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Editorial
Άρθρο σύνταξης

Delusional misidentifications in a procrustean bed

Psychiatriki 2018, 29:15–16

The Delusional Misidentification Syndromes (DMSs) are characterized by defective integration of the normally fused functions of perception and recognition.[1] The classical sub-types are: the syndromes of Capgras,[2] Fregoli, Intermetamorphosis (mentioned in 3) and Subjective doubles.[4] These syndromes occur in a clear sensorium and should be differentiated from the banal transient misidentifications occurring in confusional states and in mania and from the non-delusional misidentifications (e.g. prosopagnosia).

Joseph Capgras, who described the best-known sub-type, was indecisive on its pathogenesis. In his original report[2] he defined the syndrome as "agnosia of identification" produced by a conflict between affective accompaniments of sensory and mnemonic images. In his subsequent two publications, he considered the syndrome as a restitution delusion and as a psychopathological mechanism to hide incestuous desires. For more details see the chapter by J.P. Luauté in a volume on DMS.[3]

Psychodynamic approaches are, essentially, variants of the formulation that DMSs result from ambivalent feelings resolved by directing hate feelings onto an imagined double in order to retain the original intact (and thus avoid guilt). These views have been voiced by David Enoch [relevant chapter in (3)] and with variations by many other investigators reviewed by Oyebode.[5]

Regression to archaic modes of thought (like thinking in terms of doubles and dualisms) due to personality disintegration produced by psychotic illness is a fascinating hypothesis by John Todd [mentioned in (1)]. However, if this was the case, DMS should be much more frequent.

Mayer-Gross and Ackner (mentioned in 9) had observed that when there is a delusional development, depersonalization-derealization experiences tend to be included within the delusional system. Such experiences usually precede or coincide with the onset of DMS.[6] In view of this, Christodoulou[1,6] suggested that DMSs may represent delusional evolutions of depersonalization–derealization experiences. Similar mechanisms were proposed for false memories of familiarity, reduplicative paramnesia and autoscopy.

Cerebral “dysrhythmia” has also been noted in patients with DMS.[7] In view of clinical and prognostic similarities of DMS patients with patients suffering from psychotic states occurring in an epileptic setting, many of these patients have been considered as suffering from broadly speaking "epileptic" psychoses.[7] Joseph [mentioned in (6)] suggested that organic causes produce disconnection between right and left cortical areas that decode afferent sensory information. This results in the creation of a separate image in each hemisphere leading to an awareness of two, physically identical images.

Ellis and Young [mentioned in (1) and (6)] have maintained that DMS may result from defects at different stages of an information processing chain. More specifically, the Capgras Syndrome appears when the route for unconscious recognition is damaged. Similar mechanisms have been proposed for the rest of the subtypes.

Margariti and Kontaxakis[8] have considered that in DMS there is disruption of the ability to recognize identities rather than superficial appearance. Others have maintained that DMSs are multimodal neuropathologies and cannot be linked to a single cognitive defect.

Lastly, in view of the marked organic abnormalities detected in all DMS subtypes, DMSs have been linked with a great number of organic conditions [reviewed in detail by Oyebode (5)].

According to Greek mythology, Procrustes was a bandit who stretched or amputated the limbs of his guests to fit his iron bed. The DMSs do not deserve such treatment. Submitting them to the procrustean bed of uniformity should be avoided.

People develop DMS for a variety of reasons. Most subjects have right hemisphere dysfunction but not exclusively. Their condition is associated not with one but with diverse phenomena (depersonalization – derealization, prosopagnosia, false memories of familiarity, autoscopy, reduplicative paramnesia etc.) similarities with psychotic phenomena associated with epilepsy have been suggested but this refers to some patients only. Additionally, the charged emotional relationship of the patient with the misidentified person(s) is neither necessary nor sufficient.

Diagnostically speaking, many roads lead to DMS, ranging from the monosymptomatic and monothematic one (considered as *par excellence* DMS) to that associated with disorders mainly of the schizophrenic or organic spectrum. DMS can also be reached by a more "superficial" road, the one of depression, in which the delusion is secondary and often dependent on the self-depreciation ideation. Speculating on these syndromes is a fascinating journey in psychopathology but, although in most cases an organic contributor is present, yet the great diversity of conditions in the setting of which DMSs occur renders the possibility of a unifying hypothesis unlikely.

Key words: Delusional misidentification syndromes, Capgras, Frégoli, Intermetamorphosis, syndrome of subjective doubles.

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Άρθρο σύνταξης
Editorial

Οι παραληρητικές παραγνωρίσεις σε προκρούστεια κλίνη

Ψυχιατρική 2018, 29:17–18

Οι Συνδρομές Παραληρητικής Παραγνώρισης (ΣΠΠ) χαρακτηρίζονται από διαταραχή στην απαρτίωση των φυσιολογικά συντηγμένων λειτουργιών αντίληψης και αναγνώρισης.[1] Οι κλασικές μορφές είναι: οι συνδρομές Capgras,[2], Frégoli, Intermetamorphosis [αναφερόμενες στο (3)] και «Υποκειμενικού Σωσία».[4] Οι συνδρομές αυτές συμβαίνουν χωρίς να συνυπάρχει διαταραχή της συνείδησης και πρέπει να διαφοροποιούνται από τις κοινότοπες, παροδικές παραγνωρίσεις που απαντούν στις συγχυτικές καταστάσεις και στη μανία, καθώς και από τις μη παραληρητικές παραγνωρίσεις (π.χ. προσωπαγνωσία).

Ο Joseph Capgras που περιέγραψε τη γνωστότερη μορφή ΣΠΠ ήταν αναποφάσιστος ως προς την παθογένεσή της. Στην αρχική του δημοσίευση[2] χαρακτήρισε τη συνδρομή ως «αγνωσία αναγνώρισης» και την απέδωσε σε ασυμβατότητα ανάμεσα στα συναισθήματα που συνοδεύουν τις αισθητηριακές και τις μνημονικές εντυπώσεις. Στις επόμενες δύο δημοσιεύσεις ο Capgras θεώρησε τη συνδρομή ως άμυνα έναντι μιας μεγαλύτερης απειλής (της «αποπροσωποποίησης») και ως ψυχοπαθολογικό μηχανισμό που αποβλέπει στη συγκάλυψη απαγορευμένων επιθυμιών. Περισσότερες λεπτομέρειες στο κεφάλαιο του J.P. Luauté.[3]

Οι ψυχοδυναμικές απόψεις είναι κατά βάσιν παραλλαγές της αντίληψης ότι οι ΣΠΠ προκύπτουν όταν τα αμφιθυμικά συναισθήματα επιλύονται μέσω εκτροπής του μίσους προς έναν φανταστικό σωσία ώστε να διατηρηθεί ανέπαφο το οικείο πρόσωπο (και έτσι το υποκείμενο να αποφύγει την ενοχή). Αυτές οι απόψεις διατυπώθηκαν αρχικά από τον David Enoch [σχετικό κεφάλαιο στο (3)] και με διάφορες παραλλαγές από άλλους ερευνητές [ανασκόπηση από τον Oyebode (5)].

Η ψυχωτική παλινδρόμηση σε αρχαϊκούς τρόπους σκέψης (όπως είναι οι σωσίες και οι δυϊσμοί) θεωρήθηκε από τον Todd και τους συνεργάτες του [αναφορά στο (1)] υπεύθυνη για τις ΣΠΠ. Η υπόθεση αυτή είναι εξαιρετικά ενδιαφέρουσα, αν ίσχυε όμως θα έπρεπε οι ΣΠΠ να είναι πολύ συχνότερες.

Οι Mayer Gross και ο Ackner [αναφορά στο (9)] είχαν παρατηρήσει ότι όταν η ψυχοπαθολογία παίρνει παραληρητική κατεύθυνση, τα αποπροσωποποιητικά-αποπραγματοποιητικά βιώματα τείνουν να ενσωματώνονται στην παραληρητική συμπτωματολογία. Τέτοια βιώματα συνήθως προηγούνται ή εκδηλώνονται συγχρόνως με την έναρξη των ΣΠΠ.[6]. Στη βάση αυτών των δεδομένων υποστηρίχθηκε[1, 6] ότι οι ΣΠΠ αντιπροσωπεύουν παραληρητικές μετεξελίξεις αποπροσωποποιητικών-αποπραγματοποιητικών βιωμάτων. Παρόμοιοι μηχανισμοί προτάθηκαν για συμπτώματα όπως το «ήδη ιδωθέν» και το «ήδη βιωθέν», η αναδιπλασιαστική παραμνησία και η εαυτοσκοπία.

Η εγκεφαλική «δυσρυθμία» έχει επίσης συνδεθεί με τις ΣΠΠ.[7] Δεδομένων των κλινικών και προγνωστικών ομοιοτήτων των ασθενών με ΣΠΠ με τους ασθενείς που πάσχουν από ψυχωτικές καταστάσεις σε έδαφος επιληψίας, υποστηρίχθηκε ότι πολλοί από τους πρώτους πάσχουν από (υπό ευρύτερη έννοια) «επιληπτικές» ψυχώσεις.[7] Επίσης ο Joseph [αναφορά στο (6)] υποστήριξε ότι διάφορες οργανικές αιτίες προκαλούν αποσύνδεση μεταξύ των δεξιών και των αριστερών περιοχών του εγκεφάλου που αποκωδικοποιούν τα αισθητηριακά ερεθίσματα με αποτέλεσμα να προκύπτει σε κάθε ημισφαίριο αντίληψη δύο ξεχωριστών πανομοιότυπων εικόνων.

Οι Ellis και Young [αναφορά στο (1) και (6)] υποστήριξαν ότι οι ΣΠΠ προκαλούνται από διαταραχές σε διάφορα στάδια της επεξεργασίας των πληροφοριών. Συγκεκριμένα, θεώρησαν ότι η συνδρομή Capgras είναι αποτέλεσμα βλάβης της

οδού ασυνείδητης αναγνώρισης. Ανάλογοι μηχανισμοί έχουν προταθεί για τις άλλες υπο-κατηγορίες ΣΠΠ. Οι Μαργαρίτη και Κονταξάκης[8] υποστήριξαν ότι στις ΣΠΠ υπάρχει διαταραχή ικανότητας αναγνώρισης ταυτότητας και όχι της εξωτερικής εμφάνισης. Άλλοι υποστηρίζουν ότι οι ΣΠΠ είναι πολύτροπες νευροπαθολογίες και δεν συνδέονται με μόνο μια γνωστική διαταραχή. Τέλος, με αφετηρία την ανεύρεση οργανικών διαταραχών σε όλες τις υπο-κατηγορίες ΣΠΠ, οι συνδρομές αυτές έχουν συνδεθεί με έναν μεγάλο αριθμό οργανικών καταστάσεων [ανασκόπηση από Oyebode (5)].

Κατά την Ελληνική Μυθολογία ο Προκρούστης υπέβαλλε τα θύματά του στο βασανιστήριο βίαιας προσαρμογής τους στην προκρούστεια κλίνη του. Οι ΣΠΠ δεν αξίζουν τέτοια μεταχείριση. Η προκρούστεια αναζήτηση αποκλειστικά μιας αιτιολογίας είναι ανεδαφική. Οι συνδρομές ΣΠΠ δημιουργούνται εξ αιτίας όχι ενός αλλά ποικίλων λόγων. Οι περισσότεροι ασθενείς έχουν δυσλειτουργία του δεξιού ημισφαιρίου αλλά όχι κατ' αποκλειστικότητα. Η κατάστασή τους συνδέεται όχι με ένα αλλά με ποικίλα κλινικά φαινόμενα (αποπροσωποποίηση-αποπραγματοποίηση, προσωπαγνωσία, déjà vu και déjà vecu, εαυτοσκοπία, αναδιπλασιαστική παραμνησία κ.λπ.)· υπάρχουν ομοιότητες με ψυχωτικά φαινόμενα συνδεόμενα με την επιληψία αλλά αυτό αφορά μόνο σε ορισμένους ασθενείς. Επιπροσθέτως, η ένταση της σχέσης του υποκειμένου με το παραγνωριζόμενο πρόσωπο δεν είναι ούτε αναγκαία ούτε επαρκής.

Από διαγνωστική σκοπιά, πολλοί δρόμοι οδηγούν σε ΣΠΠ, από τη μονοσυμπτωματική και μονοθεματική οδό (που θεωρείται κατ' εξοχήν ΣΠΠ) μέχρι αυτές που συνδέονται με διαταραχές κυρίως του σχιζοφρενικού ή του οργανικού φάσματος. Η προσπέλαση όμως μπορεί να γίνει και από ένα πιο «επιφανειακό» μονοπάτι, αυτό της κατάθλιψης, στην οποία η παραληρηματική ιδέα του σωσία είναι δευτερογενής και συχνά εξαρτάται από τον αυτο-απαξιωτικό ιδεασμό. Η μελέτη αυτών των οδών είναι ένα γοητευτικό ταξίδι στην ψυχοπαθολογία, ωστόσο –αν και στις περισσότερες περιπτώσεις είναι εμφανής η παρουσία οργανικών συντελεστών– η μεγάλη ποικιλία των καταστάσεων που οδηγούν σε ΣΠΠ μας απομακρύνει από το ενδεχόμενο μιας μοναδικής παθογενετικής υπόθεσης.

Λέξεις ευρετηρίου: Παραληρητικές παραγνωρίσεις, Capgras, Frégoli, Intermetamorphosis, συνδρομή υποκειμενικού σωσία.

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Research article
Ερευνητική εργασία

Criminality in Greece during the years of financial crisis: 2008–2014

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The link between poverty, unemployment and economic downturns and increases in crime rates has long been the subject of social science study. However, the relationships between these phenomena has not been studied sufficiently and through time in most European countries that suffered, or, like Greece, are still suffering the recent financial crisis. We examined if the recent financial crisis in Greece has coincided with an increase in crime, analyzing crime rates since the start of the financial crisis and over an extensive time period (7 years). Crime statistics were taken from the Greek Police. Repeated measures analyses of variance were performed to reveal potential differences in criminality for the years 2008, 2010, 2012 and 2014. There was a significant increase in global criminality rate per 100,000 residents (Wilks' Lambda=0.32, F (3,11)=7.93, p=0.004). There was a significant increase in illegal gun possession (Wilks' Lambda=0.16, F (3,11)=18.68, p=0.001), fraud (Wilks' Lambda=0.10, F (3,11)=32.35, p=0.001), extortion (Wilks' Lambda=0.38, F (3,11)=4.45, p=0.040), and beggary (Wilks' Lambda=0.33, F (3,11)=6.22, p=0.014). A reversed U shape was found for homicides, thefts and robberies, with rates peaking in 2010 and 2012 before dropping off in 2014. Narcotics and sexual exploitation crime rates remained unchanged. Surprisingly, the incidence of rape decreased (Wilks' Lambda=0.42, F (3,11)=5.14, p=0.018). Our results are in agreement with the results of previous broader studies as well as with criminological theories according to which in times of economic stress an increase in both property crimes and violent crimes is expected. As predicted, an increase in financial crime was observed (e.g. fraud and extortions) as well as petty crime related to financial hardship like beggary. Concerns regarding the escalation of white-collar crimes in times of economic downturns that have been raised in the literature warrant further investigation.

Key words: Criminality, financial crisis, poverty, unemployment, Greece.

Introduction

Poverty, unemployment and economic downturns have been linked globally with increases in crime rates.[1–5] Violent crime and property crime are also associated with absolute and relative poverty, as well as economic inequality.[6,7] Living in poverty makes not only offending but also being the victim of crime more likely.[5] Furthermore, crises of unemployment during economic recessions polarize the poor into offenders and non-offenders, and this polarization is felt most severely by those with the least resources and the most structural constraints due to their criminal involvement.[5,8,9] According to Pridemore[10] the most striking and consistent relationship between poverty and crime across many different contexts is how powerfully poverty predicts homicide rates. Nevertheless, the relationships between these phenomena has not been studied sufficiently and through time in most European countries that suffered, or, like Greece, are still suffering the recent financial crisis.

The Greek financial crisis began in spring 2010, when rising interest rates on its sovereign debt forced the Greek government to resort to a domestically controversial bailout from an ad hoc support mechanism overseen by the European Union, the European Central Bank and International Monetary Fund.[11] In return for €110 billion in bailout money to service its debt the Greek government agreed to undertake painful spending cuts and tax hikes. The unemployment rate spiked from 9.6% in 2009 to 26.6% in 2014, real wages plummeted and property values collapsed, while state pensions were slashed.[11,12]

There is evidence that in the period leading up to the full-blown crisis crime rates in Greece had already started to creep up.[13,14] Divorces have also been dramatically spiked, and in tandem with soaring unemployment appear to be closely associated with violent crime, particularly homicides.[15]

According to Stuckler, Basu and Suhrcker[16] between 1970 and 2007 throughout Europe for every 1% of rise in unemployment rates there was a 0.79% rise in homicide. A study conducted in 26 European Union countries concluded that the recent economic downturn has had a multifaceted negative societal impact, including unemployment, early violent death, suicides, homicides and alcohol abuse.[16] Women in particular appear to be especially vulnerable to increased homicide during recessions.[17] These results are not confined to Europe. A study in Hong Kong found that roughly one out of three violent offenders were under financial pressure when committing homicide, and more than one out of four offenders appeared directly motivated by economic distress.[18]

Economic stress is also a major source of family tension and a leading cause of family breakup.[17] A survey of 630 domestic violence shelters in the USA reported a 75% increase in the number of requests for services since the onset of the crisis.[19] Even though abuse has become more severe women appear to stay longer in these abusive relationships.[19] Increased rates of domestic violence linked to the crisis have also been reported in Curacao, India, the Lao People's Democratic Republic and the UK, among others. According to Cooper[20] each financial recession will be followed by an increase in levels of domestic violence.

The aim of this study is to examine crime rates since the start of the current Greek financial crisis. This is the first study to examine the impact of the European financial crisis on crime over such an extensive time period (7 years). An increase in violent crime rates during the first years of the crises was predicted. We also predicted increases in financial crime like frauds and extortion, as well as petty poverty-related crime like beggary.

Material and method

Regional crime data (Greece is divided into 14 police regional units) were taken from the Crime Analysis Section of the Public Security Department of the Hellenic Police Headquarters. Data for ten crime categories were taken: homicide, fraud, rape, extortion, narcotics, illegal gun possession, sexual exploitation, theft/burglary, beggary and robbery. Annual population data were taken from the Hellenic Statistical Authority (ELSTAT). Using these two datasets we were able to compute population-adjusted crime rates in the form of incidence

per 100,000 residents for each crime category separately, as well as a composite index of "global criminality" (crude crime rate) which was derived by summing the population adjusted crime rates from all ten categories per time point. In our analysis each region was treated as one case (N=14). Eleven repeated measures analyses of variance were therefore conducted to test for differences in criminality between 2008, 2010, 2012 and 2014 (table 1). SPSS version 20 was used for all statistical analyses.

