabitants per year, and quotas around 50% of hospital admissions, however collection of data is rather not systematic.[6]

Mental health legislation in Greece is mainly based on the law nr 2071/1992, according to which, there are two main criteria that have to be fulfilled in order to have a patient involuntary placed in hospital: Firstly, a mental disorder must be present, the patient must not be capable of making an admission or treatment decision, and the patient's health must be at risk of deterioration or its improvement excluded in case he/she is not admitted to hospital. Secondly, there must be a risk of harm against self or others, if treatment is not provided.[7] After Oviedo Convention in 1998 and according to the law nr 2619/98, the second condition has been rendered not necessary.[8] In the law nr 2071/92, it is stated that the inability or refusal of a person to conform to the ethical, social or political values that prevail in society, do not per se constitute a mental disorder. Also, the management of persons suffering from alcohol or substance abuse or dependence, is ruled by other special laws.[7]

The process through which a patient is brought for involuntary assessment and/or admission begins with the application to the Public Prosecutor. The application can be made by a first or second degree relative, or guardian, accompanied by the expert opinion of two psychiatrists. In extreme cases, the Public Prosecutor himself makes the application. If the patient refuses to be examined, the Public Prosecutor can order the involuntary assessment of the patient, by two psychiatrists. Psychiatric assessment must be documented, either on separate files or on one joint file. In case of disagreement between the two examiners, a third psychiatrist must examine the patient and respond to the Public Prosecutor accordingly. The period of observation and assessment must not exceed 48 hours, and if criteria are fulfilled, the patient is kept for compulsory inpatient treatment. Within 10 days, the Public Prosecutor is committed to send the case to Court.[7] The patient must be formally informed that he/she has the right to be present in Court, accompanied by a lawyer and a psychiatric counselor, and is also able to take legal action against the Court decision.[8] Involuntary hospitalization cannot last longer than six months. At the end of three months a report describing the patient's condition must be submitted to the Public Prosecutor by the director of the psychiatric department. In extreme cases where a hospitalization longer than six months is needed, the patient must be examined by a committee of three psychiatrists, one of whom is the psychiatrist in charge of the patient, and again submit their report to the Public Prosecutor.[7] It has to be noted that involuntary hospitalization is always accompanied by involuntary administration of treatment.

Strategies for reducing the rate of compulsory admissions have been implemented internationally with inconclusive results.[9,10] The presumably high quota of compulsory admissions in Greece,[11] as well as the scarcity of formal and systematic collection of data, call for more detailed research on qualitative and quantitative aspects of this issue, and at the same time, for exploring ways of reducing involuntary hospitalizations. The aim of the present study is to describe naturalistic aspects of compulsory admissions in a large administrative area in Greece, belonging to the 6th Health District of Peloponnese-Ionian Islands-Epirus & Western Greece, in order to identify targets for future research and possible remediation. This administrative area refers to a population of about 1,000,000 people, and includes the states of Achaia, Ilia, Etoloakarnania, Zakynthos, Kefalonia, Leukada, Itaka. Legal and administrative aspects of everyday practice regarding involuntary admissions in this area are also described.

Material and Methods

Compulsory assessment orders and compulsory admissions in the Department of Psychiatry of the University Hospital of Patras, during a one year period, from 1st July 2010 to 30th June 2011, were retrospectively assessed using hospital records. Parameters which were examined were total emergency assessments, demographic features and data regarding legal and administrative procedures. Diagnoses following compulsory first assessment and at discharge were recorded for the patients who were admitted in our department (111 admissions, 108 patients). The Microsoft Excel 2007 version was employed for the database and descriptive statistics. The study was approved by the Deontology and Ethics Committee of the University Hospital of Patras.

