ΨΥΧΙΑΤΡΙΚΗ

Τριμηνιαία έκδοση
της Ελληνικής Ψυχιατρικής Εταιρείας
Διονυσίου Αιγινήτου 17, 3ος όροφος, 115 28 Αθήνα
Τηλ.: 210-77 58 410, Fax: 210-77 58 405

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Τηλ.: 210-72 14 148

PSYCHIATRIKI

Quarterly journal published
by the Hellenic Psychiatric Association
17 Dionisiou Eginitou str., 3rd floor, 115 28 Athens
Tel.: +30-210-77 58 410, Fax: +30-210-77 58 405

Publisher:
Vassilis Kontaxakis
E-mail: editor@psych.gr

Owner:
Hellenic Psychiatric Association
11, Papadiamantopoulou str., 115 28 Athens
Tel.: +30-210-72 14 148

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Annual subscriptions:
(€ 40.00 or $ 80.00 + postage) are payable by check to the treasurer of the Hellenic Psychiatric Association:
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Quarterly journal published by the Hellenic Psychiatric Association

CONTENTS

ΨΥΧΙΑΤΡΙΚΗ

Τριμηνιαία έκδοση της Ελληνικής Ψυχιατρικής Εταιρείας

ΠΕΡΙΕΧΟΜΕΝΑ

Editorial
Άρθρο Σύνταξης

The psychotic "continuum"

Research has shown that an exact delineation of prototypic disorders, such as schizophrenia and mood disorders, is not possible. There are presumably genetically determined overlaps between a schizophrenic and an affective spectrum giving rise to psychotic disorders that have features of both prototypes. Such psychotic disorders, which are called paratypes, for example schizoaffective disorder or acute and transient psychotic disorder, have clinical and paraclinical similarities and form a continuum between the two prototypes. This is supported by numerous strong arguments in the fields of premorbidity, phenomenology, course of disorder, prognosis, genetics, biology and neuropsychology.

The *premorbid-phenomenological argument* implies that on a clinical and premorbid level, schizoaffective disorders share many similarities with schizophrenia, as well as with mood disorders and therefore occupy an intermediate position between the two.

The *longitudinal argument* supports that all psychotic disorders have a polymorphous course, which means all types of psychotic episodes may occur and alternate with mood episodes, but the course is more stable in schizophrenic disorders (although sometimes a syndrome shift may also take place in schizophrenia).

The *prognostic argument* is based on one of the most definite findings in the research on the course of psychotic disorders, namely that the prognosis of schizoaffective disorders is better than that of schizophrenic disorders and worse than that of mood disorders. The prognosis of acute and transient psychotic disorders is better than that of schizoaffective disorders.

The *genetic argument* indicates that the main reason for clinical, paraclinical and course overlaps is supposed to be found in the genetic area, which has also been confirmed by more recent studies assuming genetic similarities between schizophrenia and mood disorders.

The *biological argument* assumes brain structure changes in schizophrenic patients, which have been discussed, often controversially, in a plethora of studies. For schizoaffective disorders, there are much fewer studies. There are hardly any special investigations in structural and functional brain changes in schizoaffective and other psychotic disorders of the intermediate area although some macrostructure changes have been found especially in schizoaffective disorders.

The *neuropsychological argument* states that schizoaffective disorders seem to occupy an intermediate position between mood disorders and schizophrenia in regard to cognitive impairment.

All the above-described arguments underline that there is no vacuum between the two prototypes schizophrenia and mood disorders but a, probably genetically determined, continuum. Most interesting, theoretical impetus originated from the fields of biology/genetics, phenomenology and course of disorder.

The concept of a psychotic continuum is also of practical relevance for the patients. The "overlap of the spectra" has a significant impact on the disorder and its effects on the patients, where as at the same time is an important stimulation for clinical, biological and genetical research on the psychotic continuum.

Andreas Marneros
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Άρθρο Σύνταξης
Editorial

Το «συνεχές» των ψυχωτικών διαταραχών

Η έρευνα έχει καταδείξει ότι μία ακριβής περιγραφή πρωτότυπων διαταραχών, όπως η σχιζοφρένεια και οι διαταραχές του θυμικού, δεν είναι εφικτή. Υπάρχουν, πιθανώς, γενετικά προσδιοριζόμενες επικαλύψεις ανάμεσα στο σχιζοφρενικό και συναισθηματικό «φάσμα» που οδηγούν στην παρατήρηση ότι οι ψυχωτικές διαταραχές, συχνά, εμπεριέχουν χαρακτηριστικά και από τις δύο πρωτότυπες κατηγορίες διαταραχών. Ψυχωτικές διαταραχές τις οποίες αποκαλούμε «παρατύπους», όπως για παράδειγμα η σχιζοσυναισθηματική διαταραχή ή η οξεία και παροδική ψυχωτική διαταραχή που εμφανίζουν κλινικές και παρακλινικές ομοιότητες διαμορφώνοντας ένα «συνεχές» ανάμεσα στις δύο μεγάλες πρωτότυπες κατηγορίες διαταραχών. Το γεγονός υποστηρίζεται από σημαντικό αριθμό επιχειρημάτων στο επίπεδο της προνοσηρής κατάστασης, της φαινομενολογίας, της διαδρομής των διαταραχών, της πρόγνωσης, της γενετικής επιβάρυνσης, της βιολογίας και της νευροψυχολογίας.

Το επιχείρημα στο επίπεδο της *προνοσηρής κατάστασης-φαινομενολογίας* υποδηλώνει ότι σε κλινικό και προνοσηρό επίπεδο, οι σχιζοσυναισθηματικές διαταραχές μοιράζονται πολλές ομοιότητες με τη σχιζοφρένεια όπως επίσης και με τις διαταραχές του θυμικού, καταλαμβάνοντας έτσι, μια ενδιάμεση θέση ανάμεσα στις δύο μεγάλες κατηγορίες διαταραχών.

Το επιχείρημα της *μακρόχρονης διαδρομής* επισημαίνει ότι όλες οι ψυχωτικές διαταραχές έχουν μία πολυμορφική διαδρομή, που σημαίνει ότι όλοι οι τύποι των ψυχωτικών επεισοδίων μπορεί να διαδράμουν εναλλασσόμενοι με συναισθηματικά επεισόδια, εντούτοις, με μια πιο σταθερή διαδρομή στην περίπτωση των σχιζοφρενικών διαταραχών (αν και, μερικές φορές, μια συνδρομική αλλαγή μπορεί να συμβεί στην περίπτωση της σχιζοφρένειας).

Το επιχείρημα στο επίπεδο της *πρόγνωσης* βασίζεται σε ένα από τα πλέον ασφαλή δεδομένα της έρευνας σε σχέση με τη διαδρομή των ψυχωτικών διαταραχών, δηλαδή, ότι η πρόγνωση της σχιζοσυναισθηματικής διαταραχής είναι καλύτερη από εκείνη της σχιζοφρένειας και χειρότερη από αυτή των διαταραχών του θυμικού. Εξάλλου, η πρόγνωση των οξέων και παροδικών ψυχωτικών διαταραχών είναι καλύτερη από εκείνη των σχιζοσυναισθηματικών διαταραχών.

Το επιχείρημα σε σχέση με τη *γενετική επιβάρυνση* είναι ότι ο κύριος λόγος για τις κλινικές και τις παρακλινικές επικαλύψεις, όπως επίσης τις επικαλύψεις σε σχέση με τη μακρόχρονη διαδρομή των διαταραχών, υποτίθεται ότι βρίσκεται στο επίπεδο της γενετικής. Το γεγονός επιβεβαιώνεται από τις περισσότερες πρόσφατες μελέτες που υποστηρίζουν τον εντοπισμό ομοιοτήτων ανάμεσα στη σχιζοφρένεια και τις διαταραχές του συναισθήματος.

Το επιχείρημα στο *βιολογικό επίπεδο* δέχεται ως δεδομένο εύρημα τις δομικές αλλαγές του εγκεφάλου σε σχιζοφρενικούς ασθενείς. Ένα εύρημα όμως, που συχνά συζητείται με κριτική διάθεση και αμφισβητήσεις σε πολλές μελέτες. Για τις σχιζοσυναισθηματικές διαταραχές υπάρχουν πολύ λίγες μελέτες. Σπάνια απαντώνται ειδικές μελέτες σε σχέση με δομικές και λειτουργικές αλλαγές του εγκεφάλου στις σχιζοσυναισθηματικές και

άλλες ψυχωτικές διαταραχές του ενδιάμεσου χώρου, αν και, κάποιες μακροδομικές αλλαγές έχουν εντοπισθεί, κυρίως σε σχέση με τις σχιζοσυναισθηματικές διαταραχές.

Το επιχείρημα στο επίπεδο της *νευροψυχολογίας* επιβεβαιώνει ότι οι σχιζοσυναισθηματικές διαταραχές φαίνεται να καταλαμβάνουν μια ενδιάμεση θέση ανάμεσα στις διαταραχές του θυμικού και τη σχιζοφρένεια σχετικά με τη γνωσιακή έκπτωση των ασθενών.

Όλα τα επιχειρήματα που αναφέρθηκαν παραπάνω, υπογραμμίζουν το γεγονός ότι δεν εντοπίζεται κάποιο κενό ανάμεσα στις δύο πρωτότυπες κατηγορίες, δηλαδή, της σχιζοφρένειας και των διαταραχών του θυμικού, αλλά πιθανώς ένα γενετικά προσδιοριζόμενο συνεχές. Οι περισσότερες ενδιαφέρουσες θεωρητικές τάσεις σήμερα προέρχονται από τα πεδία της βιολογίας/γενετικής, της φαινομενολογίας και της μακρόχρονης διαδρομής των διαταραχών.

Η έννοια του ψυχωτικού «συνεχούς» έχει πρακτική εφαρμογή στους ασθενείς. Η αλληλοεπικάλυψη των «φασμάτων» έχει σημαντική επίδραση στην ίδια την έννοια της διαταραχής και επιπτώσεις στους ασθενείς, ενώ αποτελεί επίσης σημαντικό ερέθισμα για κλινικές, βιολογικές και γενετικές έρευνες σε σχέση με το ψυχωτικό «συνεχές».

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Research article
Ερευνητική εργασία

Hospital anxiety and depression scale. A quantitative analysis in medical outpatients, psychiatric outpatients and normal subjects

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Psychiatriki 2010, 21:279–286

Depressive and anxiety symptomatology represent the most common psychiatric manifestations that complicate the management and prognosis of patients with somatic disorders. The Hospital Anxiety and Depression Scale (HADS) is a reliable, valid and practical screening tool for identifying and quantifying anxiety and/or depression in non-psychiatric out patients. The aim of the present study was to compare the psychometric properties of the HADS among internal medicine outpatients, psychiatric outpatients and the general population. The present study involved 264 subjects: 95 internal medicine outpatients, 79 psychiatric outpatients and 90 normal controls. Psychiatric outpatients were diagnosed according to DSM IV-TR and inclusion criteria required the absence of any psychotic or organic psychiatric disorder. Patients with depressive disorders were divided in 3 groups: major depression, dysthymic disorder and adjustment disorder with mixed anxiety and depressed mood. All patients were administered the following psychometric tools: HADS, BDI and STAI. Subjects of the control group were administered only HADS. In all psychometric scales the psychiatric group presented significantly greater values than the internal medicine and the control group. In turn, the internal medicine group scored significantly higher than the control group. Within the psychiatric outpatient group significantly higher HADS and HADS-D scores were observed in the major depression group followed by the dysthymic disorder and the adjustment disorder with mixed anxiety and depressed mood group. HADS may be capable of identifying anxiety and depressive symptoms between psychiatric outpatients, internal medicine outpatients and subjects in the general population. In addition, the HADS-D subscale differentiates the main depressive disorders.

Key words: depression, anxiety, medical outpatients, psychiatric outpatients

Introduction

Depressive symptomatology is one of the most common psychiatric manifestations that complicate the management and prognosis of patients with somatic disorders. In fact, 12–36% of non-psychiatric outpatients and about 22–33% of inpatients in general hospitals, apart from their somatic disorders, show signs of depression, as it is being recorded through self-rated depression scales.[1,2] When the assessment is carried out using structured psychiatric interviews, major depressive disorder is diagnosed in 4.8–9.2% of non-psychiatric outpatients and in 11–26% of inpatients hospitalized for various reasons. In contrast using structured psychiatric interviews, 2–4% of the general population is diagnosed with major depressive disorder.[3–6] There seems to be a linear rise in the incidence of depressive symptomatology and the diagnosis of major depression between general population and both non-psychiatric outpatients and inpatients. The latter reveals a correlation between depression and the existence and severity of somatic disorders.[5,7]

Difficulties and methodological flaws in the assessment of depressive symptoms in somatic patients account for the deviations observed in the reported incidence in each of the aforementioned groups of patients. Therefore, the official diagnostic criteria of depression exclude patients with physical illness. On the other hand, there is no specific or validated method for the assessment of depression in somatic patients. Depression is a syndrome consisting of an emotional-cognitive and a somatic component. Many of the biological-somatic manifestations (fatigue, weakness, loss of appetite, weight loss, reduced libido, insomnia, etc) which may be related either to the physical disorder per se or to the therapeutic intervention, represent symptoms commonly seen in depression. Such symptoms should not be taken into consideration when assessing a somatic patient for depression. This must be extrapolated to any scale attempting to investigate depression in somatic patients.[8–10]

Similar methodological problems exist in the assessment of anxiety disorders in somatic patients. The current prevalence of anxiety states in the general population is estimated about 2–5% with higher prevalence in women.[11] Four percent to 14% of general medical outpatients and 5–20% of medical inpatients suffer from anxiety states whereas anxiety disorders are diagnosed in approximately 6% of inpatients.[12] In some cases modified criteria for the diagnosis of depression (or anxiety) in patients with somatic illness have been used.[13]

Finally, there are specific criteria for the diagnosis of depression or anxiety due to general medical conditions.[14] In 1983 Zigmond and Snaith[15] developed the Hospital Anxiety and Depression Scale (HADS) to provide clinicians with a reliable, valid, and practical screening tool for identifying and quantifying anxiety and/or depression for non-psychiatric outpatients. The scale has been translated and validated in many countries,[16,17] and it is a useful tool for a valid and rapid evaluation for medical outpatients,[18–20] subgroups with specific physical disorders (i.e. cancer, HIV),[21,22] psychiatric outpatients,[23–25] as well as for healthy individuals.[26,27]

The aim of the present study was to compare the psychometric properties of the HADS among internal medicine outpatients, psychiatric outpatients and the general population.

Material and method

Subjects

The present study took place in the 2nd Department of Psychiatry, University of Athens, Attikon General Hospital and involved 3 groups of subjects. The first group consisted of Internal Medicine Department outpatients, the second of psychiatric outpatients and the third group was composed of subjects from the general population (control group).

Overall 264 subjects participated in the study: 95 Internal Medicine Department outpatients, 79 psychiatric outpatients and 90 normal controls. Of the internal medicine outpatient department the subjects with a prior psychiatric history or with a history of treatment with psychotropic drugs were excluded.

Psychiatric outpatients were diagnosed according to DSM IV-TR14 and inclusion criteria required the absence of any psychotic or organic psychiatric dis-

order. Based on the psychiatric assessment, a group of patients with depressive disorders was determined, composed by patients with major depression, dysthymic disorder and adjustment disorder with mixed anxiety and depressed mood. All psychometric tools (HADS, BDI and STAI) were administered after the psychiatric interview. The control group was selected randomly.

Instruments

In this study three instruments were used: the Hospital Anxiety and Depression Scale (HADS), the Beck Depression Inventory (BDI) and the State-Trait Anxiety Inventory (state subscale). The HADS is a self-reported rating scale of 14 items, on a 4-point scale (range 0–3). The scale is designed to measure anxiety and depression (7 items for each subscale). The total score is the sum of the 14 items (0–42). The score for each subscale is the sum of the respective 7 items (0–21). Items referring to depressive symptoms that concern the somatic dimension of depression (e.g. insomnia, weight lose, fatigue) are excluded of the scale. The scale has been translated and validated for the greek population, with permission of nFer Nelson Publishing. The greek version of HADS showed good psychometric properties and could prove as a sufficient tool for clinicians to assess anxiety and depression in general hospital patients.[28]

Beck Depression Inventory[29] examines both somatic and cognitive dimension of depression. It is a 21-item self-reporting scale, and has been translated and validated for the Greek population.[30]

The State-Trait Anxiety Inventory (STAI)[31] is a self-reporting scale and is used to measure anxiety. It consists of two 20-item subscales (total 40-items) one for the anxiety as state situation and one as trait. The STAI has been translated and validated in Greek.[32] In this study, only the STAI-state subscale was used. The BDI and STAI were administered to patients only.

Results

The demographic characteristics of our sample were as follows: the mean age of the total sample was 45.5 years (Standard Deviation-SD, 15.7 years, range 16–82). As regarding sex, 67.5% of our sample was female. The demographic characteristics of the three groups are presented in table 1. There were no statistical differences between groups in age (using one way analysis of variance, ANOVA) or in sex (using chi square).

The psychometric data of our sample were as follows (mean, ±SD): BDI=19.5, ±11.2, STAI state=54.0, ±13.6, HADS total=16.8, ±9.9, HADS anxiety=9.0, ±5.2, HADS depression=7.8,±5.4 (values for BDI and STAI state were not calculated for the group of controls). The psychometric data of the three groups are presented in table 2. There were high statistical differences between the three groups. In all scales the psychiatric group presented greater values than the medicine group and controls (one way ANOVA with Bonferroni correction for between three groups comparison, t-test for between two groups comparison).

Concurrent validity was estimated by calculating correlations between HADS depression subscale and BDI and also between STAI (state) and HADS- anxiety subscale.

In the internal medicine outpatients group the correlation between HADS/depression and BDI, as well as HADS/anxiety and STAI/state was 0.704 and 0.682 respectively ($p<0.01$) and in the psychiatric outpatient group 0.795 and 0.733 ($p<0.01$).

The psychiatric diagnoses for the psychiatric group were: major depression (48), dysthymia (14), and adjustment disorder with mixed anxiety and depressed mood (17). There were no differences

Table 1. Demographic characteristics of the three groups of subjects

	Number	*Age mean (SD)*	*Sex Male (%)*
Medicine outpatients	95	49.9 (17.7)	32
Psychiatric outpatients	79	42.4 (12.3)	25
Controls	90	44.2 (13.6)	39
Total	264	45.5 (15.7)	32.5

No statistical differences between groups in age (using one way analysis of variance, ANOVA) or in sex (using chi square)

Table 2. Comparison between the groups of subjects regarding psychometric data

	Medicine outpatients	*Psychiatric outpatients*	*Controls*	*p*
Number	95	79	90	
HADS total mean (SD)	16.1 (7.4)	25.9 (8.9)	9.6 (5.9)	<0.001
HADS anxiety mean (SD)	8.7 (4.3)	13.3 (4.6)	5.5 (3.6)	<0.001
HADS depression mean (SD)	7.3 (3.8)	12.6 (5.5)	4.0 (3.1)	<0.001
BDI mean (SD)	14.7 (9.5)	25.3 (10.2)		<0.001
STAI state mean (SD)	47.7 (11.9)	60.2 (12.4)		<0.001

One way ANOVA with Bonferroni correction for between three groups comparison, t-test for between two groups comparison

between diagnostic groups regarding sex (chi square=0.68, p=0.7), but there were differences regarding age and the scores on psychometric scales (table 3). In psychometric scales greater values were shown in this order: major depression>dysthumia >adjustment disorder with mixed anxiety and depressed mood.

Discussion

The Hospital Anxiety and Depression Scale (HADS) is the most widely used psychometric tool for the assessment of depression and anxiety in physically ill patients as it precludes somatic symptoms, like weight and appetite loss, sleep disorders, fatigue, etc. This cannot be achieved by other commonly used scales such as the Beck Depression Inventory (BDI) or the Zung self-rating Depression Scale.[8,33,34]

In the present study, the greek version of HADS was administered in 3 groups of subjects: patients examined at the Psychiatric Outpatient Department, patients examined at the Internal Medicine Outpatient Department and one general population group ("controls" group). The overall scale and subscale scores were significantly higher in the psychiatric outpatient group compared to the internal medicine outpatient group and the control group. As already mentioned, internal medicine outpatients present with more severe and frequent manifestations of anxiety and depression, as detected by self-rating scales, than the general population depending mainly on the severity of their somatic disease.[2,11]

Studies involving internal medicine outpatients using a cut-off score for the depression subscale of 10, show incidence of depressive disorders ranging from 7% to 12.6%,[35,36] while the use of the overall HADS score was more reliable than the use of any individual subscale score.[37] Bjelland et al[17] proposed cut-off scores in the HADS subscales equal or greater than 8 to be more appropriate for the identification of

Table 3. Comparison between the groups of psychiatric patients regarding age and psychometric data

	Major	*Dysthumia depression*	*Adjustment disorder*	*p*
N	48	14	17	
Age mean (SD)	46.6 (11.5)	39.8 (10.2)	32.8 (10.7)	<0.001
BDI mean (SD)	29.7 (8.8)	21.3 (10.2)	15.9 (5.3)	<0.001
STAI state mean (SD)	63.6 (10.6)	58.7 (15.1)	52.0 (11.3)	0.002
HADS mean (SD)	29.3 (8.1)	23.8 (7.6)	18.0 (6.3)	<0.001
HADS anxiety mean (SD)	14.0 (4.8)	13.5 (3.6)	11.0 (4.2)	0.048
HADS depression mean (SD)	15.2 (4.3)	10.3 (5.2)	7.0 (3.3)	<0.001

Nonparametric Kruskal-Wallis test

depression or anxiety disorder cases. In the present study the mean scores in the anxiety and depression subscales of the general population were 5.5±3.6 and 4.0±3.1 respectively, compared to 8.7±4.3 and 7.3±3.8 in the internal medicine outpatient group. The overall HADS score was 9.6±5.9 and 16.1±7.4 in the control and internal medicine outpatient group respectively.

Overall and subscale HADS scores were significantly higher in the psychiatric outpatients (HADS-A 13.3±4.6, HADS-D 12.6±5.5, HADS-T 25.9±8.9) when compared to controls (HADS-A 5.5±3.6, HADS-D 4.0±3.1, HADS-T 9.6±5.9). Similar results have been reported in other studies comparing psychiatric patients and general population controls.[23,25]

Finally, psychiatric outpatients scored significantly higher in the overall and subscale HADS than the internal medicine outpatients. This statistically significant difference between the two groups was also confirmed by the Beck Depression Inventory score and the STAI-S score. Furthermore, a statistically significant positive correlation was observed between BDI and HADS-D, STAI-S and HADS-A in the two groups supporting the validity of HADS and its subscales in the internal medicine and psychiatric outpatients. Similar correlations between the aforementioned scales have also been observed in other studies.[26,38,39]

Statistically significant differences are also noted among the different diagnostic groups of psychiatric patients. The overall HADS score, as well as the BDI score were gradually increasing in patients with a diagnosis of adjustment disorder with mixed anxiety and depressed mood, dysthymic disorder and major depression. HADS cut-off scores are markedly higher in major depression compared to adjustment disorder with depressive and anxiety manifestations both in the psychiatric and the general medical population.[21,40–42]

In the present study given that the anxiety HADS subscale score is marginally (significantly) different among all 3 diagnostic categories of psychiatric patients, the difference observed in the overall HADS score is attributed to the depression HADS subscale score, which like the BDI tends to be higher depending on the severity of the depressive disorder diagnosis.

Similarly, in other studies, when a clinical diagnosis of depression is established, HADS appears to be capable of detecting depressive and anxiety disorders and differentiating between anxiety and depression symptoms.[43,44]

It is commonly accepted that HADS is reliable in discriminating anxiety and depression symptoms and cases of anxiety and depressive disorders in non psychiatric hospitalized patients. However, it seems that it may also be capable of identifying anxiety and depressive symptoms between psychiatric outpatients, internal medicine outpatients and subjects in the general population. In addition, the HADS depression subscale differentiates the main depressive disorders like adjustment disorder, dysthymic disorder and major depression.

The main factor limiting the generalization of the results of the present study is the relatively small patient sample.