Results

There was a significant increase in global criminality rate per 100,000 residents (Wilks' Lambda=0.32, F (3,11)=7.93, p=0.004). The global criminality rate for the year 2014 was slightly lower, but the pairwise Bonferroni comparisons of 2014 with 2010 and 2012 were not significant (figure 1). There was a significant increase in illegal gun possession (Wilks' Lambda=0.16, F (3,11)=18.68, p=0.001) (figure 2), fraud (Wilks' Lambda=0.10, F (3,11)=32.35, p=0.001) (figure 2), extortion (Wilks' Lambda=0.38, F (3,11)=4.45, p=0.040) (figure 3), and beggary (Wilks' Lambda=0.33, F (3,11)=6.22, p=0.014) (figure 2). There was a significant decrease in rape (Wilks' Lambda=0.42, F (3,11)=5.14, p=0.018) (figure 3), whereas no differences were found for narcotics (Wilks' Lambda=0.60, F (3,11)=2.48, p=0.115) (figure 1) and sexual exploitation (Wilks' Lambda=0.65, F (3,11)=1.82, p=0.207) (figure 3). There was a ten-

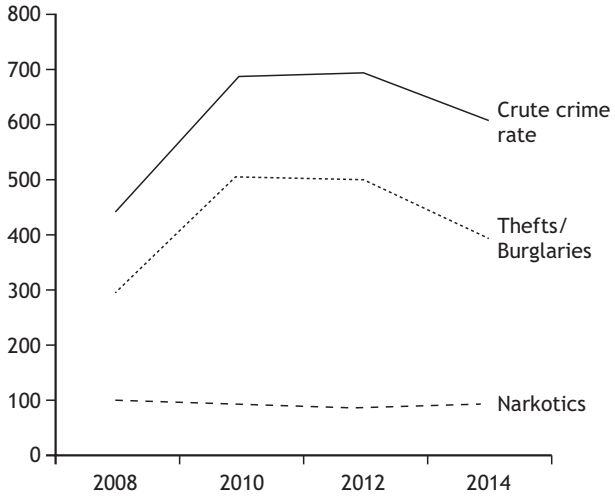

Figure 1. Incidence of thefts/ burglaries and narcotics per 100,000 residents. The incidence of the overall crude crime rate per 100,000 was derived by summing the incidence of the other ten crime categories.

Table 1. Means of the crime rates per region for years 2008, 2010, 2012, 2014.

	2008		2010		2012		2014		Wilks' Lambda	F(1,12)	p	η^2
	M	SD	M	SD	M	SD	M	SD				
Homicides	0.96	0.60	1.33	0.58	1.40	0.62	0.89	0.48	0.511	3.51	.053	0.50
Fraud	5.16	6.68	10.24	7.48	17.62	16.82	17.18	10.19	0.102	32.35	.001	0.90
Rape	2.41	2.14	1.94	1.29	1.46	0.99	1.26	1.29	0.416	5.14	.018	0.58
Extortion	0.86	0.68	1.25	0.82	1.16	0.87	1.32	0.43	0.375	4.45	.040	0.63
Narcotics	95.03	25.79	93.92	22.02	88.12	20.96	97.66	25.12	0.596	2.48	.115	0.40
Illegal gun possession	26.16	21.90	32.85	26.02	43.88	22.31	53.75	25.85	0.164	18.68	.001	0.84
Sexual exploitation	2.19	1.61	3.23	2.70	2.26	3.13	1.91	2.32	0.646	1.82	.207	0.35
Thefts/ burglaries	296.16	348.14	514.47	379.07	509.39	371.87	397.15	297.67	0.317	7.90	.004	0.68
Robberies	11.56	17.39	23.28	29.30	23.75	28.66	13.87	19.62	0.470	4.13	.035	0.53
Begging	5.78	7.02	11.46	10.77	9.24	9.88	28.98	21.89	0.325	6.22	.014	0.68
Crude crime rate	445.25	104.43	692.51	118.00	697.04	116.90	610.12	91.72	0.316	7.93	.004	0.68

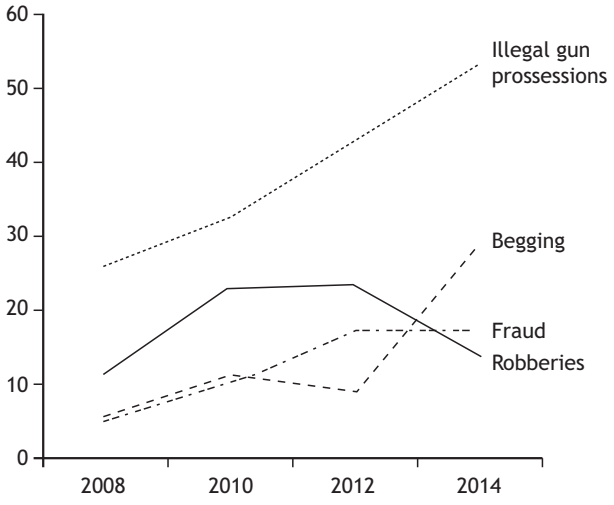

Figure 2. Incidence of fraud, begging, robberies, and illegal gun possession per 100,000 residents.

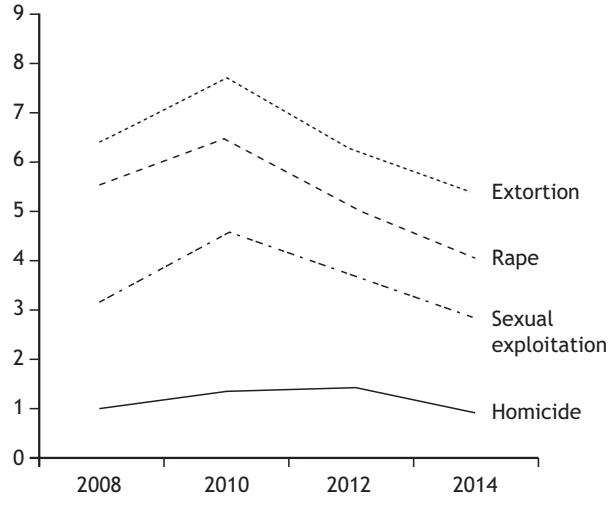

Figure 3. Incidence of extortion, rape, sexual exploitation, and homicide per 100,000 residents.

dency for a reversed U shape for homicide (Wilks' Lambda=0.51, F (3,11)=3.51, p=0.053), (figure 3), thefts (Wilks' Lambda=0.32, F (3,11)=7.90, p=0.004) (figure 1), and robbery (Wilks' Lambda=0.47, F (3,11)=4.13, p=0.035) (figure 2), with higher levels during 2010 and 2012 (table 1).

Discussion

As the results of the analysis at the regional level show, criminality in Greece increased between 2008 and 2014. Our prediction of an increase in violent crime (e.g. homicides and robberies) during the first years of the Greek financial crisis was therefore borne out. It should be noted though that after several years of recession, starting in 2014, a mild decrease in violent crime appeared to take place.

A study at the national level that explored the impact of the economic crisis on crime indicators for 2008–2009 showed that in 7 out of 11 countries affected by the crisis there was a systematic increase in at least one criminality rate.4 Robbery increased the most, followed by homicide. The results of the present study are in agreement with these broader studies results as well as with criminological theories according to which in times of economic stress an increase in both property crimes and violent crimes is expected.[21]

As predicted, an increase in financial crime was observed (e.g. fraud and extortions) as well as petty crime related to financial hardship like beggary. Financial crime includes the so-called white-collar crime, i.e. economic crime committed by business and government professionals. Concerns regarding the escalation of white-collar crimes in times of economic down-turns have been previously raised in the literature and warrant further investigation.[22,23]

This is the first study that attempted to investigate patterns and changes in crime rates during this financial European crisis over a long time-period. It is plausible that the impact of a crisis is moderated by its depth and duration as well as a society's ability to develop protective mechanisms for its citizens.[24]

A limitation of this study involves the small sample of observations (N=14). This is due to the fact that the Crime Analysis Section of the Public Security Department of the Hellenic Police Headquarters only aggregates data at the regional level. It is likely that data at the prefecture level (N=52) would provide a clearer image of the variability and change of crime rates. Another limitation involves the barriers to self-reporting of certain crime categories to the Greek police.

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Εγκληματικότητα στην Ελλάδα στα χρόνια της οικονομικής κρίσης: 2008–2014

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Η συσχέτιση της φτώχειας, της ανεργίας και των οικονομικών υφέσεων με την αύξηση του βαθμού εγκληματικότητας είναι εδώ και πολύ καιρό θέμα μελέτης των κοινωνικών επιστημών. Ωστόσο, οι σχέσεις μεταξύ αυτών των φαινομένων δεν έχουν μελετηθεί επαρκώς και σε βάθος χρόνου στις περισσότερες από τις ευρωπαϊκές χώρες, οι οποίες αντιμετώπισαν, ή, όπως συμβαίνει με την Ελλάδα, αντιμετωπίζουν ακόμη την πρόσφατη οικονομική κρίση. Εξετάσαμε κατά πόσον η πρόσφατη οικονομική κρίση στην Ελλάδα συνέπεσε με μία αύξηση στην εγκληματικότητα, αναλύοντας τον βαθμό εγκληματικότητας από την έναρξη της οικονομικής κρίσης και κατά τη διάρκεια μιας εκτεταμένης χρονικής περιόδου (7 χρόνια). Τα στατιστικά στοιχεία σχετικά με τα εγκλήματα ελήφθησαν από την Ελληνική Αστυνομία. Διενεργήθηκε ανάλυση διακύμανσης επαναληπτικών μετρήσεων για να εξεταστούν ενδεχόμενες διαφορές στην εγκληματικότητα μεταξύ των ετών 2008, 2010, 2012 και 2014. Υπήρξε μία σημαντική αύξηση της επίπτωσης της συνολικής εγκληματικότητας ανά 100.000 κατοίκους (Wilks' λ=0,32, F (3,11)=7,93, p=0,004). Υπήρξε σημαντική αύξηση στην παράνομη οπλοκατοχή (Wilks' λ=0,16, F (3,11)=18,68, p=0,001), τις απάτες (Wilks' λ=0,10, F (3,11)=32,35, p=0,001), τους εκβιασμούς (Wilks' λ=0,38, F (3,11)=4,45, p=0,040) και την επαιτεία (Wilks' λ=0,33, F (3,11)=6,22, p=0,014). Καμπύλη σχήματος αντεστραμμένου U βρέθηκε για την πορεία των ανθρωποκτονιών, των κλοπών και των ληστειών, με την επίπτωση να κορυφώνεται στα έτη 2010 και 2012 και ακολούθως να μειώνεται το 2014. Η επίπτωση των εγκλημάτων που σχετίζονται με ναρκωτικά και σεξουαλική εκμετάλλευση, δεν εμφάνισε μεταβολές. Απροσδόκητο εύρημα ήταν η μείωση της επίπτωσης στους βιασμούς (Wilks' λ=0,42, F (3,11)=5,14, p=0,018). Τα αποτελέσματα της μελέτης μας βρίσκονται σε συμφωνία με τα αποτελέσματα προηγούμενων ευρύτερων μελετών, καθώς και με εγκληματολογικές θεωρίες σύμφωνα με τις οποίες σε καιρούς οικονομικής πίεσης αναμένεται αύξηση τόσο των βίαιων εγκλημάτων όσο και των εγκλημάτων που σχετίζονται με την περιουσία. Όπως είχαμε προβλέψει, παρατηρήθηκε αύξηση στα οικονομικά εγκλήματα (π.χ. σε απάτες και εκβιασμούς) καθώς και σε μικρο-εγκλήματα σχετιζόμενα με την οικονομική στέρηση, όπως η επαιτεία. Περαιτέρω διερεύνηση απαιτείται για τις ανησυχίες που έχουν διατυπωθεί στη βιβλιογραφία σχετικά με την κλιμάκωση του εγκλήματος «λευκού κολλάρου» σε καιρούς οικονομικών υφέσεων.

Λέξεις ευρετηρίου: Εγκληματικότητα, οικονομική κρίση, φτώχεια, ανεργία, Ελλάδα.

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Research article
Ερευνητική εργασία

Sleep problems six-months after continuous earthquake activity in a Greek island

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Natural disasters, such as earthquakes, are traumatic events causing both acute and enduring stress to affected individuals. Psychosocial consequences include posttraumatic stress disorder (PTSD), reactions of anxiety and depression and sleep problems. The island of Cephalonia in Ionian Sea is characterized by its high seismic activity. More specifically, this activity has been considered to be the highest of the Balkan Peninsula and Europe in general. In January and February of 2014 a long sequence of earthquakes, which included two main shocks of 6.1 Richter and 6.0 R, struck the island. The epicenter of the earthquake was the city of Lixouri. A long series of aftershocks measured ≥ 4.0 R followed these main shocks. In total, the number of earthquakes that affected those living in Cephalonia between January 26 and August 2014 when the present study took place, was 2055. Several damages concerning buildings, monuments and churches, stonewalls, road networks and port facilities occurred, but there were no human casualties. The aim of the present study was to assess sleep problems, insomnia in particular in the affected population after the two severe earthquakes in the island of Cephalonia. The assessment was made through the Athens Insomnia Scale (AIS). Sleep problems were assessed for two time points, i.e., retrospectively one month before and six months after the earthquake. In terms of psychopathology, anxiety (STAI – State anxiety) and symptoms of depression (CES-D) were more pronounced in our study population than the expected norm in the community. Correlations with depression (Center for Epidemiological Studies-Depression), anxiety (State-Trait Anxiety Inventory – State Anxiety) and PTSD symptoms (Impact of Event Scale-Revised) were investigated. A significant increase of sleep problems pertaining to insomnia was found ($p<0.001$). The most frequent complaints were difficulty with sleep induction, awakenings during the night, and sleepiness during the day. Higher STAI – State anxiety, CES-D, and IES-R scores were associated with greater likelihood of having insomnia six months after the earthquake. No other significant associations were detected with several recorded sociodemographic parameters. In conclusion the local population exhibited sleep disturbances 6 months after the earthquake. Sleep problems and ensuing next day dysfunctioning appear to be dependent on the existing psychopathology but independent of sociodemographic factors, and are potentially the result of constant worry due to the continuing seismic activity. Therefore, mental health providers should recognize and manage disordered sleep after earthquakes, although further studies are required to investigate the long-term impact of natural disasters on sleep.

Key words: Natural disasters, earthquake, sleep problems, insomnia.

Introduction

The island of Cephalonia in Ionian Sea is characterized by its high seismic activity. More specifically, this activity has been considered to be the highest of the Balkan Peninsula and Europe in general.[1] Cephalonia's most destructive earthquake of the past century occurred in 1953 causing 455 deaths and 4,400 serious injuries. Since then a serious number of earthquakes have occurred. In 2014 a long sequence of earthquakes –which included two main shocks of almost the same magnitude– struck the island. The epicenter of the earthquake was the city of Lixouri and the western part of Cephalonia was mostly affected. A long series of aftershocks followed these main shocks. The first earthquake of a magnitude of 6.1 R on the Richter scale struck on January 26 at 15:55 local time, damaging reinforced concrete buildings, monuments and churches, stonewalls, road networks and port facilities. The aftershock sequence included approximately 731 seismic events, of which thirty-one had a magnitude ≥4.0 R (maximum 5.3 R). On the 3rd of February, eight days after the major earthquake and at 05:08 local time, a second 6.0R earthquake struck the island at the same area exacerbating previous material damages, without human casualties. This earthquake's aftershock sequence included 427 seismic events during the next ten days; fourteen of the aftershocks measured ≥4.0 R. This high seismic activity continued, albeit in decreasing intensity, for six months till end of August 2014, when the present study took place. In total, the number of earthquakes that affected those living in Cephalonia between January 26 and August 2014 was 2055.[2]

Natural disasters, such as earthquakes, are traumatic events causing both acute and enduring stress to affected individuals. There are immediate threats, such as risk of death and risk of injury to oneself or a loved one, and enduring stressors such as housing, economic, social and emotional problems. Psychosocial consequences include post-traumatic stress disorder (PTSD), reactions of anxiety and depression, and comorbidities.[3–6]

Prominent sleep complaints in the aftermath of trauma, either isolated or in the context of PTSD, are also very common and disturbed sleep has been reported by several investigators[7–11] after various types of trauma, such as sexual abuse, war, car crashes, hurricanes and earthquakes. The most frequent self-reported complaints are difficulties in initiating and maintaining sleep, shorter sleep duration, restless sleep, daytime fatigue, nightmares and anxiety dreams.[12] Immediate and short-term post-trauma sleep problems have been often reported in the literature but only a few studies have investigated sleep complaints several months following a natural disaster.[13,14]

In the present study we assessed sleep problems, insomnia in particular, in the affected population of Cephalonia, retrospectively one month before and 6 months after the earthquake, and investigated their correlation with depression, anxiety and PTSD symptoms.

Material and method

Participants

A total of 220 residents were randomly selected from the municipal lists of the epicenter city of Lixouri. Of those selected, 50 subjects declined to participate either due to lack of time or other inconvenience, or were excluded from the study because they did not properly complete the administered questionnaires. Thus, 170 subjects were finally included in the study. The selected individuals were assessed through questionnaires either at home or at the local hospital, at their own convenience. The assessments were carried out by a general doctor and three mental health professionals 6 months after the earthquake. Informed consent was obtained from all participants.

Assessment

The assessment was made through the following psychometric scales:

The Athens Insomnia Scale (AIS),[15] a self-administered 8-item psychometric instrument based on the ICD-10 criteria for the diagnosis of insomnia, which measures sleep quality and quantity as well as next day subjective functioning. Each item is rated from 0–3 (0="no problem at all", 3="very serious problem"). In the present study, the cutoff point for the presence of insomnia was set at 8. Sleep problems were assessed for two time points, i.e., retrospectively (based on recollection) one month before and six months after the earthquake.

The Greek version of the Center for Epidemiological Studies – Depression (CES-D) questionnaire[16] was used for detecting depression in a general population sample.

The state anxiety subscale of the State-Trait Anxiety Inventory (STAI)[17] which has been validated in the Greek population[18] was used for the assessment of anxiety.