Results

During the period of observation, 2684 emergency assessments were made, 218 of which were compulsory assessments, corresponding to 190 patients, aged 14–89 years old (mean±SD: 44.37±14.89). The involuntary assessments resulted in 183 compulsory admissions in the University Hospital of Patras and other hospitals, whereas 35 cases (16.1%) were assessed as not justifying hospitalization. Commanding Public Prosecutor's offices and psychiatric hospitals where involuntary admissions finally took place are shown in figures 1 and 2.

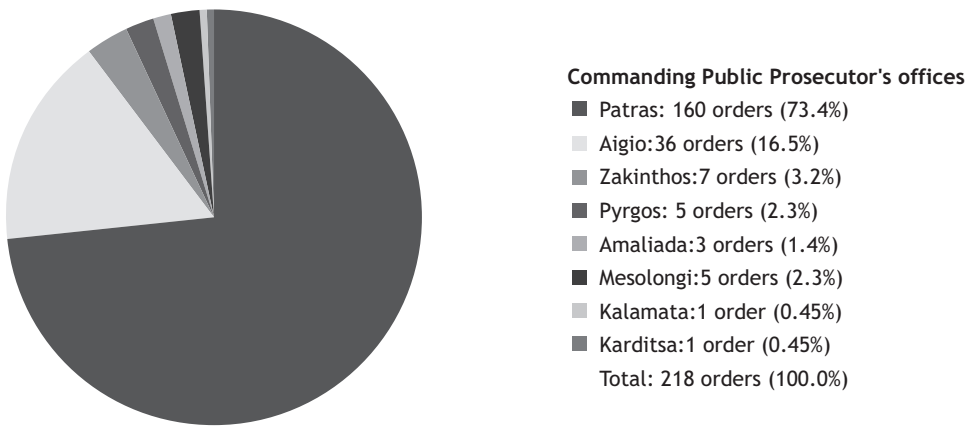

Figure 1. Commanding prosecutor's offices ordering involuntary assessments of patients by the Department of Psychiatry of the University Hospital of Patras, for the 12-month period of observation.

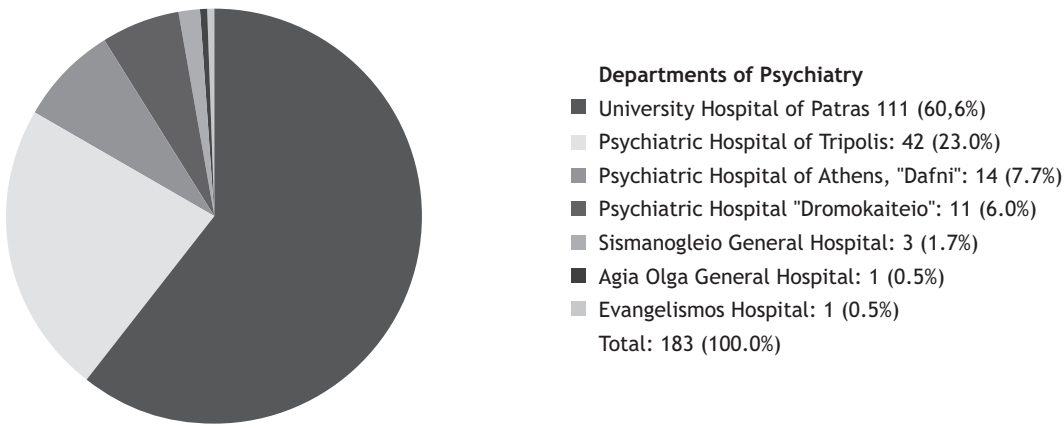

Figure 2. Psychiatric hospitals and departments where compulsory admissions took place, for the 12-month period of observation.

Voluntary admissions were 136, during the same period, in the Department of Psychiatry of the University Hospital of Patras. Demographic features are shown in table 1 (sex, ethnicity, place of residence).

A significant number of patients (19, 10% of patients) were involuntarily examined more than once in the one-year period: 14 patients twice, 3 patients thrice, one patient 4 times and another one 6 times.