Η νοσοκομειακή κλίμακα άγχους και κατάθλιψης. Μια ποσοτική ανάλυση σε εξωτερικούς παθολογικούς ασθενείς, εξωτερικούς ψυχιατρικούς ασθενείς και άτομα του γενικού πληθυσμού

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Ψυχιατρική 2010, 21:279–286

Τα καταθλιπτικά και αγχώδη συμπτώματα αποτελούν τις πλέον συχνές ψυχιατρικές εκδηλώσεις, οι οποίες επιπλέκουν το χειρισμό και την πρόγνωση των ασθενών με σωματικές νόσους. Η Κλίμακα Άγχους και Κατάθλιψης στο Γενικό Νοσοκομείο (Hospital Anxiety and Depression Scale, HADS) είναι ένα αξιόπιστο, έγκυρο και πρακτικό εργαλείο, για την αναγνώριση (ταυτοποίηση) του άγχους και/ή της κατάθλιψης, όπως επίσης για την ποσοτική εκτίμηση αυτών. Σκοπός της παρούσας μελέτης είναι η συγκριτική ανάλυση των ψυχομετρικών ιδιοτήτων της HADS, μεταξύ των εξωτερικών ασθενών της Παθολογικής και της Ψυχιατρικής Κλινικής και ατόμων του γενικού πληθυσμού. Στη μελέτη περιλαμβάνονται συνολικά 264 άτομα, εκ των οποίων 95 είναι εξωτερικοί παθολογικοί ασθενείς, 79 εξωτερικοί ψυχιατρικοί ασθενείς και 90 άτομα από το γενικό πληθυσμό. Η διάγνωση των ψυχιατρικών ασθενών έγινε με βάση τα κριτήρια του Διαγνωστικού και Στατιστικού εγχειριδίου της Αμερικανικής Ψυχιατρικής Εταιρείας (DSM IV TR). Στη μελέτη δεν συμπεριλαμβάνονται άτομα με ψυχωσικές διαταραχές και οργανικά ψυχοσύνδρομα. Οι ασθενείς με καταθλιπτικές διαταραχές χωρίσθηκαν σε τρεις ομάδες: μείζονα κατάθλιψη, δυσθυμική διαταραχή και διαταραχή προσαρμογής μεικτή με άγχος και καταθλιπτική διάθεση. Στο σύνολο των ασθενών χορηγήθηκαν η Κλίμακα Άγχους και Κατάθλιψης στο Γενικό Νοσοκομείο (HADS), το ερωτηματολόγιο της κατάθλιψης του Beck (Beck Depression Inventory, BDI) και η υποκλίμακα του Καταστασιακού (state) Άγχους του Ερωτηματολογίου Καταστασιακού και Δομικού (trait) Άγχους (State-Trait Anxiety Inventory, STAI-S) ενώ στα άτομα του γενικού πληθυσμού μόνο η HADS. Σε όλες τις ψυχομετρικές κλίμακες, η ομάδα των ψυχιατρικών ασθενών παρουσιάζει σημαντικά υψηλότερη βαθμολογία συγκριτικά με τους παθολογικούς ασθενείς και την ομάδα ελέγχου. Αντιστοίχως, η ομάδα των παθολογικών ασθενών εμφάνισε στατιστικά σημαντικά υψηλότερη βαθμολογία σε σχέση με την ομάδα ελέγχου. Μεταξύ των ψυχιατρικών εξωτερικών ασθενών, σημαντικά υψηλότερη βαθμολογία στη Νοσοκομειακή Κλίμακα Άγχους και Κατάθλιψης και στην υποκλίμακα της κατάθλιψης αυτής, σημειώνουν οι ασθενείς με μείζονα κατάθλιψη και ακολουθούν αυτοί που πάσχουν από δυσθυμική διαταραχή και διαταραχή προσαρμογής μεικτή με άγχος και καταθλιπτική διάθεση. Η Νοσοκομειακή Κλίμακα Άγχους και Κατάθλιψης φαίνεται να έχει τη δυνατότητα να προσδιορίσει και να ποσοτικοποιήσει τα αγχώδη και καταθλιπτικά συμπτώματα σε εξωτερικούς ψυχιατρικούς και παθολογικούς ασθενείς αλλά και σε άτομα του γενικού πληθυσμού. Επιπροσθέτως, η υποκλίμακα της κατάθλιψης της HADS, δύναται να διαφοροποιήσει τις κύριες καταθλιπτικές διαταραχές.

Λέξεις ευρετηρίου: κατάθλιψη, άγχος, εξωτερικοί παθολογικοί ασθενείς, εξωτερικοί ψυχιατρικοί ασθενείς

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Research article
Ερευνητική εργασία

Evaluation of cognitive-analytic therapy (CAT) outcome in patients with panic disorder

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Psychiatriki 2010, 21:287–293

Two categories of treatment have been shown to be effective in treating panic disorder with or without agoraphobia. One is pharmacotherapy using antidepressants and benzodiazepines and the other is psychotherapy. The present study aims at the assessment of the outcome of Cognitive-Analytic Therapy (CAT), a type of brief psychotherapy, in a sample of 128 psychiatric outpatients with DSM-IV diagnosis of panic disorder, who attended the Mental Health Center of Northwestern District of Thessaloniki. For this purpose, validated instruments for the evaluation, such as the Minnesota Multiphasic Personality Inventory (MMPI), the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI) and the Post-therapy Questionnaire (PtQ), were used. The patients were evaluated in two follow ups, 2 months and 1 year after therapy termination. The results showed that on the 2 month follow up 78 patients showed a statistically significant improvement in comparison to the intake time, in all but two (Mf, Ma) clinical scales of the MMPI, on their sum and on some research scales of the MMPI, on the BDI and on the STAI scores. On the 1-year follow-up, according to the results of the MMPI, BDI, STAI and PtQ, the patients maintained the achieved improvement. The above results indicate that CAT is an effective brief psychotherapeutic approach for patients with panic disorder.

Key words: panic disorder, cognitive-analytic therapy

Introduction

Psychotherapy, in general,[1] is an effective therapeutic approach, which, as has been demonstrated, has a positive effect on patients.[1,2] During the last decades numerous studies took place that attest to the efficacy of psychotherapy.[3]

A significant number of patients attending outpatient services receive a diagnosis of an anxiety disorder, more frequently a diagnosis of panic disorder (PD). In recent times, with the development of novel effective and safe drugs, i.e. antidepressants, pharmacotherapy is the treatment choice for PD. However, there are studies supporting that a psychotherapeutic approach could be at least as effective as medication. The most investigated approaches are the cognitive-behavioral (CBT) treatments. In a recent meta-analysis, Hofmann and Smits[4] report that randomized placebo-controlled trials indicate that CBT is efficacious for adult PD.

Cognitive-Analytic Therapy (CAT) is a brief psychotherapy, developed in the late 70's by Anthony Ryle,[5–7] which integrates in theory and practice concepts and methods from cognitive, psychoanalytic, behavioral and other approaches. There are studies indicating the effectiveness of CAT in patients with various psychiatric disorders.[8–11] The aim of the present study is to investigate the outcome of CAT in a sample of outpatients with a diagnosis of PD.

Material and method

The study was carried out in the Community Mental Health center of Northwestern District of Thessaloniki. The Center has a standard intake procedure including diagnostic interview and completion of various psychometric tests followed by a disposition-conference where diagnosis is established and the treatment modality is decided. The diagnoses are made according to DSM-IV criteria. All the scientific personnel of the center who are involved in diagnostic interviews are trained and experienced in the use of this diagnostic system.

The sample of the study consisted of patients, who received –by consensus of the therapeutic team– a diagnosis of PD and for whom it has been decided to be treated by CAT. The patients were also reassessed months and 1 year after therapy termination. At follow-up:

1. They had an interview with their therapists during which the therapist and the patient completed the Post-therapy Questionnaire (PtQ),[12] specifically designed for CAT post-therapy evaluation. The questions tested in the present study were: (a) Could the patient remember what problems brought him/her to therapy? (b) What was the new understanding he/she gained during therapy, i.e. reformulation? (c) Had this understanding been helpful? These questions were scored from 0=no correspondance with problems/reformulation or unhelpful to 3=full correspondance or very helpful. (d) Had they find helpful or not some basic aspects of CAT such as psychotherapy file, self-monitoring, diary, rating sheets, relationship with the therapist, the fact that therapy was time limited? These questions were scored from 1=very unhelpful to 5=very helpful. (e) Did they believe that they needed further therapy or not.
2. Then the patients completed the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI) and the Minnesota Multiphasic Personality Inventory (MMPI) if they had completed the same tests at intake. All tests were adapted for use in Greece, the BDI in 1983,[13] the MMPI in 1980[14] and the STAI in 1984.[15] For the completion of the MMPI a ninth grade education is necessary.

Results

A total sample of 128 patients with a diagnosis of panic disorder were assigned to CAT from January 1999 to December 2008. Nine of them (7%) did not turn up for the first session. From the rest 119, 19 (16%) dropped out and 100 completed therapy. Eighty two (82%) of them attended the first, i.e. 2-month, follow up. From the 92 individuals who should have come to the 1-year follow-up, 52 (57%) came and 40 (43%) did not. Six (7%) patients who came in the 2-month follow-up received further therapy. The majority of the first follow-up attenders were women (79%), married (54%), while had a mean age of 33.4±8.9 years. Furthermore, 49% manifested a comorbidity with other Axis I diagnoses, mostly depressive dis-

orders (32%), while 58% received an additional Axis II diagnosis, mainly avoidant and obsessive compulsive personality disorder.

At the time of the 2-month follow-up, the patients manifested a statistically significant improvement on BDI score compared to the intake (18.4±8.2 vs 12.1±7.3, t=5.20, p<0.001). Similar results were obtained by the comparison of the intake and 1-year follow-up (19.2±8.9 vs 12.4± 8.2, t=4.05, p<0.001) while there was no significant difference between the two follow-ups (12.8±9.1 vs 12.4± 8.2, t=0.23, p>0.1). The same picture revealed the comparison regarding the STAI scores: intake-2-month (State: 56.4±11.3 vs 43.8±10.1, t=7.53, p<0.001, Trait: 57.2±10.0 vs 44.9±11.0, t=7.49, p<0.001), intake – 1-year (State: 57.6±10.4 vs 42.9±9.7, t=7.45, p<0.001, Trait: 58.0±10.2 vs 43.7±10.3, t=7.11, p<0.001), 2-month–1-year (State: 44.5±9.9 vs 42.9±9.7, t=0.83, p>0.1, Trait: 45.1±9.9 vs 43.7±10.2, t=0.71, p>0.1).

Table 1 includes the MMPI T-scores of those patients (N=78) who had the appropriate level of education, completed the test and their tests were valid at the time of the intake and at the 2-month follow-up. The MMPI scales are all the clinical scales and their sum, the validity scales K and L and some of the research scales, such as A (Anxiety), Es (Ego Strength), Dy (Dependency), Mas (Manifest anxiety), Soc (Social maladjustment), Mor (Poor Moral). The Es scale is the only one from the clinical and research scales where a higher score means better psychological state. The patients manifested a statistically significant improvement in all but two (Mf, Ma) clinical scales of the MMPI, on their sum and on some research scales, at the 2-month follow-up compared to the intake. Similar results were revealed at the comparison of the intake and the 1-year follow-up (table 2) while the comparison between the two follow-ups did not manifest a significant difference (table 3).

Table 4 depicts the scores on the questions of Post-therapy Questionnaire of the patients (N=52) who came to the 1-year follow-up compared to their scores at the 2-month follow-up. At the 1-year follow up the patients find more helpful the new understanding, the self-monitoring and the fact that therapy was time limited, compared to the 2-month follow-up. Finally, it is worthwhile to mention that

Table 1. MMPI T-scores before CAT and at the time of 2-month follow-up (N=78)

	Intake	*2-month*
Hs*	67.1±10.0	55.4±11.2
D*	63.8±12.0	53.2±11.5
Hy*	64.4±11.1	53.8±10.7
Pd*	60.2±8.8	52.3±9.9
Mf	48.7±11.2	48.4±10.7
Pa*	58.4±9.3	51.2±9.4
Pt*	65.7±10.4	52.9±10.7
Sc*	59.8±10.1	50.3±11.0
Ma	49.9±8.3	50.8±10.2
Si*	61.4±10.2	51.7±9.4
Sum*	599.5±55.7	520.1±58.3
A*	61.2±10.5	51.3±9.8
Es*	39.8±10.2	50.5±11.1
Dy*	63.4±11.3	52.7±10.6
Mas*	66.2±10.4	52.1±10.7
Soc*	60.9±10.7	51.2±9.8
Mor*	63.3±10.9	53.4±11.2
K*	49.7±9.4	55.8±10.4
L	50.3±9.8	52.0±10.3

*p<0.001, Paired t-test, df: 77, ES: higher score indicates better psychological condition

Table 2. MMPI T-scores before CAT and at the time of 1-year follow-up (N=49)

	Intake	*1-year*
Hs*	66.8±11.1	54.9±10.6
D*	63.3±11.8	52.8±11.2
Hy*	63.9±11.0	53.2±10.4
Pd*	59.8±9.1	52.2±10.3
Mf	48.9±11.6	48.6±10.9
Pa*	58.6±9.7	51.5±9.9
Pt*	66.0±10.9	52.7±10.4
Sc*	59.7±10.8	50.5±10.7
Ma	49.6±8.9	50.1±10.4
Si*	60.9±10.6	51.4±9.8
Sum*	597.6±57.2	517.9±60.1
A*	61.4±11.0	51.6±10.2
Es*	40.0±10.1	50.9±11.3
Dy*	62.9±11.1	52.0±10.3
Mas*	66.6±10.2	51.8±10.2
Soc*	60.6±10.9	51.0±9.7
Mor*	63.0±10.4	53.1±11.4
K*	49.9±10.0	55.4±10.6
L	50.6±10.1	51.9±10.5

*p<0.001, Paired t-test, df:48, ES: higher score indicates better psychological condition

Table 3. MMPI T scores at the 2-month and at 1-year follow-up (N=49)

	2-month	*1-year*
Hs	55.2±11.0	54.9±10.6
D	53.4±11.4	52.8±11.2
Hy	53.4±11.0	53.2±10.4
Pd	52.7±10.2	52.2±10.3
Mf	48.5±10.5	48.6±10.9
Pa	51.6±9.7	51.5±9.9
Pt	53.3±10.4	52.7±10.4
Sc	50.6±10.9	50.5±10.7
Ma	50.5±10.2	50.1±10.4
Si	51.9±9.7	51.4±9.8
Sum	521.1±56.4	517.9±60.1
A	51.7±9.5	51.6±10.2
Es	50.6±11.2	50.9±11.3
Dy	52.8±10.3	52.0±10.3
Mas	52.0±10.2	51.8±10.2
Soc	51.4±10.0	51.0±9.7
Mor	53.5±11.4	53.1±11.4
K	55.6±10.1	55.4±10.6
L	52.2±10.6	51.9±10.5

Paired t-test, df: 48, None of the differences between groups reached statistical significance

the highest score on both follow-ups is on the question "relationship to the therapist".

Discussion

The results of the present study indicate that in a public health service patients with panic disorders show a considerable improvement after receiving CAT. The percentage of patients who completed therapy (84%) is quite similar to that found in two previous studies, i.e. 87%[10] and 85.5%,[11] and to that of an English study (82%).[9] The sample of the above three studies consisted of patients with different psychiatric disorders, mainly depressive and anxiety disorders. The rate of follow-up attendance i.e. 82% in the 2-month and 57% in the 1 year, is quite satisfactory and considerably higher to that of the study by Dunn et al,[9] who reported that 52% of patients attended a follow-up 3–6 months after therapy termination. It has been reported that is difficult to have high percentages of attendance in follow, ups at 4 months and beyond.[16] The failure to attend follow up could reflect a wish to move on after a difficult time or resentment at unsuccessful intervention.[9]

The choice of the two follow-ups at different time intervals after the end of therapy is recommended for psychotherapy outcome studies especially for brief psychotherapeutic interventions.[17,18]

The fact that only 7% of patients were referred on for further treatment suggests a satisfactory impact. However, as the decisions about offering further therapy were made after the 2-month follow-up assessment, it is not clear whether the above rate is completely representative, as an additional percentage of 18% did not attend the follow-up.

As far as the method used for assessing outcome is concerned the combination of psychometric tests, such as BDI, MMPI and STAI and post-treatment rating by the patient and therapist using a scale, such as

Table 4. PtQ scores of the patients at the 2-month and 1-year follow-up (N=52)

	2-month	*1-year*
1. Presented problem	2.8±0.4	2.7±0.6
2. Correspondence with reformulation	2.6±0.6	2.5±0.5
3. Helpful or not*	2.4±0.5	2.7±0.6
4. Helpful or not		
– Psychotherapy file	3.8±0.8	3.9±0.9
– Self-monitoring*	3.9±0.7	4.2±1.0
– Diary	3.1±0.5	3.2±0.7
– Ratings	3.7±0.7	3.7±0.9
– Relationship with Therapist	4.6±1.0	4.7±1.1
– Time limited*	3.9±0.9	4.2±1.0

*$p<0.05$, Wilcoxon test for pair differences

PtQ, is considered to be the most appropriate.[19] The use of the above specific psychometric tests, which are popular and reliable instruments, makes the assessment approach valid. On the other hand the fact that PtQ allows the patient to quantify helpful factors of therapy is an excellent method for assessing therapeutic outcome.[18,20]

According to the results of the tests, i.e. BDI, STAI, MMPI, the patients showed a considerable improvement at the 2-month follow-up compared to pre-therapy evaluation. More important is that this improvement has been sustained at the 1-year follow-up. Especially, concerning MMPI the improvement was measured by the 2 corresponding anxiety scales of the MMPI, i.e. A, Mas, in congruence with other studies.[21] Also, a notable change appeared on scale Dy (Dependence) and Es (Ego strength). The latter scale is the best index of a positive change after treatment[22] and is usually incorporated as a measure into psychotherapy outcome studies.[19] Higher score after therapy means that the individual tends to be better psychologically adjusted and that he/she is more capable to cope with problems and stresses in life.[22] Furthermore, some patients, apart from a panic disorder, received an additional diagnosis of depressive disorders, whom depressive symptomatolgy has also been ameliorated, as it seen in D corresponding clinical scale and at BDI scores. Scale K of the MMPI is a validity scale measuring defensiveness but, in contrast to the other validity scale L of the test, it measures more subtle and mature defenses.[22] A higher score after psychotherapy –if this score does not exceed 60 for individuals of lower middle class and upper lower class,[22] as in the present study– is indicative of improvement reflecting better functioning, ego strength and psychological resources.[22] It is worthwhile to mention that the other validity scale (L) did not manifest significant differences between the pre and post-therapy assessment. It is also significant to refer that more than half of our patients had a concomitant personality disorder. Therefore, CAT may have benefited them not only concerning panic disorder, but mainly on personality. The results of the MMPI are validated by the results of the PtQ, where patients considered the new understanding more helpful, as well as the fact that therapy was time limited at the time of 1-year follow, up than at the 2-month follow-up, when probably some themes regarding separation had not been completely resolved.

In conclusion, the present study indicated that CAT is an effective therapeutic approach for patients with PD. The above findings are important especially nowadays that pharmacotherapy is considered to be the first choice of treatment for these patients. However, there are reports claiming the beneficial effect of psychotherapeutic interventions. For instance, in a recent meta-analysis of 124 studies, Mitte[23] supported that CBT was at least as effective as pharmacotherapy and, depending on the type of analysis, even significantly more effective. In addition, CAT treats PD in a short time while simultaneously inflicting beneficial changes to the personality structure, thus reducing the possibility of recurrence. It is worthwhile to note that more than half of the patients of the present study had an additional diagnosis of a personality disorder. Finally, another advantage could be the avoidance of the side effects of the drugs.

Αξιολόγηση της αποτελεσματικότητας της γνωστικής-αναλυτικής ψυχοθεραπείας (ΓΑΨ) σε ασθενείς με διαταραχή πανικού

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Ψυχιατρική 2010, 21:287–293

Δύο κατηγορίες θεραπειών έχει αποδειχθεί ότι είναι αποτελεσματικές στην αντιμετώπιση της διαταραχής πανικού με ή χωρίς αγοραφοβία. Η μία αφορά τη φαρμακοθεραπεία με αντικαταθλιπτικά και βενζοδιαζεπίνες και η άλλη την ψυχοθεραπεία. Η παρούσα μελέτη στοχεύει στην αξιολόγηση της έκβασης της Γνωστικής Αναλυτικής Ψυχοθεραπείας (ΓΑΨ), ένας τύπος συνοπτικής ψυχοθεραπείας, σε ένα δείγμα 128 εξωτερικών ψυχιατρικών ασθενών με διάγνωση κατά DSM IV της διαταραχής πανικού, οι οποίοι απευθύνθηκαν στο Κέντρο Ψυχικής Υγείας Βορειοδυτικού Τομέα Θεσσαλονίκης. Για αυτόν το λόγο, χρησιμοποιήθηκαν δημοφιλή και αξιόπιστα ψυχομετρικά tests όπως το Minnesota Multiphasic Personality Inventory (MMPI), το Beck Depression Inventory (BDI), το State-Trait Anxiety Inventory (STAI) και το Post-therapy Questionnaire (PtQ). Οι ασθενείς αξιολογήθηκαν σε δύο follow-up, 2 μήνες και 1 έτος μετά τη λήξη θεραπείας. Τα αποτελέσματα έδειξαν ότι στο follow-up των 2 μηνών 78 ασθενείς παρουσίασαν στατιστικά σημαντική βελτίωση σε σύγκριση με προ της έναρξης θεραπείας, σε όλες εκτός από δύο (Mf, Ma) κλινικές κλίμακες του MMPI, στο σύνολό τους και σε μερικές ερευνητικές κλίμακες του MMPI, στο BDI και στα αποτελέσματα του STAI. Στο follow up του έτους, σύμφωνα με τα αποτελέσματα του MMPI, του BDI, του STAI και του PtQ, οι ασθενείς διατήρησαν την ήδη πραγματοποιηθείσα βελτίωση. Τα ανωτέρω αποτελέσματα δείχνουν ότι η ΓΑΨ είναι μια αποτελεσματική βραχεία ψυχοθεραπευτική παρέμβαση σε ασθενείς με διαταραχή πανικού.

Λέξεις ευρετηρίου: διαταραχή πανικού, γνωστική-αναλυτική ψυχοθεραπεία

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Research article
Ερευνητική εργασία

Increased frequency and service delivery for children with pervasive developmental disorders

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Psychiatriki 2010, 21:294–303

Many investigators have reported the increasing incidence of pervasive developmental disorders (PDD), noting that this is probably due to more precise diagnoses, as a result of professionals' increased awareness and knowledge, as well as increased public awareness. Child mental health services are usually the first to examine these patients and consequently are required to deal with this increase on a practical basis. The aim of this study is to investigate the factors which may be responsible for this increase in PDD cases in a community mental health centre over a ten year period and to examine whether this has led to a differentiation in service delivery. Consequently, two sets of factors are investigated: factors pertaining to the children themselves, as well as their families and factors related to service provision and delivery. 48 children, aged between 2 and 6 years (Mean: 3,5 yrs) with pervasive developmental disorder, as well as their families are divided into two groups according to year of intake. Data collected from patient files included prenatal and perinatal information; medical the and developmental history; family functioning; and hereditary factors. Data from the Service included professionals involved in each case; number of diagnostic sessions; referral for further examinations; patient's symptoms and level of functioning; cognitive functioning; recommendations and outcome. There was no significant difference in age at intake between groups. The number of cases with pervasive developmental disorder has doubled over a ten year period at our Service. There was no significant difference between groups, with regard to conception, perinatal, developmental and medical histories. There is a trend for increased non-medical referrals. Service delivery has not differentiated over the ten year period. In conclusion, no specific factors were identified to justify the increase in PDD cases at our Service over a ten year period, however the trend for more non-medical referrals seems to imply a rise in public awareness of these disorders. Despite augmented patient intake without the complementary increase in staff, service provision at our setting has remained stable, delivered according to a multidisciplinary model and designed according to individual patient needs.

Key words: pervasive developmental disorders, community services, service provision, frequency

Introduction

Recent investigations on the epidemiology of pervasive developmental disorders (PDD), or more specifically autistic spectrum disorders (ASD), show that the incidence is much higher than previously thought. Child mental health services worldwide report a significant increase in children with these disorders particularly in the past ten years.[1–8] PDD incidence was reported as being between 9 and 15 in 10,000 births in various parts of the world.[9–11] In a recent article, Fombonne[4] proposes that the best estimate for the prevalence of all autistic spectrum disorders is close to 0.6%.