The 22-item Impact of Event Scale-Revised (IES-R) for the measurement of PTSD symptoms; the scale provides a total IES-R score, as well as subscores for intrusion, avoidance and hyperarousal symptoms.[19]

Statistical analysis

Continuous variables are presented with mean and standard deviations, while qualitative variables are presented with absolute and relative frequencies. For the comparisons of proportions chi-square test has been used. McNemar's test was computed to compare the presence of sleep complaints before and after the earthquake. Estimating equations were used to assess if changes in the presence of insomnia before and after the earthquake were significantly different between different demographic groups. Univariate logistic regression analyses were used to test the effect of the demographic factors on insomnia, followed by multiple logistic regression analysis in a stepwise method (p for removal was set at 0.1 and p for entry was set at 0.5), based on which odds ratios (OR) with 95% confidence intervals (95% CI) were computed. All p values reported are two-tailed; statistical significance was set at 0.05. Analyses were conducted using the SPSS statistical software version 19.0 (IBM Corporation, Armonk, New York).

Results

Data from 170 participants (37.9% men) from whom AIS measurements were obtained were analyzed. Sample characteristics are presented in table 1. The mean age of the participants was 41.1 years (SD=15.5 years). Almost half of the responders had more than 12 years of education and 58.8% were married. Physical health problems were stated by 12.9% of the sample, while mental health problems were mentioned by 4.1% of the participants (referring to the time of the assessment). The majority of the participants were either in their home or in another building during the earthquake. The mean STAI-State anxiety score was 44.1 (SD=10.9) suggesting clinically significant symptoms of anxiety, since a cutoff point of 40 on the STAI-State anxiety scale has been proposed as indicative of the presence of anxiety symptoms in the general

Table 1. Sample characteristics.*

	N (%)
Sex	
Men	65 (38.2)
Women	105 (61.8)
Age, mean (SD)	41.1 (15.5)
Age**	
<35	57 (33.5)
35–46	57 (33.5)
>46	56 (32.9)
Education (years)	
≤12	88 (54.7)
>12	73 (45.3)
Missing	9
Marrital status	
Single/Widowed	70 (41.2)
Married	100 (58.8)
Children	
No	65 (38.2)
Yes	105 (61.8)
Number of children, mean (SD)	2.2 (0.9)
Physical health problems	
No	148 (87.1)
Yes	22 (12.9)
If yes, do you receive any treatment?	
No	2 (9.1)
Yes	20 (90.9)
Mental health problems	
No	163 (95.9)
Yes	7 (4.1)
If yes, do you receive any treatment?	
No	1 (16.7)
Yes	5 (83.3)
Location during the earthquake	
In their home	156 (91.8)
In another building	3 (1.8)
In the street / open space	5 (2.9)
In a vehicle	3 (1.8)
Other	3 (1.8)
STAI-State anxiety score, mean (SD)	44.1 (10.9)
CES-D score, mean (SD)	20.7 (7.1)
IES-R total score, mean (SD)	4.7 (2.8)
IES-R Avoidance, mean (SD)	1.5 (0.9)
IES-R Intrusion, mean (SD)	1.6 (1.0)
IES-R Hyperarousal, mean (SD)	1.7 (1.0)

*At the time of the assessment
**Categorized according to tertiles

population.[17] The mean CES-D score was 20.7 (SD=7.1), which is well above the cutoff score of 16, that according to the literature[20] indicates a significant depressive symptomatology in a community sample.

The presence of insomnia as assessed by the AIS, for the total sample was 26.5% (95% Confidence Interval: 19.8–33.2%) before the earthquake and 55.3% (95% Confidence Interval: 47.7–62.8%) after the earthquake, indicating a significant increase in sleep problems (p<0.001). Regarding the specific sleep complaints ("marked" or "severe" problem) as reflected in the eight items of the AIS before the earthquake, these were particularly related to awakenings during the night, final awakening, and sleepiness during the day. Six months after the earthquake, the most frequent complaints were difficulty with sleep induction, awakenings during the night, and sleepiness during the day. The specific sleep problems are shown in table 2. There was a highly significant increase (p<0.001) in almost all sleep complaints after the earthquake. The percentage of increase in the presence of insomnia according to different demographic categories is shown in table 3; this increase did not differ between the different socio-demographic groups (p>0.05).

The results from univariate logistic regression analysis with dependent variable the presence of insomnia 6 months after the earthquake are presented in table 4. Higher STAI-State anxiety scores and higher CES-D scores were associated with greater likelihood of having insomnia after the earthquake; higher total IES-R scores and higher scores in all subscales were also associated with a greater likelihood of having insomnia after the earthquake. When multiple regression analysis was conducted with dependent variable the presence/absence of insomnia (based on the AIS cut-off for a diagnosis of insomnia) 6 months after the earthquake, it was found that STAI-State anxiety and total IES-R score were associated with greater likelihood of having insomnia after the earthquake [OR (95%CI): 1.38 (1.15–1.66) and 1.06 (1.01–1.11) respectively]. When the dimensions “avoidance”, “intrusion” and “hyperarousal” were used in multiple analysis instead of the total IES-R score it was found that “intrusion” (OR=2.18, 95%CI: 1.33–3.57, p=0.002),“avoidance” (OR=2.01, 95%CI: 1.27–3.17, p=0.003) and “hyperarousal” (OR=2.41, 95%CI: 1.51–3.84, p<0.001) were significantly and independently associated with greater odds of having insomnia.

Discussion

The main finding of the present study was a significant increase (p<0.001) of sleep problems, pertaining to insomnia, in a random sample of the adult population of the city of Lixouri in Cephalonia six months after the island was struck by two earthquakes (6.1 R and 6.0 R) followed by a long series of aftershocks. This increase was found to be closely associated with the presence of anxiety, depression and post-traumatic stress symptoms.

Table 2. Sleep complaints one month before and six months after the earthquake. Number of individuals (%) who estimate to have a "marked" or "severe problem" as assessed through the eight items of the AIS.

	Before	After	p*
AIS-8 items	N (%)	N (%)	
Sleep induction	22 (12.9)	59 (34.7)	<0.001
Awakenings during the night	32 (18.8)	59 (34.7)	<0.001
Final awakening	27 (15.9)	47 (27.6)	0.004
Total sleep duration	20 (11.8)	46 (27.1)	<0.001
Sleep quality	19 (11.2)	47 (27.6)	<0.001
Well-being during the day	23 (13.5)	46 (27.1)	<0.001
Functioning during the day	19 (11.2)	39 (22.9)	0.001
Sleepiness during the day	27 (15.9)	52 (30.6)	<0.001

*McNemar’s test

Table 3. Subjects diagnosed with insomnia according the AIS scoring before and after the earthquake, according to various socio-demographic variables.*

	Insomnia		(%) Change	p*
	Before	After		
	N (%)	N (%)		
Sex				
Men	18 (28.1)	33 (51.6)	23.5	0.237
Women	27 (25.7)	61 (58.1)	32.4	
Age**				
<35	12 (21.1)	33 (57.9)	36.8	0.230
35–46	19 (33.3)	32 (56.1)	22.8	
>46	14 (25)	29 (51.8)	26.8	
Education (years)				
≤12	31 (35.2)	54 (61.4)	26.2	0.470
>12	13 (17.8)	35 (47.9)	30.1	
Marrital status				
Single/Widowed	18 (25.7)	39 (55.7)	30.0	0.767
Married	27 (27)	55 (55)	28.0	
Children				
No	14 (21.5)	38 (58.5)	37.0	0.084
Yes	31 (29.5)	56 (53.3)	23.8	
Physical health problems				
No	41 (27.7)	85 (57.4)	29.7	0.847
Yes	4 (18.2)	9 (40.9)	22.7	
Mental health problems				
No	41 (25.2)	90 (55.2)	30.0	0.072
Yes	4 (57.1)	4 (57.1)	0.0	
Location during the earthquake				
In their home/another building	44 (27.7)	91 (57.2)	29.5	0.985
Other	1 (9.1)	3 (27.3)	18.2	

*At the time of the assessment

**Effects reported are significant differences between groups in the degree of change in insomnia proportions

Sleep problems subsequent to the exposure to natural disasters are well documented.[14,21,22] Extreme stress may have both a short-term and a long-term impact on sleep. However, the long lasting effects on sleep have been investigated by rather few longitudinal studies.[6,14,13,23] In this context, various predictive factors of sleep disturbances have been investigated, such as proximity to the earthquake's epicenter, extent of material and human losses, socio-demographic characteristics, and coexisting psychopathology (anxiety, depression, and PTSD symptoms in particular).

In our study, proximity to epicenter and extent of losses were not assessed, since all participants came from the same area at the earthquake epicentre, where the majority of aftershock quakes also occurred, but there were no widespread material losses nor any human casualties. This should be attributed to the fact that the majority of the buildings after the 1953 catastrophic quake had been constructed according to and following strict anti-seismic regulations and specifications and therefore responded well during the earthquakes; thus, not one of them collapsed and none of the residents were killed or seriously injured.[2] However, the continuing seismic activity kept residents in a state of constant worry and caused them to wake up repeatedly during the night hours. There follows that the relatively most frequent complaints

Table 4. Univariate logistic regression analysis with dependent variable the presence of post-earthquake insomnia.

	Insomnia after the earthquake		OR (95% CI)*	p
	No	Yes		
	N (%)	N (%)		
Sex				
Males	31 (48.4)	33 (51.6)	1.00**	0.407
Females	44 (41.9)	61 (58.1)	1.30 (0.70 – 2.43)	
Age, mean (SD)	43.0 (17.4)	39.6 (13.7)	0.99 (0.97 – 1.01)	0.157
Age				
<35	24 (42.1)	33 (57.9)	1.00	
35–46	25 (43.9)	32 (56.1)	0.93 (0.44 – 1.96)	0.850
>46	27 (48.2)	29 (51.8)	0.78 (0.37 – 1.64)	0.514
Education (years)				
≤12	34 (38.6)	54 (61.4)	1.00	0.089
>12	38 (52.1)	35 (47.9)	0.58 (0.31 – 1.09)	
Marrital status				
Single/Widowed	31 (44.3)	39 (55.7)	1.00	0.927
Married	45 (45.0)	55 (55.0)	0.97 (0.53 –1.80)	
Children				
No	27 (41.5)	38 (58.5)	1.00	0.514
Yes	49 (46.7)	56 (53.3)	0.81 (0.44 – 1.52)	
Physical health problems				
No	63 (42.6)	85 (57.4)	1.00	0.151
Yes	13 (59.1)	9 (40.9)	0.51 (0.21 –– 1.28)	
Mental health problems				
No	73 (44.8)	90 (55.2)	1.00	0.920
Yes	3 (42.9)	4 (57.1)	1.08 (0.24 – 4.99)	
Location during the earthquake				
In their home/another building	68 (42.8)	91 (57.2)	1.00	0.067
Other	8 (72.7)	3 (27.3)	0.28 (0.07 – 1.10)	
STAI-State anxiety, mean (SD)	39.1 (10)	48.3 (9.8)	1.10 (1.06 – 1.14)	<0.001
CES-D score, mean (SD)	18.5 (4.9)	22.6 (8.1)	1.11 (1.04 – 1.18)	0.002
IES-R Avoidance, mean (SD)	1.2 (0.8)	1.8 (0.9)	2.32 (1.58 – 3.41)	<0.001
IES-R Intrusion, mean (SD)	1.1 (0.9)	2.0 (1)	2.69 (1.84 – 3.93)	<0.001
IES-R Hyperarousal, mean (SD)	1.2 (0.8)	2.1 (1)	2.89 (1.98 – 4.22)	<0.001
IES-R total score, mean (SD)	3.3 (2.3)	5.8 (2.7)	1.46 (1.26 – 1.68)	<0.001

*Odds Ratio (95% Confidence Interval);
**Indicates reference category

regarding night sleep were difficulty falling asleep, nocturnal awakenings, and sleepiness during the day. Moreover, this particularity may explain the high percentage (55.3%) of insomnia observed in our sample.

The proximity to the earthquake's epicenter seems to be important in terms of symptom severity. A recent study[13] showed that two years after the L' Aquila (Italy) catastrophic earthquake, which caused the death of 309 people and more than 1,600 injuries, survivors continued to suffer from reduced sleep quality, as well as disruptive nocturnal behaviors; also, these problems were significantly correlated with the dis-

tance from the earthquake's epicenter, people, especially the elderly, living closer to the epicenter exhibiting more sleep problems. Also, in another study[24] among child and adolescent survivors two years after the 2010 Haitian 7.0 R earthquake, the distance from the earthquake's epicenter was crucial for the development of PTSD symptoms and depression, followed by high percentages of sleep disorders.

Several sociodemographic characteristics are well acknowledged[25–27] as potential risk factors for the development both of insomnia problems and increased responses to traumatic experiences. Women, older people, less privileged people with lower levels of education and income, and being divorced or widowed appear to be more vulnerable in developing these conditions. Furthermore, prior psychiatric disorders and physical health problems have been associated with the development of insomnia and post-traumatic stress reactions.[26–29] However, in the present study, individuals reporting insomnia six months after the earthquake did not differ from those without insomnia problems in any sociodemographic aspect, although in a previous retrospective study by our group[30] fifty years after the catastrophic earthquake in the same region in 1953, women were found to have considerably more often recurring dreams of the earthquake and overall distress than men. A possible reason for this is that living close to the epicenter of the earthquake and the lasting exposure to aftershocks minimizes the significance of these predisposing factors.

In terms of psychopathology, anxiety (STAI-State anxiety) and symptoms of depression (CES-D) were more pronounced in our study population than the expected norm in the community, and their severity was associated with a greater likelihood of having insomnia after the earthquake. Anxiety and depression are common findings after a natural disaster as shown by many investigators[6,24,31] also, those living in close proximity to the earthquake epicenter are at greater risk of developing such reactions.[32]

Regarding PTSD symptoms, we found that posttraumatic stress symptoms, as assessed through the IES-R, were associated with a greater likelihood of having insomnia six months after the earthquake. It is widely admitted that disturbed sleep is a most frequent posttrauma symptom either per se or as a feature of PTSD and other disorders as well; it is still debatable[33–35] whether sleep problems and PTSD are distinct or comorbid conditions. There are several theories regarding what cluster of PTSD symptoms is directly associated with sleep problems. The emotional processing theory of traumatic stress suggests that traumatic memory is activated by re-experiencing trauma related clues during sleep. According to this perspective intrusive PTSD symptoms are suggested to be more closely related to sleep problems.[36] However, there are studies[37] reporting a relationship with the PTSD hyperarousal and avoidance symptom clusters as well, which was also the case in the present study.

Study limitations

The main limitation of the study is that the comparison of insomnia symptoms before and after the earthquake is based on retrospective assessment of the presence of such symptoms (for the period before the event). It is possible that some of the subjects who rate as insomniacs in the pre-earthquake period are influenced by their current state at the time of assessment and that the percentage of insomnia before the earthquake is over-estimated.

The relatively small study sample recruited from the local population, the assessment of sleep problems, in particular pertaining to insomnia without a detailed investigation of other sleep disorders, the lack of a thorough psychiatric evaluation of the participants, and the lack of information regarding previous traumatic events are also factors that limit the validity of our findings.

Concluding remarks

The 2014 earthquake that struck the island of Cephalonia had important repercussions on the local population, even though there were no human casualties. Adults living in the epicenter city area exhibited symptoms of depression, anxiety, post-traumatic symptoms, and enduring sleep disturbances 6 months after the earthquake. Sleep problems and ensuing next day dysfunctioning appear to be dependent on the existing psychopathology but independent of sociodemographic factors, and are potentially the result of constant worry due to the continuing seismic activity. Therefore, mental health providers should recognize and manage disordered sleep after earthquakes, although further studies are required to investigate the long-term impact of natural disasters on sleep.

Προβλήματα ύπνου έξι μήνες μετά από ισχυρή σεισμική δραστηριότητα στο νησί της Κεφαλλονιάς

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Οι φυσικές καταστροφές όπως οι σεισμοί μπορούν να δράσουν σαν τραυματικά γεγονότα που προκαλούν έντονη ψυχολογική δυσφορία. Υπάρχει αυξημένος κίνδυνος για την ανάπτυξη διαταραχής μετατραυματικού stress (PTSD), άγχους, κατάθλιψης και διαταραχών ύπνου. Η Κεφαλλονιά, νησί του Ιονίου πελάγους, είναι το πλέον σεισμογόνο μέρος της Βαλκανικής Χερσονήσου και γενικότερα της Ευρώπης. Στις 26 Ιανουαρίου 2014 το νησί χτυπήθηκε από σεισμό μεγέθους 6,1 Richter και στις 6 Φεβρουαρίου ακολούθησε ένας δεύτερος 6,0 R. Πλήθος μετασεισμών μεγέθους ≥4,0 R καταγράφηκε στο ενδιάμεσο των δύο και μετά τον δεύτερο μεγάλο σεισμό. Συνολικά 2055 μετασεισμοί είχαν καταγραφεί από τέλη Ιανουαρίου μέχρι τον Αύγουστο οπότε και διεξήχθη η παρούσα έρευνα. Οι σεισμοί προκάλεσαν σημαντικές υλικές καταστροφές χωρίς όμως να υπάρξουν ανθρώπινα θύματα ή σοβαροί τραυματισμοί. Σκοπός της παρούσας μελέτης είναι να αξιολογήσει τα προβλήματα ύπνου, κυρίως την αϋπνία, σε δείγμα 170 ατόμων – κάτοικοι όλοι της πόλης του Ληξουρίου, το οποίο ήταν το επίκεντρο του σεισμού. Χορηγήθηκε η Κλίμακα Αϋπνίας των Αθηνών (Athens Insomnia Scale), και εκτιμήθηκαν οι διαταραχές ύπνου για κάθε άτομο έναν μήνα πριν και έξι μήνες μετά από τους δύο ισχυρούς σεισμούς. Διερευνήθηκαν επίσης συσχετισμοί με την κατάθλιψη με την κλίμακα CES-D (Center for Epidemiological Studies-Depression), με το άγχος (State-Trait Anxiety Inventory – State Anxiety State) και τα συμπτώματα μετατραυματικού στρες – PTSD (Impact of Event Scale – Revised). Η μελέτη κατέδειξε μια σημαντική αύξηση των προβλημάτων ύπνου –κυρίως της αϋπνίας ($p<0,001$)– έξι μήνες μετά τον σεισμό. Οι συχνότερα αναφερόμενες δυσκολίες αφορούσαν στην έλευση του ύπνου, σε αφυπνίσεις κατά τη διάρκεια της νύχτας, και υπνηλία κατά τη διάρκεια της ημέρας. Από την άποψη της ψυχοπαθολογίας, το άγχος και τα συμπτώματα της κατάθλιψης ήταν περισσότερο έντονα στον πληθυσμό της μελέτης μας από τα αναμενόμενα σε κοινοτικούς πληθυσμούς. Τα υψηλά σκορ σε STAI – State anxiety, CES-D και IES-R συσχετίστηκαν με μεγαλύτερη πιθανότητα να υπάρχει αϋπνία έξι μήνες μετά τον σεισμό. Δεν ανιχνεύθηκαν άλλες σημαντικές συσχετίσεις με διάφορες κοινωνικο-δημογραφικές παραμέτρους που καταγράφηκαν. Συμπερασματικά, τα προβλήματα ύπνου φαίνεται να συνδέονται με την υπάρχουσα ψυχοπαθολογία και είναι πιθανό το αποτέλεσμα της συνεχούς ανησυχίας των κατοίκων λόγω της συνεχιζόμενης μετασεισμικής δραστηριότητας έξι μήνες μετά από τους δύο κύριους σεισμούς. Ως εκ τούτου, οι επαγγελματίες ψυχικής υγείας πρέπει να αναγνωρίζουν και να διαχειρίζονται τα προβλήματα ύπνου μετά από σεισμούς, αν και απαιτούνται περαιτέρω μελέτες για να διερευνηθεί η μακροπρόθεσμη επίδραση των φυσικών καταστροφών στον ύπνο.