Compulsory admissions represented 44.9% of all admissions in our psychiatric department. Patients were obliged to be hospitalized in other hospitals on days of extreme occupancy, which is 116–142% occupancy of beds in our department of 24 beds, corresponding to 4–10 additional beds, located in the corridor of the department (mean±sd: 129%±0.06% occupancy, on average 7 additional beds).

Patients who were compulsorily admitted were diagnosed most frequently with psychosis (68.4%), whereas those who were not admitted represented mostly addicted persons or diverse categories (tables 2 and 3). Diagnoses at discharge were most

Table 1. Demographic features of patients brought for compulsory assessment.

Demographic features	Patients (%) (n=190)
Sex	
Men	133 (70)
Women	57 (30)
Ethnicity	
Greek	181 (95.3)
Foreign	9 (4.7)
Place of residence (distance from Patras, km)	
Patras (0)	113 (59.5)
Achaia Prefecture (10–115)	52 (27.4)
Ilia Prefecture (49–161)	9 (4.7)
Etoloakarnania Prefecture (18–166)	5 (2.6)
Zakynthos (112)*	8 (4.2)
Athens (215)	2 (1.1)
Messinia Prefecture (149–260)	1 (0.5)

*Access to Zakynthos is provided by car (30 minutes) and boat (2 hours)

Table 2. Diagnoses of initial involuntary assessments of patients who were admitted compulsorily in psychiatric departments and hospitals.

Diagnosis	Number of assessments (%)
Psychotic relapse	70 (38.3)
Psychotic symptoms	55 (30.1)
Relapse of bipolar disorder	10 (5.5)
Manic symptoms with or without psychotic features	10 (5.5)
Cognitive impairment and psychotic symptoms	4 (2.2)
Borderline Personality disorder and psychotic symptoms	2 (1.1)
Antisocial personality disorder and psychotic symptoms	2 (1.1)
Mental retardation and psychosis	6 (3.3)
Mental retardation, behavioral disturbance and/or alcohol use	7 (3.8)
Delirium and behavioral disturbance	2 (1.1)
Depressive symptoms and reported substance use	1 (0.55)
Alcohol and/or substance use and behavioral disturbance	2 (1.1)
Alcohol use and depressive symptoms	3 (1.6)
Alcohol use and psychotic symptoms	2 (1.1)
Alcohol use and personality disorder	2 (1.1)
Psychotic and depressive symptoms	2 (1.1)
Depressive symptoms and suicidal ideation	2 (1.1)
Obsessive compulsive disorder and suicidal ideation	1 (0.55)
Total	183 (100)

Table 3. Diagnoses of initial involuntary assessments of patients who were not admitted to hospital.

Diagnosis	Number of assessments (%)
Substance and/or alcohol abuse	7 (20.0)
Substance and/or alcohol abuse and behavioral disturbance	3 (8.6)
Reported substance use	3 (8.6)
Reported substance use and behavioral disturbance	4 (11.4)
Reported substance use and delirium	1 (2.9)
Mental retardation and alcohol use	2 (5.7)
Mild mental retardation	1 (2.9)
Mental retardation, alcohol use and remitted psychosis	1 (2.9)
Mental retardation and delirium	2 (5.7)
Dementia	2 (5.7)
Depression and alcohol abuse, remitted	1 (2.9)
Psychosis in remission	1 (2.9)
Conjugal problems	2 (5.7)
Absence of active psychopathology	3 (8.6)
Absence of active major psychopathology, with social problems and general medical conditions	1 (2.9)
Total	35 (100)

often schizophrenia (52.8%), and bipolar disorder (21.3%) (table 4).

A history of multiple hospitalizations (>5) were observed in 17 (15.8%) patients, whereas 46 patients (42.6%) were hospitalized for the first time, and 13 (11.7%) of them exhibited their first psychotic episode. Status of first hospitalization was voluntary in 14 (13.0%) patients, and involuntary in the rest 94 (87.0%) of patients.