Most researchers seem to agree that this significant increase in incidence of PDD is probably due to more precise diagnoses, as a result of professionals' increased awareness and knowledge, increased public awareness, as well as the fact that this diagnostic entity includes more diagnostic categories, such as Asperger's syndrome. Although the possibility of a "true increase" is not entirely ruled out, there is no evidence for this from available data.[4]

While the debate for the causes of this observed increase continues, child mental health services are required to deal with this issue on a practical basis. There is considerable concern about the response of service providers, particularly in the public sector.[12] In many countries, including Greece, this increased demand in service provision is not accompanied by a corresponding increase in funding or support, which is necessary to provide the appropriate early intervention for these patients.[13,14]

In Greece, these are vital issues, since appropriate services for PDD children were inadequate, even before the increased demand for service delivery of recent years. Service providers and policy makers are still not in tune with demand, and consequently many of these children are not receiving the appropriate intervention at the appropriate time. Community Mental Health Centres are often the first to diagnose these patients and a heavy responsibility is placed on the professionals to direct them to therapeutic and educational settings, which are often difficult to find or already replete.

The Child and Adolescent Unit of the Community Mental Health Centre of Byron-Kessariani is a section of the University of Athens 1st Psychiatric Department, serving the inhabitants of four Athenian municipalities for over 25 years. In the past few years an increase in new cases presenting PDD has been observed.

The aim of this study is to investigate the factors that may be responsible for this increase in PDD cases at our Centre over the past 10 years and to examine whether this has led to a differentiation in service delivery. Consequently, two sets of factors are investigated: factors pertaining to the children themselves, as well as their families and factors related to service provision and delivery.

The hypotheses which were investigated were as follows:

1. The cases with diagnosed PDD will have increased significantly over a ten year period.
2. Children with PDD will now be chronologically younger at intake as a result of increased public and professional awareness of these disorders.
3. Furthermore, over a ten year period, more children with higher functioning PDD will be observed, since these are now more easily identifiable.
4. Their parents will have a more precise demand at intake: more concerned with the child's behaviour and communication, as a result of increased public awareness.
5. Service delivery will be differentiated to meet the increased demand.

Material and method

Sample

Sample consisted of 48 children between 2 and 6 years of age (Mean age: 3;5 yrs), who had applied to our Service and had been diagnosed with PDD, according to ICD-10 criteria.[15] The children were divided into two groups according to the year of intake:

Group A: Intake in years 1995–1999.

Group B: Intake in years 2000–2004.

In the whole sample (Groups A and B), 18.8% were girls, whilst 81.3% were boys, making the proportion

of girls to boys 1:4. There was no significant difference in the gender distribution of the two groups (Fisher's exact test p=0.228).

Materials and procedure

The following data were collected from patient files: gender; age at intake; symptoms referred by parents; prenatal and perinatal information; patient's medical history; developmental history; feeding history; parents' educational and socio-economic status; ethnic background and home language/s; family situation; siblings and order among siblings; hereditary and familial factors; school/nursery; stress-inducing factors; referral source; visits to other doctors/services.

Data from the Service included: professionals involved in each case (child psychiatrist, psychologist, speech therapist, occupational therapist, social worker); number of diagnostic sessions; referral for further examinations (neurological, endocrinological, genetic, audiological); patient's symptoms at the diagnostic procedure (behaviour, attention, communication, language, etc.); level of functioning; cognitive functioning (through IQ testing); recommendations made to the family for his/her remediation; outcome.

All patient files were re-examined at the present time by a child psychiatrist and initial diagnosis was re-confirmed in all cases. Furthermore, the authors certify that there are no known conflicts of interest and certify responsibility for the ensuing manuscript.

Data analysis

Statistical analysis was conducted through SPSS.10. Non parametric tests were used to compare the two groups. Normality criterion for skew and kurtosis was $z<1.96$.[16] Since this is an exploratory research study, all inferences were based on a $p<0.05$ level of significance. Further exploratory correlations were calculated in order to examine the relationship between continuous variables. In all cases the analyses were two-tailed.

Results

With regard to the whole sample's (N=48) general characteristics, the following were found: Mean age at intake was 41.23 months (3 years 5 months), SD=13.17, range between 24–80 months. There was no significant difference in age at intake between Group A and Group B (Mann Whitney U=203.00, p=0.569).

Group A consisted of 13 children (27.1%) and Group B consisted of 35 children (72.9% of the sample), an increase, which is statistically significant (Binomial test p=0.002). The number of children presenting PDD has doubled, since they make up 2.3% of all cases applying to our Service in the past five years, whereas they had made up 1.1% of the cases in the previous 5 years (figure 1). It is worth noting that in 1995 there were no new cases, while in 2003 and 2004 they constitute 43.8% of the whole sample.

There was no significant difference between groups, with regard to conception (Fisher's exact test p=0.467), pregnancy (x^2=1.600, df=2, p=0.449) and birth (x^2=3.088, df=2, p=0.214). Most of the children (95.6%) showed no complications in conception, neither during pregnancy (81.8%). Over half (55.6%) had a normal birth, 37.8% were born through caesarian section, whilst 6.7% presented other complications. Furthermore, 88.6% were full-term babies, and Mean

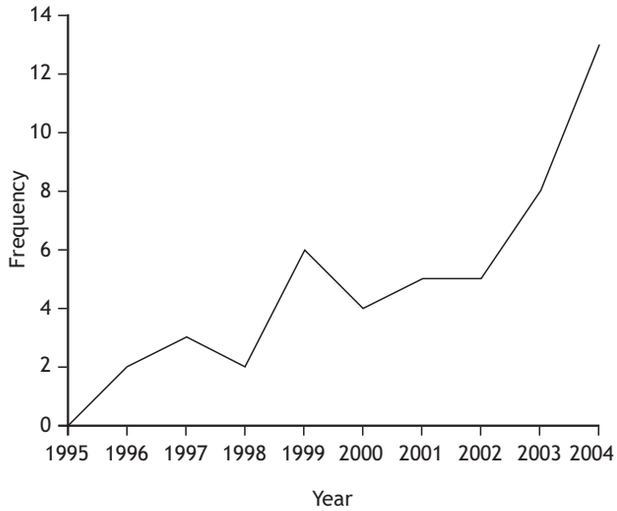

Figure 1. Polygon for number of cases for each year of intake.

birth weight was 3341 grams (SD=387.6, range 2440–4400), 93% of the infants having a birth weight within normal limits. Over half of the sample (52.3%) did not show any perinatal problems: 38.6% had some degree of jaundice, whilst 9.1% had other problems. Two of the infants were placed in an incubator. Otitis media was noted in 47.6% of the sample, while 9.5% had epileptic episodes in their medical histories. No other illnesses or accidents were reported at significantly increased rates.

With regard to feeding histories, no significant differences were found between the two Groups with regard to lactation (Fisher's exact test p=0.706), eating solids (Fisher's exact test p=0.358) and being selective in food (Fisher's exact test p=0.226). As a whole, 70.8% of the newborns were breast fed. Following that, their parents report feeding difficulties in 71.9% of the whole sample, many of the children still being highly selective in food, while a high percentage of the children (21.2%) were still not eating solids.

No significant differences were found between Groups in language development (Fisher's exact test, p=0.105). Taking the sample as a whole, 53.2% was reported to have spoken first words at around one year of age and 19.1% after the second year. However, 27.7% of the children were non-verbal at intake. Over one child in five (22.2%) had regressed in their language, and 28.6% were echolalic.

No statistical significance was found between Groups regarding toilet training (Fisher's exact test p=0.722). Only 34.1% of the sample was toilet trained at the time of intake. Children in Group B walked earlier (13 months) than those in Group A (15.3 months), a difference which was statistically significant (Mann Whitney U=98.50, p=0.030).

Half of the sample (50%) was not yet attending nursery or kindergarten classes, at intake. The rest were attending normal nurseries or kindergartens in the catchment's area. No significant differences were found between Groups (x^2=1.214, df=2, p=0.545). Most of the children had commenced school after their third birthday. Only 2 of the children had ever been separated for some reason from their parents for any length of time (over one month).

No significant differences were found between Groups with respect to father's (x^2=1.028, df=3, p=0.794) or mother's (x^2=0.952, df=3, p=0.813) educational levels. Comprehensive data showed the following: the fathers' and mothers' educational levels were low in 20% (Group A) and 12.5% (Group B) of the cases, medium in 17.9% and 17.5% respectively, relatively high (six forms in high school) in 25.6% and 35% respectively and high (further education or university degrees) in 36% and 35% respectively.

Few parents (2%) were unemployed and a high percentage (37.5%) of mothers was housewives. Many parents (20.8% of fathers, 16.7% of mothers) were immigrants. No significant differences were found between Groups regarding father's origin (Fisher's exact test p=0.425) or mother's origin (Fisher's exact test p=0.659). Almost 19% of the families speak another language than Greek in the home or use two languages. No differences were found in age at intake between Greek and immigrant children (Mann Whitney U=103.50, p=0.403).

Regarding family's functioning, the majority (95.7%) of the parents live together and 81.8% describe their relationship as good. In 21.4% of the families there is a related problem in the family: 3 children (9.4%) have a sibling with a related problem (learning difficulty, specific language disorder and autism). However, 44.7% of the children do not have siblings, although Group B have significantly more siblings than Group A (Mann Whitney U=107.50, p=0.004).

Although no significant differences were found between Groups A and B with respect to the paediatrician and other medical services as a main source of referral (Fisher's exact test p=0.136), there is an increase in non-medical sources of referral, such as the parents themselves or self-referral, school/nursery and other clients. While medical referrals increase from 12 to 23 from one time period to the next, the non- medical referrals increased from 1 to 11 (table 1). Although this result was not statistically significant, due to the small sample size, it may be seen as a trend. Taking the sample as a whole, 34% of the parents were referred to the Centre by their paediatrician and 40.4% were referred by other medical

Table 1. Referral source for children of Group A and Group B

Referral	*Group A*	*Group B*	*Total*	*Percentage*
Medical				
Paediatrician	6	10	16	33.3
Other services	6	13	19	39.6
Total	12	23	35	74.5
Non medical				
Self-referral	0	5	5	10.4
Community	0	2	2	4.2
School	1	4	5	10.4
Total	1	11	12	25.5
Missing	0	1	1	2.1
Total	13	35	48	100.0

services. Only 10.4% were referred by their school or nursery, whereas 10.4% of the parents were self-referred.

With regard to service delivery, it was found that there were no differences between groups with regard to intake demand (Fisher's exact test, $p>0.05$), and whether the families had previously applied to another service ($x^2=2.173$, df=4, $p=0.704$). During intake, most parents (93.3%) showed concern about their child's speech development, whereas 47.6% were specifically concerned about their child's communication with the environment, a difference which is statistically significant (Mc Nemar test, $p<0.001$), suggesting that these parents were more aware of their children's communication needs. The parents of four children mentioned that they were worried about their child's regression, either in speech or in feeding. Parents of over half of the children (55.8%) reported behaviour disorders in their children, 31% describing their child as "overactive". None of the parents used the label "autistic" (table 2). Moreover, 40% of the parents of both Groups have visited another service before applying to our Service for help. In fact, 45% of these families have applied to several other mental health settings or doctors.

In our Service, the mean number of sessions for the diagnostic procedure was 4.3 sessions (SD=1.7, range 1–9). There was no statistical difference between Groups (Mann Whitney U=161.00, $p=0.146$). Over 70% of the children were examined by three professionals (child psychiatrist, psychologist and speech therapist). No statistical difference was found between Groups in the different professionals who assessed the children (Fisher's exact test, $p>0.05$). Ten children were offered therapeutic intervention at our Service. The median of sessions for these therapies was 39 sessions (range 6–279 sessions). A number (28.3%) of families in both Groups did not comply with our recommendations.

No significant differences were found between Groups regarding the childrens' symptoms at diagnosis ($x^2=4.850$, df=6, $p=0.563$). Regarding the whole sample, the childrens' symptoms during diagnosis may be described as follows: 91.3% presented stereotypic behaviour, 43.5% presented echolalia, 58.7% had no functional speech, 54.3% made no eye contact, 37% had no symbolic play, 51% presented stereotypic play and the rest had poor and unimaginative play, 60.9% were overactive.

Formal cognitive testing was possible on only 19.1% of the sample, where the non-verbal Merrill-Palmer Test was used. Thirty percent of the children tested had a low non-verbal IQ score (less than 70). An approximate level of functioning, on a five-point scale, was estimated for each case, through all of the accumulated clinical data (table 3). No significant differences were found between Groups with regard to

Table 2. Parental concern during intake for children of Group A and Group B

Parental concern	*Group A N (%)*	*Group B N (%)*	*Total N (%)*
Language delay	12 (92.31)	30 (85.71)	42 (87.5)
Regression	0 (0)	4 (11.43)	4 (8.33)
Communication probs	8 (61.54)	12 (34.29)	20 (41.67)
Behaviour probs	6 (46.15)	18 (51.43)	24 (50.0)
Overactivity	3 (23.08)	10 (28.57)	13 (27.08)

N.B. Some parents did not provide answers to all questions because they were non-applicable

Table 3. Level of functioning for children of Group A and Group B

Level of functioning	*Group A N (%)*	*Group B N (%)*	*Total N (%)*
1. Very high	0 (0)	0 (0)	0 (0)
2. High	2 (16.67)	6 (17.65)	8 (17.39)
3. Moderate	6 (50)	12 (35.29)	18 (39.13)
4. Low	2 (16.67)	14 (41.18)	16 (34.78)
5. Very low	2 (16.67)	2 (5.88)	5 (10.87)
Total percentage	12 (26.09)	34 (73.91)	46 (100.0)

their level of functioning (Mann Whitney U=194.00, p=0.791). The lower the child's level of functioning, the earlier his/her parents apply to our Service for help (Spearman's correlation, rs=0.44, df=44, p=0.002).

The following recommendations were made after completion of the diagnostic procedure: 44.4% were advised to attend normal school with supplementary special therapies on a one-to-one basis, 38.9% were advised to attend a more specialised therapeutic setting and 13.9% were advised to attend a special school. No significant differences were found in the recommendations made to the parents of Group A and Group B (x^2=0.420, df=2, p=0.811).

Discussion

This study confirms that the frequency of children with PDD applying to our Service in the past ten years has increased significantly. New cases with PDD applying to our Service increased approximately 100% from one five year period to the other, whereas in the same period, the general rise in new cases was 28%. Consequently, although cases with PDD consisted of 1.13% of all new cases from 1995–1999, they increased to 2.3% of new cases from 2000–2004.

Research in other countries has shown similar results.[17,18,11] In particular, Baker's[18] research in a public service for children and adolescents in Australia, shows similar results to those presented in this study: in 1989, 17 new cases of autism increased to 45 cases in 1997.

Most researchers have identified factors, such as improved screening tools, changes in diagnostic criteria and increased public awareness to justify this increase, although they do not completely rule out the possibility of a "true" increase. Our study, whose subjects were the clinical cases presenting themselves at a community mental health centre, attempts to investigate some of the factors which may have attributed to this rise in frequency of new cases with PDD.

If the rise in frequency could be attributed to improved diagnostic tools, changes in criteria and increased public awareness, one would have expected that these would be reflected in service delivery at our Centre. For instance, the increase could

have been a result of more sophisticated diagnostic tools, more experienced or specialized personnel or a much more sophisticated referral system, in the form of a more sensitized and aware school system or community, who would be more capable of identifying these disorders.

Although our results show that referrals from school (10% of the cases) or from the parents themselves (15% of the cases) did not change significantly over time, there appeared to be an increase in non-medical referrals from one time period to the next, which however was not statistically significant due to the small sample. Consequently, it could be argued that there is a tendency in the last few years for increased awareness of these issues by parents, schools and other community members. Furthermore, there is an indication that parents are more aware of children's developmental milestones, since the children in Group B walked significantly earlier than those in Group A, indicating that those parents were not appeased by this developmental milestone.

Our second and third hypotheses were not confirmed by our data: the children in Group B were not significantly younger at intake, nor did these children have a higher level of functioning than those in Group A (table 3), something which would have reflected a true increase in public awareness of these issues. It is interesting to note that most children from both groups are referred by their pediatrician or other medical sources, which refer children equally from all levels of functioning. Children who are referred by the school seem to have a higher level of functioning and are older, but owing to the sample size, no significant difference was found (table 4).

Conversely, many of the parents came to our Service principally with the demand that their child was "language delayed", and not concerning the child's communication, behaviour or social skills. To compound this finding, a large number of families (40%) had already visited other services concerning their child's problem and more than one family in four (28%) discontinued their co-operation with our Service of their own accord, although this rate is lower than that observed for the rest of the patients attending our Service, which is at 45.7%.[19] It appears that many families are not able to accept the diagnosis of PDD easily, and at this relatively early stage in their child's life, they are still unable to come to terms with the severity of their child's problem. In Greece, the national medical system allows the patient to seek a second or even third medical opinion from various public medical services (Community Health Centres, Paediatric Hospitals, etc.) or even from private practitioners.

In this study, family and environmental factors, which possibly contributed to the child's disorder, were also investigated. Some researchers have suggested that prenatal and perinatal risk factors, as well as adverse environmental factors, may contribute negatively to an already sensitive biochemical make-up, something which may partly explain the rising frequency in these cases.[20,21] Furthermore, these children may have family histories of mental illness, substance abuse and domestic violence.[22]

Table 4. Crosstabulation between level of functioning and referral source for children who are referrring by the school

Count		*Referral*					*Total*
		1	*2*	*3*	*4*	*5*	
Level of functioning	2	1	3		3		7
	3	1	5		2	10	18
	4	3	5			8	16
	5		3	1			4
Total		5	16	1	5	18	45

1: Self-referral, 2: Paediatrician, 3: Community, 4: School, 5: Other services

In our study we focused on stress-inducing events or adverse family functioning as a possible compounding factor in these disorders. However, our results showed a remarkable lack of stressful factors in our sample's children and their families. Most of the families live harmoniously together, with no blatant socio-economic problems and no other reported stress-inducing factors. Although there are a relatively large number of immigrant families in our sample, this seems to reflect the evolutions in greek society.

Our fifth hypothesis concerned our Service itself and its contribution to this increase in frequency, for instance, whether there are new members in the professional team, more specialized diagnostic tools or indeed any differences in the diagnostic procedure.[23] However, yet again the results of our study did not confirm this: the clinicians are the same people they were 10 years ago, although inevitably more experienced. No new diagnostic tools are being used. The diagnostic procedure has not changed and is strictly multidisciplinary. Even the mean number of diagnostic sessions has remained stable over the years (4.3 sessions) despite the increased demand. In fact, our study highlights the fact that even though our clinical team has been working in the community for over twenty years and the number of patients is on a constant increase, service delivery has not changed during these years. In a study examining service delivery for these disorders in the USA, it was observed that there was a 40% decrease in mean service days for these disorders over the past few years.[24]

Most of the patients (70%) were examined by a child psychiatrist, psychologist and speech therapist only. More than 20% of the total sample was offered therapy intervention at our Service. These were usually cases who presented other coexistent factors, such as inadequate parental care, stressful life events or other compounding medical factors, which needed further investigation.

In conclusion, this study offers some preliminary data on the observed rise in frequency of patients with pervasive developmental disorders applying to our community-based service. Although the number of cases in our study is relatively small, it is representative of the frequency in our catchments area, which consists of approximately 600,000 inhabitants in the inner Athens urban area.

Our data does not indicate any reasons for this increase, however the only plausible explanation, which may only be described as a tendency, is that of increased public awareness. On the other hand, our study shows that, despite the increase in patient intake without the complementary increase in staff at our Service, services are still delivered according to our original multidisciplinary model of conduct and according to individual patient needs. Neither more sensitive diagnostic tools, nor more inclusive diagnostic criteria seemed to play a part in this increased diagnosis.

Limitations

Our study reports data from a specific community mental health service and therefore a considerable limitation is that our sample consists of few cases. More research is necessary to generalize these findings with larger samples and in other areas and in other services throughout Greece. Epidemiological studies are necessary tools for service providers, but longitudinal research is also necessary since it allows the evaluation of service delivery and provision with respect to individual patient needs, something which is urgently needed by the clinician in the first line.

Αυξημένη προσέλευση και παροχή υπηρεσιών σε παιδιά με διάχυτες αναπτυξιακές διαταραχές

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Ψυχιατρική 2010, 21:294–303

Σε πολλές έρευνες έχει αναφερθεί η αύξηση της συχνότητας των περιστατικών με διάχυτη αναπτυξιακή διαταραχή και οι περισσότεροι ερευνητές συμφωνούν ότι αυτή η αύξηση πιθανόν να οφείλεται σε ακριβέστερη διάγνωση που είναι αποτέλεσμα της αυξημένης γνώσης και ευαισθητοποίησης των επαγγελματιών υγείας για αυτή τη διαγνωστική οντότητα, καθώς και της αυξημένης ευαισθητοποίησης του κοινού. Παρόλο που δεν έχουν αποκλεισθεί άλλες αιτίες για αυτή την αύξηση, δεν υπάρχει καμιά σαφής ένδειξη από τις έρευνες αυτή τη στιγμή. Οι υπηρεσίες ψυχικής υγείας παιδιών είναι συνήθως οι πρώτες που καλούνται να διαγνώσουν αυτά τα περιστατικά και συνεπώς να τα αντιμετωπίσουν σε πρακτικό επίπεδο. Στην Ελλάδα οι υπηρεσίες που εξυπηρετούν τα παιδιά με διάχυτη αναπτυξιακή διαταραχή και τις οικογένειες τους ήταν ανεπαρκείς, ακόμα πριν από την αυξημένη ζήτηση για παροχή υπηρεσιών των τελευταίων χρόνων. Πολλά από αυτά τα περιστατικά και οι οικογένειες τους δεν τυγχάνουν της κατάλληλης παρέμβασης έγκαιρα. Οι επαγγελματίες στα κέντρα κοινοτικής ψυχικής υγιεινής φέρουν μεγάλη ευθύνη στην καθοδήγηση αυτών των ασθενών στα κατάλληλα θεραπευτικά και εκπαιδευτικά πλαίσια, που στο δημόσιο τομέα είναι δυσεύρετα ή δεν έχουν διαθέσιμες θέσεις. Ο σκοπός της μελέτης αυτής είναι η διερεύνηση των παραγόντων που μπορεί να οδηγούν σε αυτήν την παρατηρηθείσα αύξηση σε ένα κοινοτικό κέντρο ψυχικής υγείας κατά τη διάρκεια μιας δεκαετίας, καθώς και οι πιθανές επιπτώσεις της στην παροχή υπηρεσιών. Στην παρούσα έρευνα μελετήθηκαν δύο ξεχωριστές ενότητες: παράγοντες που αφορούν τα παιδιά και τις οικογένειες τους και παράγοντες που αφορούν την παροχή υπηρεσιών της συγκεκριμένης υπηρεσίας. 48 παιδιά (2–6 ετών, μέση ηλικία 3,5 έτη) με τη διάγνωση της διάχυτης αναπτυξιακής διαταραχής χωρίσθηκαν σε δύο ομάδες ανάλογα με το χρόνο παραπομπής τους. Τα εξής στοιχεία συνελέγησαν από τους φακέλους των ασθενών που τηρούνται στην υπηρεσία: φύλο, ηλικία κατά την παραπομπή, συμπτώματα σύμφωνα με τους γονείς, προγεννητικά και περιγεννητικά συμβάντα, ιατρικό και αναπτυξιακό ιστορικό του παιδιού, εκπαίδευση και κοινωνικο-οικονομική κατάσταση των γονέων, εθνικότητα, οικογενειακή κατάσταση και λειτουργία, κληρονομικοί παράγοντες, στρεσογόνα γεγονότα, πηγή παραπομπής, πληροφορίες για το σχολείο και άλλες υπηρεσίες που ήδη είχαν επισκεφθεί. Τα στοιχεία από την υπηρεσία αφορούν τους επαγγελματίες ψυχικής υγείας που ενεπλάκησαν σε κάθε περιστατικό (παιδοψυχίατρος, ψυχολόγος, κοινωνικός λειτουργός, λογοπεδικός, εργοθεραπευτής), τον αριθμό των διαγνωστικών συνεδριών, την παραπομπή για άλλες ιατρικές εξετάσεις (νευρολογική, ενδοκρινολογική, γενετική, ακουολογική), τα συμπτώματα του παιδιού κατά τη διαγνωστική φάση (συμπεριφορά, επικοινωνία, λόγος, κ.ά), το επίπεδο λειτουργίας και τη γνωστική λειτουργία, τις προτάσεις στους γονείς για την παρέμβαση και την έκβαση. Δεν υπήρχε στατιστικά σημαντική διαφορά ανάμεσα στις δύο ομάδες όσον αφορά την ηλικία του παιδιού κατά την παραπομπή. Τα περιστατικά με διάχυτη αναπτυξιακή διαταραχή έχουν διπλασιαστεί κατά τη διάρκεια μιας δεκαετίας. Παρόλ' αυτά δεν υπάρχει κάποια σαφής ένδειξη για την αιτία αυτής της αύξησης στους παράγοντες που διερευνήθηκαν, εκτός από μια τάση για μη ιατρικές παραπομπές. Η παροχή υπηρεσιών δεν έχει διαφοροποιηθεί μέσα σ' αυτό το χρονικό διάστημα. Συμπερασματικά, δεν εντοπίστηκαν συγκεκριμένοι παράγοντες που θα μπορούσαν να αιτιολογήσουν την αύξηση των παιδιών με διάχυτη αναπτυξιακή διαταραχή στην συγκεκριμένη υπηρεσία κατά τη διάρκεια μιας δεκαετίας. Η τάση για μη-ιατρικές παραπομπές ίσως να δείχνει μια μεγαλύτερη ευαισθητοποίηση του κοινού. Παρόλο που τα περιστατικά στην υπηρεσία έχουν διπλασιαστεί, χωρίς την παράλληλη αύξηση του αριθμού των επαγγελματιών που εργάζονται σ'αυτή, η παροχή υπηρεσιών έχει παραμένει σταθερή, σύμφωνα με το διεπιστημονικό μοντέλο, και βασίζεται στις ειδικές ανάγκες του κάθε ασθενούς και της οικογένειάς του.