Λέξεις ευρετηρίου: Φυσικές καταστροφές, σεισμός, προβλήματα ύπνου, αϋπνία.

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Research article
Ερευνητική εργασία

Exploring emotional aspects of infertility in women from two countries

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A plethora of studies have examined the prevalence and severity of anxiety and depression in relation to infertility, while ignoring social and cultural factors. The aim of this cross-cultural study is to examine emotions related to quality of life, perceived social support, depression and anxiety in two groups of young women with identical demographic characteristics (age, education, and duration of infertility – years to have a child) who experience fertility problems in two neighboring countries, Greece and Bulgaria. A total of one hundred forty-eight women from both countries completed a demographics questionnaire along with the Multidimensional Scale of Perceived Social Support (MSPSS), the Subscale regarding State Anxiety from the State-Trait Anxiety Inventory (STAI), the Center for Epidemiologic Studies Depression Scale (CES-D), and some chosen questions from the Fertility Quality of Life (FertiQol). Seventy-four female participants from Northern Greece and seventy-four female participants from Southern Bulgaria were examined. The two groups of women did not show any statistically significant differences regarding their age, years of education, and the years needed in order to have their first child. The women were not on any type of medical treatment for their infertility problem at the time of the completion of the questionnaires. Results indicated that women in both countries did not have different levels of anxiety and depression regarding their infertility, but they had statistically different self-reported perceptions of social support and related to infertility quality of life. Future research should further investigate infertility and its relation to other emotional variables in larger samples of varying age ranges from different cultural environments.

Key words: Depression, anxiety, perceived social support, quality of life, infertility, cross-cultural study.

Introduction

Infertility is considered to be a major life event that brings about social and psychological problems. Among couples of reproductive age, 9% experience constant infertility, 16% experience infertility at some point in their lives, while these rates are consistent internationally.[1] Couples, as well as individually men and women are affected by infertility in different ways.[2–4] This study is focused on emotional aspects of infertility in women, because it has been established that men appear more reluctant than women to submit to examination into fertility problems.[5]

Research examining the varying effects of infertility on the emotional-psychological health of women focus mainly on the measurement of negative emotions during infertility treatment periods,[6,7] while the general impact on everyday life is not adequately examined so far in different countries. Regardless of the country, the couples with infertility may feel uncertainty about the future, stress, sadness, anxiety, depression, and other negative emotional states.

Disclosure of negative emotions in relationships (e.g. with spouse/partner, family members, friends, and significant others) have been found to reduce adverse sequalae of stressful events and engagement in social coping has been demonstrated to augment physical and psychological wellbeing for a wide range of stressors.[7] Social support-relationships within the context of infertility appear to be complex, because some research demonstrates similar positive effects of perceived and obtained support,[8–10] while other studies indicate that individuals with infertility problems (both men and women) often experience negative consequences when information is shared.[11–20] Sharing infertility problems could sometimes provoke derision by the surrounding people. Declining fertility in modern societies is related to low social support, and few kin (relative) networks.[21]

The principal aim of this paper is to investigate for the first time different aspects of emotional experiences in young women who face infertility problems in two neighbouring countries that share a lot of cultural, social and religious traditions.

There are some similarities, but also differences in fertility patterns in both countries. Greece is included in the list of the countries characterized by 1785–1900 fertility decline onset, whilst Bulgaria is among the countries with 1900–1945 fertility decline onset.[22] At the beginning of the twentieth century, Bulgaria and Greece had similar rates of fertility – high fertility, but by the late 1920s Bulgarian birth rate had fallen.[23] Proportion of individuals having no children was higher for Greece than for Bulgaria from 1940 to 1960.[24] Fertility rate in Greece was relatively stable from 1960 to 1995,[25] a small fertility decline occurred in Greece between 1960 and 1998.[26] Bulgaria and Greece had similar fertility rates for the period from 1980 to 2000.[24] Higher population decline is expected in Bulgaria than in Greece.[27] Bulgaria and Greece both have a lower total fertility rate compared to the EU-27 average.[28]

In addition to that, there is a continuous decrease in fertility rate in Eastern Europe after 1990.[29] Eastern Europe has the lowest fertility in the world[29] that is why it is important to be studied emotional aspects of infertility in women from Bulgaria and Greece.

Low fertility of the countries of Southern Europe occurs in those countries in which an emphasis on the family remains strong, they are family oriented.[26] Both Bulgaria[23] and Greece[28] value family, despite of the changing contemporary gender roles.

Infertility pattern in Bulgaria is characterized by its beginning among almost entirely rural population, under the conditions of early marriages, in the social and economically homogeneous Bulgarian society that presumes relative ease of internal communication, and hence a faster diffusion of the ideas, norms and practices associated with birth control.[23] Besides, there has been a huge emigration wave of Bulgarians at fertility age[30] that could explain partly low Bulgarian fertility rate. Immigrants have higher fertility rates than native residents[31] and immigrant women were not studied for the goals of this research.

Low fertility is typical for modern industrialized and urbanized nations.[21,32,33] Migration from rural to urban areas is related to higher infertility. This paper is focused mainly on emotional aspects of infertility among women from the urban areas of Bulgaria and Greece.

Greek society is characterized by masculinity values[34] that supposes more rational than emotional approach to infertility. More institutional support than emotional support to infertility could be expected in a society with masculine values.

Both states have active policies regarding infertility that express concern about people with infertility problems, for example the countries' policies try to facilitate the access to assisted reproductive technology.[1] They offer a wide range of educational and occupational choices for women.[35]

Women in Bulgaria tend not only to be educated and employed, but to have low life expectancy[36] that could be related to lower quality of life and durable negative experiences. Bulgarian mothers seem to have more anxiety and depression in self-

report measures when compared to Greek mothers.[37] Therefore, it could be expected that Bulgarian women would experience high levels of anxiety and depression related to infertility.

Low fertility might be the consequence of a decision to delay motherhood,[38] as it is the case in Greece. Mothers in Greece are older at childbirth and the majority of live births are inside marriage.[28] Bulgaria has younger mothers,[28] adolescent fertility was much higher in Bulgaria than in Greece in 2014.[39]

Low fertility might be related to the new attitudes towards family and the working life of women as a consequence of their new education and economic status, and also as a result of the combination of gender equity to distribute family costs, and the lack of stability in the labour market which prevails in southern European societies.[38]

The changes in socio-economic conditions are connected with decrease in fertility.[40] Both countries have undergone some changes in their political and economic development – Bulgaria, in the transition from socialism to democracy, Greece during its economic debt crisis,[41] that could increase uncertainty, especially in women.

Poverty rates have been increased in Greece from 2009 onwards.[42] Bulgarian Gross Domestic Product per capita is below 75% of the EU average.[28] The increased financial difficulties among a huge part of the population might make more difficult the choice to raise children and they could cause low fertility rates. The negative emotional states in women with fertility problems could be related also to some factors that parallel infertility, as their financial problems, not only to their health problems.

Fertility expectations and fertility choices are dynamic and change over time, they are not stable, but the impact of partnership status on fertility expectations cannot be ignored at any moment. Partnership status is a major factor in understanding someone's fertility expectations over time.[43]

People who are not in a relationship and who are more advanced in age often do not expect to have a child in the future.[43] This study is focused on young women who are in a relationship and who desire to have children.

More specifically, emotional experiences were examined in the form of levels of anxiety and depression, perceived social support and quality of life. Apart from the hypothesis that Greek women would have less negative emotional experiences, due to financial and social differences that may act as burden for the Bulgarian sample, a second hypothesis was also tested. The second purpose of the study was to investigate the relationships between anxiety/depression symptomatology and social support as well as all these variables with the quality of life, assuming that less anxiety/depression would be correlated with more perceived social support and better quality of life.

Material and method

Seventy-four female participants from Northern Greece and seventy-four female participants from Southern Bulgaria participated voluntarily in this cross-cultural study, while at the time of the questionnaire administration they were not on any type of medical treatment for their infertility problem. The two groups (Greek versus Bulgarian) did not differ in age (26.48±6.82 versus 24.09±8.21, $t(146)=1.92$, $p=.056$), did not differ in years of education (13.00±1.72 versus 13.05±1.97, $t(145)=.179$, $p=.858$), and did not differ in the period of time that they made in order to have a child (1.79±1.54 versus 2.02±2.18, $t(146)=.737$, $p=.462$).

Data collection was conducted during the same period in both countries (summer of 2016). All of the participants were tested in their mother tongue, with the Multidimensional Scale of Perceived Social Support (MSPSS) (12 questions, Cronbach's alpha for our sample=.929), three questions from the Fertility Quality of Life (FertiQol), the State-Trait Anxiety Inventory (STAI) (20 questions regarding anxiety as state in our case, Cronbach's alpha for our sample =.803) and the Center for Epidemiologic Studies Depression Scale (CES-D) (14 questions, Cronbach's alpha for our sample=.922).

The three questionnaires were chosen based on their widespread use, mainly in the English-speaking world in clinical as well as non-clinical samples and because there are available forms in both the Greek and Bulgarian language. More specifically, the MSPSS[44] is a 12-item self-report measure of subjectively assessed social support, which includes three subscales, each addressing a different source of support, such as a. family, b. friends, and c. the sig-

nificant other. The scoring for all of the sentences ranges from 1=if you very strongly disagree, 2=if you strongly disagree, 3=if you mildly disagree, 4=if you are neutral, 5=if you mildly agree, 6=if you strongly agree, and 7=if you very strongly agree.

The STAI[45] is an introspective psychological inventory consisting of 40 self-report items pertaining to anxiety symptoms. In our study, we used only the 20 state questions, which are scored on 4-point Likert-type response scale. Scores range from 20 to 80, with higher scores suggesting greater levels of anxiety. According to Spielberger's criteria, a score of 40 or higher reflects clinically relevant symptoms of anxiety. Although this specific cut-off has not been validated in a Greek or Bulgarian population, the Greek and Bulgarian STAI scales have been shown to have similar psychometric properties to other translations used in the international research.[46,47] Bulgarian adaptation of STAI indicates 53 as the cut-off score for S-trait and T-trait in men between 18–60 years old; 57 as the cut-off score for S-trait among women from 18 to 60 years old; 59 as the cut-off score for T-trait among women from 18 to 60 years old; 48 as the cut-off score for S-trait among boys between 13–18 years old; 49 as the cut-off score for T-trait among boys between 13–18 years old; 52 as the cut-off score for S-trait among girls between 13–18 years old; and 56 as the cut-off score for T-trait among girls between 13–18 years old.[47] Low scores suggest mild anxiety, median scores suggest moderate anxiety, while high scores suggest severe anxiety.

The CES-D[48] is measure that rates how often over the past week they experienced symptoms associated with depression. Responses range from 0 to 3 for each item (0=rarely or none of the time, 1=some or little of the time, 2=moderately or much of the time, 3=most or almost all the time). Scores range from 0 to 60, with high scores indicating greater depressive symptoms. The CES-D also provides cutoff scores (e.g., 16 or greater) that aid in identifying individuals at risk for clinical depression, with good sensitivity and specificity and high internal consistency.

Finally, the chosen 5-point Likert scale questions from the FertiQol were namely: A) How would you rate your health?, B) Are you satisfied with your quality of life?, E1) Are your attention and concentration impaired by thoughts of infertility?, E14) Do you feel your family can understand what you are going through?, E18) Are you bothered by fatigue because of fertility problems?, and E22) Do you feel social pressure on you to have (or have more) children?[49,50] These specific questions were chosen instead of the full questionnaire, because they were considered as not activating defense mechanisms, not pointing out the issue of fertility as an intimate and intimidating problem for the participants, and at the same time taking into account personal and social consequences of infertility. The chosen questions permit the issue of fertility to be studied also among people who have not stated directly, overtly that they have some fertility problems.

Statistical analyses were performed using SPSS package for Windows, version 21. The statistics mean (M), standard deviation (SD), Pearson correlation coefficients (r), and independent samples t-tests (t) were conducted as the obtained data followed normal distribution. The significance level was selected at $p<.001$.

Results

Comparisons with t-tests revealed that there were no statistically significant differences between the two demographically equated ethnic groups of women for the STAI ($t(119)=.833$, $p=.407$), and the CES-D ($t(134)=1.812$, $p=.072$), but a statistically significant difference was found between the groups for two countries for the MSPSS ($t(138)=.573$, $p<.001$, eta squared=.18), with the Greek women facing infertility problems mentioning less support from their environment in contrast to the Bulgarian women who face infertility problems, but mention more social support (see table 1).

More specifically, all three subscales of MPSS were found to differentiate in a statistically significant way between Greek and Bulgarian women. Namely, family subscale ($t(146)=5.275$, $p<.001$, eta squared=.16), friends subscale ($t(146)=4.721$, $p<.001$, eta squared=.13), and significant other subscale ($t(146)=4.181$, $p<.001$, eta squared=.10) differentiated in the two countries (see table 2).

When the selected questions from the FertiQol were entered into the analyses with the use of Pearson correlations, a number of statistically significant correlations were found for the whole sample regarding the total score of the questionnaires and some other variables, such as FertiQolA and educa-

Table 1. Anxiety, depression, perceived social support and quality of life in the two study groups.

Questionnaires total scores	MPSS (maximum score 84)	p	STAI (maximum score 80)	p	CES-D (maximum score 60)	p
Greece	59.88 (11.96)	<.001*	48.78 (10.41)	.407	24.41 (9.44)	.072
Bulgaria	71.30 (11.61)		47.59 (5.03)		21.85 (6.88)	

MPSS=Multidimensional Scale of Perceived Social Support, STAI=State-Trait Anxiety Inventory, CES-D=Center for Epidemiologic Studies Depression Scale
*Statistically significant at p<.001

Table 2. Differences in family, friends, and significant other subscales of MPSS between Greek and Bulgarian women.

MPSS subscales	Family mean (SD)	p	Friends mean (SD)	p	Significant other mean (SD)	p
Greece	20.28 (5.33)	<.001*	19.37 (3.97)	<.001*	20.43 (4.78)	<.001*
Bulgaria	24.60 (4.61)		22.76 (4.51)		23.83 (5.07)	

*Statistically significant at p<.001

tion years (r(145)=–.186, p=.024), FertiQolA and age (r(146)=–.163, p=.048), FertiQolE22 and age (r(145)=–.183, p=.026), FertiQolA and CES-D (r(134)=–.477, p<.001), FertiQolA and MSPSS (r(138)=.398, p<.001), FertiQolB and CESD (r(134)=–.503, p<.001), FertiQolB and MSPSS (r(138)=.486, p<.001), FertiQolE1 and CES-D (r(130)=.362, p<.001), FertiQolE14 and MSPSS (r(138)=.422, p<.001).

No statistically significant correlations were found between STAI and MSPSS (r(114)=–.047, p=.618), CES-D and MSPSS (r(128)=–.50, p=.573). In addition to that, there were no statistically significant correlations between STAI and FertiQolA (r(119)=–.073, p=.424), STAI and FertiQolB (r(119)=–.907, p=.289), STAI and FertiQolE1 (r(115)=–.156, p=.092), STAI and FertiQolBE14 (r(119)=–.122, p=.182), STAI and FertiQolBE18 (r(119)=–.170, p=.063), STAI and FertiQolBE22 (r(118)=–.154, p =.093).

No statistically significant correlations were found for CES-D and FertiQolE14 (r(134)=–.077, p=.375), and also CES-D and FertiQolE22 (r(133)=–.135, p=.119).

An interesting finding is that a number of differences between the two countries were found when independent samples t-tests were applied, and statistically significant cross-cultural differences exist for the questions directly related to infertility: A) How would you rate your health? (t(146)=7.156, p<.001, eta squared=.25), B) Are you satisfied with your quality of life? (t(146)=6.286, p<.001, eta squared=.21), E1) Are your attention and concentration impaired by thoughts of infertility? (t(146)=4.254, p<.001, eta squared=.11), E18) Are you bothered by fatigue because of fertility problems? (t(146)=3.879, p<.001, eta squared=.09), and E22) Do you feel social pressure on you to have (or have more) children? (t(146)=6.527, p<.001, eta squared=.22), with the exception of the statistically non-significant finding for the question E14) Do you feel your family can understand what you are going through? (t(146)=.922, p=.358) (see table 3).

Discussion

Our study results reveal that there are no cross-cultural differences in the Greek and the Bulgarian women regarding their anxiety and depression levels. There were a number of statistically significant differences with large effect sizes regarding the scores of the MSPSS scale, and more specifically higher perceived levels of family, friends, and significant other support reported by the Bulgarian women. This finding corresponds to stronger family

Table 3. Means and standard deviations for the selected questions of the FertiQol

FertiQol Questions	Country	Mean	SD	p value
A	Greece	2.04	1.05	<.001*
	Bulgaria	3.09	.70	
B	Greece	1.98	.95	<.001*
	Bulgaria	2.87	.75	
E1	Greece	2.05	1.04	<.001*
	Bulgaria	2.78	1.00	
E14	Greece	1.70	1.03	.358
	Bulgaria	1.52	1.27	
E18	Greece	2.12	1.27	<.001*
	Bulgaria	2.89	1.14	
E22	Greece	2.16	1.30	<.001*
	Bulgaria	3.45	1.08	

*Statistically significant at p<.001

solidarity slightly more expressed among Bulgarians than among Greeks.[51] It is of interest that although the relationship between STAI - MSPSS and CES-D - MSPSS did not reach in this sample statistical significance, a number of statistically significant correlations were found for MSPSS and all FertiQol questions. Thus, anxiety and perceived social support, as well as depression and social support, may not relate in a profound way in women with prior infertility problems, but quality of life does have a strong relation with perceived social support.