Duration of hospitalization (mean±SD) was 41.8±23.6 days. In 4 cases hospitalization exceeded 90 days (108, 113, 115 and 128 days, respectively), in which cases required documents regarding the patients' condition and need for further detainment were submitted to the Public Prosecutor's Office, accordingly. Nine orders were applied for by the Public Prosecutor after notification by the police, 5 orders were applied for after the testimonies of neighbors or social workers' reports, and the rest 96 (93.6%) were ordered following the petition of relatives.

Transfer of the patients to the hospital for the psychiatric assessments was made by the police, without ambulance. Transfer was immediate in 107 (49.1%) cases. In 56 (25.7%) cases the patients were transferred within 1–2 days, in 37 (17.0%) cases within 3–10 days, and in 18 (8.3%) within more than 10 days. In one case the patient reached hospital 53 days later than the Public Prosecutor's assessment order.

In all cases the documents of the psychiatric assessments were compiled in due time, that is within 48 hours, and in most cases (210, 96.3%) immediately. Although patients were orally informed by the psychiatric staff about the conditions of compulsory admission and their legal rights, the compilation of the relevant document was almost always neglected.

Of the 108 patients who were admitted in our department, the great majority (88, 81.5%) declared that they did not wish to attend the court hearing, 7 (6,5%) were not able to attend due to severe health condition, and only 13 (12.0%) declared that they wished to attend court. In the latter group, only one patient presented to court accompanied by a lawyer, and in two other cases, where the court in charge was located in another prefecture, the court hearing was deferred because the transfer of the patients by the police was not possible. Of note, hospitalization of patients away from their residence and the Prosecutor's Office that has ordered the admission, sometimes at a distance greater than 200 km, poses additional difficulties in keeping with the legal procedures and thus protecting the patients' civil rights.

Table 4. Diagnoses according to DSM-IV-TR criteria at discharge of patients who were compulsorily admitted.

Diagnosis	Admissions (%)	Patients (%)
Schizophrenia, paranoid type	49 (44.1)	49 (45.4)
Schizophrenia, undifferentiated type	7 (6.3)	7 (6.5)
Schizophrenia disorganized type	1 (0.9)	1 (0.9)
Psychotic disorder NOS	2 (1.8)	2 (1.9)
Psychotic disorder due to dementia	5 (4.5)	5 (4.6)
Psychotic disorder due to general medical condition	1 (0.9)	1 (0.9)
Brief psychotic disorder	1 (0.9)	1 (0.9)
Delusional disorder	1 (0.9)	1 (0.9)
Bipolar Disorder I, current episode manic or mixed with psychotic features	16 (14.4)	14 (13.0)
Bipolar Disorder I, current episode manic or mixed without psychotic features	5 (4.5)	5 (4.6)
Bipolar disorder I, current episode major depressive with or without psychotic features	2 (1.8)	2 (1.9)
Bipolar disorder II	1 (0.9)	1 (0.9)
Bipolar disorder NOS	1 (0.9)	1 (0.9)
Schizoaffective disorder	2 (1.8)	2 (1.9)
Major depressive disorder with or without psychotic features	4 (3.6)	4 (3.7)
Mental retardation and psychotic disorder NOS	3 (2.7)	3 (2.8)
Mental retardation and behavioral disturbance	5 (4.5)	4 (3.7)
Mood disorder due to alcohol and alcohol dependence	1 (0.9)	1 (0.9)
Personality disorder and alcohol dependence	3 (2.7)	3 (2.7)
Substance abuse and intoxication	1 (0.9)	1 (0.9)
Total	111 (100)	108 (100)

The courts' verdict was in all cases confirming of the psychiatric assessments, except for one case, where the judge decided that the admission was not justified, because the psychiatrists compiled a joint document instead of two separate ones; the patient was discharged immediately after. In 3 cases the day of court hearing was set in due time, within 10 days of admission, whereas for the rest of admissions (108, 97.3%) it was set later, and in many cases (34, 30.6%) after the patients' discharge.