Λέξεις ευρετηρίου: διάχυτες αναπτυξιακές διαταραχές, κοινοτικές υπηρεσίες, παροχή υπηρεσιών, συχνότητα

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Research article
Ερευνητική εργασία

Behaviour assessment and reading ability in second grade greek school children

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Psychiatriki 2010, 21:304–314

Studies on ADHD show high comorbidity with behavioural and learning disorders. However, the specific association of behavioural and attention factors with learning disorders is not clear. The aim of this study is to examine the relationships between hyperactivity, inattention and reading ability in a non-referred sample in Greece. Data were collected from 201 pupils attending second grade in public school in an Athens district. The CBCL was administrated to parents in order to evaluate behavioural disorders, inattention and hyperactivity. Teachers completed the CBCL and the Conner's scale. Reading ability was assessed by a reading test appropriate for second grade. Attention difficulties reported by the teacher were associated with lower reading skills, but hyperactivity and behaviour disorders were not. Correlations of reading skills with CBCL scores were very low, especially through parental ratings. Girls showed better reading skills and less "hyperactivity" than boys. There was consistency in teachers' ratings between the Conner's and the CBCL. Teacher-parent concordance on CBCL was very low or absent. Report of hyperactivity without report of attention problems was not associated with reading difficulties in a non-referred Greek sample of second grade schoolchildren. This observation must be considered when therapeutic and/or educational planning is undertaken.

Key words: attention-deficit hyperactivity disorder, inattention, reading ability, parent-teacher agreement

Introduction

Attention-Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders of childhood. Even though a strict definition of this entity is constantly sought, ADHD is an often redefined and reconceptualized syndrome. Many studies discuss the role of inattention in ADHD and its comorbidity with learning difficulties. They point out the lack of agreement between laboratory measures of attention and behavioural manifestations of ADHD,[1] the diversity of attention difficulties within the clinical groups[2] and the stronger association of learning difficulties with inattention than with hyperactivity.[3]

In children with ADHD, the rate of reading disability (RD) is between 25–40%,[4] whereas in RD children, 15–25% meet the criteria for ADHD.[5] Behavioural and genetic studies, in both clinical and community samples, support a partly shared genetic aetiology for this comorbidity.[6–9] In a twin study,[10] RD and ADHD symptoms were more highly heritable if the propand met the criteria for both disorders versus RD or ADHD alone. Environmental factors were also reported to contribute to the link between RD and inattention. Roy and Rutter (2006) suggest that reading performance may also be associated with the experience of being raised "in care".[11] Consequently, environmental influence, such as institutional upbringing, might affect reading performance either directly or indirectly owing to the heightened levels of inattention, which are concomitant with institutional care.

Other studies suggest common cognitive components in RD and ADHD, such as deficits in language impairment,[12] processing speed,[13] reading comprehension,[14–16] time perception and psychoacoustic tasks.[17,18] Willcutt et al (2005) found that children with RD and ADHD showed a combination of deficits observed in RD-only children (deficits on reading and language skills and weaknesses on verbal working memory, processing speed and response inhibition) and ADHD-only children (weaknesses at response inhibition and processing speed tasks and impairment in some measures of reading skills and verbal working memory).[19]

Most studies are clinically based and the high rate of associated problems with ADHD might not be present in non-referred schoolchildren.[20] In addition, studies in the general population are more suitable for cross-cultural and cross-country comparisons than clinical studies, as the factors affecting clinical reference may vary widely according to each country. Thus, the objectives of the present study in a non-referred sample of second grade public school children in Greece are: (i) to study the relationships between tested reading ability and hyperactivity, inattention, and other behavioural difficulties reported by the parents and the teacher; (ii) to examine parent-teacher agreement; (iii) to compare these Greek results to those from other countries.

Material and method

Design

This research took place in a Community Mental Health Centre (CMHC) in Athens, linked to the Psychiatric Department of the University of Athens Medical School. The sample was drawn using stratified sampling: (i) 100% of the schools in the Byron district covered by the CMHC participated; (ii) 100% of the pupils of these schools attending second grade during the period from 01/09/2006 to 15/06/07, aged between 7 years to 8 years (84 το 96 months), were potential participants; (iii) 55% of the above pupils were randomly chosen. The refusal rate of the parents was only 6%.

The sample thus comprised of 201 children, 92 boys (45.8%) and 109 girls (54.2%). The period between the 10th and 15th of December was chosen for testing, in order to allow enough time for every child to adjust to the demands of Grade 2 and to minimize possible influences of teaching methods implemented in Grade 1. We presumed that by this time children would have accomplished different levels in the acquisition and automatisation of reading.

Study instruments

a. *Parent Questionnaire concerning the child's health history*.

b. *Child Behavior Checklist* (*CBCL*): This 118-item parent-rated behavioural inventory on a 3-point scale,

proposes T-scores for 8 first-order factors, 2 second-order factors and a total T score, according to age and gender.[21]

c. *Teacher's Report Form* (*TRF*): This teacher-rated behavioural inventory on a 3-point scale, yields the same T-scores as the parents' CBCL.[22]

d. *Conners-28 item questionnaire*: This assesses behavioural difficulties to be rated by the teacher on a 4-point scale, "not at all", "just a little", "pretty much", and "very much present", coded 0, 1, 2 and 3 respectively. It is suitable for children aged 4 to 17 years and is designed for ADHD screening.[23,24] It has been translated into Greek and standardized on the Greek population.[25]

e. *Reading ability test*: A text based on the Aesopian Myth of "The Wise Frog" was used. It is relevant to the skills, capacities, taught knowledge and interests of 7–8 years old children. The test consists of 95 words (letters' size 16) similar to the letters of the Language Official Handbook (Year 1, Year 2), accompanied by an attractive illustration. The text level corresponds to that of the Official Handbook of Greek Elementary School, Grade 1 and 2.[26] It was administrated by six specially trained teachers. Their evaluations were checked during a preliminary study. There was no statistically significant "teacher" effect.[27] The reading ability was scored for: (1) Time (in seconds), from the initial uttered syllable till reading of the text was completed; (2) Accuracy: number of errors (spelling errors, stress errors, deletions, substitutions, additions, reversals, reiterations of letters, syllables and words, punctuation deletions and skipping rows of text); (3) Comprehension: number of correct answers to 8 specific questions on the text. The test was administered individually. Time needed was about 10 minutes.

Procedure

Before the study, a meeting took place with all members of the research team and teachers involved, to inform them about the aim and the specific procedures of the study. Teachers were then given envelopes with the Conners questionnaire and the Teachers' Report Form to be completed for all the pupils in their class. In addition, members of the research team had meetings with parents in the schools to inform them about the aims of the study, the way to complete the CBCL and to answer possible queries. Every child attending Grade 2 was then given a sealed envelope to take home for their parents, which contained a consent form, a letter for the parents, the CBCL and a questionnaire concerning the child's health history, which were to be filled in and brought back to school. The research team later collected the returned envelopes from the teachers.

Statistical analysis

Statistical analysis used the SAS software. Chi-square test was used for comparison of proportions; Student's t-test and ANOVA for comparison of means; and Pearson's correlation coefficients to test the correlation between two continuous variables. In addition, a Principal Component Analysis with varimax rotation was performed in order to examine the structure of the Conner's Teacher Rating Scale.

Results

Parent's questionnaire concerning the child's history

This questionnaire was completed for 85% (n=170) of the children. It was filled in by the mother in 82% of the cases, by the father, in 14% and by either parents or another person, in 4%. Education level of the mother was low, median or high in 10%, 64% and 26% of the cases respectively, with similar figures for the father.

Concerning declared problems during pregnancy, the parents gave negative answers for "general well-being" in 7.2% of the cases, and positive answers for "health problems", "psychological problems" and "occurrence of a negative event (such as loss of job)" in 13.7%, 5.2% and 16.9% respectively. In 32.1% of the cases the parents reported "caesarean", 8.9% "prematurity" and 11.9% "other" as problems during delivery. "Breast- feeding" (duration's range: 0.3–24 months) was reported in 74.7% of the cases. The parents noted that "my child's health is good" in 98.2%, while "chronic diseases" (includ-

ing allergy) and "acute diseases" were reported in 11.4% and 16.9% cases respectively. According to the parents, 9.4% of the children are left-handers and have received the care and training of day-nursery in 67.6% and preschool (kindergarten) in 95.3%.

Conner's questionnaire (teachers) (N=175)

Teachers do not report behavioural difficulties for the majority of their pupils (they generally answer "never" to most items). Only for item 13 ("Submissive attitude toward authority") the percentage of "sometimes" was higher than the percentage of "never" answers (table 1).

Table 2 shows the results of Principal Component Analyses of the 28 questions of the questionnaire.

Items 6 ("Overly sensitive to criticism"), 13 ("Submissive attitude toward authority"), 20 ("Appears to lack leadership"), and 28 ("Difficulty in learning") were poorly related to the total score (table 2), (F1 unrotated). The four factor structure was chosen as the most appropriate solution and accounted for 64% of the variance. In the four factor solution, items were retained if their loading on the factor was >0.50 after varimax rotation. New variables were then generated, one for each factor, summing up the teacher's answers (i.e, 0, 1 or 2) to the corresponding items. The names of these four new variables were chosen in accordance with the questions they were based on: hyperactivity (10 items), sociability (6 items), inattention (4 items), "sensitivity" (6 items).

Boys presented higher levels of Hyperactivity ($p=0.0006$) and Total problems ($p=0.01$) than did girls.

Reading task (N=201)

The reading time was from 42 to 414 sec, with mean 99.0 sec (SD=47.8). The number of errors var-

Table 1. Analysis by item of the Conners Questionnaire.

	Never	*Rarely*	*Sometimes*	*Very often*
1. Restless in the "squirmy" sense	53.7	29.1	9.7	7.4
2. Makes inappropriate noises when he shouldn't	76.6	12.0	9.1	2.3
3. Demands must be met immediately	73.7	17.1	8.0	1.1
4. Acts "smart" (impudent or sassy)	85.7	9.7	4.6	0.0
5. Temper outbursts and unpredictable behaviour	86.3	6.9	5.1	1.7
6. Overly sensitive to criticism	44.6	33.7	17.1	4.6
7. Distractibility or attention span a problem	50.9	29.7	11.4	8.0
8. Disturbs other children	69.7	18.9	9.1	2.3
9. Daydreams	65.1	19.4	10.9	4.6
10. Pouts and sulks	67.4	20.0	8.6	4.0
11. Mood changes quickly and drastically	79.4	10.9	6.9	2.9
12. Quarrelsome	85.1	10.3	3.4	1.1
13. Submissive attitude toward authority	36.6	20.0	40.0	3.4
14. Restless, always up and on the go	65.7	18.9	10.8	4.6
15. Excitable, impulsive	67.4	17.7	12.0	2.9
16. Excessive demands for teacher's attention	78.9	10.9	8.6	1.7
17. Appears to be unaccepted by the group	86.9	10.9	1.1	1.1
18. Appears to be easily led by other children	67.4	23.4	8.0	1.1
19. No sense of fair play	82.3	13.7	2.3	1.7
20. Appears to lack leadership	64.6	21.7	12.6	1.1
21. Fails to finish things that he starts	76.6	13.1	6.9	3.4
22. Childish and immature	71.4	20.0	4.0	4.6
23. Denies mistakes or blames others	73.1	18.9	6.3	1.7
24. Does not get along well with other children	80.0	14.9	4.0	1.1
25. Uncooperative with classmates	80.0	14.9	3.4	1.7
26. Easily frustrated in efforts	62.9	29.1	5.7	2.3
27. Uncooperative with teacher	87.4	8.6	3.4	0.6
28. Difficulty in learning	70.3	16.0	8.6	5.1

Table 2. Confirmatory Principal-Components Structure for the Conners Teacher Rating Scale.

Item	*F1*	*Varimax rotation (4 factors solution)*			
		F1	F2	F3	F4
1. Restless in the "squirmy" sense	0.77	0.81			
2. Makes inappropriate noises when he shouldn't	0.68	0.77			
3. Demands must be met immediately	0.69	0.72			
4. Acts "smart" (impudent or sassy)	0.64	0.63			
5. Temper outbursts and unpredictable behavior	0.73	0.51			
6. Overly sensitive to criticism	0.39				0.73
7. Distractibility or attention span a problem	0.75			0.70	
8. Disturbs other children	0.77	0.80			
9. Daydreams	0.53				0.62
10. Pouts and sulks	0.66				0.63
11. Mood changes quickly and drastically	0.71				0.61
12. Quarrelsome	0.75		0.56		
13. Submissive attitude toward authority	0.10				0.61
14. Restless, always up and on the go	0.64	0.72			
15. Excitable, impulsive	0.77	0.77			
16. Excessive demands for teacher's attention	0.73	0.64			
17. Appears to be unaccepted by the group	0.65		0.83		
18. Appears to be easily led by other children	0.71				
19. No sense of fair play	0.57		0.61		
20. Appears to lack leadership	0.33				
21. Fails to finish things that he starts	0.59			0.77	
22. Childish and immature	0.67			0.62	
23. Denies mistakes or blames others	0.74	0.60			
24. Does not get along well with other children	0.76		0.83		
25. Uncooperative with classmates	0.71		0.79		
26. Easily frustrated in efforts	0.62				
27. Uncooperative with teacher	0.68		0.58		
28. Difficulty in learning	0.46			0.83	

ied from 0 to 54, with mean 9.7 (SD =8.8). The Score of Comprehension was from 0 to 23 with mean 16.2 (SD=4.8). There was a strong correlation between reading time and reading accuracy (r=0.60, n=201, p<0.001) and a lower (but significant) correlation between comprehension and the two other reading scores, time (r=–0.24, n=201, p<0.001) and accuracy (r=–30, n=201, p<0.001).

Girls had better performances on reading time (t=2.03, df=199, p=0.04) and reading accuracy (t=2.37, df=199, p=0.02).

Correlations with reading scores

Reading scores were not associated with the child's age or questions related to pregnancy, delivery or the child's health. Also, reading scores were not related to the mother's educational level, but there was significant effect with the father's educational level for reading time (p=0.01) and accuracy (p=0.02).

As table 3 shows in relation to the 4 factors of the Conner's questionnaire, only the third, attention/ concentration, was significantly related to the scores evaluating reading.

According to the parents, boys showed more internalizing (p=0.0006) and externalizing (p=0.01) problems than girls, but there was no gender difference in teachers' ratings. Overall, correlations between CBCL and reading scores were low. In the parents' rating, significant correlations were observed with Externalizing Score and Total Score. In the teachers' rating, it was the Internalizing and the Total prob-

Table 3. Correlations of reading with Conners, Parent and Teacher Ratings (CBCL).

	Reading		
	Time	*Accuracy*	*Comprehension*
Conner's			
Hyperactivity	0.10	0.12	0.06
Social problems	0.21	0.12	–0.12
Attention/concentration	0.41*	0.44*	–0.26*
Sensitivity	0.14	0.08	–0.12
Total	0.23	0.20	–0.07
Parent ratings			
Internalizing problems	0.073	0.119	–0.023
Externalizing problems	0.109	0.155*	–0.043
Total problems	0.101	0.169*	–0.061
Teacher ratings			
Internalizing problems	0.167*	0.159*	–0.169*
Externalizing problems	0.143	0.094	–0.099
Total problems	0.241**	0.253**	–0.147

*p<0.05, **p<0.01

lem scores that correlated significantly with reading scores.

When detailed CBCL scores were considered

In the parents' ratings, there were significant correlations between Attention problems (r=0.238, p=0.001), Rule-Breaking behaviour (r=0.244, p=0.001) and reading accuracy.

In the teachers' ratings, there were significant correlations between: (1) Withdrawn and reading time (r=0.337, p<.0001), accuracy (r=0.171, p=0.02) and comprehension (r=–0,189, p=0.041), (2) Social problems and reading time (r=0.227, p=0.003) and accuracy (r=0.199, p=0.009), (3) Attention problems and reading time (r=0.269, p=0.0004) and accuracy (r=0.285, p=0.0002) and (4) Rule-Breaking behaviour and reading time (r=0.187, p=0.01).

When CBCL/6-18-DSM-Oriented scales were considered

In the parents' ratings, Attention Deficit/Hyperactivity Problems (r=0.213, p=0.004), Conduct Problems (r=0.273, p=0.003) and Oppositional Defiant Problems (r=0.155, p=0.04) correlated significantly with reading accuracy

In the teachers' ratings, there were significant correlations between: (1) Affective Problems and reading time (r=0.371, p<.001), accuracy (r=0.248, p=0.001) and comprehension (r=–0.199, p=0.009), (2) Attention Deficit/Hyperactivity Problems and reading time (r=0.213, p=0.005) and accuracy (r=0.267, p=0.0005), (3) Conduct Problems and reading time (r=0.181, p=0.01).

Correlations between Conner's (teacher) and CBCL (Parent or teacher)

As expected, the Conner's scale was more strongly correlated with teachers' CBCL than with parents' CBCL. With teacher ratings of the CBCL, externalizing problems were very strongly related to the Hyperactivity score of the Conner's (r=0.815) and internalizing problems with the Sensitivity factor of the Conner's (r=0.773) (table 4).

Concordance between the parent and the teacher rating for the Achenbach questionnaire

Following the CBCL manual, children can be categorized in 3 groups according to the presence or absence of internalizing problems (presence, borderline, absence), externalising problems and total problems. Out of 151 pupils, 29 (19.20%) were categorised as having (presence and border-line) internalizing problems according to both parents' rating and to teachers' rating. In the same way, 27 (17.88%) pupils

Table 4. Correlations of Conners with Parent and Teacher Ratings (CBCL)

	Conner's				
	Hyperactivity	*Social problems*	*Attention/ concentration*	*Sensitivity*	*Total*
Parent ratings					
Internalizing scores	0.209**	0.113	0.102	0.149	0.183*
Externalizing scores	0.321**	0.259**	0.179*	0.067	0.287**
Total problems	0.325**	0.238**	0.207*	0.117	0.298**
Teacher ratings					
Internalizing scores	0.296**	0.318**	0.419**	0.773**	0.451**
Externalizing scores	0.815**	0.691**	0.563**	0.543**	0.847**
Total problems	0.685**	0.626**	0.697**	0.708**	0.807**

*p<0.05; **p<0.01

were classified as having externalising problems (presence and border-line) according to parents' reports and 18 (11.90%) according to teachers' reports. The parent-teacher concordance for these categorisations (presence, border-line, absence) was low for externalizing problems (weighted kappa= 0.26), and absent for internalizing problems (weighted kappa= 0.05).

Discussion

In this non-referred children, reading scores were not associated with age and questions related to pregnancy, delivery or child's health. In the literature, it is well established that prematurity and low birth weight are correlated to underachievement in verbal, reading and spelling abilities.[28–30]

Reading scores were not correlated with the mother's educational level and there was only a weak effect for father's education. Mother's educational level had a strong effect on the child's reading skills in similar studies in France.[31,32] Such discrepancies suggest that the effect of parental education is indirect. For instance, parental negative school experience, associated with low education in France, but not in Greece, could be a critical factor.

Girls showed better reading skills than boys. In four independent epidemiological studies reviewed by Rutter et al (2004), rates of RD were higher in boys.[33] Biological processes leading to RD may differ between boys and girls.[34]

Also, boys were more hyperactive according to the teachers, and with more internalising and externalising problems according to the parents. The gender question in ADHD is a controversial issue. In clinical settings, male predominance is obvious. Boys with ADHD are prone to more externalizing behaviours, in particular rule-breaking, than girls.[35] Girls with ADHD have less impairment than boys on most scores. They show less disruptive behaviour disorders and have fewer learning disabilities related to reading or mathematics.[36,37] However, other studies[38,39] maintain that the clinical correlates of ADHD are not influenced by gender. Their explanation is that gender differences reported in subjects from clinical settings may be due to referral biases.

The factor structure of the Conner's Questionnaire in the present study is similar to previous analyses,[23,24,40,41] with a four factor structure as the most appropriate solution. Among the four released factors, only one (i.e. Attention/Concentration) was correlated with reading abilities. This is an expected result because, as seen in previous studies, "difficulty in learning" is one of the four items composing the "attention/concentration" factor. When teachers report attention difficulties in a pupil, they also frequentry report "learning difficulties" in the same pupil. This has been observed in Greece,[42] France[43] and elsewhere.[40] On the contrary, the same studies, but also very important longitudinal investigations from Australia and New Zealand,[44] show that

hyperactivity alone is not related to learning and academic difficulties. However, it is likely, as Roy and Rutter (2006) suggest, that the "hyperactivity-inattention-learning difficulties" entity could be much more present in special populations of children, such as those living in institutionsing than in schoolchildren.[11] In a recent study of cognitively impaired children with epilepsy in special institutions, the dominant behavioural profile of these children was ADHD.[45]

On the other hand, although working memory difficulties might be a common factor in ADHD and learning disorders,[1] working memory deficit seems to be more strongly related to symptoms of inattention than to symptoms of hyperactivity-impulsivity.[19,46,47] Reading comprehension difficulties also appear to be related to inattention[48] or slow processing speed.[49] In particular, one study showed that the performance of children with ADHD, without comorbid language impairments, declined as the length of the text increased.[16]

According to Aaron, Joshi, Palmer, Smith and Kirby (2002), both RD and ADHD-I, which is the predominantly inattentive type, are often present in poor reading performance.[50] Children with RD have poor word recognition skills and therefore, focus their attention primarily to the decoding of print. This strategy is particularly ineffectual when they have to read long passages, as they are liable to get frustrated and consequently do not fulfil the task. Thus they give the impression of being "functionally inattentive",[51] because they cannot sustain their attention long enough. Their information-processing is inconsistent and therefore they appear to function like children with RD. Consequently, regardless of the disorder, RD or ADHD-I, the end result is the same, impairment in reading performance.[52]

Parent-teacher agreement on child behaviour was particularly low in the present study. In a previous study with the CBCL in Greece, parent-teacher agreement was also low except for Externalising and Aggressive behaviour for boys and for Attention problems for both sexes.[25] Agreement between parents and teachers is often modest at the symptom, scale or subtype level.[53–55] Discrepancies can arise from behavioural variability in different situations, with both informants correctly assessing behaviour in each context.[56] In a recent study,[57] parental ratings of children diagnosed with and without ADHD were on the whole comparable. On the other hand, teachers assessed that students with ADHD exhibited higher levels of behavioural difficulties, thus outperforming the parental ratings when considering sensitivity, specificity and overall classification accuracy.