Additionally, young Greek women with infertility problems mention statistically significant lower perceived levels of general health, lower perceived quality of life, lower everyday attention to the infertility problems, less fatigue directly linked to infertility and less social pressure regarding infertility in contrast to the young Bulgarian women with infertility problems.

Although the findings from the correlations revealed not strong correlations between the variables of infertility and emotions, these results concern only young women who have not many years facing infertility problems. In this direction future research should further investigate confounding variables, by including in the analyses other hidden social and/or psychological parameters that might be related directly or indirectly with the social-financial changes in Greece, and may affect the way that women with long-term infertility problems feel and think about infertility.

Διερεύνηση συναισθηματικών πλευρών της υπογονιμότητας σε γυναίκες από δύο χώρες

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Πλήθος μελετών έχουν εξετάσει τον επιπολασμό και τη σοβαρότητα του άγχους και της κατάθλιψης σε σχέση με την υπογονιμότητα, αγνοώντας ωστόσο τους κοινωνικούς και πολιτισμικούς παράγοντες. Ο στόχος αυτής της διαπολιτισμικής μελέτης είναι να εξετάσει τα συναισθήματα που αφορούν στην ποιότητα ζωής, την αντιλαμβανόμενη κοινωνική στήριξη, την κατάθλιψη και το άγχος σε δύο ομάδες νεαρών γυναικών με τα ίδια δημογραφικά χαρακτηριστικά (ηλικία, εκπαίδευση και διάρκεια υπογονιμότητας – χρόνια έως την απόκτηση ενός παιδιού), οι οποίες αντιμετωπίζουν προβλήματα γονιμότητας σε δύο γειτονικές χώρες, την Ελλάδα και τη Βουλγαρία. Συνολικά εκατόν σαράντα οκτώ γυναίκες προερχόμενες και από τις δύο χώρες συμπλήρωσαν ένα ερωτηματολόγιο για την καταγραφή των δημογραφικών τους στοιχείων μαζί με την Πολυδιάστατη Κλίμακα Προσλαμβανόμενης Κοινωνικής Υποστήριξης (Multidimensional Scale of Perceived Social Support), την υποκλίμακα

Καταστασιακού Άγχους από το Ερωτηματολόγιο Καταστασιακού-Σταθερού Άγχους (State-Trait Anxiety Inventory), την Κλίμακα CES-D (Κέντρο για την Επιδημιολογική μελέτη της κατάθλιψης), και κάποιες επιλεγμένες ερωτήσεις από το Ερωτηματολόγιο Ποιότητας Ζωής Γονιμότητας (Fertility Quality of Life). Εβδομήντα τέσσερεις γυναίκες οι οποίες προέρχονταν από τη Βόρεια Ελλάδα και εβδομήντα τέσσερεις γυναίκες από τη Νότια Βουλγαρία συμμετείχαν στην έρευνα. Οι δύο ομάδες γυναικών δεν παρουσίαζαν στατιστικώς σημαντικές διαφορές όσον αφορά στην ηλικία, τα έτη εκπαίδευσης και τα χρόνια για την απόκτηση ενός παιδιού. Οι γυναίκες δεν λάμβαναν κανενός είδους θεραπεία ή φαρμακευτική αγωγή για το πρόβλημα υπογονιμότητάς τους κατά τη συμπλήρωση των ερωτηματολογίων. Τα αποτελέσματα έδειξαν ότι οι γυναίκες και στις δύο χώρες δεν είχαν διαφορετικά επίπεδα άγχους και κατάθλιψης σε σχέση με το πρόβλημα υπογονιμότητας που αντιμετωπίζουν, αλλά παρουσίασαν στατιστικά διαφορετικές αντιλήψεις για τον βαθμό της κοινωνικής στήριξης και την αναφερόμενη ποιότητα ζωής τους. Η μελλοντική έρευνα θα πρέπει να διερευνήσει περαιτέρω την υπογονιμότητα και τη σχέση της και με άλλες συναισθηματικές μεταβλητές σε μεγαλύτερα δείγματα διαφορετικού ηλικιακού εύρους από διαφορετικά πολιτισμικά περιβάλλοντα.

Λέξεις ευρετηρίου: Κατάθλιψη, άγχος, προσλαμβανόμενη κοινωνική υποστήριξη, ποιότητα ζωής, υπογονιμότητα, διαπολιτισμική έρευνα.

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Research article
Ερευνητική εργασία

A pilot study and brief overview of rehabilitation via virtual environment in patients suffering from dementia

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Dementia is one of the increasing problems of modern societies. The immediate cure is not a possible solution, at least at the moment, but science has found a number of new ways to retard and under specific conditions to halt its development. A potential, and constantly evolving scientific field is the use of Computerized Cognitive Rehabilitation (CCR) and Virtual Environments (Vr.E). According to the existing literature, subjecting patients to various neuro-rehabilitative conditions within 3D virtual environments, allows them to obtain significant therapeutic benefits in which both transferability and durations over time are observed, in relation to the training period of the intervention. In the present study we examine whether "Serious Games (SGs)" – (learning and rehabilitating games in virtual and augmented reality) – have utilitarian value in the field of cognitive neurorehabilitation, concerned with demented population. For research purposes, we have conducted a number of case studies, based on 10 elderly patients, suffering from moderate or mild severity impairment of higher cortical functions, attributed to various types of dementias (Vascular, Alzheimer's disease, DLB dementia and mixed dementia). Each participant underwent rehabilitative intervention through our SG for a total of 10 hours within 4–5 weeks period. At the end of the cognitive rehabilitation program, patients' performance was assessed based in standard neuropsychological tests (measuring: working memory, memory retention, attention, problem solving, rigid thinking and executive function) and the results were compared with measurements taken before, during, and at the end of the intervention. Our experimental hypothesis states that there will be a significant difference between the results of cognitive performance of the patients between the pre- and post- rehabilitative period, consequential of the Interactive Computer-based Training (ICT). In conclusion, a review and brief analysis of the relevant literature was carried out in order to investigate the specification of potentially beneficial variables and to appreciate as much as possible the multifactorial causes related to this particular rehabilitation method of the corresponding suffering population. The ultimate purpose of our research is the design and creation of a prospective interactive cognitive rehabilitation training SG, able to combine both the neuro-rehabilitative character of the controlled virtual environment, as well as the potential realism that is also attributed to it (factual validity under high experimental realism). The results showed a relative improvement in the total of the cognitive variables under consideration after the completion of the

neuro-rehabilitative program, while a parallel review of the literature on the subject revealed methodological considerations similar to those of the present study.

Key words: Dementia, serious games, neurorehabilitation, virtual environments, Interactive Computer Training.

Introduction

Population aging leads to an increase in the prevalence of neurodegenerative diseases and in particular of dementia, characterized as a major problem with multidimensional features.[1–3]

In order to address dementia at all levels, maintenance of patients' potential greater operational capacity, for as long as possible, remains crucial. This effort comprises two parts. Firstly, delay of the progression of dementia and secondly, operational aiding and functional rehabilitation of the patients.[4–7]

Cognitive enhancement has been proposed and widely used for functional assistance, concerning demented population.[8–14] Intrinsically, significant acknowledgement is obtained by SGs and ICTs associated with the field. The term Serious Games mainly refers to "digital games used for purposes other than those of personal and collective entertainment".[15] Centered on the theory of interactive cognitive complexity, it is proposed that simulation games (VR SGs) are more effective than other instructional methods, because they simultaneously engage trainees' affective and cognitive processes.[16]

Studies in recent years indicate the beneficial effect of SGs and ICTs on patients with dementia,[9,11,17–19] with the participants reporting that by following their training-rehabilitation, they were not only more attentive and focused on the trained skills, but also on other daily procedures.[18] The findings underline the improvement, even in just 12 sessions during a total the period of four weeks.[19]

In Greece, studies in the use of Personal Computers, video games, and its effect, have been conducted predominantly in the teenage population,[20] limiting considerably the reports on elders. In a characteristic study conducted in 2014, according to which a virtual environment was created on the basis of "the experience in a virtual supermarket", the editorial team concludes that their software is able to diagnose mild cognitive impairment (MCI), adequately depending on the degree of adaptation of the patients within the virtual environment.[21]

Aim

The present study examines the effect of CCR and ICT on the potential cognitive enhancement and rehabilitation, in patients with mild dementia.

In addition, we want to combine enjoyment with learning, which can be originally translated briefly in "intrinsic transference".[22] In particular, the aim of the research could be defined as the study of the effect of the virtual environment and game experience, in which the content of the information that should be taught, can be synthesized naturally with some content relevance, in elderly population facing moderate or minor executive functions decline.

Research methodology

Participants

Participants consist of elderly patients suffering from either incipient or mild dementia. A total number of 10, with an average age of 73.6 years old.

The reference was made based on the diagnosis by the treating neurologist and characterization of severity according to Mini Mental State, using the Greek population criteria, as set by Solis et al (2014).[23]

Exclusion criteria were:

1. Photosensitive epilepsy.
2. Color Blindness and/or other major vision problems.
3. Acute or chronic immobility impairments that prevent proper operation of the computer.
4. Presence of major psychiatric comorbidity.
5. Coexistence of other neurodegenerative disease.

Materials

A personal computer that will host the virtual environment. As input device we have selected a classic controller with indications for the direction buttons (arrows), and bright colors for the action buttons (blue and green). Moreover, the computer is connected with speakers to help with auditory stimuli for the automated voice directions.

Software

Patients were trained in three main tasks. The first task is based on the activity of shopping from a supermarket. The second task, is based on the preparation of breakfast, and the third task requires the patient to tide up and clean their house. All tasks are performed within the virtual environment and are designed for high resemblance with everyday activities that demented patient face. For each level the difficulty changes. Starting from the 1st level of each task, with plenty of aids, concerning working memory, attention, problem solving, motivation, organization and impulsivity, with the form of screen inventories, verbal and written directions and in-game arrow indications. Each time the participant completes a level, the aforementioned aids are removed, level by level, with the three last levels of each "Main Task", being of the highest resemblance to real life experience. The gradual release of the patient from the aids and cues is based on the learning process of scaffolding.[24,25]

For the development of the Virtual Environments and the tasks included, we have used a combination of three programming platforms named 3D Rad (www.3drad.com/open access), for the 3D game approach, Google Sketch Up (www.sketchup.com/open access) for the 3D modeling, and Adobe Photoshop (www.photoshop.com/paid software) in order to edit graphics. End result of the computerized project are the three "Main Tasks" represented by 30 levels, with 10 levels corresponding for each "Main Task".

Procedure

The duration of the experiment is almost seven weeks, a total of 48 days. The experiment took place at the facilities of General Hospital of Evangelismos after approval of the protocol from the Scientific Council.

Phase 1, Familiarization: Training period, during which participants will attend three sessions, one hour each. During the first session all Neuropsychological tests are performed. In the second and third session familiarization with the software and the device is completed.

Phase 2, Training: After familiarization standard training starts. The second phase includes training in the three "Main Tasks" based on our interactive software (SG, ICT). In the middle of training, patients are resubmitted for neuropsychological testing again, similar to that of the first week, in order to objectify their progress.

Phase 3, Final Assessment: During the last sessions, for the third time, the Neuropsychological tests are administered once again, in order to obtain the final data.

Sessions start from the task "Shopping in Grocery" for 20 minutes, where participants have to complete as many levels as possible. Then, they move to the second task "Make Breakfast" for another 20 minutes, with the last task being "Clean the House". The purpose of those alterations within the time period of a session, is to preserve the interest of the participant. In each of the following sessions, the patients continue from the previous levels of their last session. Every level has a specific completion time, which has been established after trials in healthy familiar and not first person video games and computer use, aged from 20 to 65. The mean completion time for each level is the basis upon which demented patients have five additional minutes to complete their tasks. Nevertheless, if the participant exceeds the allowed time, he or she returns at the beginning of the level and –in case of a repeated error– at the first level of the analogous task.

Design

We carried out six nonparametric statistical analyses with data from the participants before, in the middle, and after a relevant training period.

In this case our experimental methodology wants to follow a Friedman analysis of variance, repeated measurements and, therefore, dependent samples, between the three levels of the independent variable (IV). The null hypothesis supports that there won't be any significant difference between the results of the cognitive tests of the participants administered at the beginning, the middle and the end of our intervention. The independent variable (IV) is the training period on the software that reproduces the virtual tasks. Variable's measurement levels are without training, at the midterms of the four weeks, and the third, after the training. The units of measurement of the dependent variables (DVs) are the individual results (scores) in the respective diagnostic tests that the participant performed. The DVs are listed in 6 types with reference in Working Memory (Digit Span Forward & Backward), Memory Retention (Babcock story recall test), Attention (Trail Making Part A), Problem Solving (Hanoi Tower), Rigid Thinking (Wisconsin Card Sorting Test x64), and the executive functions (FAB). The proposed methodol-

ogy has been chosen because of the small sample size and the fact of multiple dependent variables.

Results

The descriptive statistics concerning the results of the neuropsychological tests in the start, in middle and at the termination of our ICT are presented in table 1.

As shown in table 2 statistical significant difference in perceived scores, concerning Digit Span Test (Working Memory) is presented with $X^2(2)=6.500$, $p=0.039$. Unfortunately, while using Wilcoxon single-rank tests, as post hoc test, no significant differences were apparent, especially with the Benferroni correction set at $p<0.017$ ($0.05/3=0.0168\approx0.017$). Probably, the reason for such incompatible results is due to small sample size and low power. Thus, we can support that the training did have an effect on the outcome over time, with the significant difference occurred after our intervention with the compare of time means based, mainly, on Friedman Mean Ranks and means from the descriptive statistics. Consequently, we can support the overall effect of our training software based on the fact that mean values increase as the project's timeline occurs.

Regarding Babcock Test (Memory Retention), statistical significant difference is revealed, which rose in perceived effort in the pre-training scores versus the post-training scores ($Z=-2.615$, $p=0.009$) as shown in table 3.

However, no statistical significant improvement was observed in Trail Making scores (Attention) and Hanoi Tower Task (Problem Solving) since p-values correspond in higher values than significant levels. Despite the aforementioned results, there is still, a clear reduction in time needed to complete the tests as we can see in tables 4 and 5, respectively.

In the neuropsychological assessment of FAB battery (Executive Functions) a statistically significant improvement is observed in pre-training and mid-training diagnostic scores ($Z=-2.565$, $p=0.010$), as well as, in pre-training and post-training trails ($Z=-2.219$, $p=0.007$) (table 6).

Table 1. Descriptive statistics concerning the results of the neuropsychological tests in the Start, in Middle and at the termination of our ICT.

Descriptive Statistics of Neuropsychological Tests

Name of test		N	Mean	SD
Digit Span High score proves better performance	Start	10	18.80	5.770
	Middle	10	20.60	6.257
	End	10	20.00	8.393
Babcock Story Recall High score proves better performance	Start	10	2.30	1.337
	Middle	10	3.45	1.674
	End	10	4.65	3.055
Trail Making A Low score proves better performance	Start	10	96.50	51.569
	Middle	10	95.90	57.357
	End	10	101.60	81.863
Hanoi Tower Low score proves better performance	Start	10	175.10	118.850
	Middle	10	152.40	111.415
	End	10	136.20	111.145
FAB High score proves better performance	Start	10	12.20	2.098
	Middle	10	14.00	2.582
	End	10	14.00	2.582
WCST-64 High score proves better performance	Start	10	19.10	7.094
	Middle	10	24.70	6.945
	End	10	32.90	13.755

Table 2. Results of the Friedman analysis and Wilcoxon post-hoc test at the beginning, middle and end of the training with the ICT, regarding the neuropsychological test of short-term memory.

Neuropsychological test	df	X^2		Friedman Ranks	Wilcoxon Asymp. Sig.
Digit Span	2	6.500	*Start	1.45	0.107 Start -> Middle
			*Middle	2.30	0.892 Middle -> End
			*End	2.25	0.160 Start -> End

Table 3. Results of the Friedman analysis and Wilcoxon post-hoc test at the beginning, middle and end of the training with the ICT, regarding the neuropsychological test of active memory.

Neuropsychological test	df	X^2		Friedman Ranks	Wilcoxon Asymp. Sig.
Babcock Story Recall	2	9.892	Start	1.35	0.036 Start -> Middle
			Middle	1.95	0.024 Middle -> End
			End	2.70	0.009 Start -> End

Table 4. Results of the Friedman analysis and Wilcoxon post-hoc test at the beginning, middle and end of the training with the ICT, regarding the neuropsychological test of attention.

Neuropsychological test	df	X^2		Friedman Ranks	Wilcoxon Asymp. Sig.
Trail Making A	2	1.400	Start	2.30	0.646 Start -> Middle
			Middle	1.80	0.541 Middle -> End
			End	1.90	0.541 Start -> End

Table 5. Results of the Friedman analysis and Wilcoxon post-hoc test at the beginning, middle and end of the training with the ICT, regarding the neuropsychological test of problem-solving.

Neuropsychological test	df	X^2		Friedman Ranks	Wilcoxon Asymp. Sig.
Hanoi Tower	2	3.161	Start	2.25	0.398 Start -> Middle
			Middle	2.15	0.207 Middle -> End
			End	1.60	0.106 Start -> End

Table 6. Results of the Friedman analysis and Wilcoxon post-hoc test at the beginning, middle and end of the training with the ICT, regarding the neuropsychological test of executive functions.

Neuropsychological test	df	X^2		Friedman Ranks	Wilcoxon Asymp. Sig.
FAB	2	15.500	Start	1.15	0.010 Start -> Middle
			Middle	2.40	1.000 Middle -> End
			End	2.45	0.007 Start -> End

Finally, in WCST (Rigid Thinking) we notice that there is a statistically significant difference in perceived scores, as observed in the pre-training scores versus the post-training scores (Z=–2.449, p=0.014) (table 7).

Discussion

Based on one of the most important dysfunctional aspects of dementia, cognitive decline, and the possible non-pharmacological approaches that may help to restore or retrain the demented population, ICTs and/or SGs have achieved an impressive acceptance from the scientific community, with several researches demonstrating the beneficial features of their implementation.[9,11,18,19]

Overall, we observe that the use and effects of SGs have a strong theoretical background concerning the enchantment of cognitive schemata. This is based mainly on a fundamental principle, typical to most information-processing approaches that wants the various complex daily tasks performed by most of as to be broken, deconstructed into mere key actions/operations. By extending this theory, in 2002, Anderson introduced the "Decomposition Hypothesis", according to which the daily presented tasks that we face in our life, complex and non-complex, can be degraded, decomposed, into equally fundamental actions, and by training ourselves in those actions/operations, we can get improved overall.[17] Thus, repetition of procedures and even behaviors lead to specialization and adoption over the fields we devote that time, and maintain mental clarity.