During the period of observation, there were 24 inpatient psychiatric beds provided by the Department of Psychiatry of the University Hospital in Patras, Achaia, and none in Etoloakarnania, Messinia, Zakynthos- Kefalonia, and Ilia. As for residential care facilities and rehabilitation units, there were 2 supported housing wards in Patras, Achaia, one in Pyrgos, Ilia, one in Mesologgi, Etoloakarnania, and 2 boarding houses, 3 supervised apartments, as well as one day hospital in Patras, Achaia.

Discussion

The present study attempts to describe aspects of every day practice of compulsory care delivery in a large area of Greece, Achaia and neighboring prefectures in particular. At first glance, the data point to a rather high quota of involuntary hospitalizations, 44.9%, higher than the European average, ranging from 5.8% for Belgium, to 30% for Sweden.[3] It is possible that this quota is comparable with those of other regions in Greece;[1,12] however, psychiatric hospitals that accept compulsory admitted patients from other areas on days of extreme occupancy might yield even higher quotas. There are certain reasons that can be thought of as contributing to this high percentage of involuntary placements of beds. Previous work has tested the correlations of procedural features, sociodemographic characteristics and psychopathology with compulsory admission quotas, but the data are far from being exhaustive. In

countries where the inclusion of a legal representative of the patient is mandatory, involuntary admissions tend to be lower,[3] therefore the fact that such an inclusion is not obligatory in Greece could contribute to the local high percentage of involuntary placements. Moreover, as an administrative routine and everyday practice, the application of a first degree relative is often enough to commence the procedure of involuntary assessment, and indeed, in our sample, this was the prevailing mode, which is, in 93.6% of cases. This fact is also mirrored in the not at all trivial proportion of orders which were negatively assessed, that is, were documented as "hospitalization is not needed". A part of these cases were free from psychopathology. In certain instances, distressed relatives would use the legal process of compulsory psychiatric assessment to continue a family dispute. There are also other cases that correspond to the diagnoses of alcohol or substance abuse or dependence. These cases are not managed on a compulsory basis, and when there is not another diagnosis on axis I, they are advised to refer to mental health detoxification units. The relative scarcity of such units in Greece and in our area in particular, which leads to long waiting lists, often encourages these patients and their families to the legal process of compulsory assessment, with the hope of involuntary hospitalization, which, in the end, seems to be a major pathway to mental health care in our country.

The extreme shortage of beds and crowded corridors of psychiatric departments, and as a result the pressure on clinicians to manage more cooperative patients on an outpatient basis with the assistance of family members and caregivers, could presumably represent another contribution to the present situation. Severe economic crisis has been found to increase mental health care demands,[13] therefore contributing to the heavy load of mental health care services. Family bonds are rather strong in Greece, so that available relatives frequently agree to supervise a patient who has relapsed, in the sense of "making an effort to keep him outside the psychiatric hospital". If more beds were available, some of these patients would probably be hospitalized voluntarily. Stigmatization of patients with mental disorders is common in Greek society,[14] possibly causing delays in mental health care delivery. It can be hypothesized that, as valuable time passes, patients get worse, probably become uncooperative, leading to a compulsory assessment order at this stage of deterioration. A comparison with voluntary examined and/or admitted patients would be necessary to test these hypotheses. On the other hand, premature discharges and the absence of community treatment orders, which have been reported to support outpatient treatment and possibly reduce readmissions in a subgroup of frequently hospitalized patients,[15] could contribute to frequent relapses and the revolving-door phenomenon. Community care is based grossly on outpatient clinics of the general hospitals in the capital of each prefecture, while some patients are directed to day hospital or rehabilitation and residential care facilities, but co-ordination between community mental health care facilities and connection with inpatient clinics seems rather poor. This fact is especially true for patients who happen to be hospitalized away from their place of residence.