In our study, according to the teachers ratings on the CBCL, externalizing problems were very strongly related to the Hyperactivity score of the Conner's. Furthermore, internalizing problems on the CBCL were very strongly related with the Sensitivity factor of the Conner's. This is in accordance with a previous greek study.[42]

The relatively lower correlations obtained between different informants emphasises the need to obtain more than one point of view in building up the picture of a child's behaviour.

A limitation of the study is related to its transversal nature. Longitudinal studies are needed to examine the persistence or, on the contrary, the transitory character of the observed or reported difficulties in schoolchildren.

Conclusions

This study highlights the need to include reading skill measures when conducting assessments for ADHD. Teachers' reports of inattentive behaviour are strongly related to poor reading skills and learning difficulties. Report of hyperactivity, without report of attention problems, was not associated with reading difficulties. These observations must be considered when therapeutic and/or educational planning is undertaken.

Acknowledgements

The authors would like to extend their gratitude to the following professionals for their contribution in data collection: Evi Magganari, Georgos Hatziioannides, Chryssa Ikkou, Evangelia Konstanakopoulou, Vasiliki Malama, Ioulia Papadaki, Katerina Sakellariou, Sasa Tzavalia and Josefina Tzonaka.

Διερεύνηση της αναγνωστικής ικανότητας και των διαταραχών συμπεριφοράς σε μαθητές του δημοτικού

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Ψυχιατρική 2010, 21:304–314

Πολυάριθμες μελέτες επιβεβαιώνουν τη συννοσηρότητα της ΔΕΠΥ με τις διαταραχές συμπεριφοράς και τις μαθησιακές διαταραχές. Ωστόσο, ασαφής είναι η ειδική συσχέτιση των συμπεριφορικών και μαθησιακών παραγόντων με τη ΔΕΠΥ. Σκοπός της παρούσας μελέτης είναι να εξετάσει τις σχέσεις μεταξύ υπερκινητικότητας, απροσεξίας και αναγνωστικής ικανότητας σε μη κλινικό δείγμα. Το δείγμα αφορούσε 201 μαθητές δημόσιου δημοτικού σχολείου των Αθηνών. Χορηγηθήκαν τα ερωτηματολόγια του Achenbach για γονείς και δασκάλους και το ερωτηματολόγιο του Conners, προκειμένου να αξιολογηθούν οι διαταραχές συμπεριφοράς, η έλλειψη προσοχής και η υπερκινητικότητα. Η αναγνωστική ικανότητα αξιολογήθηκε από ένα τεστ ανάγνωσης κατάλληλο για μαθητές δημοτικού. Οι διαταραχές προσοχής που αναφέρθηκαν από τους δασκάλους είχαν θετική συσχέτιση με χαμηλότερες ικανότητες ανάγνωσης, αλλά όχι η υπερκινητικότητα και οι διαταραχές συμπεριφοράς. Η συσχέτιση των αναγνωστικών δεξιοτήτων με τα αποτελέσματα από τα ερωτηματολόγια του Achenbach ήταν πολύ χαμηλή, ιδιαίτερα αυτών που απαντήθηκαν από τους γονείς. Τα κορίτσια έδειξαν υψηλότερη αναγνωστική ικανότητα και λιγότερη «υπερκινητικότητα» από τα αγόρια. Παρατηρήθηκε σύμπτωση των απαντήσεων των εκπαιδευτικών στα δύο διαφορετικά ερωτηματολόγια Conner και Achenbach. Αντίθετα, η σύμπτωση μεταξύ γονέων και εκπαιδευτικών στο ερωτηματολόγιο του Achenbach ήταν πολύ χαμηλή. Η ύπαρξη υπερκινητικότητας χωρίς διαταραχή προσοχής δεν συσχετίσθηκε με μειωμένη αναγνωστική ικανότητα. Τα ευρήματα της παρούσας μελέτης μπορούν να συμβάλλουν στο θεραπευτικό και εκπαιδευτικό σχεδιασμό της αντιμετώπισης των παιδιών με αυτές τις δυσκολίες.

Λέξεις ευρετηρίου: διαταραχή ελλειμματικής προσοχής-υπερκινητικότητα, απροσεξία, αναγνωστική ικανότητα, συμφωνία γονέων-εκπαιδευτικών

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Review
Ανασκόπηση

Cognitive theories of addiction: A narrative review

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Psychiatriki 2010, 21:315–323

Several theories have been developed in order to understand the phenomenon of addiction. From a science development perspective, it is important to examine theories with shared concepts within a common framework, generate and test new hypotheses. This paper reviews those theories and models that consider substance misuse as a decision making process involving conscious and unconscious cognitive processes including simple classical conditioning models, cue reactivity, expectancy theory, social learning theory, neuropsychological models and the new hierarchical PRIME theory. A synthetic approach has been used as to identify similarities and to promote the incremental value of the discussed theories.

Key words: addiction, theories, cognitions, behaviour

Introduction

Addiction is a socially defined concept and refers to a syndrome, the centre of which is impaired control over a reward-seeking behaviour; impaired control that is leading to significant harm. West (2006)[1] suggests that the definition should refer to a reward-seeking behaviour that has become out of control, which describes better the observed increase over time in drive to engage in the addictive behaviour. Addiction is a broad concept that includes any behaviour satisfying the above mentioned three criteria. One of such reward seeking behaviours is substance abuse. Substance abuse per se does not equal addiction unless there is loss of control and associated harm.

Over the years several theories aimed at understanding and explaining the above mentioned three components of the definition of substance abuse as an addiction. Most theories explore the phenomenon from a generic point of view and they focus on the behaviour involved rather than the specific substance used. The concepts of "theory" and "model" are usually used interchangeably. There is though a major difference between the two: A model is a representation of a system or an object or set of events.

It does not need to explain anything. A theory seeks to explain and predict by proposing the existence or operation of entities that have not been observed.

Kuhn (1962)[2] argued that different theories cannot be compared in terms of a system of common measure and cannot reject each other. According to Kuhn, a theory should change from within when there is an accumulation of a significant number of observational anomalies that make the new theory more useful. In science and philosophy, though, it is considered important that phenomena are understood within the framework of a single theory, because fewer axioms have to be accepted as true, concepts can be shared and testable hypotheses can be generated.[2,3] This statement does not negate the importance of pluralism, but puts emphasis on synthesis and construction, rather than deconstruction of knowledge. This is not an easy achievement in social sciences, in which phenomena usually have a relative definition that scientists have to agree about and measure in a valid and reliable way.

This paper aims at providing a narrative review of those theories concerning addiction that consider substance abuse behaviour as the result of decision making process and include concepts, which are either conscious (expectancies, attitudes) or could become conscious and modified. A synthetic approach will be used in order to explore the incremental value of each theory.

Simple conditioning models and cue reactivity

According to classical conditioning theory, a specific stimulus produces a known response. Classical conditioning models have been applied to explain compulsive use of substances and have an automatic process. These models emphasize either the experience of withdrawal symptoms or the positive-incentive properties of drugs. An important application of classical conditioning in addiction is the cue reactivity paradigm as a means of understanding the nature of alcohol dependence, as predictor of relapse and as a method of studying treatment effects.

Cue reactivity paradigm involves cue exposure to a cue or set of cues and observation and measurement of response. Cues can be external (such as smell, sight and taste) or internal (moods, cognitions or priming doses). An important aspect of cues is their temporal relationship with drug consumption with proximal cues producing greater reactivity than distal cues. Cues can also be interconnected with one cue increasing the likelihood and the reactivity effect of another cue. Drummond,[4] in a review of cue reactivity in addiction research, discusses three types of responses: (i) symbolic expressive, e.g. craving, which is measured with questionnaires; (ii) physiological, which in the case of alcohol research have been often measured in terms of changes in heart rate, skin conductance, skin temperature and salivation or neuroimaging methods; and (iii) behavioural, which can be measured in terms of latency to drinking and speed of drinking. Cue reactivity has major limitations, such as (i) a modest relationship between subjective report of cravings and subsequent substance use;[5] and (ii) that physiological changes are not mediators of instrumental behaviour themselves, but an index of a central nervous system state, which may be a mediator of behaviour[6] or epiphenomenal.[7]

Opponent process theory

The Opponent Process theory[8] explains the escalation of reward seeking behaviour and suggests the existence of opponent processes with homeostatic function that upset the drug reward process activated by the repetitive drug use. The opponent processes lead to a reduction of the substance and withdrawal symptoms effect (tolerance) during abstinence. The theory is based on classical conditioning principles and proposed that continuous drug use results in an increased reward threshold (tolerance), which in turn results in compulsive drug use. According to this theory there are five temporal states: peak of primary hedonic process, period of hedonic adaptation although stimulus intensity is maintained, steady level of hedonic process lasting as long as the stimulus is maintained, peak of affective after-reaction that follows termination of stimulus and finally decay of after-state. The proposed states, though, cannot explain the fast reinstatement of tolerance following even long periods of abstinence.

Operant conditioning models

Operant conditioning takes into account the environment in which the organism operates and argues that behaviour is modified by its consequences. The association between the stimulus, the response and the consequences is learned by the subject, and the response is repeated with greater or lesser frequency, depending on the type of consequence, which is called reinforcement. Secondary/Conditioned Reinforcements can increase the frequency of the behaviour by enhancing or adding a pleasant experience (positive reinforcement), or by removing or diminishing an unpleasant one (negative reinforcement).[9] A well known negative reinforcement model is the "self-medication theory". This model proposes that individuals intentionally use substances to treat psychological symptoms from which they suffer (negative reinforcement).

Rational addiction model

Becker and Murphy[10] have proposed the economic model of Rational Addiction. It is based on the concept of rationality, which is defined as a "consistent plan to maximise utility over time". Central concept in this model is the concept of utility. The authors suggest that addiction is an increased consumption of a "good" as a result of past consumption. Therefore, addicted individuals are rational consumers who behave in a way that maximises preferences.

Extension of classical and operant conditioning models

It is evident though that motivation to take drugs (drug wanting) is not always directly attributable to the subjective pleasurable effects of drugs (drug liking, positive reinforcement), and it is possible this is especially true in addicted individuals. On the other hand even after the prolonged cessation of drug use, during which time withdrawal symptoms decay, relapse to drug use and reinstatement is common. According to the Incentive-Sensitisation model[11] there are at least two distinct psychological processes involved in reward: (a) subjective pleasure ("liking") and (b) incentive salience attribution ("wanting"), which are mediated by different neural systems. The neural system involved specifically in incentive salience attribution is sensitised by addictive drugs. With the development of an addiction, drugs become pathologically wanted ("craved"), which can occur even if drugs are liked less and less.

The Hedonic Homeostatic Dysregulation model[12] provides an approach to identifying the neurobiological factors that produce vulnerability to addiction and to relapse in individuals with a history of addiction and provides a bridge between findings from animal and social studies and a synthesis between biological and psychological models. Addiction is presented as a cycle of spiralling dysregulation of brain reward systems that progressively increases, resulting in compulsive drug use and a loss of control over drug-taking. Neurobiological mechanisms, such as the mesolimbic dopamine system, opioid peptidergic systems, brain and hormonal stress systems, as well as social psychology concepts, such as sensitization and counter-adaptation, are hypothesised to contribute to this hedonic homeostatic dysregulation.

The Inhibition Dysregulation model[13] attempts to bring together findings from neuroimaging and neurophysiology involving neuro-adaptation and sensitisation of the dopamine rewards system with findings from cue exposure research and findings regarding the malfunction of the inhibitory system. The model suggests that addiction involves a progressive dysregulation of ability to inhibit a behaviour that is rewarded and that aspects of decision-making processes are compromised in perhaps either a direct way (i.e. dysfunctional inhibitory system) or indirectly via a dysfunctional reward system.

Social learning theory

Social learning theory[14] is a generic theory of human behaviour, which is conceptualised as the result of a process of interactions between the individual and the social environment with a major emphasis on environmental or situational factors. Behaviour is regarded as the result of a continuous interaction between personal and environmental variables: personal variables include cognitive factors (competencies, intellectual abilities), cognitive strategies (ways of attending to and organising information), expectations (about consequences of behaviour), values, self-imposed standards, rules, morals, etc.

Environmental variables include effects of other people, interaction between individuals and situations. Theory proposes two kinds of expectations about self: (i) outcome expectations, which are "the person's estimate that a given behaviour will lead to certain outcomes" and (ii) efficacy expectations (or self-efficacy), which refers to a person's belief "that one can successfully execute the behaviour required to produce outcomes".[14]

Self-efficacy regulates human functioning through four main processes: cognitive and motivational, which refer to purposive behaviour related to above hypotheses, affective (stress and depression experienced in difficult situations) and selection (of environment and avoidance of activities believed to exceed coping capabilities).[15] Self-efficacy is relevant to all stages and aspects of human development (family environment, school, career development and pursuits, health-promoting behaviour).

The theory was expanded to the Social Cognitive Theory[16] and the need to shift the paradigm of psychological theories was made in order to conceive the person as an agent of change that affects the person and the social environment. The main agentic features proposed are:

i. Intentionality, which is defined as a representation of a future course of action to be performed. "These actions are performed with the belief that they bring desired outcomes" (outcome expectancies). "Some of these actions, though, actually produce outcomes that were neither intended nor wanted".

ii. Forethought, with the exercise of which people motivate themselves and guide their actions in anticipation of future events. When projected over a longer period of time, on matters of value, a forethought perspective provides direction, coherence and meaning to one's life". The role of outcome expectancies is central in the exercise of forethought.

iii. Self-reactiveness, which refers to the concept that an agent has to be not only a planner and forethinker, but a motivator and self-regulator as well.

iv. Self-reflectiveness, which refers to the metacognitive capability for the person to reflect upon oneself, adequacy of one's thoughts and actions. Self-efficacy is the foundation concept of this feature.

Theory of reasoned action and theory of planned behaviour

The Theory of Reasoned Action and the theory of Planned Behaviour are related and take into account the effect of the environment in individual's substance use behaviour. The theory of Reasoned Action proposes that for volitional behaviour, a person's intention to perform (or not to perform) a behaviour is the immediate determinant of that action. Barring unforeseen events, people are expected to act in accordance with their intentions. However, intentions can change over time. Intention to act is a function of two basic determinants: (i) the individual's attitudes towards the behaviour (personal factor based on positive or negative evaluation of performing the behaviour, which is affected by expectancies beliefs regarding the outcome of the behaviour); and (ii) subjective norm (individual's perception of the social pressures put on him to perform or not perform the behaviour).[17]

The theory of Planned Behaviour is an expansion of the previous theory in order to understand those behaviours that a person has limited control upon. The theory makes the distinction that intentions can only be expected to predict a person's attempt to perform a behaviour and not its actual performance. The theory proposes that perceived control is the third basic determinant of the behaviour.[17]

Self-regulation theory

Another theory that seeks to explain how reward seeking behaviour becomes out of control is the Self-Regulation theory, which argues that individuals self-consciously exercise their will in order to achieve health related goals. Self-regulation involves higher processes overriding lower processes.[18] Self-regulation failure occurs when lower order processes win through. Self-regulation theory allows for the possible effects of drugs of dependence on self-regulation and it also examines the effect of short-term influences, such as tiredness, emotional state and environmental stimuli on self-regulation.

Identity shift theory

A recently proposed theory explores loss of control over rewarding behaviour from a different perspective. It is argued that what appears to be lack of control over substance use behaviour is in reality a manifestation of a fundamental feature of human motivation, the instability of preferences. In other words, addicted people change their minds depending on internal and external circumstances.[19] Based on the same principles, Identity Shift theory[20] takes into account the principle of unstable preferences and proposes that increasing distress caused by behaviours results to value conflict. This prompts to a small step towards behaviour change, which if successful begins to lead to an identity shift. Increased self-awareness and self-confidence then fuel continued change. At the core of the model is the ongoing evaluation of benefits and costs and the build-up of dissatisfaction with the current situation. Then a trigger, small or major, results in an immediate and unplanned step of change that initiates the process of behaviour change.

Expectancy theory

Expectancy theory was first proposed as a theory of human motivation relating to work and job satisfaction.[21] The theory proposes that behavior results from conscious choices among alternatives whose purpose is to maximize pleasure and minimize pain. The theory proposed that the 'force' with which the individual will pursue his work is the product of two sets of beliefs: valence and expectancy. Valence refers to the emotional orientations people hold with respect to rewards (extrinsic, such as money, promotion, time-off and benefits or intrinsic, such as satisfaction). Expectancy refers to the momentary belief concerning the likelihood that a particular act will be followed by a particular outcome.[21] Employee's performance is related to instrumentality. Instrumentality refers to the perception of employees whether they will actually get what they desire even if it has been promised by a manager. Performance is the product of employee's force and his/her ability to execute the required action. The author comments that ability is a complex concept that involves employee's actual skills and confidence. Several hypotheses were generated from the theory and were tested.

According to expectancy theory and its application to addiction, expectancies about the costs or benefits of drug use contribute to excessive use. These expectancies may involve more than beliefs (memory templates). The two main factors hypothesised that determine the initiation and repetition of a specific behaviour by a human being are: the outcome expectancy and the efficacy expectancy.[22] The outcome expectancy is the belief that a specific outcome (positive or negative) will occur following certain behaviour, i.e. by following a certain route you arrive on time at work. The efficacy expectation is the belief that someone is able to execute the above behaviour, i.e. that you will be able to drive on a motorway. Outcome expectancies are built on previous experiences and maintained by positive and negative reinforcements (social learning process).

Other cognitive theories

Expectancy theory places emphasis on conscious cognitive processes, which are related to the experience of craving. Evidence though suggest that subjective report of craving is only moderately linked with substance use and relapse.[5] The cognitive processing model proposes that drug abuse can operate independently of the processes controlling craving.[23] According to this model, addictive drug abuse is regulated by automatic cognitive processes, while craving represents the activation of non-automatic processes. These non-automatic processes are activated to either aid in completing interrupted drug use or block automatic drug-use sequences.[5]

Another cognitive model proposed that as addiction develops the expectancy-based control system of behaviour becomes unconscious and therefore behaviour is influenced less by conscious expectancies involving controlled processes and more by unconscious expectancies involving automatic processes.[24]

A recent extension of the expectancy theory is the Cognitive Bias theory that aims to address shortfalls of earlier expectancy based cognitive models.[25]

Neuropsychology models (spreading activation models of memory, schema theory, implicit cognition and neural network theory) have been adopted. The emerging theory proposes that addiction is the result of biases that affect conscious functions, such as beliefs, attention and memories, as well as unconscious processes in information recall from memory.[25]

It is hypothesised that representations of the behaviour are "linked" in long-term or semantic memory with propositions about outcome (e.g. relaxing, risk, etc). Such links may be created by direct experience but are not likely to be solely determined by this, and may be formed by abstraction of information from the environment. The motivational significance of these associations is likely to be positive and appetitive, consistent with experience in the early stages of an addiction career and the initial effects of the substance/behaviour.[26] These "semantic" links become strengthened and more tightly connected with repetition of behaviour. Over time, activation of one part of the "network" (e.g. alcohol-representations) automatically triggers propositional links in other parts (e.g. relaxation concepts) and vice versa. Thus, an accessibility bias for positive information about the behaviour develops. Negative and behaviourally inhibiting information may be available, however, it is hypothesised that this information is less accessible and relies more on effortful and non-automatic cognitive processes, therefore its moderating impact on behaviour is compromised.[26]

The Excessive Appetites model of addiction[27] was proposed to provide a coherent account of the whole process of taking-up to giving-up any form of appetitive behaviour (even beyond drug abuse, such as gambling and eating) to which people can become severely attached with a negative effect on them and those immediately around them. At the core of the model is the development, within a social context, of appetite-specific schemata, based on different kinds of learning. Additional secondary processes have an amplifying effect on schemata such as "acquired emotional regulation cycle", which includes abstinence violation effect (AVE), and "consequences of conflict".

Transtheoretical model of change

An influential model that relies mostly on the choice principle, but addresses how people modify addictive behaviour, is the Transtheoretical model of behaviour change or Stages of Change model.[28] Although it is described as a model it proposes new theory concepts, therefore it could be seen as a theory. The model focuses on this particular aspect of addiction rather addiction itself and suggests that the process of recovery from an addictive behaviour involves transition through the following stages: (i) pre-contemplation stage, in which no change is contemplated; (ii) contemplation, in which change is contemplated for the near future; (iii) preparation, in which plans are made on how to change behaviour in a definite way; (iv) action stage, in which the plans are put into action and change takes place; and (v) maintenance, in which the new pattern of behaviour emerges, establishes and is maintained. There is a sixth stage, that of termination, which was added more recently and in someway overlaps with the maintenance stage. In this stage the individual has adopted the new behaviour. The model proposes that individuals can move forwards or backwards. The model has enjoyed popularity, whilst also receiving major criticism. The popularity might be explained by the seemingly scientific approach of "diagnosing" the stage of change and the perceived relation to specific treatment plan, as well as the provision of categories to classify people rather than use everyday language.[1] Motivational interventions developed in 1990's are partly based on the Stages of Change model and were described as "Motivational Interviewing".[29] The criticism relates to several aspects of the model, such as the definition and validity of stages, the proposed linear progress through the stages, the inability of the model to account for the unconscious decision making processes.[1]

PRIME theory

West (2006)[1] proposed a new theory of addiction called PRIME, an acronym standing for the proposed five levels of motivation: plans, responses, impulses/inhibitory forces, motives, evaluations. This is a synthetic theory that aims to encompass all the ele-

ments of previous theories that proven to be valid and useful under one theoretical common framework. The levels of motivation are hierarchical from low levels of responses that involve reflexes and automatic behaviours to the higher ones that of evaluations and plans that involve expectancies and the concept of identity.

The theory proposed that there are three types of abnormalities that underlie addiction: (i) abnormalities of the motivational system that exist independently of the addictive behaviour, such as propensity to anxiety or depression; (ii) abnormalities of the motivational system that stem from the addictive behaviour itself, such as the acquisition of a strongly entrenched habit or an acquired drive; and (iii) abnormalities in the individual's social or physical environment, such as the presence of strong social or other pressures to engage in the activity". That means that an activity becomes addictive if it affects an already unbalanced system (co-morbid anxiety, traits of impulsivity), which operates within an unbalanced environment (belonging to a social group in which the particular activity is considered normal), in such a way of undermining the normal checks and balances that operate to prevent undesirable behaviour (activity becoming continuously rewarding).

The theory is based on the principles of Chaos theory. This means that the motivational system is inheritably unstable in the sense that it is susceptible to continuous influence of smaller or bigger internal and external stimuli. This can explain both the development of an addictive behaviour and the need for change. Therefore an event that could be seen as significant or insignificant can send an individual down to a specific path (use) or could set up susceptibility so other triggers are needed for the addictive behaviour to develop. The theory also accounts for the co-occurrence of addictive behaviours as long as they are mutually reinforcing in terms of their effect on the balance of the motivational system or the individual's environment.

Discussion

The theories and models discussed above, consider substance abuse as a decision making process. The cognitive elements involved are or can be conscious and therefore modifiable. Overall they can be considered as cognitive theories and as such, discussed under a common framework, can be compared and combined in order to contribute to a better understanding of the phenomenon. Psychoanalytic theories or models are not discussed in this paper. These theories and associated research need to be reviewed separately.

Some of the theories discussed above focus on understanding the mechanisms involved in the development and maintenance of substance use (biological, psychological, social or even spiritual). Others explore the interrelationship between the different mechanisms involved. Others attempt to combine methods of investigation. Research on substance use aimed on understanding the different facets of the addiction phenomenon too, with more attention though on the change of the established addictive behaviour, the developing and evaluating clinical interventions (pharmacological, psychological or social) for the person and the family involved, rather than understanding the underpinning mechanisms and concepts involved in the process of change during treatment.

Most of the evidence on treatment interventions for all substance groups is coming from the USA. It has been argued that there are differences in philosophy and orientation of treatment services between USA, UK and other countries, therefore interventions effective in one country should not be assumed a priori as effective in other countries.[30,31]

The application of theories into models, measurement of relevant concepts, generation and testing of hypothesis, and outcome and process clinical research are the main steps involved in the scientific study and testing of theories. A scientific study that is necessary in order to maintain a coherent approach into the development of science.