This notion is heavily supported from our research, as our observations point improvement in the performance of each cognitive test, verifying the portion of the literature that supports the use of SGs and ICTs as rehabilitation tools.

Our theoretical background leads to the selection of six main levels in the construction of our SG. The first level is based on the pedagogical and restorative goals. The second is based on the simulation of the virtual environment, the third in the interaction with the virtual environment, the fourth is based on the problems and how progress is being made in the development of the game, the fifth on the decoration of the environment, and the sixth level is based on the conditions under which the SG is applied.[26] In order to have a better guidance by following the above six levels, we are led to a corresponding model, by Winn (2006),[27] who uses an equally usable and well-coded table system, which follows the most basic levels,

Table 7. Results of the Friedman analysis and Wilcoxon post-hoc test at the beginning, middle and end of the training with the ICT, regarding the neuropsychological test of rigid thinking.

Neuropsychological test	df	X^2		Friedman Ranks	Wilcoxon Asymp. Sig.
WCST-64	2	6.368	Start	1.45	0.033 Start -> Middle
			Middle	2.00	0.044 Middle -> End
			End	2.55	0.014 Start -> End

but –on the other hand– combines other levels in a broader category called "gameplay experience". The privilege of Winn's model, although older than the first, expresses a more complete and user-friendly classification, not only for the levels of the SG structuring, but also on the correlation of learning styles and forms of entertainment that can be involved as stimuli, in addition to the gender of computer game that can be applied. Accordingly, learning levels are separated in three parts. The cognitive, emotional and kinesthetic part. The SG developed for our study is based on Bloom's Taxonomy of Educational Objectives.[28] Therefore, as an excellent tool, by combining Bloom's classifications during learning with the forms of training, and game types, appear to meet the theoretical criteria regarding the format and type of our virtual environment, which will be used for the neurocognitive rehabilitation of demented population.

Another study, which shares much resemblance to ours, was conducted in 2011 by University of Quebec, in Canada, essentially focusing on patients suffering from dementia and the potential therapeutic benefits that can be obtained from the exploitation of CCR. In the study, researchers used an excellent diagnostic tool as a basis, reproducing processes in the virtual environment in comparison with the already existing extensive database from the Naturalistic Action Test (NAT). The challenge was breakfast-making process in a two-dimensional virtual environment, where the research eventually concludes that for the correct approach to their experimentation should focus on four areas, those of memory, organization, motivation and attention perseverance.[29]

Another study, of close resemblance, was conducted in 2014, and despite of the two-dimensional environments used, the excellent experimental design and programming development, proved that participants showed improvement in conditions requiring mental flexibility, multiple manipulations, stimulation of organizational mechanisms and reduction of the information processing time.[30] Of course, the game was developed specifically to train the participants, while the investigation concludes that rehabilitation, as targeted, improved the attention of patients.

On the contrary, Kristjansson (2013),[31] despite the fact that he accepts the potential benefits from game playing, supports that the causal influence of action video game-play upon vision and attention is rather absent in most of conducted studies until 2013. With longitudinal studies being completely absent, Kristjasson concludes that "how videogame training modulates attentional abilities should make as treat it with more caution instead of how we react now".

At the same time, the literature shows extensive top-down cognitive processes, such as strengthening of the control capacity of the top-down approach in attention and action learning. These indications seem to be consistent with the results of a study conducted by Bavelier & Davidson (2013),[32] according to which avocation with video games tend to lead in better top-down cognitive information processing regarding situations that need usage and guidance of attention for the potential location of targets within an environment. The same findings were also supported by Wu & Spence (2013)[33] whose study shows improved classic visual search and strengthening visual spatial attention in dual search that mimics certain aspects of an action videogame, with focus to the top-down enhancement of spatial selective attention via increased inhibition of distractors.

Furthermore, a fairly recent study highlights the bottom-up cognitive processes when dealing with action video games. Such cognitive processing capabilities represent the visual-perceptual processing and the process of attention. Finally, the research shows that the benefits of training with commercial computer games are more specified and less universal, with wide transferability in various aspects of daily life.[34] This conclusion stresses the importance of reasonable ecological validity of these interventions.

In the present study 6 categories were tested. Those of functional memory, memory retention, attention, problem solving, executive functions and cognitive flexibility. Four of them showed a statistically significant difference (Functional memory, Memory Retention, Executive Functions and Rigid Thinking) while the remaining 2 showed marginal changes (Attention and Problem Solving). They are considered "marginal", despite the absence of significant statistical difference, based on the average distribution by analyzing fluctuations and descriptive statistics, and because of the fact that the average performance increase throughout the entire progression of the training period. The diversification of the results in two groups centered in the specificity or not of the tested functions is also essential. From the 6 tests used, the

3 are related to basic cognitive functions: operational memory, which is part of executive functions and was tested by digit span test· memory retention, which in turn is part of both operational and short-term memory, and was checked with the use of Babcock history recall· finally, that of rigid thinking, part of problem solving and executive processes, which was tested using the Wisconsin card sorting test. The other three tests are related with more generalized and complex cognitive functions, which contain the aforementioned basic functions. For example, the executive cognitive processes include functions such as planning, working memory, cognitive response inhibition, cognitive flexibility, maintenance of attention, emotional self-control, postponement of satisfaction and several more. Problem Solving, which is considered the most complicated mental function, requires the control of both executive functions and a plurality of fundamental and common skills.[35] Similarly, attention, which is enclosed in each of the above functions, but is also divided into general (vigilance), selective, alternating and fragmentary. Consequently, we understand that the results seem to be analogous and in line with the research by Oei & Patterson (2014),[34] who support that the results from CCR tend to be more specific and less universal.

The present study has also some methodological limitations. The low number of samples (N=10), did not allow us to use a control group, neither the option of a parametric variance analysis (MANOVA). Therefore, to meet the necessary conditions, we chose to use a non-parametric analysis based on Friedman. This choice initially underestimates the statistical power of our analysis, while the absence of a control group limits the evaluation of the variable's "therapeutic effect" throughout the training period. Also, a possible evolution of the present research protocol should focus on the development of new software, which would allow potential automatic environmental adjustments for each level, according to the capabilities of each participant. Equally important is to create a code that allows real time calculation of correct routes, and the setting of cues and aids during navigation in the virtual environment.

Conclusion

Keeping up with technological development, cognitive rehabilitation and restoration of demented population with the use of Interactive Computer Training (ICTs) is seeking for a position. Positive samples of our study, despite severe restrictions, support both incorporation and research in this field, and seems to verify the specificity of the beneficial effects of computer games, but also the universality that we can achieve through SGs. Finally, the same findings indicate the need for future researches, with larger number of participants and better designed, both from a structural and infrastructural perspective.

Πιλοτική μελέτη και βραχεία ανασκόπηση για τη χρήση εικονικού περιβάλλοντος στην αποκατάσταση ασθενών με άνοια

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Η άνοια αποτελεί ένα από τα συνεχώς επιδεινούμενα προβλήματα της σύγχρονης κοινωνίας. Η άμεση ίαση δεν αποτελεί πιθανή λύση προς το παρόν, η επιστήμη όμως έχει ανακαλύψει πλέον μια σειρά από τρόπους για να επιβραδύνει και, υπό προϋποθέσεις, να ανακόπτει την εξέλιξή της. Ένα διαρκώς αναπτυσσόμενο επιστημονικό πεδίο είναι η γνωστική ενδυνάμωση ή/και αποκατάσταση με τη χρή-

ση ηλεκτρονικών υπολογιστών (Computerized Cognitive Rehabilitation) και εικονικών περιβαλλόντων (Virtual Environments). Σύμφωνα με την υπάρχουσα βιβλιογραφία, υποβάλλοντας τους ασθενείς σε διάφορες νευροαποκαταστασιακές συνθήκες στο πλαίσιο τρισδιάστατων εικονικών περιβαλλόντων, είναι δυνατόν να αποκτηθούν σημαντικά οφέλη, όπως η δυνατότητα επιστροφής στην καθημερινή ζωή του ατόμου (transferability), αλλά και η διατήρηση του όποιου θεραπευτικού οφέλους σε βάθος χρόνου σε σχέση με το χρονικό διάστημα της νευροαποκαταστασιακής παρέμβασης. Στην παρούσα μελέτη εξετάζεται κατά πόσον τα «ηλεκτρονικά παιχνίδια εκπαίδευσης και μάθησης» (ΗΠΜΕ – Serious Games) έχουν χρηστική αξία στον τομέα της νευρογνωστικής υποβοήθησης πασχόντων από άνοια. Για τις ανάγκες της έρευνας έχουμε διεξαγάγει μια σειρά περιπτωσιολογικών μελετών, βασιζόμενοι σε 10 ηλικιωμένους ασθενείς οι οποίοι πάσχουν από μέσης ή ήπιας βαρύτητας έκπτωση των ανωτέρων λειτουργιών, περιλαμβανομένων διαφόρων τύπων άνοιας (Αγγειακή, Νόσος του Alzheimer, LewyBD, και συνδυασμός). Οι συμμετέχοντες υποβλήθηκαν σε αποκαταστασιακή παρέμβαση μέσω ΗΠΜΕ για ένα σύνολο 10 ωρών σε διάστημα 4–5 εβδομάδων. Με το πέρας του προγράμματος γνωστικής αποκατάστασης, εκτιμήθηκε η επίδοση των ασθενών σε τυποποιημένες νευροψυχολογικές δοκιμασίες (αφορούν: ενεργούσα μνήμη, συντήρηση μνήμης, προσοχή, επίλυση προβλημάτων, άκαμπτος τρόπος σκέψης και επιτελικές λειτουργίες) και συγκρίθηκε με μετρήσεις που πραγματοποιήθηκαν πριν την έναρξη της παρέμβασης, κατά τη διάρκειά της, και με το πέρας της. Η πειραματική μας υπόθεση αναζητεί μια σημαντική διαφορά μεταξύ των αποτελεσμάτων της γνωστικής επίδοσης των ασθενών μεταξύ της προ- και μετα-αποκαταστασιακής περιόδου, απότοκη της διαδραστικής αποκατάστασης με βάση τους ηλεκτρονικούς υπολογιστές (Interactive Computer-based Training, ICT). Εν κατακλείδι, πραγματοποιήθηκε ανασκόπηση και σύντομη ανάλυση της σχετικής βιβλιογραφίας με στόχο τη διερεύνηση της συγκεκριμενοποίησης των δυνητικά ωφελούμενων μεταβλητών, αλλά και για την όσο το δυνατόν καλύτερη κατανόηση των πολυπαραγοντικών αιτιών που σχετίζονται με την αποκατάσταση και επανεκπαίδευση του πάσχοντος πληθυσμού. Σκοπός ήταν ο προοπτικός σχεδιασμός γνωστικής αποκατάστασης μέσω ΗΠΜΕ, ικανός να συνδυάζει τόσο τον νευροαποκαταστατικό χαρακτήρα του ελεγχόμενου εικονικού περιβάλλοντος, όσο και τον δυνητικό ρεαλισμό που του αποδίδεται (πραγματολογική εγκυρότητα). Τα αποτελέσματα έδειξαν σχετική βελτίωση στο σύνολο των υπό εξέταση γνωστικών μεταβλητών μετά την ολοκλήρωση του προγράμματος νευροαποκατάστασης, ενώ η παράλληλη ανασκόπηση της βιβλιογραφίας επί του θέματος ανέδειξε μεθοδολογικούς προβληματισμούς αντίστοιχους με αυτούς της παρούσας μελέτης.

Λέξεις ευρετηρίου: Άνοια, ηλεκτρονικά παιχνίδια εκπαίδευσης και μάθησης, νευροαποκατάσταση, ψηφιακή διαδραστική αποκατάσταση.

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Special article
Ειδικό άρθρο

Promoting healthy lives and well-being for all: The contribution of the International College of Person-Centered Medicine (ICPCM)

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This article defines the scope of Person-Centered Medicine, traces its roots in ancient conceptions, explains the reasons for the revival of this perspective in our times, and highlights the contribution of the International College of Person-Centered Medicine (ICPCM) in the promotion of the person-centered perspective in health and disease. The value of communication is underlined with reference to both diagnosis and treatment. The concept of Health is considered historically and the inclusiveness, holistic vista and positive health orientation of the WHO definition of Health (1948) is underlined. It is emphasized that Mental Health Promotion is differentiated conceptually from Disease Prevention in that promotion deals with health and prevention deals with illness, the relationship of Health Promotion with Salutogenesis (Antonovsky 1996) is noted and it is pointed out that among the targets of health promotion, preservation of peace is also included (WHO, 2004). In line with this, the ICPCM has supported and co-signed the Athens Anti-War Declaration (2016). Evaluating the impact of Health Promotion efforts is a necessary but difficult task as it requires targeted research and there are many inherent confounding factors. The social or environmental contexts of health behaviors should be taken into account as well as the subjective indicators of health. In an attempt to resolve the difficulties arising from this issue, the ICPCM has developed a prototype "Person-centered Care Index" (Kirisci et al 2016). With reference to Education it is pointed out that it is necessary for the educators to speak *with* the students rather than speak *to* them. Concerning research, the ICPCM in its 2013 Geneva Declaration has identified the main research areas in the person-centered field. The importance of assuring healthy lives and well-being for ALL is underlined and the difficulties associated with the achievement of this goal are noted. Lastly, the need to apply the principles of Person-centered Medicine to victims of natural, human-made and economic disasters (Christodoulou et al 2016) is underlined, especially in view of the frequent occurrence of these disasters in our times. In conclusion, the contribution of the ICPCM during the ten years of its existence, with reference to the sensitization of health professionals in the Person-centered approach is noted. This contribution has been carried out in line with the principles of the ICPCM and with its Geneva Declarations.

Key words: Health promotion, mental health, communication, evaluation, disasters, financial crisis, ICPCM.

Introduction

Person-centered Medicine aims at the promotion of health and well-being of the totality of the person.[1,2] The person is perceived as the center and goal of health care and the emphasis is shifted from patient to person.

The Person-centered perspective is not a modern idea but a revival of ancient conceptions that can be found in ancient Western civilizations (notably Greek philosophical thinking of Socrates, Plato and Aristotle)[3] as well as in major Eastern civilizations, Chinese and Ayurvedic.[2]

Revival of the person-centered perspective was necessary because in everyday clinical practice the person does not receive the attention he or she deserves. Is it because our understanding of priorities does not leave space for interpersonal interaction, is it because we trust technology too much and we base our diagnoses solely on laboratory findings, is it because some of us refuse to deal holistically with our patients, is it because we as professionals are dissatisfied and even burned out and we cannot give any more, is it because our way of thinking has been infiltrated by commercial ideology ("consumers" and "clients" instead of persons or people)? We cannot say with certainty what should be blamed for this situation. It is true, however, that in spite of the wonderful advances in medical technology, the quality of care and especially prevention and health promotion[4] have not advanced to the desired extent. We feel that the person-centered ideology can contribute a lot to the solution of this serious problem.

Under this light, the International College of Person-Centered Medicine, along with other organizations, has worked in the direction of promotion of the person-centered perspective in health and disease. In the year 2017, ten years of consistent work in this direction have been completed.

Communication

From the Person-centered perspective, communication is vital because by neglecting attention to the person through communication, we often miss the diagnosis and we certainly miss the therapeutic effect of interpersonal interaction.

With reference to diagnosis it is helpful to mention what Jaspers had to say on its difficulties and its personified character. "Psychopathology is limited in that there can be no final analysis of human beings as such, since the more we reduce them to what is typical and normative the more we realize that there is something hidden in every human individual which defies recognition. We have to be content with partial knowledge of an infinity which we cannot exhaust".[5] It is indeed, clear to all clinicians that this "hidden something" that is associated with the personality and the circumstances of each individual person cuts through diagnostic categories. Communication is vital in trying to unveil this hidden constituent. Of course what Jaspers is saying refers to psychiatric diagnosis but there are certainly analogies with physical diagnosis. We should additionally be reminded of the fact that communication is also non-verbal and that there are additionally "underground" channels of communication (intuitive rather than rational "intersubjectivity" channels that result in positive or negative "chemistry") that function in parallel with the classical clinical channels.

The person-centered perspective in Diagnosis emphasizes positive health, elucidates risk and protective factors and assesses experience and values, thus promoting a personified approach.

With reference to the therapeutic effect of communication there is evidence indicating that communication with the patient is not only a social or humanitarian obligation but can have a strong beneficial effect on the outcome of the illness and this has been demonstrated for example in the improved outcome of surgical operations and even the long-term adjustment of the patients when such a communication preceded the operation. It is within this context that "the physician's compassion, competence, caring and empathetic attitude enable the person's own story to unfold within this interpersonal relationship".[6] It is also important to point out that mental health workers should communicate "with" the person rather than "to" the person.[7] The primacy of the person and of the person in relationship with others is central to the understanding of Person-Centered Medicine.

In conclusion, as health workers we have the ethical obligation to make use of the person-centered tool of communication, not for reasons of social correctness but for therapeutic and preventive reasons and for reasons associated with the preservation of health (health promotion).

Health

Before considering Health Promotion it would be useful to briefly discuss Health. This concept is not as clear as one might imagine and this lack of clarity is not limited to ancient times. But, let us start from those times.

Before the 5th century BC, health was considered a gift of the Gods (and in line with this, illness was considered as a punishment) until Hippocrates (c 460–377 BC) angrily protested that the most typical "divine" illness, Epilepsy, was equally "un-divine" as the rest of the illnesses. This protest required a lot of courage in the society of that time in which respect to the Gods was *sine qua non*.

In ancient Greece and Rome the ideal health condition was soundness of both body and mind ("healthy mind in healthy body") («νους υγιής εν σώματι υγιή»). In modern times, however, it was only soundness of the body that was accepted until "wellbeing" was introduced as a complementary component of health. This has been received with skepticism as its inclusion made the concept of health appear more close to happiness than health.[8] The WHO definition of Health ("health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity")[9] exemplifies this approach and although there have been some valid criticisms like, for example, that the inclusion of the word "complete" makes it unlikely that "anyone would be healthy for a reasonable period of time"[10] yet it is a very advanced definition and very much in line with the holistic approach and with the concept of positive health.