Concerning the implementation of legal procedures, a number of issues arise, which point to a disparity between the law and actual everyday practice. The vast majority of patients are not typically informed about their legal rights and do not attend court for a variety of reasons. In many cases court is scheduled on remarkably overdue dates, and often after patients' discharge. The hospitalization of patients hundreds of miles away from the responsible Public Prosecutor's office represents a further obstacle. In the one case where the judge decided that the involuntary placement of the patient was not justified, the decision was based on a superficial matter, namely the compilation of one instead of two separate psychiatric documents, and thus deprived the patient of necessary treatment. Although Mental Health Legislation in Greece is considered quite protective of the patients' civil rights theoretically,[8] in its everyday routine implementation it does not seem to meet patients' needs.

Regarding demographic characteristics and clinical diagnoses, those were in most cases schizophrenia, similarly with other European countries which have reported similar percentages of 30–50% of psychotic disorders in this group of patients,[3] and males prevailed. When thinking of first psychotic episodes, it is of concern that the first experience of a young psychotic patient regarding mental health care is often an involuntary admission. The involvement of the police and the compulsory nature of the contact almost always constitute a negative experience, which

has been found to correlate with poor engagement in treatment, greater dissatisfaction with services and future delays in help-seeking.[16] Notwithstanding legal admission per se has not been found to adversely influence treatment adherence and outcome,[17] perceived coercion has been shown to negatively interfere with the therapeutic relationship.[18] Although the present data is not sufficient to extract conclusions regarding help-seeking behavior of patients in their first psychotic episode, it is possible that a significant portion has the negative experience of a first contact with the police, which bring them involuntarily to hospital.

An important limitation of the present study is the absence of data regarding voluntary admissions. In future work, voluntary admissions should be included and correlations of status of hospitalization with demographic and clinical variables should be sought for.

Concluding, current state of affairs regarding legal procedures, health statistics recording and mental health care in southwest Greece and possibly at a national level has still a long way to run. The present situation is even more harassing in the context of severe economic crisis. Clinicians and researchers should not be discouraged from further efforts aiming at improving health care parameters as well as legal processes. Future directions should include the systematic recording of involuntary admissions at a national level, assessment of time series, which may in part reflect the impact of economic crisis and political or administrative routine changes in the field of mental health care, assessing level of coercive measures, correlations of sociodemographic and clinical variables with the compulsory status of inpatient care, and implementing possible ways of remediation.

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Ακούσιες νοσηλείες στη νοτιοδυτική Ελλάδα 2010-2011: Μια περιγραφική μελέτη

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Οι ακούσιες νοσηλείες αποτελούν σημαντικό ποσοστό των συνολικών ψυχιατρικών νοσηλειών. Φαίνεται ότι διεθνώς το νομικό πλαίσιο και οι σχετικές διαδικασίες, η συχνότητα των ακούσιων εισαγωγών και η καθημερινή κλινική πρακτική ποικίλλουν ευρέως. Σκοπός της παρούσας εργασίας είναι η περιγραφή ποιοτικών και ποσοτικών χαρακτηριστικών των ακούσιων νοσηλειών στη διοικητική περιφέρεια της νοτιοδυτικής Ελλάδας, ώστε να αναγνωρισθούν στόχοι για μελλοντική έρευνα και παρέμβαση. Εξετάστηκαν αναδρομικά οι ακούσιες εξετάσεις και νοσηλείες που έλαβαν χώρα στην Πανεπιστημιακή Ψυχιατρική Κλινική του Πανεπιστημιακού Γενικού Νοσοκομείου Πατρών (ΠΓΝΠ) κατά τη διάρκεια μιας 12μηνης περιόδου, σε σχέση με δημογραφικούς παράγοντες και με τις νομικές διαδικασίες που ακολουθήθηκαν. Καταγράφηκαν οι διαγνώσεις κατά την αρχική ακούσια εξέταση και κατά την έξοδο από το νοσοκομείο, για τους ασθενείς που νοσηλεύθηκαν στο ΠΓΝΠ. Κατά τη διάρκεια της περιόδου παρατήρησης, έλαβαν χώρα 218 ακούσιες εξετάσεις, που αντιστοιχούσαν σε 190 ασθενείς