Psychological interventions are the main approach for most substances as stand alone or in combination with other interventions. Within psychological interventions Cognitive Behaviour Therapy (CBT) or related models based on the above discussed theories have had considerable evidence supporting their effectiveness.[32,33] Those clinical models and interventions need to be reviewed separately.

Γνωσιακές θεωρίες σχετικά με τον εθισμό: Μια αφηγηματική ανασκόπηση

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Ψυχιατρική 2010, 21:315–323

Υπάρχουν πολλές θεωρίες που προσπαθούν να κατανοήσουν και να ερμηνεύσουν το φαινόμενο του εθισμού. Από επιστημονική άποψη και για λόγους επιστημονικής ανάπτυξης θεωρείται σημαντικό, θεωρίες οι οποίες μοιράζονται κοινούς όρους να εξετάζονται μέσα σε κοινό πλαίσιο. Αυτό επιτρέπει την ανάπτυξη και δοκιμασία νέων επιστημονικών υποθέσεων. Η παρούσα εργασία παρουσιάζει κριτικά εκείνες τις θεωρίες και τα μοντέλα που εξετάζουν τη χρήση ουσιών σαν μία διαδικασία λήψης αποφάσεων, διαδικασία η οποία περιλαμβάνει συνειδητές αλλά και υποσυνείδητες λειτουργίες. Θεωρίες και μοντέλα όπως απλά συμπεριφορικά, γνωστικές θεωρίες, νευροψυχολογικά μοντέλα καθώς και τη νέα ιεραρχικά δομημένη θεωρία PRIME. Κεντρικοί όροι στις παραπάνω θεωρίες είναι οι θετικές και αρνητικές προσδοκίες από τη χρήση, η αυτοπεποίθηση, οι δεξιότητες, τα αντανακλαστικά, η αξιολόγηση των πράξεων και άλλα. Κάποιες από αυτές τις θεωρίες έχουν προτείνει και δοκιμάσει θεραπευτικά μοντέλα. Η προσέγγιση στην εργασία είναι συνθετική και στόχο έχει να επισημαίνει τις ομοιότητες μεταξύ τους και να προβάλει επικοδομητικά το ρόλο τους σε μία συνολική επιστημονική κατανόηση των πολλών πλευρών του φαινομένου.

Λέξεις ευρετηρίου: εθισμός, θεωρίες, γνωσίες, συμπεριφορά

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Special article
Ειδικό άρθρο

Seasonality, suicidality and melatonin

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Psychiatriki 2010, 21:324–331

Seasonality of suicidal behavior has been investigated regarding both neurobiological and climatic factors, as well as psychopathological and social aspects. Most of the studies detected peaks in late spring and troughs in the winter. Several lines of evidence evaluated the role of extended periods of light associated with probability of suicides whereas others summarize the alterations of melatonin excretion and its seasonal variation along with seasonal distribution of psychiatric disorders. The purpose of this paper is to provide an overview of studies attempted to reach an explanatory model of underlying pathophysiology of melatonin in the pathogenesis of seasonal variation in suicidality. There is argument on the interconnection between suicide rates and weather factors. However, an inverse pattern of melatonin levels and the seasonal peak in suicides was observed. These findings suggest that sunlight exposure along with a wide spectrum of other factors may explain the aetiopathogenesis of suicidal behavior.

Key words: seasonality, suicidal behavior, melatonin, depressive symptoms, genetics variations, sunlight

Seasonality of suicidal behaviour

Suicidal behavior is a universal human behavior and constitutes a major public, as well as mental health problem. A low rate of both completed and attempted suicides over the last half-century was observed in Greece. This low suicidal rate is attributed to social and cultural parameters, such as close family ties and easy discharge of anger.[1–7] Many studies demonstrated seasonal influence on suicides in countries of North and South hemisphere and how they varied with latitude.[8–13] Most of them found clearly present a spring-time peak especially in the regions far from the equator (more pronounced differences in day length along the year). Other investigators emphasized the same annual pattern with special reference to suicides committed by males and by violent methods.[14–17] A seasonal variation of mainly male committed suicides was observed in Greece. Suicidality by violent methods for individuals above the age of 45 peaks in early May. As for the method, suicide by hanging peaks in June and by shooting in April.[18] Moreover, there is evidence that male psychiatric patients who attempt suicide by violent methods may have a dysfunction of the

hypothalamic-pituitary-gonadal axis at the hypothalamic-pituitary level.[19]

The season of birth was investigated in major depressive patients (and further suicidality). No effect from the season of birth was found in suicidal attempters with major depression whereas the study confirms the effect of seasonality of birth on patients suffering from specific types of depression.[20]

Weather factors, not necessarily considered as periodic changes, have shown a positive relationship to suicide rates; findings mainly supporting the function of photoperiod as the most serious impact on suicidal behavior.[21–23] Furthermore, several publications reported associations between monthly temperature, humidity grade, wind velocities, lunar phases, rainfall mean, time of the day and suicidal acts.[14,21,24–26] Distribution of attempted suicides may show a seasonal pattern as well, while there is also literature focused on suicidality of certain subgroups, such as alcoholics, workers exposed to electromagnetic fields and influence by ozone and air pollution.[27–30] The above-mentioned studies indicate a possible interconnection between seasonal pattern of suicidal acts and alterations in neurotransmitter systems which could trigger impulsivity, pessimism and aggression. These traits may implicated in the susceptibility to suicide attempts. Nevertheless, various limitations exist, concerning data collected from urban/rural regions, marital status and other sociological parameters that interfere with the interpretation of results.

Melatonin, other biological factors and socialdemographic parameters

Melatonin is produced by the pineal gland exclusively during night-time and synchronized by the suprachiasmatic nucleus. Since its excretion occurs via stimulation of beta-adrenoreceptors, is considered as an index for noradrenergic function. Two studies[31,32] investigated the adrenoceptor sensitivity in depression (and further suicidality) by using melatonin response. In the first one, administration of clonidine (a central acting α2 adrenoceptor agonist) by a single oral dose of 0.15 mg, significantly reduced melatonin concentrations in depressed patients, but not in control subjects. In the second study, administration of atenolol (a peripheral β1 receptor antagonist) by an oral dose of 100 mg, strongly reduced melatonin in depressed and control subjects. The proposed metabolic pathway starts from tryptophan, which is metabolized into 5-hydroxy tryptophan (5-HTP) by tryptophan hydroxylase (TPOH); then 5-HTP forms serotonin (5-HT) by 5-HTP-decarboxylase and a third step includes acetylation (via function of another enzyme, the acetyltransferase) into N-acetylserotonin (NAS). Finally, the O-methylation of NAS forms melatonin.[33–35] A study on overnight urinary melatonin was conducted on the most geographically dispersed population in Greece. Females had higher overnight urinary melatonin values than males.[36] A seasonal bimodal pattern on melatonin excretion was observed in Greece among healthy volunteers. Bergiannaki et al[37] investigated the influence of season and the component of geomagnetic field on melatonin excretion. Peak values were observed in June and November when a high length stability, as well as low values of the vertical component of the geomagnetic field was recorded. On the other hand, in April and August-October trough values were recorder when a low daylength stability with high values of the vertical component of the geomagnetic field was combined.

The photoperiodic message can affect various parameters of the melatonin secretion; higher amplitude under a long photoperiod, higher duration of the secretion peak due to a higher night-length. Moreover, there are non-photic factors implicated in production of melatonin, such as age, gender, body mass index, geomagnetic activity, traumatic head injury and temperature. For instance, ambient temperature is inversely connected to the amplitude of the nocturnal melatonin peak and the rhythms of epiphysis metabolism decrease with age.[27,35,38–41] Among healthy individuals, night-time urinary melatonin level may reflect a genetically determined mechanism.[42] Low melatonin levels were closely related to melancholic depression.[43]

The genetic basis of suicidal behaviour

The circadian rhythmicity exerts autonomy independent to light stimulation, or even pineal function, most probably demonstrating the major role of certain clock genes and the governing function of several nuclei in CNS, such as the suprachiasmatic ones. It has been hypothesized that the genetic basis of suicidal behavior plays a complex role independently from other genetic factors predisposing to psychiatric disorders, even if these disorders are often associ-

ated with suicidality.[41] A polygenic inheritance of suicidal behavior in depressed patients with a history of suicide attempts was detected.[44] The occurrence of suicidal ideation was a familial component, stronger among males than females psychiatric patients.[45]

It is widely accepted that serotonergic dysfunction predispose to phenotypes of increased vulnerability to traits associated to suicidal behavior (as for example disturbed impulse control). Although studies have reached in many cases contradictory conclusions, many of them offer candidate genes responsible for such behavior. One of them is located on chromosome 17 expressing the 5-HT transporter. A functional polymorphism (s-allele of 5HTTLPRR) decreases the serotonin uptake by lowering the gene expression, a condition related with neuroticism. Additionally, postmortem findings in suicide victims display reduction in 5-HT transporter in the region of prefrontal ventral cortex.[46,47]

Researchers have associated the low levels in the cerebrospinal fluid of the major 5-HT metabolite (5-hydroxy-indoleacetic acid) with various psychiatric disorders including depression and suicides. A significant correlation between TPOH (limiting enzyme in the synthesis of 5-HT and possibly melatonin) and inadequate impulse control has been pointed out elsewhere, suggesting that an intron 7 polymorphism on chromosome 11 in the region of TPOH gene, plays a role in reduction of serotonin turnover. Other, functional or not, allele variants which adjust mechanisms like transporting, secretion or binding of neurohormones (including melatonin and component molecules) in serotonergic and nor-adrenergic systems have been reported.[48–52] Homozygosity for the short allele (the frequency of the C-C genotype) is significantly less frequent in unipolar affective disorder patients with a history of suicide attempt than in healthy subjects.[53]

Genetic correlates of seasonal variation in suicide-the SAD patient

Several studies attempted to reveal a correlation between endophenotypes predisposing to suicide and periodic biochemical patterns. TPOH gene's expression displays different levels of the enzyme activity during day time with an increase during night. Lower levels of plasma L-tryptophan in spring match the annual pattern for suicides. Decreased serotonin transporter binding potential, under a longer photoperiod, may offer an explanation for changes in individual's behavior, according to the expected increase of synaptic 5-HT levels.

The observation of hyperactivity of the serotonergic system in spring might seem paradoxical since we expect lower 5-HT activity during the time of higher suicide risk. Moreover, a certain subpopulation of depressed patients seems to get worse in symptoms during the late fall and winter (Seasonal Affective Disorder, SAD).[54–56]

It may be useful though to keep in mind that mechanisms, such as auto inhibition of 5-HT receptors on different locations in the brain, have been shown to affect in opposite ways the 5-HT outflow in certain brain regions.

A possible explanation interconnecting the role of photoperiod with individual's mood has been described suggesting a triggering effect of sunshine–in short term– on suicide behavior.[57] Thus, it is plausible to combine the beneficial impact of sunlight on spirits with the incidence of suicides in spring. The same report pointed out a hypothetical model for the sunshine effect in women and how it can be mediated by the hypothalamic-pituitary-adrenal axis. Petridou et al[58] confirmed the positive association between month of maximum daylight and higher relative risk for suicide, stressing the need for further investigations on how sunshine affects melatonin and melatonin affects mood regulation (not excluding the role of 5 HT and L-tryptophan in behavior changes along with sunshine dependence). The results were estimated according to data sent by 20 countries for the last 5–24 years. Investigations also exist about the role of acute changes in the luminosity, with higher turnover of 5 HT in the brain on bright days. The pathophysiology may involve traits predisposing to suicidal behavior (aggression and impulsiveness) or hormonal changes, such as suppression of melatonin due to light accompanied with lack of sleep. Bjorksten and colleagues[8] reported a significant seasonality in a total of 833 suicides during the period 1968–1995 and noted that lifestyle changes during the arctic summer may cause several disorders like psychosis, exacerbation of affective disorders and delirium either because of lack of sleep or via the pre-mentioned changes in 5 HT turnover due to increased luminosity. The theoretical model of solar radiance, in the long term acting protectively and

over a short term as a triggering factor for suicide, matches the mechanism of antidepressants which initiate a pronounced motivation into the mood before they improve the whole spectrum of depressive symptoms. It is possible thereby, that changes in the weather increase the risk of suicide mainly in individuals with specific vulnerability; even though there is no identification of a "suicide-gene", certain genes might interact with each other so as to predispose to suicidal behavior under the influential role of the photoperiodic message.

The "Low melatonin syndrome"

A described hypothetical model for a subgroup of depressed individuals involves low nocturnal melatonin levels along with: (a) abnormal dexamethasone suppression test, (b) less pronounced periodic alterations in symptoms, and (c) abnormal 24-h rhythm of cortisol.

Neither the SAD patients, nor the subgroup of patients with Low Melatonin Syndrome (LMS) follow any specific suicide seasonal pattern. However symptoms correlated with the latter, like anaedonia and lassitude may incline towards suicidal thoughts; moreover, lower levels of pineal melatonin content were found in suicide victims. Some depressed patients suffering from lassitude and profound sadness had lower melatonin levels, albeit in this study have been reported higher melatonin maximum levels in participants with suicide attempts than ones with no suicide attempt.[59]

Seasonality of melatonin levels and interaction between 5-HT and melatonin

In a sample of 32 depressed outpatients, Carvalho and colleagues noted alterations in the levels of a urinary metabolite of melatonin solely in those with severe symptoms.[38] The analyzed participants were drug-free, thus it was possible to exclude the confounding process of the cytochrome inhibition by several drugs which may alter the secretion amplitude of melatonin. Significant peak of suicides, particularly for the age group over 45, have been observed in the morning by other investigators. Still, various limitations remain, such as the factor of abnormal synchronization to the duration of photoperiod in patients who, due to their melancholic symptoms, spend less time outdoors. To make things more complicated, the day-length variations over different seasons of the year may not represent the same amount of the light exposure for different individuals and populations. Given that illuminance of 60 lux suppresses melatonin secretion, its onset seems to depend exclusively upon the timing of sleep, as far as individuals in modern life are concerned. Besides, artificial light contains less blue than natural one; considering previous observations that the spectral sensitivity for melatonin regulation is greater for the blue light, it becomes obvious that the time spending indoors with lights open contributes in a complicated, plus worthy of further understanding, way to the modulation of the circadian characteristics of behavior.[60–63]

Arendt et al[64] noted that the annual variations of serum melatonin tend towards an inverse pattern with the levels of platelet 5-HT. Moreover, the 5-HT hypothalamic content (probably representing a precursor for the production rate of melatonin) was found 180° out of phase with melatonin content. Administration of melatonin increases serotonin levels in brain regions and 5-HIAA in cerebrospinal fluid. Numerous publications described low melatonin levels in spring and suggested a close interconnection between fluctuations of the two indoleamines with a nadir in 5-HT levels in winter confirming the inverse pattern.[65–68] Among the former, one may find enough evidence to hypothesize a bidirectional interaction and data contributing to interpretations for seasonal phenomena, such as affective disorder, extraordinary impulsivity and suicidal acts.

Conclusion

The annual variation in suicide has been inversely related to the annual pattern of melatonin with a spring-peak in suicides and a spring-nadir in melatonin levels, along with seasonal changes in closely related neurotransmitter systems, mainly those of serotonin. No profound relationship has emerged among meteorological conditions and tendency to suicidal behavior. Socio-epidemiological factors need to be taken into account, while the way the intrinsic circadian system interacts with psychiatric conditions remains uncertain.[69,70] Further research regarding the aetiopathogenesis of suicide in relation to sunlight exposure and rhythmicity of melatonin activity, might lead to an explanatory model for the seasonal distribution of suicide.

Εποχιακή κατανομή, αυτοκτονικότητα και μελατονίνη

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Ψυχιατρική 2010, 21:324–331

Η εποχικότητα της αυτοκτονικής συμπεριφοράς διερευνάται σε σχέση με νευροβιολογικές, κλιματικές, ψυχοπαθολογικές και δημογραφικές παραμέτρους. Οι περισσότερες μελέτες εντοπίζουν αύξηση της αυτοκτονικότητας περί τα τέλη της άνοιξης ενώ το χειμώνα σημειώνεται μείωση. Ερευνάται ο ρόλος της παρατεταμένης ηλιοφάνειας σε συνδυασμό με την πιθανότητα για αυτοκτονία. Άλλες εργασίες εστιάζουν στις μεταβολές της έκκρισης της μελατονίνης παράλληλα με την εποχιακή κατανομή ψυχιατρικών διαταραχών. Επίσης, ειδικές υποκατηγορίες όπως παρα-αυτοκτονικές συμπεριφορές, συννοσηρότητα με αλκοόλ και επίδραση άλλων ειδικών συνθηκών (π.χ. ηλεκτρομαγνητικά κύματα, ατμοσφαιρική μόλυνση κ.ά.) μελετώνται ως προς την εποχικότητα της αυτοκτονικότητας ή/και σε σχέση με την έκκριση μελατονίνης. Ο σκοπός του άρθρου συνίσταται σε μια γενική θεώρηση μελετών που επιχειρούν να προσεγγίσουν ένα επεξηγηματικό μοντέλο σχετικά με την παθοφυσιολογία που μπορεί να υφίσταται στην έκκριση νευροδιαβιβαστών και ειδικότερα της μελατονίνης (ή των πρόδρομων αυτής ουσιών) και πως αυτή πιθανώς συμβάλλει στην ανισοκατανομή των αυτοκτονιών κατά τις εποχές του έτους. Ακόμα, γίνεται αναφορά σε μελέτες που αναζήτησαν σχέση μεταξύ μετεωρολογικών δεδομένων (π.χ. ηλιοφάνεια) και διαταραχών της συμπεριφοράς. Εντοπίστηκε σημαντικός αριθμός γενετικών μελετών που επιχειρούν να διακρίνουν στοιχεία συμπεριφοράς που ενέχουν κίνδυνο εκδήλωσης αυτοκαταστροφικότητας και ελέγχονται γονιδιακά. Αναφορά γίνεται σε υποκατηγορίες της κατάθλιψης, όπως η «εποχιακή κατάθλιψη» και το «σύνδρομο χαμηλής μελατονίνης» που έχει υποτεθεί από ορισμένους ερευνητές ότι σχετίζονται με ρυθμικές μεταπτώσεις στη διάθεση. Δεν έχει εντοπιστεί σαφής συσχέτιση της αυτοκτονίας με συγκεκριμένα καιρικά φαινόμενα. Εξάλλου, το εάν τελικά, πώς και σε ποιο βαθμό απορρυθμίζεται το κιρκαδιανό σύστημα σε άτομα που νοσούν από ψυχιατρικές διαταραχές, αποτελεί, ακόμη, αναπάντητο ερώτημα. Ωστόσο, έχει παρατηρηθεί ότι την εποχή που σημειώνεται αύξηση της συχνότητας αυτοκαταστροφικών συμπεριφορών υπάρχει αντίστοιχα μείωση στα επίπεδα μελατονίνης. Βέβαια, τα επίπεδα μελατονίνης έχουν στενή σχέση με τη σεροτονίνη που είναι διαθέσιμη στο ΚΝΣ και με την έκθεση στο ηλιακό (και όχι μόνο) φως. Τα παραπάνω δεδομένα μαζί με ένα ευρύ φάσμα άλλων ποικίλλων παραγόντων ίσως προσφέρουν στο μέλλον περισσότερες διευκρινήσεις για την αιτιοπαθογένεια και την πρόληψη των αυτοκαταστροφικών συμπεριφορών.

Λέξεις ευρετηρίου: εποχικότητα, αυτοκτονική συμπεριφορά, μελατονίνη, καταθλιπτικά συμπτώματα, γενετικές διαφοροποιήσεις, ηλιοφάνεια

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General article
Γενικό άρθρο

History and therapeutic properties of Hypericum Perforatum from antiquity until today

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Psychiatriki 2010, 21:332–338

The St. John's wort has been recently one of the most popular therapeutic means that may be easily found in health food stores in various forms, such as capsules, liquid extracts, oils, ointments and others. The St. John's wort is not, however, a new pharmaceutical aid. The herb has a long and particular background as an antidepressant, anti-septic, anti-inflammatory, expectorant and tonic for the immune system, used for its alleviating properties. In fact, some of the previous reports on the herb's use originate from the Greek herbalist of the 1st AD century, Pedanios Dioskourides, as well as from his contemporary physicians, respectively Greek and Roman, Galinos and Plenius. In the treatise, Paracelsus (1493–1541 AD), the famous Swiss alchemist and physician, has been also mentioned to be using the St. John's wort. The historians consider that the name of the St. John's wort was given to it by the first Christians, who noticed that the plant blossoms on about the 24th of June, the Saint John's-the Baptist's birthday, who was decapitated. In our times, and mainly in the USA, the UK and Germany, the St. John's wort has been extensively used for the treatment of mild and moderate depression. According to researchers, the St. John's wort has an action equivalent to amitryptilline, fluoxetine and maprotiline, and is clearly more active than placebo. Experimental protocols have been also in progress on the St. John's wort therapeutic action against diseases of our times, such as cancer, AIDS and hepatitis. According to what is widely supported, the St. John's wort is considered as bridge between the conventional and the alternative medicine. The St. John's wort pharmacodynamics as well as pharmacokinetics have been also extensively studied. The probable mechanism of the St. John's wort action is the suspension of monoaminoxidase (MAO) and the suspended reuptake of serotonine. Using the St. John's wort we open the wide sphere of natural therapies. Such an extended approach may lead us to an increasing evaluation of our natural sources. Preserving what we have and renewing what we have destroyed is our only hope for the future of humanity, our planet and all the living organisms.

Key words: St. John's wort, depression, antiquity, Dioscurides, serotonine

Introduction

Hypericum Perforatum or St. John's Wort, has been one of the most popular therapeutic means during these past years. It can be easily commercially acquired, in various forms, i.e. capsules, liquid extracts, oils, ointments, etc. Nevertheless, hypericum is not a new treatment aid. This herb has a long and special history as an anti-depressant, antiseptic, anti-inflammatory, expectorant, immune system tonic, and lenitive.[1–3]

For centuries, the Europeans have been using it in order to treat a vast number of diseases, like anxiety, colds, depression, flue, haemorrhoids, womb muscle contractions during menstruation, skin infections, and wounds. In reality, several of the older references to the use of this herb for haematoma, burns, wounds and skin irritations, come from the Greek herbologist of the 1st century a.c., Dioscorides, the roman student of the 1st century a.c., Plenius, and the Greek doctor of the 5th century b.c., the father of Medicine, Hippocrates.[4–6]

Hypericum is being developed in North America and Australia, but this plant also breeds in Europe, where it flourishes in open fields, in dry riverbeds, on rocky planes, in city parks and gardens. Historians think that the name "St. John's Wort" has been given by the first Christians, who noticed that it flourishes around the 24th of June, at the birthday of St. John the Baptish, who has been beheaded.

Hypericum belongs in the class of teoids, the family of hypericides, and it is a herbaceous, brushwood or bushy, perennial plant, with yellow, spoke-like flowers and small, long leaves.

Hypericum's main properties are: (1) Quinones: hypericin, pseudohypericin, hyperphorin, (2) Flavonoids: hypericin, quercetin, diflavone, proanthocyanidin, amentoflavone, (3) Essential/volatile Oils, (4) Xanthones, (5) Tannines, and (6) Coumarins: umbelliferone, scopoletin.[6]

Purpose

Despite the relatively poor bibliography, regarding the action of Hypericum during antiquity, several articles have been published regarding its history, as well as bibliographic references of Dioscorides, Galen and Paracelsus. The purpose of this work is to show the important and numerous applications the Hypericum has, for the treatment of many medical indications, from antiquity until today.

Many researches and valid medical articles are also quoted, regarding depression, which today is the main therapeutic indication of Hypericum.

An important purpose of the present thesis is to present the history of Hypericum, a travel in time, from antiquity until today.[7]

Material and method

Many bibliographic references are quoted, among which several books and articles, dealing with the history and theurapeutic properties of the Hypericum from antiquity until today.