Health promotion

Promotion of Health is a different concept than Prevention. Its scope is advancement of Health whilst the scope of Prevention is avoidance of Illness. The emphasis of Promotion is on Health whilst the emphasis of Prevention is on Illness.

Health Promotion is defined by WHO as action and advocacy to address the full range of potentially modifiable determinants of Health.[11]

Antonovsky's concept of salutogenesis[12] is closely associated with both health promotion and the person-centered perspective. Salutogenesis (creation of health) is considered by many as an antecedent and theoretical basis of health promotion[13,14] and many of its concepts (like, for example the search for the person's total history) are related to the person-centered perspective.

It is important to note that health promotion is more closely linked with general measures not necessarily associated with the health sector, like social, economic and political actions that result in reduction of unemployment, improvement of schooling, reduction of discrimination, prevention of conflicts and management of economic and other crises as well as the protection of civil, economic, social, political and cultural rights. On an individual basis, health promotion is linked with concepts and actions like positive health, empowerment, resilience, self-help, holism, recovery etc.

Preservation of Peace and prevention of conflicts have been seen as targets of mental health promotion.[15] In line with this, the International College of Person-centered Medicine (ICPCM) has supported the Athens Anti-war Declaration (2016) (www.psychiatricprevention.com)[16] that has been co-signed by more than 100 Associations and is relevant to mental health-related issues of refugees and citizens of the host countries.

Evaluation

Evaluating the impact of our health promotion efforts during the ten years that the ICPCM has been in existence is a very difficult task. It requires targeted research and owing to the great number of inherent confounding factors arising from the magnitude of parameters contributing to health or ill-health, this task is very difficult indeed.

It has been pointed out that health promotion research does not focus sufficiently on the social or environmental contexts of health behaviours and that it should ensure that efficacy and effectiveness are proven prior to policy and community implementation.[17] Additionally, it has been suggested that health promotion research should not be limited to the traditional bio-medical methodology but should also include subjective indicators of health, like feeling ill or well, whether or not a disease is present.[14] Under this perspective, mental health promotion outcomes should include issues like recovery, sense of hope, empowerment and resilience.

As mentioned by Kirisci et al[18] Economics Nobel Laureate Stiglitz stated that, with reference to his field, assessment tools should incorporate a broader concern for human welfare, not just economic

growth. If this is the case with Economics it should certainly be the case with Health. Under this light, person-centered care should be one of the most important matrices for health care evaluation.

A detailed review of evaluation of person-centered care in Health Services revealed that these services represent a complex multidimensional domain. In an attempt to resolve the difficulties arising from this issue, the ICPCM has developed a prototype "Person-Centered Care Index" that includes 33 items under eight broad categories. The preliminary validation of this instrument suggests its value for the generic assessment of person-centered health care across settings and populations.[18]

Education

In order to achieve person-centered medical practice one needs person-centered medical education[19] and an essential principle to achieve this is for educators to speak *with* the students rather than speak *to* the students. Furthermore, the educators should be committed to be role models.[7] These points have been highlighted by the ICPCM.

Research

The ICPCM recognized as early as 2012 the need to produce evidence for person-centered medicine. For this reason, it dedicated the 2013 Geneva Conference to this topic. The non-linearity and complexity of Person-Centered Care has been recognized and highlighted and instruments like the "Person-Centered Care Index" and the "Expert-based Collaborative Analysis"[20] that complements classical data analysis with prior expert knowledge have been suggested.[21]

The main research areas identified at the 2013 Declaration are the following:

- Conceptual, Terminological and Ontological issues
- Research concerning evidence on the main components of Person-Centered Medicine (PCM) and its implications for Mental Health
- Clinical communication in Mental Health
- PCM Diagnostic Models in Mental Health
- Person-Centered Care and Interventions in Mental Health
- People-Centered Care
- Research in Training and Curriculum Development
- e-tools for Person-Centered Mental Health.

Health equity

Assuring healthy lives and well-being for ALL is a gentle, ethical and just scope and in view of evidence associating poor health with inequities, it certainly promotes population health. It would, however, be unrealistic to believe that this is an easy goal to achieve. Inequities are likely to continue in spite of all efforts to abolish them. A realistic goal would be to highlight their detrimental health effects in the hope that they will be reduced.

The "all" and "population" dimension provides a broader conceptual and operational framework that enlarges the "person-centered medicine" approach to also incorporate a "public health centered" one.[4]

Of special importance is the application of the person-centered perspective to victims of natural, human-made and economic disasters.[22–26] A reminder is timely in view of the "epidemic" occurrence of these three kinds of disasters in our days.[24]

Conclusion

During the last 10 years the ICPCM has been able to sensitize health professionals and especially younger ones in the person-centered approach and in the awareness of the contribution of psychological, social, financial, political, cultural and spiritual factors to health promotion. The College has highlighted the necessity and benefit of multidisciplinary collaboration, it has collaborated with organizations of advocates, patients, relatives and carers and the cardinal importance of empathic attention to the needs of the recipient of our services (medicine for the person) has been emphasized. This has been achieved by the yearly conferences held in collaboration with WHO in Geneva, Switzerland, by the regional conferences, through the Journal (Journal of the International College of Person-centered Medicine) through the website (http://www.personcentered-medicine.org/) and especially the ICPCM Newsletter, through collaboration with a great number of organizations worldwide and through the radiation effect (transmission of information, dexterities and attitudes to colleagues in the professional environment of each member of the College).

The ICPCM must continue its efforts to promote person-centered promotion of health and well-being in line with its principles, the Geneva Declarations and especially its 2017 Geneva Declaration.[27]

Προαγωγή της υγείας και της ευεξίας για όλους: Η συμβολή του Διεθνούς Κολλεγίου Προσωποκεντρικής Ιατρικής

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Σκοπός της Προσωποκεντρικής Ιατρικής (Person Centered Medicine) είναι η προαγωγή της Υγείας και της Ευεξίας του ανθρώπου στη συνολική (ολιστική) του υπόσταση. Η προσωποκεντρική αυτή θεώρηση δεν είναι νέα. Συνιστά αναβίωση πανάρχαιων αντιλήψεων που ανάγονται στην Ελληνική αρχαιότητα και σε πολιτισμούς της Ανατολής (Ινδία, Κίνα). Η σύγχρονη αναβίωση της Προσωποκεντρικής Ιατρικής οφείλεται σε μία σειρά αιτίων μεταξύ των οποίων σημειώνεται η κακή εκτίμηση των προτεραιοτήτων που δεν επιτρέπει τη διαπροσωπική διάδραση, η υπερβολική εμπιστοσύνη στη σύγχρονη τεχνολογία που οδηγεί σε διαγνώσεις βασισμένες μόνο σε εργαστηριακά ευρήματα, η απαξίωση της ολιστικής προσέγγισης, η επαγγελματική εξουθένωση των επαγγελματιών υγείας, η επικράτηση της εμπορικής νοοτροπίας στην ιατρική που εκφράζεται με τον χαρακτηρισμό των ασθενών ως «πελατών» και «καταναλωτών». Το Διεθνές Κολλέγιο Προσωποκεντρικής Ιατρικής (ICPCM), αναγνωρίζοντας ότι εξ αιτίας των παραπάνω δεν υπάρχει θεραπευτική και προληπτική προσέγγιση με προσωποκεντρική οπτική αποφάσισε να ασχοληθεί με την προαγωγή της Υγείας προς την προσωποκεντρική κατεύθυνση και κατά το έτος 2017 συμπλήρωσε 10 έτη δραστηριότητας στον τομέα αυτόν. Τονίζεται ότι η Επικοινωνία παίζει σημαντικό ρόλο στην Προσωποκεντρική Ιατρική γιατί έχει κεντρική θέση στη διάγνωση, στη θεραπεία και στη διατήρηση της Υγείας. Γίνεται μια ιστορική αναδρομή στην έννοια της Υγείας, επισημαίνεται η ευρύτητα του ορισμού του Παγκόσμιου Οργανισμού Υγείας (1948) που διατηρεί τη διαχρονικότητα και τη συνολική (ολιστική) του διάσταση και τονίζεται η συνάφεια του ορισμού με τη θετική ψυχική υγιεινή. Η Προαγωγή της Ψυχικής Υγείας διαχωρίζεται εννοιολογικά από την Πρόληψη, μια που το αντικείμενο της πρώτης είναι η Υγεία ενώ της δεύτερης η Νόσος. Επισημαίνεται ότι μεταξύ των στόχων της Προαγωγής Ψυχικής Υγείας εντάσσεται και η διαφύλαξη της Ειρήνης (WHO, 2004) και αναφέρεται η υποστήριξη του ICPCM στην Αντιπολεμική Διακήρυξη των Αθηνών (Athens Anti-War Declaration, 2016). Τονίζεται ότι είναι απαραίτητη η αξιολόγηση των προσπαθειών της Προσωποκεντρικής Ιατρικής και αναφέρεται ότι το Κολλέγιο (ICPCM) έχει δημιουργήσει ένα ειδικό εργαλείο αξιολόγησης, το Person-Centered Care Index (Kirisci et al, 2016). Σε σχέση με την Εκπαίδευση, το ICPCM τονίζει την ανάγκη οι εκπαιδευτές να ομιλούν *με* τους εκπαιδευόμενους και όχι *προς* τους εκπαιδευόμενους, και σε σχέση με την έρευνα τονίζεται η ανάγκη να παρέχονται πειστικές ενδείξεις αποτελεσματικότητας. Σχολιάζεται η σημασία της παροχής φροντίδας υγείας προς ΟΛΟΥΣ ώστε να περιορισθούν οι ανισότητες, με δεδομένο ότι οι ανισότητες συντελούν στην κακή υγεία του πληθυσμού. Τέλος, τονίζεται η ανάγκη εφαρμογής των αρχών της Προσωποκεντρικής Ιατρικής στα θύματα των φυσικών, ανθρωποεπαγόμενων και οικονομικών καταστροφών (Christodoulou et al, 2016) ιδιαιτέρως στην παρούσα οδυνηρή συγκυρία.

Συμπερασματικά, επισημαίνεται η συμβολή του Διεθνούς Κολλεγίου Προσωποκεντρικής Ιατρικής (ICPCM) στην προσωποκεντρική θεώρηση της Υγείας σε εναρμόνιση με τις αρχές του Κολλεγίου και με τις Διακηρύξεις της Γενεύης (ICPCM Geneva Declarations).

Λέξεις ευρετηρίου: Προαγωγή υγείας, ψυχική υγεία, επικοινωνία, αξιολόγηση, καταστροφές, οικονομική κρίση, ICPCM.

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Special article
Ειδικό άρθρο

Early intervention services in Greece: Time to focus on people at high risk

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Over the last twenty years, a lot of early intervention services operate worldwide with the aim of offering assistance and promoting the early diagnosis and management, not only of people who experience a first episode of psychosis but also of individuals that are at high risk of developing psychosis. The early intervention services that operate in other countries have been reviewed in correlation with the current status of early intervention services for psychosis in Greece. Early intervention services were first established in Australia, and now hundreds of similar programs exist in Europe, North America and Asia. Furthermore, early intervention services incorporate teams that engage people who have an at risk mental state (ARMS), and are at high risk of developing psychosis. The first clinical service for individuals at high risk for psychosis was established in Melbourne in 1995, and an increasing number of similar services have since emerged worldwide. One of the largest of these is OASIS (Outreach and Support in South London). The first early intervention service was developed during the December 2007, in a rural catchment region of north-western Greece, in Ioannina. After the establishment of Ioannina Early Intervention Service, there was a growing interest of the Greek psychiatric community in the issues of early detection and prevention of psychotic disorders which led to the development of early psychosis units in other regions of Greece, like Athens, Thessaloniki and Patras. However, this field remains neglected in Greece, since in the absence of funding for such early detection services, there are only a few programs that operate mainly on a voluntary basis. Moreover, specialized mental health services for people at high risk for psychosis that have significant clinical benefits and are also cost effective, do not exist in the majority of Greek services. Greece and other countries in a similar condition need to understand the significance of untreated or poorly treated psychotic disorders that affect a lot of young people in late adolescence and early adult life. Focusing on people at high risk of developing psychosis will promote public health and will help not only to prevent the onset of psychotic disorders but to enhance their prognosis as well.

Key words: Early intervention, psychosis, high risk, Greece.

Introduction

Over the last two decades, specialized early intervention programs have been set up to promote the early diagnosis and management of individuals experiencing a first episode of psychosis,[1] and of people who have a high risk of developing psychosis.[2,3] This article reviews the current status of early intervention services for psychosis in Greece.

Early intervention services

Early intervention services for first episode psychosis

Since early 1990s, a growing worldwide interest for the early detection and treatment of psychosis has led to an international effort to develop specialized clinical services for people presenting with a first episode of a psychotic disorder.[4,5] Early intervention services were first established in Australia,[6] and now hundreds of similar programs exist in Europe, North America and Asia.[7] These services are designed to provide specialized mental health care as soon as psychosis has been diagnosed.[8] Consensus statements and international clinical practice guidelines for early psychosis have been published articulating the principles of early intervention as a therapeutic approach, providing guidance to clinicians and researchers.[9,10]

Early intervention services for people at high risk for psychosis

Early intervention services may also incorporate teams that engage people who have an at risk mental state (ARMS), meaning they are at high risk of developing psychosis.[11] Up to 36% of those with ARMS will develop a first episode of psychosis within three years of clinical presentation,[12] with the majority of transitions being towards schizophrenia spectrum psychoses.[13] The first clinical service for individuals at high risk for psychosis was established in Melbourne in 1995,[14] and an increasing number of similar services have since emerged worldwide. One of the largest of these is OASIS (Outreach and Support in South London).

OASIS: An example of a high risk service

OASIS provides clinical care for help-seeking individuals in London. It aims to ameliorate presenting symptoms and problems, to reduce the risk of later transition to psychosis, and to minimize the delay before antipsychotic treatment if psychosis does develop.[15] A three-step course of action is used to manage and assess the referrals properly. The first step is a telephone contact with the client to perform a prescreening and to check if the referral is suitable for engagement with the team. Second, an initial assessment of 2h is carried out by a psychiatrist or a clinical psychologist using the psychotic symptoms module of the Comprehensive Assessment of At-Risk Mental States – CAARMS. The CAARMS is a semi-structured psychometric instrument made to estimate putative prodromal psychotic symptoms in help-seeking people.[16] If the individual gets accepted to the service, a detailed CAARMS baseline assessment is conducted along with a neuropsychological assessment.[15] The Structured Clinical Interview for DSM-IV (SCID) and Global Assessment of Functioning (GAF) scale are used for the evaluation of possible co-morbid Axis-I and Axis-II disorders and the evaluation of the level of functioning respectively.[17,18] Patients are offered clinical care for at least 2 years.

Early intervention for psychosis in Greece

In December 2006 the Greek Ministry of Health and Social Solidarity published a "Guide for the foundation and organization of services for the early diagnosis and treatment of first psychotic episodes" under an Operational Program called "Health - Welfare" funded by the European Social Fund. As a result, in December 2007 the first early intervention service was developed in a rural catchment region of northwestern Greece, in Ioannina. Since then, it has been operating successfully within the context of the local mental health network.[19] A total of 132 first episode psychosis patients were referred in a 2-year period in the catchment area, mostly from private sector clinicians.[20] After the establishment of Ioannina Early Intervention Service, there was a growing interest of the Greek psychiatric community in the issues of early detection and prevention of psychotic disorders which led to the development of early psychosis units in other regions of Greece, like Athens, Thessaloniki and Patras.[21] However, in the absence of funding for such early detection services, these have been operating on a voluntary basis. Unfortunately,

there is only a small number of studies or other published data about such services.

To begin with, a new book titled "Early Psychotic Experiences. Signs, Symptoms and Interventions" was published.[22] The Greek translation of the Comprehensive Assessment of At-Risk Mental States – CAARMS was included in this book and preliminary findings about the psychometric properties of the Greek CAARMS were presented in a local congress.[23] In addition, the inter-rater reliability of the Greek version of CAARMS was estimated and it was found to be valid and reliable.[21] Furthermore, the translation and standardization of Schizophrenia Proneness Instrument, Adult version (SPI-A) was completed.[24,25] Scientific presentations and training seminars were organized by the university psychiatric departments of Athens, Thessaloniki, Ioannina and Patras along with the Hellenic Psychiatric Association.[26] Nevertheless, there was a lack of published clinical evidence related to early intervention services and only a small report about the operation of a service for ARMS patients who were being screened and followed up by the Eginition Hospital Unit.[21] In October 2016, a study was published presenting the implementation of the early intervention in psychosis (EIP) service of the 1st Psychiatric University Clinic in Athens. According to the findings of this study 65 patients were referred to the service. The 26 were ARMS patients and 17 were First Episode Psychosis (FEP) patients. The rate of transition to psychosis and the rate of psychosis relapse after 3 years was estimated to be 19.2% and 11.7% respectively.[27]

The field about patients who are at a high risk of developing psychosis in Greece remains neglected since nothing else has been found to be reported or published. This finding could be interpreted in several ways. On the one hand, a lot of psychiatrists in Greece are not aware of the literature and of the importance of early detection and intervention in order to prevent psychosis. On the other hand, even in the locations that an early intervention service has been established the clinicians are mainly focused on patients with a first episode of psychosis. As a result, there is an imperative need to focus on people presenting with potentially prodromal psychotic symptoms.

Why focus on early detection?

A key target for early intervention services in psychosis is to reduce the substantial delay between the onset of psychosis and the start of antipsychotic treatment (the duration of untreated psychosis – DUP).[28,29] Both clinical and functional outcomes have been found to be better when the duration of untreated psychosis is shorter.[30] Moreover, clinical intervention in the high risk phase, before the first episode, has the potential to reduce the DUP more dramatically.[2,31] Furthermore, compared to patients who present after the onset of psychosis, patients who have become psychosis after being engaged in the prodromal phase are less likely to require admission after the first episode.[32] Moreover, if they are admitted to hospital, these patients have a shorter stay in hospital and a lower likelihood of compulsory admission.[33]

Early detection services can also have health economic benefits. In Australia, even though community costs were higher, overall costs of care have been found to be less, compared to the period when high risk service did not exist, due to a decrease in in-patient service use.[34] In the UK, the OASIS service reduced health costs over a 2-year period by reducing the DUP in high risk people who made a transition to psychosis.[35]

Future directions

There is now good evidence that specialized mental health services for people at high risk for psychosis have significant clinical benefits and are also cost effective.