και κατέληξαν σε 183 ακούσιες νοσηλείες. Για το 16,1% των συνολικά εξετασθέντων (35 περιπτώσεις) δεν πληρούνταν τα κριτήρια για την ακούσια νοσηλεία, ενέπιπταν δε κατά το μεγαλύτερο μέρος στις διαγνώσεις της κατάχρησης ή εξάρτησης από αλκοόλ ή/και ουσίες. Οι ακούσιες νοσηλείες αντιπροσώπευαν το 44,9% του συνόλου των νοσηλειών στην Πανεπιστημιακή Ψυχιατρική Κλινική του ΠΓΝΠ. Η διάγνωση κατά την πρώτη εξέταση ήταν πιο συχνά η ψύχωση (68,4%). Οι διαγνώσεις κατά την έξοδο ήταν συχνότερα η σχιζοφρένεια (52,8%) και η διπολική διαταραχή (21,3%). Ιστορικό πολλαπλών νοσηλειών (>5) παρατηρήθηκε σε 17 (15,8%) ασθενείς, ενώ 46 εξ αυτών (42,6%) νοσηλεύονταν για πρώτη φορά, και 13 (11,7%) εμφάνιζαν πρώτο ψυχωτικό επεισόδιο. Από τους 108 ασθενείς που εισήχθησαν στην Ψυχιατρική Κλινική του ΠΓΝΠ, 88 (81,5%) δήλωσαν ότι δεν επιθυμούσαν να παραστούν στη δικαστική διαδικασία, 7 (6,5%) δεν ήταν δυνατόν να παραστούν λόγω σοβαρών προβλημάτων υγείας, ενώ μόνο 13 (12,0%) τελικά παρέστησαν στη δικάσιμο. Συμπερασματικά, η παρούσα κατάσταση σε σχέση με την ψυχική υγεία, τις ακούσιες νοσηλείες και τις νομικές διαδικασίες στην Ελλάδα απέχει μάλλον από το να είναι ικανοποιητική. Μελλοντικές κατευθύνσεις θα πρέπει να περιλαμβάνουν τη συστηματική καταγραφή παραμέτρων ψυχικής υγείας, περιλαμβανομένων των ακούσιων νοσηλειών, καθώς και προσπάθειες βελτίωσης αυτών των παραμέτρων και των υφιστάμενων νομικών διαδικασιών.

Λέξεις ευρετηρίου: Ακούσιες, νοσηλείες, ψύχωση, νόμος, Ελλάδα.

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ΔΙΟΡΘΩΣΗ ΛΟΓΩ ΤΥΠΟΓΡΑΦΙΚΟΥ ΛΑΘΟΥΣ

Στο τεύχος της «Ψυχιατρικής» με στοιχεία 2017, 2, σελ. 114 στην εργασία με τίτλο «**Η ειδίκευση στην Ψυχιατρική στην Ελλάδα: Συγκριτική ανάλυση των εκπαιδευτικών προγραμμάτων (2000 vs 2014)**» και στην ενότητα «Θεωρητική εκπαίδευση – Προγράμματα θεωρητικής εκπαίδευσης» στη δέκατη σειρά αναφέρεται … «ωρών από 23 ώρες έως 273 ώρες και μέση τιμή 10,67 ώρες» ενώ το σωστό είναι το παρακάτω: «**ωρών από 23 ώρες έως 273 ώρες και μέση τιμή 105, 67 ώρες**».