Results

Long before drugs were invented, herbs were proved to have strong therapeutic properties. Among herbs, Hypericum has a prominent position, and it is well known for its therapeutic properties, since antiquity. One could say that Saint John's Wort is the point where magic and myth meet Medicine.[9]

Hypericum Perforatum has crossed an impressive path, from its popular use during antiquity, where its use was covered both in practice and imagination, until its recent remarkable status as a miracle-herb for the modern world, where it can constitute the crucial, final bond between alternative and conventional medicine.[5]

Regarding Hypericum's history, the first to describe the therapeutic properties of the plant as a healing, diuretic, analgesic, and a drug antimalaria, was Pedanius Dioscorides, the most popular pharmacologist of antiquity, who lived in the 1st century a.c. Dioscorides served as a military physician, near Cladius and Nero. The first medical material recorded in the West, in particular a synopsis regarding plants, is owed to him. In his notorious work, "About Medical Material", he describes Hypericum as follows: "It is a

big, tufted, red bush; its flower resembles the leucoia and, if rubbed between the fingers, it produces a juice that resembles human blood. For this reason the plant has been named Androhaimon (human blood)". His contemporary physicians, Greek and Roman respectively, Galen and Plenius, repeated important references to the plant of Dioscorides, while other physicians of the time remarked that Saint John's Wort was an excellent drug to provoke menstruation, and an antipyretic. Furthermore, Plenius the Roman, found it extremely effective for the healing of snake bites, when mixed with wine. Dioscorides writes on Hypericum: «ΥΠΕΡΕΙΚΟΝ. ΟΙ ΔΕ ΑΣΚΥΡΟΝ ΟΙ ΔΕ ΑΣΚΥΡΟΪΔΕΣ, ΟΙ ΔΕ ΑΝΔΡΟΣΑΙΜΟΝ. ΚΑΙ ΤΟΥΤΟ ΕΣΤΙΝ ΕΙΔΟΣ ΥΠΕΡΙΚΟΥ ΔΙΑΦΕΡΟΝ ΚΛΩΣΙΝ, ΦΡΥΓΑΝΩΔΕΣΤΕΡΟΝ ΔΕ ΚΑΙ ΠΕΦΟΙΝΙΓΜΕΝΟΝ ΤΟΙΣ ΦΥΛΛΟΙΣ ΛΕΠΤΟΙΣ, ΑΝΘΗ ΜΗΛΙΝΑ, ΚΑΡΠΟΝ ΔΕ ΟΜΟΙΟΝ ΥΠΕΡΕΙΚΩ, ΟΖΟΝΤΑ ΡΗΤΕΙΝΗΝ ΚΑΙ ΟΙΟΝΕΙ ΑΙΜΑΣΣΟΝΤΑ ΤΟΥΣ ΔΑΚΤΥΛΟΥΣ, ΤΟ ΣΠΕΡΜΑ ΩΣΤΕ ΔΙΑ ΤΟΥΤΟ ΑΝΔΡΟΣΑΙΜΟΝ ΚΑΛΕΙΤΑΙ. ΠΟΕΙ ΔΕ ΚΑΙ ΤΟΥΤΟΥ Ο ΚΑΡΠΟΣ ΠΡΟΣ ΙΣΚΙΑΔΙΚΟΥΣ ΠΕΙΝΟΜΕΝΟΣ ΜΕΘ'ΥΔΡΟΜΕΛΙΤΟΣ ΚΟΤΥΛΩ ΔΥΕΙΝ. ΑΓΕΙ ΔΕ ΧΟΛΩΔΗ ΚΑΙ ΚΟΠΡΙΑ ΠΟΛΛΑ ΣΥΝΕΧΩΣ ΔΙΔΟΜΕΝΟΣ ΑΧΡΙ ΑΝ ΥΓΙΑΣΘΩΣΙΝ ΠΟΕΙ ΚΑΙ ΠΡΟΣ ΠΥΡΙΣΑΥΤΑ ΕΠΙΠΛΑΣΘΕΙΣ:», Φ. 145, σελ. 206 ΠΕΡΙ ΥΛΗΣ ΙΑΤΡΙΚΗΣ, Ο ΕΛΛΗΝΙΚΟΣ ΚΩΔΙΚΑΣ 1, ΤΗΣ ΕΘΝΙΚΗΣ ΒΙΒΛΙΟΘΗΚΗΣ ΤΗΣ ΝΕΑΠΟΛΕΩΣ, ΕΙΣΑΓΩΓΙΚΑ ΚΕΙΜΕΝΑ.[10–14]

In fact, most of the initial recorded references come from people that used herbs and physicians that lived in Greece and the Roman Empire, where the plant was known with its Greek name "Ypericon". Like most famous herbs, the healing properties of which have been appreciated for centuries, the benefits from Saint John's Wort have been known beyond doubt, and passed on from mouth to mouth through generations of votanologists and healers, before history itself. For instance, the effectiveness of Saint John's Wort for the healing of wounds and inflammations was surely known for some time then. Most of the early healers followed the old popular belief that the natural characteristics of any therapeutic drug were related to the conditions under which treatment is more effective. The oil extracted flowers and plants from looked like blood, made the ancient people that think this plant would be effective in the treatment of wounds and inflammatory infections – and that was true.[15–19]

Paracelsus was the first to discover the importance of sterilizing Hypericum with boiling, while recommending it for the treatment of ill temper and anxiety. Since then, Hypericum is an ingredient of a "natural drug".

Furthermore, should it be noted that during the 6th century, as mentioned in an inscription, the plant has been immortalized by the Celt Saint Coloumba, who was devoted to Saint John the Baptist. Saint Coloumba, who founded monasteries all over Ireland and Scotland, is said that carried a branch of Hypericum or Saint John's Wort with him everywhere he went, in honour of the martyred Saint. Furthermore, according to a tradition, he brought Saint John's wort with him as spiritual protection during his long and dangerous journeys as a missionary to Celtic tribes.

Until the Middle Ages, Hypericum formed a part of many summer solstice rituals. In the eve of Saint John's day, for instance, people used to hang garlands made of the leaves and flowers of this plant over the doors of houses and churches, to protect them from witches and evil spirits. People also used to put branches of this plant under their pillows in the eve of Saint John's day, believing that the Saint himself would appear to them in a dream, give them his blessing, and keep death away for the year to come. The dried leaves of the plant were considered to be protective talismans, used like bookmarks within the Bible and prayer books.

It is easy for one to understand the way in which several of these ancient superstitions came up. This plant flourishes mildly and copiously, near the date of the summer solstice, an important time of planting, accompanied by a wealth of pagan, indigenous and early religious rituals. People performed sacrifices and offerings to ancient Gods, like the Sun and the Earth, for the fertility of the season. Prayers were made to the Gods of the West, to bring a copious harvest during the Fall.

Furthermore, this is the time when we celebrate the birthday of Saint John the Baptish, who was

tragically beheaded, and his head was offered to Salome. This last part, along with the fact that the plant's oil leave blood-like stains on the fingers and the hands of those gathering it, provoked some interest regarding certain of the magical and sinister and implicits regarding Saint John's Plant. Moreover, in antiquity, it was believed that Saint John's Wort offered protection from evil spirits and bad luck; this belief may have originated partly from the plant's initial use by traditional healers as a drug for the so-called "melancholy", or troubled minds. Today, we call these conditions "depression" or "anxiety".

Indeed, Hypericum has recently attracted considerable attention, for its anti-depressant properties. In any case, during antiquity, the effectiveness of the use of this plant for the treatment of any mental or emotional condition, has been undoubtedly proven, although not fully appreciated, as a side-effect of one of its more common uses. Ancient healers and herbologists, who usually treated wounds and infections using this plant, possibly noticed that the plant also had a tranquillizing effect, especially in its clear oil form, when applied directly and absorbed by the skin, and in its liquid form (derived by the steam created by its leaves and flowers – called a "concoction" in traditional herbology) administered orally.

Later, the Crusaders brought the plant with them to protect themselves by witchcraft; they also used soaked flowers and leaves as ointments to treat the wounds of battle. Naturally, until the Middle Ages, all these therapeutic uses were common practice. The Knights of the Order of Saint John of Jerusalem regularly used cataplasms made of mashed flowers and leaves of this plant, to contain bleeding and heal the wounds of battle, during the 11th, 12th, and 13th century. During the same period, the people suffering from rage, or believed to have been possessed by daemons, often were administered concoctions of the plant, or inhaled its slightly bitter and acid smell.[20,21]

In 1618, Hypericum was one of the therapeutic plants to be mentioned in the first London Pharmacopeia. In England, the plant has been made particularly known by Nicholas Culpeper (1616–1654), the famous botanologist.

The American settlers that immigrated to England, France, and Germany, brought the plant to the North Eastern states of the USA, and from there, it has spread to the argest part of the country, as the setters moved towards the South and the West. One hundred years later, during the Eclectic Period, the golden age of American herbology, known herbologists like John King and Finley Ellingwood marked that the use of Hypericum had now spread beyond the healing of wounds, and that the drug was now used as a diuretic, astringent, tranquilliser, and for the treatment of depression. Nevertheless, during the 20th century, Hypericum became known for its vast treatment applications, mainly as an anti-depressant, in both sides of the Atlantic.

The treatment indications of the Hypericum, from antiquity until today, is common cold, the flu, infectious mononucleosis, dysmenorrhea, menopause, premenstrual dystonia, carpal tunnel syndrome, lumbago, strains, carbuncles, subcutaneous haematoma, burns of all natures, insect bites, obesity, anxiety, insomnia, seasonal emotional disturbance, and, finally, mild and moderate depression.[21,22]

Discussion

Based on bibliography, it seems that the Hypericum has been known since antiquity for its vast treatment applications. Today, especially in the USA, United Kingdom and Germany, it is administered for the treatment of mild and moderate depression. Its Pharmacodynamics and Pharmacokinetics have been extensively studied, and many research protocols are under development for the vaster treatment of many serious conditions like cancer, HIV and hepatitis, as well as comparative studies of Hypericum with the activity of tricyclic antidepressants (TCA), and serotonine reuptake inhibitors (SSRI). According to relatively older studies, the Hypericum has equal activity with amitryptiline, fluoxetine and maprotiline, while clearly exceeds activity versus placebo. According to its possible mechanism of activity, it is consid-

ered to be a monoaminoxidase inhibitor (MAO) and an inhibitor of serotonine reuptake.[22–29]

Conclusions

In the present thesis, we have studied the function of Saint John's Wort, as well as the time and method of its application to treat depression, and the rest of its therapeutic applications. Furthermore, its history has been studied based on bibliographic resources, mainly the work of eminent roman physician and botanologist Pedanius Dioscorides, in the 5th cent. a.c. Also, we have examined its effectiveness, as well as all comparative studies with synthetic anti-depressants, and protocols under development, regarding the treatment properties of Hypericum in many other illness conditions of our times.

People suffering with mild and moderate depression can be treated sucessfuly with Saint John's Wort, without having to sacrifice their quality of life or their health. This herb comprises an unusual combination of safety, effectiveness, a vast scale of benefits, a lack of serious side-effects and low cost. An extensive European research on Saint John's Wort has had positive results, and the National Mental Health Institution of the USA, is now conducting a proprietary research worth 4.3 billion dollars, comparing the Hypericum to a placebo and the known pharmaceutical anti-depressants.

The popularity of Hypericum (St. John's Wort), has renewed the people's recognition and acceptance of natual drugs, through average people that look beyond conventional medicine to find solution in their problems of health. By all means, these people should not diagnose themselves, or follow a treatment of their own contrivance. In any case, there are financial aspects that make specialized help non-available to many people. In any case, threatment with Saint John's Wort without a prescription is frequently needed. We make a part of nature, and natural substances are more compatible with human biology than synthetic substances. Our dependence from technological medicine, including pharmaceutical products, did not sufficiently free people of the disease. The increase of expenses on health also urges the need to use these even less expensive products.

This is a wonderful moment for one to be a doctor, with a multitude of new treatment possibilities opening every day. We also observe that most doctors have been motivated and have the curiosity to establish the best, less harmful methods to help their patients.

Let us use Hypericum as a bridge between established and alternative treatments, and let us continue to enlarge the vast sphere of natural treatments. This extensive approach can lead us to an increasing appreciation of our natural resources. Preserving what we have destroyed is our only hope for the future of mankind, the planet, and all living organisms.[30,31]

Ιστορία και θεραπευτικές ιδιότητες του Hypericum Perforatum από την αρχαιότητα έως σήμερα

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Ψυχιατρική 2010, 21:332–338

Πρόσφατα διαπιστώθηκε ότι το Υπέρικο είναι ένα από τα δημοφιλέστερα θεραπευτικά μέσα που βρίσκει κανείς εύκολα σε καταστήματα προϊόντων υγιεινής διατροφής με διάφορες μορφές, όπως κάψουλες, υγρά εκχυλίσματα, έλαια, αλοιφές και άλλα. Το Υπέρικο δεν είναι ωστόσο νέο φαρμακευτικό προϊόν. Το βότανο αυτό έχει μακρά και ιδιαίτερη ιστορία ως αντικαταθλιπτικό, αντισηπτικό, αντιφλεγμονώδες και αποχρεμπτικό φάρμακο και ως τονωτικό του ανοσοποιητικού συστήματος, ενώ χρησιμοποιήθηκε επίσης και για τις καταπραϋντικές του ιδιότητες. Ορισμένες από τις παραπάνω αναφορές στις χρήσεις του προϊόντος καταγράφηκαν από τον Έλληνα βοτανολόγο του 1ου μ.Χ. αιώνα Πεδάνιο Διοσκουρίδη και στους σύγχρονούς του ιατρούς, τον Έλληνα Γαληνό και το Ρωμαίο Πλήνιο. Στην πραγματεία αναφέρεται επίσης ότι και ο διάσημος Ελβετός αλχημιστής και ιατρός Παράκελσος (1493–1541 μ.Χ.) γνώριζε και χρησιμοποιούσε το Υπερικό. Σύμφωνα με τους ιστορικούς, το Υπέρικο πήρε το όνομα του (St. John's wort – βότανο του Αγ. Ιωάννη) από τους πρώτους χριστιανούς που παρατήρησαν ότι ανθίζει γύρω στις 24 Ιουνίου, γενέθλιο του Αγ. Ιωάννη του Βαπτιστή. Στις μέρες μας και κυρίως στις ΗΠΑ, το Ηνωμένο Βασίλειο και τη Γερμανία, το Υπέρικο χρησιμοποιείται εκτεταμένα για τη θεραπεία της ήπιας και μέτριας κατάθλιψης. Σύμφωνα με τους ερευνητές, το Υπέρικο δρα παρόμοια με την αμιτρυπτιλίνη, τη φλουοξετίνη και τη μαπροτιλίνη και είναι οπωσδήποτε πιο ενεργό από το έκδοχο. Πειραματικά πρωτόκολλα σχετικά με τη θεραπευτική δράση του Υπερικού κατά σύγχρονων νοσημάτων όπως ο καρκίνος, το AIDS και η ηπατίτιδα βρίσκονται αυτή τη στιγμή σε εξέλιξη. Κατά κοινή ομολογία, το Υπερικό γεφυρώνει τη συμβατική με την εναλλακτική ιατρική. Η φαρμακοδυναμική, όπως και η φαρμακοκινητική του Υπερικού έχει επίσης μελετηθεί εκτεταμένα. Ο ενδεχόμενος μηχανισμός δράσης του Υπερικού είναι η αναστολή της μονοαμινοξιδάσης (ΜΑΟ) και η αναστολή επαναπρόσληψης της σεροτονίνης. Με τη χρήση του Υπερικού, ανοίγει ένα παράθυρο στο μεγάλο κόσμο των φυσικών θεραπειών. Μια τόσο εκτεταμένη προσέγγιση ενδέχεται να μας οδηγήσει σε αυξανόμενη επαναξιολόγηση των φυσικών μας πόρων. Το να διατηρούμε όσα έχουμε και να ανανεώσουμε όσα καταστρέψαμε είναι η μόνη ελπίδα για το μέλλον της ανθρωπότητας, του πλανήτη μας και των ζωντανών οργανισμών.

Λέξεις ευρετηρίου: υπέρικον, κατάθλιψη, αρχαιότητα, Διοσκουρίδης, σεροτονίνη

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  Fax: +30 2310-435 064
  E-mail: info@praxicon.gr, Website: www.praxicon.gr
- **16th World Congress of the World Association for Dynamic Psychiatry (WADP), Munich, Germany**
  March 21–25, 2011
  Organizer: World Association for Dynamic Psychiatry
  Contact: Dr Sabino Funk
  E-mail: Lauraschreier@yahoo.de
  Website: www.wadp-congress.de
- **"WPA Regional Meeting", Yerevan, Armenia**
  April 14–17, 2011
  Organizer: Armenian Association of Psychiatrists
  Contact: Dr Armen Sophoyan
  E-mail: soghoyan@yahoo.com
- **21ο Πανελλήνιο Συνέδριο Ψυχιατρικής Ξενοδοχείο Hilton, Αθήνα**
  5–8 Μαΐου 2011
  Οργ. Φορέας: Ελληνική Ψυχιατρική Εταιρεία
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- **Royal Australian and New Zealand College of Psychiatrists (RANZCP) 2011 Annual Congress, Darwin, Northern Territory, Australia**
  May 22–26, 2011
  Organizer: The Royal Australian and New Zealand College of Psychiatrists (RANZCP)
  Contact: Louise Hain
  E-mail: Louise.Hain@ranzcp.org
  Website: www.ranzcp.org

- **10th World Congress of Biological Psychiatry Prague, Czech Rebublic**
  29 May–2 June, 2011
  Website: www.wbsbp-congress.org
- **WPA Thematic Conference: Rethinking Quality in Psychiatry: Education, Research, Prevention, Diagnosis and Treatment, Istanbul, Turkey**
  June 9–12, 2011
  Organizer: (a) Psychiatric Association of Turkey, (b) Turkish Neuropsychiatric Association.
  Contact: Dr. Levent Küey
  E-mail: kueyl@superonline.com
- **"XV World Congress of Psychiatry", Buenos Aires, Argentina**
  September 18–22, 2011
  Organizers: (a) Argentina Association of Psychiatrist (AAP), (b) Association of Argentinean Psychiatrists (APSA), (c) Fountation for Interdisciplinary Investigation of Communication (FINTECO)
  Contact: Mariano R. Castex
  E-mail: mcastex@congresosint.com.ar
  Website: www.congresosint.com.ar
- **II International Congress Dual Disorders Addictive Behaviors and Other Mental Disorders, Barcelona, Spain**
  October 5–8, 2011
  Organizer: Sociedad Espaňola Patologia Dual (SEPD)
  Collaboration: NIDA and APAL
  Contact: Prof. Miguel Casas
  E-mail: mcasas@vhebron.net, Website: www.cipd2011.com
- **"WPA Regional Meeting", Taipei, Taiwan**
  November 12–13, 2011
  Organizer: Taiwanese Society of Psychiatry
  Contact: Dr Chiao-Chicy Che,
  E-mail: twpsyc@ms61.hinet.net
- **WPA Thematic Conference-Community Psychiatry and Family Medicine. Joint Promotion of Mental Health Care, Granada, Spain**
  February 9–11, 2012
  Organizer: (a) World Psychiatric Association, (b) Spanish Association of Neuropsychiatry
  Collaboration: (a) WONCA International and WONCA Europe, (b) University of Granada
  Contact: Dr Fransisco Torres, E-mail: ftorres@ugr.es
- **WPA Thematic Conference: Addiction Psychiatry, Barcelona, Spain**
  March 29–31, 2012
  Organizer: Socidrogalcohol
  Contact: Julio Bobes Garcia
  E-mail: (a) bobes@ctv.es, (b) bobes@uniovi.es
- **8ο Διεθνές Ψυχαναλυτικό Συμπόσιο Δελφών, Δελφοί Ελλάς**
  Θέμα: «Ο πατέρας» Ιούνιος 1–4, 2012
  Οργ. Γραφείου: Easy Travel
  Αναγνωστοπούλου 19, 106 73 Αθήνα
  Τηλ.: 210-36 15 201, 210-36 09 442, Fax: 210-36 25 572
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  Ψυχιατρική Κλινική Πανεπιστημίου
  Πατρών 265 04 Ρίο-Πάτρα
  Τηλ.: 2610-992996, Fax: 2610-994534
  E-mail: evouga@upatras.gr
- **WPA Third Thematic Conference on Legal and Forensic Psychiatry, Madrid, Spain**
  June 12–14, 2013
  Organizer: Spanish Society of Legal Psychiatry
  Contact: Dr Alfredo Calcedo Barba
  E-mail: alfredocalcedo@gmail.com

"PSYCHIATRIKI"

INSTRUCTIONS TO CONTRIBUTORS

PSYCHIATRIKI is the official journal of the Hellenic Psychiatric Association. It is published quarterly and has the same scope as the Hellenic Psychiatric Association, namely the advancement of Psychiatry. The journal invite contributions in the fields of epidemiology, psychopathology, social psychiatry, biological psychiatry, psychopharmacology, psychotherapy, preventive psychiatry. The journal follows the standards approved by the International Council of Scientific Publishers. For a detailed description of the specifications see "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (www.CouncilScienceEditors.gr). Other sources: *Br Med J* 1991, 302:338–341/*Can Med Assoc J* 1995, 152:1459–1465.

Apart from the printed edition, the journal is freely available in electronic version at the websites: www.psych.gr or www.betamedarts.gr

The journal "PSYCHIATRIKI" accepts manuscripts for consideration with the understanding that they represent original material not previously published (except in abstract form) or submitted for publication elsewhere. All authors of a paper submitted must sign the submission form (found in all issues of the journal) and declare that they agree with the text of the paper, the publication in the journal and the transfer of the copyright to the publishers. The authors also declare that: (a) there was no source of financial support (if any should be stated), (b) there were no conflicting interests concerning the material submitted, (c) the protocol of the research project has been approved by the Ethics Committee of the Hospital or the Institution within the work was undertaken according to the ethical standards laid down in the Declaration of Helsinki (1995) as revised in Edinburg (2000) and (d) that the patients gave their informed consent prior to their inclusion in the study.

The acceptance criteria for all papers are the quality and originality of the research and its significance to the journal readership. All papers submitted are first screened by the Editor or members of the Editorial Board for suitability and quality.

If suitable, papers are then reviewed by two reviewers expert in the field. Reviewers are blinded as to the contributors of each paper. The reviewers remain anonymous for contributors. The comments of the reviewers along with proposed revisions or corrections are sent to the authors. The authors are informed of the final decision of the Editorial Board after the procedure of review is over. The names of the reviewers for the past year appear in a list in the first issue of the next year. The Editorial Board reserve the right to modify typescripts to eliminate ambiguity and repetition and improve communication between authors and readers.

TYPES OF ARTICLES

1. **Editorials:** Short articles in both Englich and Greek language covering topics of particular importance, written by members of the Editorial Board and by invited authors (up to 500 words and 5–7 references).
2. **Review articles:** Should be written by one or two authors. They should not exceed 7,500 words.
3. **Research papers:** These articles must be based on a research protocol. Statistical evaluation of the findings is essential. They should not exceed 3,000 words.
4. **Brief communications:** This section includes research reports which can be accommodated in a small space. They should not exceed 1,500 words.
5. **Special articles:** Invited articles concerning topics of special interest (up to 6,000 words).
6. **Case reports:** This section includes interesting case reports and descriptions of cases where new diagnostic or/and therapeutic methods have been applied (up to 1500 words).
7. **General articles:** These articles may reflect opinions on the theory and practice of Psychiatry, on the systems of provision of psychiatric services, on matters concerning the borderland between Psychiatry and other specialties or disciplines, etc. They should not exceed 2,000 words. The Editorial Board may suggest shortening of these articles in order to be included in the «Letters to the Editor» section.
8. **Letters to the editor:** Brief letters (maximum 400 words) will be considered for publication. These may include comments or criticisms of articles published in *PSYCHIATRIKI*, comments on current psychiatric topics of importance, preliminary research reports.
9. **Book review:** Presentation and critical review of selected books is carried out by the editorial board or by persons invited by it (up to 600 words along with a short abstract in Greek).
10. **Issues in English:** The issues of *PSYCHIATRIKI* will be published in Greek always with an abstract in English. Once or twice a year the issues will be published in English (with extensive abstract in Greek, 400–500 words). In this issue, papers by foreign and Greek writers will be published. Papers by Greek writers could be submitted in Greek or in English. Papers submitted in Greek that have been chosen to publication in English will be translated with the cooperation of the Editorial Board and the writers.

SUBMISSION

Papers either in English or in Greek are considered for publication and should be sent to:

Journal PSYCHIATRIKI
Hellenic Psychiatric Association,
17, Dionisiou Eginitou str., GR-115 28 Athens, Greece
e-mail: editor@psych.gr

The original manuscript, three copies as well as a copy on a diskette or an electronic copy by e-mail should be submitted. The text must be written with a word processor compatible with any Windows program, or with any program for a Macintosh computer.

The submitted manuscripts should be accompanied by the "Submission form" accurately filled in. Submission form can be found in every issue of the journal.

A code number to be used in further correspondence will be assigned to all papers submitted. Manuscripts should be typewritten, double-spaced on one side of the paper with a margin of at least 3.5 cm. On the right upper corner of the first page a characterization on the article should appear (e.g., Brief Communication, Research Article).

ARRANGEMENT

All pages must be numbered, starting with the title page.

Title page: It indicates the title (which should not exceed 12 words), the names and surnames of the authors, the Institute, Hospital, University, etc. where the work was conducted and the address, telephone number and e-mail of the author who will be responsible for the correspondence. In the same page appreciation for those who have contributed to the presented work can also be included.

Abstract: The second page must include an informative abstract (about 300 words) as well as 4–5 key words.

Main part: Must be divided in sections (e.g., for the Research Papers: Introduction, Material and method, Results, Discussion). Results appearing in the tables should not be reported again in detail in the text.

References: They must be identified in the text by arabic numbers (in brackets) and must be numbered in the order in which they are first mentioned in the text (Vancouver system), e.g. *Birley*[1] *found that... but Alford*[2] *disagreed*. Cite the names of all authors. The list of references should include only those publications which are cited in the text.

References should not exceed 100 in the Review articles and the Special articles, 50 in the General articles, 15 in the Brief Communications and in Case reports, and 5 in the Editorials and the Letters to the Editor.

The following paradigms illustrate the various reference categories:

1. Birley JLT, Adear P, Singer D, Rosenberg M. Electrogastrographic studies in elderly patients. *Gastroenterology* 1980, 79:311–314 (Journal Article).
2. Alford J, Nemiah J. Peptic ulcer in childhood. In: Sodeman WA (ed) *Pathologic Physiology*. Saunders, Philadelphia, 1970:457–472 (Chapter in Book).
3. Kinden A. *Stress and emotion*. Springer, Berlin, 1990 (Book).
4. Larsen E, Elliot B. Fatigue in major depression. *Psychiatriki* 2007, (Suppl 1):S143–S144 (Journal Supplement)
5. Silverstone A, Leman H, Stark J. *Attempted suicide by drug-overdose*. Paper presented at 2nd Congress on Suicide behaviour, 4–6 May 2002, Rome, Abstracts Book, pp 212–213 (Conference Presentation - Abstract Book)
6. Henry A, Andrews B. *Critical issues for parents with mental illness*. N.Y. Centre for Mental Health Services 2001 (Cited 2 June 2005) Available from www. mentalorg/publications (Website)

Abbreviations of journals should conform to the style used in *Index Medicus;* journals not indexed there should not be abbreviated.

Tables: They must appear in a separate page, double-spaced. They must be numbered in the order in which they are mentioned on the text, with arabic numbers (table 1). A descriptive concise title should be included. Avoid vertical lines.

Figures: They must be professionally prepared glossy or other camera-ready prints. They must be numbered with arabic numbers (figure 1) in the order in which they appear in the text. The figure number, the authors' names, the title on the paper and the figure title should be written with soft pencil on the back of each figure (or on a label affixed to it). A copy of each table and figure must be included with each copy of the manuscript.

Symbols and abbreviations: Spell out all abbreviations (other than those for units of measure) the first time they are used. Follow Iatriki 1980, 37:139 (in Greek) or «Units, Symbols and Abbreviations: a Guide for Biological and Medical Editors and Authors» (3rd ed, 1977) available from the Royal Society of Medicine of the United Kingdom.

Proofs: Proofs will be sent to the first author of each article. Extensive changes are not allowed in proof.

"ΨΥΧΙΑΤΡΙΚΗ"

ΟΔΗΓΙΕΣ ΓΙΑ ΤΟΥΣ ΣΥΓΓΡΑΦΕΙΣ

Η *ΨΥΧΙΑΤΡΙΚΗ* είναι το επίσημο όργανο της Ελληνικής Ψυχιατρικής Εταιρείας·εκδίδεται τέσσερις φορές το χρόνο και έχει τον ίδιο σκοπό με την Εταιρεία, δηλαδή την προαγωγή της Ψυχιατρικής Επιστήμης. Το περιοδικό δημοσιεύει εργασίες που αναφέρονται στους τομείς της επιδημιολογίας, ψυχοπαθολογίας, κοινωνικής ψυχιατρικής, βιολογικής ψυχιατρικής, ψυχοφαρμακολογίας, ψυχοθεραπείας, προληπτικής ψυχιατρικής. Οι προδιαγραφές του περιοδικού ταυτίζονται με τις οδηγίες του Διεθνούς Επιστημονικού Συμβουλίου Εκδοτών. Για την αναλυτική περιγραφή των προδιαγραφών βλ. "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (www.CouncilScienceEditors.gr). Άλλες πηγές: *Br Med J* 1991, 302:338–341/*Can Med Assoc J* 1995, 152:1459–1465.

Εκτός από την έντυπη έκδοσή του, το περιοδικό διατίθεται ελεύθερα στην ηλεκτρονική του έκδοση από τις ιστοσελίδες: www.psych.gr ή www.betamedarts.gr

Το περιοδικό "ΨΥΧΙΑΤΡΙΚΗ" δέχεται προς δημοσίευση εργασίες που αφορούν πρωτότυπο υλικό που δεν έχει δημοσιευθεί προηγουμένως (εκτός σε μορφή περίληψης) ή δεν έχει υποβληθεί για δημοσίευση κάπου αλλού.

Κατά την υποβολή της εργασίας όλοι οι συγγραφείς πρέπει να υπογράψουν στο τυποποιημένο έντυπο υποβολής (που βρίσκεται συνημμένο σε κάθε τεύχος του περιοδικού) ότι συμφωνούν με το περιεχόμενο και αποδέχονται την υποβαλλόμενη προς δημοσίευση εργασία και μεταβιβάζουν τα συγγραφικά δικαιώματα στο περιοδικό "ΨΥΧΙΑΤΡΙΚΗ". Οι συγγραφείς ακόμη, δηλώνουν ότι: (α) δεν υπήρξε οικονομική υποστήριξη από διάφορες πηγές (εάν υπήρξε πρέπει να δηλωθεί), (β) δεν υπήρξαν αντικρουόμενα συμφέροντα σχετικά με το υλικό της έρευνας που υπεβλήθη προς δημοσίευση, (γ) το πρωτόκολλο της έρευνας εγκρίθηκε από την Επιτροπή Βιοηθικής του Νοσοκομείου ή του Ιδρύματος όπου πραγματοποιήθηκε η έρευνα σύμφωνα με τις προδιαγραφές της Διακήρυξης του Ελσίνκι (1995) όπως αναθεωρήθηκαν στο Εδιμβούργο (2000) και (δ) ότι όλοι οι ασθενείς έδωσαν τη συγκατάθεσή τους πριν συμπεριληφθούν στην έρευνα αφού προηγουμένως ενημερώθηκαν για την ερευνητική διαδικασία.

Τα κριτήρια αποδοχής των εργασιών περιλαμβάνουν την ποιότητα και την πρωτοτυπία της έρευνας όπως επίσης τη σημαντικότητα και χρησιμότητα των δεδομένων στους αναγνώστες του περιοδικού.

Όλες οι εργασίες υπόκεινται σε μια αρχική εκτίμηση από τον Εκδότη ή μέλη της Συντακτικής Επιτροπής του περιοδικού προκειμένου να εκτιμηθεί η καταλληλότητα και η ποιότητά τους. Εάν η εργασία κριθεί καταρχήν κατάλληλη για δημοσίευση στο περιοδικό, εκτιμάται από δύο ανεξάρτητους κριτές, ειδικούς στο αντικείμενο της έρευνας. Οι κριτές δεν γνωρίζουν τους συγγραφείς της εργασίας και παραμένουν ανώνυμοι για τους συγγραφείς.

Τα σχόλια των κριτών μαζί με τις υποδείξεις και διορθώσεις τους αποστέλλονται στους συγγραφείς. Οι συγγραφείς ενημερώνονται εγγράφως για την τελική απόφαση της Συντακτικής Επιτροπής του περιοδικού όταν η διαδικασία αξιολόγησης ολοκληρωθεί. Τα ονόματα των κριτών του προηγούμενου έτους εμφανίζονται στο πρώτο τεύχος του επομένου έτους. Η Συντακτική Επιτροπή διατηρεί το δικαίωμα να κάνει φραστικές διορθώσεις στα κείμενα προκειμένου να μειώσει ασάφειες και επαναλήψεις και να βελτιώσει τη δυνατότητα επικοινωνίας ανάμεσα στους συγγραφείς και τους αναγνώστες του περιοδικού.

ΕΙΔΗ ΑΡΘΡΩΝ

1. **Άρθρα Σύνταξης**: Σύντομα άρθρα γραμμένα ταυτόχρονα στην ελληνική και αγγλική γλώσσα που αναφέρονται σε επίκαιρα θέματα ιδιαίτερης σημασίας. Γράφονται από τη Συντακτική Επιτροπή ή μετά από πρόσκληση της Συντακτικής Επιτροπής (μέχρι 500 λέξεις και 5–7 βιβλιογραφικές αναφορές).
2. **Ανασκοπήσεις:** Ενημερωτικά άρθρα που αφορούν σε κριτική ανάλυση ψυχιατρικών θεμάτων ή θεμάτων συγγενών προς την Ψυχιατρική Επιστήμη. Οι ανασκοπήσεις γράφονται από έναν ή δύο συγγραφείς. Η έκτασή τους δεν πρέπει να υπερβαίνει τις 7.500 λέξεις (25 δακτυλογραφημένες σελίδες, διπλό διάστημα γραφομηχανής).
3. **Ερευνητικές εργασίες:** Προοπτικές ή αναδρομικές εργασίες που βασίζονται σε ερευνητικό πρωτόκολλο. Πρέπει οπωσδήποτε να έχει γίνει στατιστική επεξεργασία των αποτελεσμάτων. Οι ερευνητικές εργασίες δεν πρέπει να υπερβαίνουν τις 3.000 λέξεις (10 δακτυλογραφημένες σελίδες, διπλό διάστημα γραφομηχανής).
4. **Σύντομα άρθρα:** Στην κατηγορία αυτή υπάγονται ερευνητικές εργασίες που μπορούν να καταχωρηθούν σε περιορισμένο χώρο. Η έκταση των άρθρων αυτών δεν πρέπει να υπερβαίνει τις 1.500 λέξεις (5 δακτυλογραφημένες σελίδες, διπλό διάστημα γραφομηχανής).
5. **Ειδικά άρθρα:** Γράφονται μετά από πρόσκληση της Συντακτικής Επιτροπής και αναφέρονται σε θέματα, με τα οποία έχει ιδιαίτερα ασχοληθεί ο συγγραφέας π.χ. θεραπεία συμπεριφοράς, παθολογική ζηλοτυπία, ψυχοθεραπεία μεταιχμιακών καταστάσεων (μέχρι 6.000 λέξεις).
6. **Ενδιαφέρουσες περιπτώσεις:** Η κατηγορία αυτή περιλαμβάνει ενδιαφέρουσες αναφορές περιπτώσεων και περιγραφές περιπτώσεων όπου εφαρμόσθηκαν νέες διαγνωστικές ή/και θεραπευτικές μέθοδοι (μέχρι 1500 λέξεις).
7. **Γενικά άρθρα:** Η *ΨΥΧΙΑΤΡΙΚΗ* δέχεται και άρθρα που εκφράζουν θεωρητικές απόψεις στο χώρο της Ψυχιατρικής, γνώμες για τα συστήματα παροχής ψυχιατρικής περίθαλψης, απόψεις για τους χώρους επαλληλίας μεταξύ Ψυχιατρικής και άλλων επιστημών και άλλα άρθρα ανάλογου περιεχομένου. Τα άρθρα αυτά δεν πρέπει να υπερβαίνουν τις 2.000 λέξεις (περίπου 7 δακτυλογραφημένες σελίδες). Η Συντακτική Επιτροπή μπορεί να προτείνει τη συντόμευση των άρθρων αυτών προκειμένου να δημοσιευθούν ως «Επιστολές προς τη Σύνταξη».
8. **Επιστολές προς τη Σύνταξη:** Περιλαμβάνουν σχόλια και κρίσεις πάνω σε ήδη δημοσιευμένες εργασίες, παρατηρήσεις σε επίκαιρα ψυχιατρικά θέματα, πρόδρομα ερευνητικά αποτελέσματα, κ.λπ. Δεν πρέπει να υπερβαίνουν τις 400 λέξεις.
9. **Βιβλιοκριτική:** Η παρουσίαση και κριτική βιβλίων γίνεται μετά από πρόσκληση της Συντακτικής Επιτροπής (μέχρι 600 λέξεις - συνοδεύεται από σύντομη αγγλική περίληψη.
10. **Άρθρα στην αγγλική γλώσσα:** Η *ΨΥΧΙΑΤΡΙΚΗ* θα κυκλοφορεί στην Ελληνική γλώσσα πάντα με Αγγλική περίληψη των εργασιών. Ένα ή δύο τεύχη ετησίως θα κυκλοφορούν εξ ολοκλήρου στην Αγγλική (με εκτεταμένη ελληνική περίληψη, 400–500 λέξεις). Στα τεύχη αυτά θα δημοσιεύονται εργασίες ξένων συναδέλφων αλλά και Ελλήνων. Οι εργασίες ελλήνων συναδέλφων μπορούν να υποβάλλονται στην Ελληνική ή την Αγγλική γλώσσα. Όσες εργασίες προκρίνονται για δημοσίευση και έχουν υποβληθεί στην Ελληνική γλώσσα θα μεταφράζονται μετά από συνεργασία του περιοδικού με τους συγγραφείς.

ΥΠΟΒΟΛΗ ΕΡΓΑΣΙΩΝ

Οι εργασίες υποβάλλονται στο πρωτότυπο και σε τρία φωτοαντίγραφα, στη διεύθυνση:

Περιοδικό ΨΥΧΙΑΤΡΙΚΗ
Ελληνική Ψυχιατρική Εταιρεία,
Διονυσίου Αιγινήτου 17, 115 28 Αθήνα
e-mail: editor@psych.gr

Το δακτυλογραφημένο κείμενο πρέπει να συνοδεύεται από δισκέτα Η/Υ με το κείμενο της εργασίας ή να αποστέλλεται ηλεκτρονικό αντίγραφο με e-mail. Το κείμενο πρέπει να έχει γραφεί με επεξεργαστή συμβατό με πρόγραμμα Windows ή με οποιοδήποτε πρόγραμμα για υπολογιστή Macintosh.

Μαζί με τα υποβαλλόμενα άρθρα πρέπει να υποβάλλεται συμπληρωμένο το «Συνοδευτικό έντυπο υποβολής εργασίας», υπόδειγμα του οποίου υπάρχει στο τέλος κάθε τεύχους του περιοδικού. Οι υποβαλλόμενες εργασίες χαρακτηρίζονται με κωδικό αριθμό, που γνωστοποιείται στους συγγραφείς και ο οποίος χρησιμοποιείται σε κάθε επικοινωνία με το περιοδικό. Τα άρθρα γράφονται στη δημοτική γλώσσα. Η δακτυλογράφηση γίνεται στη μία όψη του φύλλου, με διπλό διάστημα και περιθώριο τουλάχιστον 3,5 cm.

Στην άνω δεξιά πλευρά της πρώτης σελίδας πρέπει να υπάρχει ο χαρακτηρισμός κάθε άρθρου (π.χ. Ανασκόπηση, Ερευνητική εργασία κ.λπ.).

ΔΙΑΤΑΞΗ ΤΗΣ ΥΛΗΣ

Όλες οι σελίδες αριθμούνται, αρχίζοντας από τη σελίδα τίτλου.

Σελίδα τίτλου: Περιλαμβάνει τον τίτλο του άρθρου (μέχρι 12 λέξεις), τα ονόματα των συγγραφέων στην ονομαστική, το κέντρο προέλευσης, τη διεύθυνση και το τηλέφωνο του συγγραφέα που θα επικοινωνεί με το περιοδικό. Στην ίδια σελίδα αναφέρονται επίσης άτομα, οργανισμοί, ιδρύματα κ.λπ., που ενδεχομένως συνέβαλαν στην πραγματοποίηση της εργασίας.

Περίληψη: Στη δεύτερη σελίδα γράφεται η ελληνική περίληψη, (περίπου 300 λέξεις). Στην περίληψη ανακεφαλαιώνονται τα κύρια μέρη της εργασίας. Φράσεις όπως «τα ευρήματα συζητούνται» πρέπει να αποφεύγονται. Στο τέλος της περίληψης αναγράφονται 4–5 λέξεις ευρετηρίου.

Αγγλική περίληψη: Στην τρίτη σελίδα γράφεται η αγγλική περίληψη, που πρέπει να έχει έκταση 400–500 λέξεων στις ανασκοπήσεις και τις πρωτότυπες εργασίες και 300 λέξεις στις υπόλοιπες εργασίες. Πρέπει να δίνει ουσιαστικές πληροφορίες. Στην αρχή της αγγλικής περίληψης αναγράφονται στα Αγγλικά τα ονόματα των συγγραφέων και ο τίτλος του άρθρου.

Κείμενο: Χωρίζεται σε κεφάλαια. Για τις ερευνητικές εργασίες είναι: Εισαγωγή, Υλικό και μέθοδος, Αποτελέσματα, Συζήτηση. Όσα αποτελέσματα παρατίθενται στους πίνακες δεν επαναλαμβάνονται λεπτομερώς στο κείμενο.

Βιβλιογραφικές παραπομπές: Αριθμούνται με αύξοντα αριθμό, ανάλογα με τη σειρά εμφάνισής τους στο κείμενο (σύστημα Vancouver). Π.χ. *Ο Birley*[1] *βρήκε ότι..., αλλά ο Afford*[2] *διαφώνησε...* Αναφέρονται τα ονόματα όλων των συγγραφέων. Στο βιβλιογραφικό πίνακα περιλαμβάνονται μόνον οι βιβλιογραφικές παραπομπές που υπάρχουν στο κείμενο. Στα άρθρα ανασκόπησης και τα ειδικά άρθρα οι βιβλιογραφικές παραπομπές δεν πρέπει να υπερβαίνουν τις 100, στις ερευνητικές εργασίες και τα γενικά άρθρα τις 50, στα σύντομα άρθρα και τις ενδιαφέρουσες περιπτώσεις τις 15 και στα άρθρα σύνταξης και τις επιστολές προς τη σύνταξη τις 5. Ο βιβλιογραφικός κατάλογος συντάσσεται με αύξοντα αριθμό, που αντιστοιχεί στη σειρά εμφάνισης των βιβλιογραφικών παραπομπών στο κείμενο, όπως στα ακόλουθα παραδείγματα:

1. Birley JLT, Adear P, Singer D, Rosenberg M. Electrogastrographic studies in elderly patients. *Gastroenterology* 1980, 79:311–314 (Περιοδικό)
2. Alford J, Nemiah J. Peptic ulcer in childhood. In: Sodeman WA (ed) *Pathologic Physiology.* Saunders, Philadelphia, 1970:457–472 (Κεφάλαιο βιβλίου)
3. Kinden A. *Stress and emotion*. Springer, Berlin, 1990 (Βιβλίο)
4. Larsen E, Elliot B. Fatigue in major depression. *Psychiatriki* 2007, (Suppl 1):S143–S144 (Παράρτημα περιοδικού)
5. Silverstone A, Leman H, Stark J. *Attempted suicide by drug-overdose*. Paper presented at 2nd Congress on Suicide behaviour, 4–6 May 2002. Rome, Abstracts Book, pp 212–213 (Παρουσίαση σε Συνέδριο - Τόμος Πρακτικών)
6. Henry A, Andrews B. *Critical issues for parents with mental illness*. N.Y. Centre for Mental Health Services 2001 (Cited 2 June 2005) Available from www. mentalorg/publications (Ιστοσελίδα)

Οι συντμήσεις των περιοδικών πρέπει να γίνονται με βάση το *Index Medicus*.

Πίνακες: Γράφονται με διπλό διάστημα γραφομηχανής σε ξεχωριστή σελίδα. Αριθμούνται ανάλογα με τη σειρά εμφάνισής τους στο κείμενο, με αραβικούς αριθμούς (πίνακας 1), ακολουθεί σύντομη κατατοπιστική λεζάντα (π.χ. Ασθενείς που νοσηλεύθηκαν για ψευδοκύηση στο Νοσοκομείο «Αλεξάνδρα» κατά το 1988) και σε κάθε στήλη υπάρχει κατατοπιστική επικεφαλίδα. Αποφεύγονται οι κάθετες γραμμές.

Εικόνες: Πρέπει να στέλνονται είτε τα πρωτότυπα των σχεδίων (με σινική μελάνη) είτε φωτογραφίες. Στο πίσω μέρος πρέπει να αναγράφεται με μολύβι ο αριθμός της εικόνας, οι συγγραφείς και ο τίτλος της εικόνας. Όλες οι εικόνες πρέπει να αναφέρονται στο κείμενο και να αριθμούνται με αραβικούς αριθμούς.

Ονοματολογία και μονάδες μέτρησης: Για λεπτομέρειες, βλ. Ιατρική 1980, 37:139.

Διόρθωση τυπογραφικών δοκιμίων: Οι συγγραφείς είναι υποχρεωμένοι να κάνουν μία διόρθωση των τυπογραφικών δοκιμίων. Εκτεταμένες μεταβολές δεν επιτρέπονται.

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ΣΥΝΟΔΕΥΤΙΚΟ ΕΝΤΥΠΟ ΥΠΟΒΟΛΗΣ ΕΡΓΑΣΙΑΣ ΣΤΟ ΠΕΡΙΟΔΙΚΟ *"ΨΥΧΙΑΤΡΙΚΗ"*

(Υποβάλλεται μαζί με την εργασία, τρία φωτοαντίγραφα της εργασίας και την αντίστοιχη δισκέτα ή με την αποστολή ηλεκτρονικού αντιγράφου με e-mail)

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- Τίτλος εργασίας .....

.....

- Ονοματεπώνυμα συγγραφέων .....

.....

.....

.....

- Φορέας ή Κέντρο (α), από το οποίο προέρχεται η εργασία .....

.....

.....

- Υπεύθυνος συγγραφέας για την αλληλογραφία .....

Ονοματεπώνυμο .....

Διεύθυνση .....

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- Επιβεβαιώστε (σημειώστε με Χ) όλα τα παρακάτω σημεία της εργασίας μας:
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  - ❑ 4–5 λέξεις ευρετηρίου στα ελληνικά και στα αγγλικά
  - ❑ Αντιστοιχία των βιβλιογραφικών αναφορών του κειμένου με τον κατάλογο της βιβλιογραφίας, που παρατίθεται στο τέλος του άρθρου
  - ❑ Καταγραφή των βιβλιογραφικών αναφορών σύμφωνα με τις προδιαγραφές της *«Ψυχιατρικής»*

Οι συγγραφείς της εργασίας συμφωνούν με το περιεχόμενο της, τη δημοσίευσή της στο περιοδικό "Ψυχιατρική" και τη μεταβίβαση των συγγραφικών δικαιωμάτων στο περιοδικό. Το ίδιο κείμενο δεν έχει δημοσιευθεί ούτε έχει υποβληθεί για δημοσίευση σε άλλο περιοδικό. Οι συγγραφείς δεν έχουν αντικρουόμενα συμφέροντα σε σχέση με το περιεχόμενο της εργασίας και δηλώνουν ότι το πρωτόκολλο της έρευνας εγκρίθηκε από την Επιτροπή Βιοηθικής του Ιδρύματος όπου πραγματοποιήθηκε η έρευνα. Όλα τα άτομα που συμμετείχαν έδωσαν την συγκατάθεσή τους πριν συμπεριληφθούν στην έρευνα. Οι συγγραφείς ακόμη δηλώνουν ότι δεν υπήρξε πηγή οικονομικής υποστήριξης (εάν υπήρξε πρέπει να δηλωθεί).

Υπογραφές συγγραφέων Ημερομηνία