A variety of strategies are necessary to promote the establishment of high risk services in the Greek medical community. To begin with, early intervention services should be presented to the doctors in primary care, like rural doctors and general practitioners as they are often the first health professional to see patients and refer them on to the right mental health service. Training should be organized such that young doctors who graduate from Greek Medical Schools –the future rural doctors– are able to recognize subclinical psychotic symptoms and refer their patients to early detection services for further assessment. Not only the psychiatrists but also other groups of mental health professionals should also be informed about the advantages of early in-

tervention in psychosis, not only after the presence of a full-blown psychotic episode but, especially, before. This could be succeeded through events and presentations of the clinical and research data, by experts, indicating the positive impact of high risk services for psychosis on patients' lives derived from the examples of different services throughout the world.

Greece is currently in an economic crisis and as a result there is a lack of financial programs to support the efforts of establishing and organizing early intervention services. However, existing services could be implemented with high risk units staffed with people showing a deep interest by dedicating time and energy to clinical management and research in order to prevent psychosis. Taking into consideration that almost all the existing Early Intervention services in Greece work with volunteers, the need of funding is still a great concern about the proper development of these services.

Apart from financial crisis, a lot of changes take place in Greece due to the refugee crisis. It is now a reality that more immigrants and refugees who comprised only a small proportion of the patients in the past are now visiting Ambulance and Emergency units in Greece in an everyday basis, presenting with either prodromal or frank psychotic symptoms. Strong evidence shows that some groups of people have an elevated incident of psychotic disorders after migration.[36] A variation has also been found between ethnic groups for voluntary and compulsory admissions in other countries.[37] Although early intervention in refugees and immigrants would be a difficult project, services for people at high risk of developing psychosis in Greece could lead to early detection of the illness among these vulnerable populations of immigrants and refugees with beneficial results in the country's economy, since all these people have no national insurance in case of hospitalization.

Conclusions

During the last two decades, early intervention programs have become common worldwide, promising optimization of clinical outcomes for people diagnosed with a first episode of psychosis and also for people at high risk for psychosis. Greece needs to recognize the public health importance of untreated or poorly treated psychotic disorders that affect a lot of young people in late adolescence and early adult life. Focusing on people at high risk of developing psychosis could be a first but very important step to this direction.

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Υπηρεσίες έγκαιρης παρέμβασης στην Ελλάδα: Καιρός να εστιάσουν σε άτομα υψηλού κινδύνου

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Κατά τη διάρκεια των τελευταίων είκοσι ετών, πολλές υπηρεσίες έγκαιρης παρέμβασης λειτουργούν ανά τον κόσμο με σκοπό να προσφέρουν στήριξη και να προωθήσουν την έγκαιρη διάγνωση και διαχείριση, όχι μόνο ανθρώπων με πρώτο ψυχωτικό επεισόδιο αλλά και ατόμων που βρίσκονται σε υψηλό κίνδυνο για να αναπτύξουν ψύχωση. Οι υπηρεσίες έγκαιρης παρέμβασης που λειτουργούν σε άλλες

χώρες ανασκοπήθηκαν σε σχέση με την τρέχουσα κατάσταση των υπηρεσιών έγκαιρης παρέμβασης στην ψύχωση στην Ελλάδα. Υπηρεσίες έγκαιρης παρέμβασης ιδρύθηκαν αρχικά στην Αυστραλία, και μέχρι σήμερα εκατοντάδες παρόμοια προγράμματα λειτουργούν στην Ευρώπη, τη Βόρεια Αμερική και την Ασία. Επιπλέον, οι υπηρεσίες αυτές συμπεριλαμβάνουν ομάδες που αναλαμβάνουν ανθρώπους οι οποίοι βρίσκονται σε κατάσταση αυξημένου κινδύνου για ψύχωση – At Risk Mental State (ARMS). Η πρώτη υπηρεσία για άτομα που διατρέχουν υψηλό κίνδυνο για εμφάνιση ψύχωσης δημιουργήθηκε στη Μελβούρνη το 1995, και έκτοτε ένας αυξανόμενος αριθμός αντίστοιχων υπηρεσιών λειτουργεί παγκοσμίως. Μία από τις μεγαλύτερες υπηρεσίες αποτελεί το OASIS (Outreach and Support in South London). Η πρώτη υπηρεσία έγκαιρης παρέμβασης στην Ελλάδα αναπτύχθηκε τον Δεκέμβριο του 2007 σε μια αγροτική περιοχή της Βορειοδυτικής Ελλάδας, στα Ιωάννινα. Μετά την ίδρυση της υπηρεσίας στα Ιωάννινα, εμφανίστηκε μεγάλο ενδιαφέρον από την πλευρά της ελληνικής ψυχιατρικής κοινότητας, για θέματα έγκαιρου εντοπισμού και πρόληψης των ψυχωτικών διαταραχών, πράγμα που οδήγησε στην ανάπτυξη μονάδων πρώιμης παρέμβασης στην ψύχωση και σε άλλες περιοχές της Ελλάδας, όπως η Αθήνα, η Θεσσαλονίκη και η Πάτρα. Ωστόσο, το πεδίο αυτό παραμένει παραμελημένο στην Ελλάδα, αφού, λόγω της απουσίας χρηματοδότησης για τέτοιες υπηρεσίες, τα λίγα προγράμματα που υπάρχουν λειτουργούν κυρίως σε εθελοντική βάση. Επιπλέον, δεν υπάρχουν εξειδικευμένες υπηρεσίες ψυχικής υγείας για ανθρώπους που βρίσκονται σε υψηλό κίνδυνο να εμφανίσουν ψύχωση, οι οποίες να έχουν σημαντικά κλινικά οφέλη και να είναι αποτελεσματικές έναντι του κόστους τους. Η Ελλάδα και άλλες χώρες σε παρόμοια κατάσταση πρέπει να καταλάβουν τη σημασία των μη θεραπευόμενων ή των φτωχά θεραπευόμενων ψυχωτικών διαταραχών που επηρεάζουν πολλούς νέους ανθρώπους στην ύστερη εφηβεία και την πρώιμη ενήλικη ζωή. Η εστίαση του ενδιαφέροντος σε άτομα υψηλού κινδύνου για ψύχωση θα προωθήσει τη δημόσια υγεία και θα βοηθήσει όχι μόνο να προληφθεί η έναρξη ψυχωτικών διαταραχών αλλά και να βελτιωθεί η πρόγνωσή τους.

Λέξεις ευρετηρίου: Έγκαιρη παρέμβαση, ψύχωση, υψηλού κινδύνου, Ελλάδα.

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Special article
Ειδικό άρθρο

Schizophrenia and type 2 diabetes mellitus

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Schizophrenia is associated with increased risk for type 2 diabetes mellitus, resulting in elevated cardiovascular risk and limited life expectancy, translated into a weighted average of 14.5 years of potential life lost and an overall weighted average life expectancy of 64.7 years. The exact prevalence of type 2 diabetes among people with schizophrenia varies across studies and ranges 2–5fold higher than in the general population, whereas the aetiology is complex and multifactorial. Besides common diabetogenic factors, applied similarly in the general population, such as obesity, hyperlipidemia, smoking, hypertension, poor diet and limited physical activity, the co-occurrence of schizophrenia and diabetes is also attributed to unique conditions. Specifically, excessive sedentary lifestyle, social determinants, adverse effects of antipsychotic drugs and limited access to medical care are considered aggravating factors for diabetes onset and low quality of diabetes management. Schizophrenia itself is further proposed as causal factor for diabetes, given the observed higher prevalence of diabetes in young patients, newly diagnosed with schizophrenia and unexposed to antipsychotics. Furthermore, studies support genetic predisposition to diabetes among people with schizophrenia, suggesting shared genetic risk and disclosing a number of overlapped risk loci. Therefore, special attention should be paid in preventing diabetes in people with schizophrenia, through intervention in all possible modifiable risk factors. Implementation of careful antipsychotic prescription, provision of adequate motivation for balanced diet and physical activity and facilitating access to primary health care, could serve in reducing diabetes prevalence. On the other hand, increasing calls are made for early diagnosis of diabetes, application of the appropriate anti-diabetic therapy and strict inspection of therapy adherence, to limit the excess mortality due to cardiovascular events in people with schizophrenia. Moreover, population health programs could help counseling and preventing diabetes risk, additionally to early screening and diagnosis set, aiming to reduce disparities in populations. Finally, mental health-care providers might greatly promote offered health services to patients with schizophrenia, through a holistic individualized approach, considering additionally the physical health of the patients and working closely, preventively and therapeutically, in collaboration with the physicians and diabetologists.

Key words: Schizophrenia, type 2 diabetes, antipsychotics, prevention.

Introduction

The comorbidity between schizophrenia and increased prevalence of type 2 diabetes mellitus is well established in many different studies on clinical samples,[1,2] attributed to lifestyle habits and medications, as well as gene-environment interaction factors and shared susceptibility genetic loci for schizophrenia and type 2 diabetes mellitus.

Diabetes is a complex, chronic illness, requiring strict glycemic control beyond continuous medical care, with multifactorial risk-reduction strategies. Its prevalence among adults has risen from 4.7% in 1980 to 8.5% in 2014, more rapidly in middle- and low-income countries,[3] whereas similar increasing prevalence is observed among patients with schizophrenia.4 Therefore, interventions facilitating the knowledge, skills and abilities necessary to prevent, early diagnose and efficiently control diabetes are important. Promoting such steps could also serve moderate diabetes complications, such as blindness, kidney failure, heart attacks, stroke and lower limb amputation, contributing in limiting cardiovascular risk and mortality rates among people with schizophrenia. A search was conducted across Medline and Scopus and all relevant English articles referring to schizophrenia and type 2 diabetes mellitus (until June 2017) were reviewed.

Prevalence of Type 2 Diabetes among patients with Schizophrenia

The prevalence of diabetes in individuals with schizophrenia varies across different studies, reflecting increasing rates across years, methodological issues (sample size, methods of diabetes detection, inclusion or not of schizoaffective disorders in the case sample, longitudinal, cross-sectional, case-control, cohort, inpatient, outpatient studies), as well as age, sex, ethnicity disparities and further genetic and lifestyle particularities. However, most of them demonstrate elevated diabetes prevalence rates as compared with the general population, with odds estimated to be two to fine times elevated.[4]

Particularly, prevalence estimations of diabetes among patients with schizophrenia in the USA range from 14.2% in a retrospective cohort study,[5] 18.7% in a cross-sectional study conducted in 819 patients with schizophrenia,[6] to 23.3% in another cross-sectional with 2231 patients,[7] with an alarming trend of increase over time (6.9% in 1997 to 14.5% in 2004).[8] In the European populations, prevalence is evaluated 15% in the Netherlands,[9] 14.8% in a case-control study conducted in Sweden with 2.058.408 patients,[10] 22% in a cross-sectional study in Finland,[11] whereas the prevalence of diabetes among patients with schizophrenia in the UK is estimated to be 11.3%.[12] Similarly in Asia, prevalence approaches 15.3% in a case-control study in India,[13] 15% in Malaysia[14] and 8% in a case-control study in Singapore, however it included only 164 patients and 200 controls.[6] Accordingly, prevalence in Australia[15] reaches 12.1%. Redefining all causes contributing to excess diabetes comorbidity with schizophrenia constitutes the cornerstone to face the problem.

Clinical and lifestyle causes of Type 2 Diabetes in Schizophrenia

Various factors are involved in diabetes onset among patients with schizophrenia, which also apply in the general population. However they are observed more commonly in schizophrenia. Such factors are obesity, increasing age, hypertension, hyperlipidemia, smoking, lack of physical activity, poor diet, social determinants, poverty, quality of sleep, stress and sedentary lifestyle.

Most, but not all, patients with type 2 diabetes are overweight or obese, or present with an increased percentage of body fat, distributed predominantly in the abdominal region. Obesity is a common comorbidity in schizophrenia, with higher prevalence than the general population.[16] Even in first-episode schizophrenia, 22% of the patients were overweighed in a study conducted with 2548 patients.[17] Another study showed that patients diagnosed with schizophrenia were overweight-obese (45–55%, RR: 1.5–2), smokers (50–80%, RR: 2–3), had diabetes (10–15%, RR: 2), hypertension (19–58%, RR: 2–3), dyslipidemia (25–69% RR: 5) and metabolic syndrome (37–63%, RR: 2–3).[18] Additionally, it has been observed rates of BMI greater than 27 to reach 42% in a group of individuals with schizophrenia, compared to 27% in the general population.[19]

Poor diet and physical inactivity[20] result in increased diabetes rates among people with schizophrenia. Deficits in fruits and vegetables intake, excess of fat, sugar and fast food consume characterize the dietary components often preferred by patients with schizo-

phrenia.[21,22] Several studies report poor nutritional quality[23–27] with relevant impact on weigh gain and further cardiometabolic adverse effects. Another study estimated the mean number of fruit and vegetable portions per day at 2.8±1.8, whereas over a third patients did not eat any fruit in a typical week.[28] However, choices of poor dietary preferences are likely related to unemployment, household income and lower socioeconomic status, not adequate supportive family environment, cognitive deficits and educational limitations. Homelessness often accompanies patients with schizophrenia, setting many barriers to diabetes prevention, including food insecurity, literacy and numeracy deficiencies, lack of insurance and cognitive dysfunction.[29] Access to health care services for individuals with schizophrenia is often inhibitory by perplexed and bureaucratic health service procedures, unequal legislations, as well as communities' and health providers' racism against persons with mental issues.

Furthermore, negative symptoms,[20] sedating effects of antipsychotic medications and obesity[30] contribute to restricted physical activity of individuals with schizophrenia. Engagement in moderate physical activity is reported less frequently in schizophrenia group than the National Health and Nutrition Examination Surveys group (NHANES group).[31] Specifically, few individuals with schizophrenia reported vigorous physical activity, whereas less than half of the sample followed moderate physical activity. Similar findings are observed by other studies,[32] while a systematic review reported linkage of impaired physical activity with limited socioeconomic status.[33] Besides exercise, sleep alterations, often meet in people with schizophrenia,[34–36] due to desynchronization between melatonin profiles and the sleep–wake rhythms,[34,37–39] body temperature,[39] and levels of tryptophan and prolactin,[40] might play a role on diabetes onset. The disturbed circadian clock underlying in schizophrenia[41–43] contributes to the development of metabolic disorders, affecting further the stress axis (hypothalamic-pituitary-adrenal axis, glucocorticoids, interaction with leptin), the motivation and reward system (dopamine, interaction with hypothalamic-pituitary-adrenal axis) and the orexin/melanin concentrating hormone neuronal network.[44]

Additionally, smoking, a known risk factor for type 2 diabetes, among people with schizophrenia is calculated 5.6 times as much as people without,[45,46] thus increasing the risk for diabetes and its treatment outcome. Likewise, a study estimated smoking rates at 64.9% among people with schizophrenia and in an increased number of them cigarette use was heavy.[28] Additionally to smoking, hypertension and hyperlipidemia contribute to elevated diabetes risk.[47] A cohort study of 2270 patients from 16 European countries reported 69.6% hyperlipidemia rates and 43.4% for hypertension,[25] while the risk was estimated 5fold and 2-3fold higher for these condition respectively, in comparison with the general population.[48] Moreover, odds ratio (OR) of diabetes onset in patients with schizophrenia and hypertension or dyslipidemia, in comparison with patients with schizophrenia without this comorbidity, are reported to be 3.23 [95% Confidence Interval (CI) 2.04–5.11] and 5.99 (3.87–8.92) respectively.[15] Furthermore, hazard ratio for earlier diabetes onset time is evaluated 1.87 (95% CI 1.12–3.09) and 4.67 (2.19–10.00) for patients with schizophrenia under antihypertensive and lipid-lowering treatment respectively.[49]

Finally, environmental loading is proposed as an etiological factor for diabetes and schizophrenia co-occurrence, influencing susceptibility to both conditions. For instance, poverty and lower educational chances are linked to schizophrenia and obesity.[50] Both increased rates of impaired glucose tolerance and schizophrenia was detected in the cohort born during the Dutch famine[51] in 1944–1945 vitamin D deficit during early life is associated with risk of schizophrenia,[52,53] whereas it also influences the insulin response to glucose stimulation, although its limited impact on basal insulinemia.[54,55]

Medication, Schizophrenia and Type 2 Diabetes

There is a considerable literature on the metabolic adverse effects of antipsychotic agents. In particular, comparison between second generation antipsychotics (SGA) with first generation antipsychotics (FGA) revealed a 1.3 fold elevated risk for diabetes.[56] This effect is intermediated either by weight gain, or –at 25% of cases[57]– though direct impairment in glucose homeostasis, potentially via blockade of central and peripheral muscarinic M3 receptors.[58,59] M3 receptors are widely expressed in the brain (ventromedial hypothalamic and arcuate nuclei of the hypothalamus,

dorsal vagal complex of the brainstem)[60, 61] effecting insulin and glucagon secretion, glucose homeostasis and body weight regulation,[62, 63] as well as on pancreatic beta cells, modulating the acetylcholine pathway for insulin secretion.[64,65] Antipsychotic affinity for the M3 receptors is considered the best indicator for diabetogenic liability.[66,67] Interestingly, olanzapine and clozapine have a profile to potently block the M3 receptors, while antipsychotics with a lower risk of metabolic dysfunction side-effect, such as risperidone and ziprasidone, have little effect on the M3 receptors.[67,68]

Another study detected elevated risk of diabetes in both patients treated with SGA (adjusted hazard ratio [HR] 1.32, 95% CI 1.01–1.75) and those treated with FGA (adjusted HR 1.82, 95% CI 1.30–2.55) against control patients without schizophrenia.[69] Furthermore, a meta-analysis on the prevalence of diabetes reported 2.1% diabetes prevalence among antipsychotic-naïve patients, whereas the prevalence was 12.8% for antipsychotic receivers.[17] However, a systematic review of 22 prospective, randomized, control trials, though short-term followed, detected no difference in glycemic abnormalities between placebo and antipsychotic cohorts.[70] Suggested explanations to those inconsistent findings are beyond methodological problems such as medication pre-exposure of tested groups, duration and dose of medication receive, severity, duration and type of schizophrenia, way of diabetes diagnosis (self-report, anti-diabetes drugs, ADA criteria), homogeneity of case group (schizophrenia, schizoaffective disorders, psychosis), adherence to antipsychotic receive, follow-up period and other unobserved confounding, also the heterogeneity among SGA and FGA groups.

Therefore, other studies attempted to evaluate the diabetogenic role of each antipsychotic regiment separately. Particularly, a large, population-based study conducted in Denmark with 345,937 cases treated with antipsychotics and 1,426,488 controls found 1.45% for clozapine, 1.29% for olanzapine and 1.23% for risperidone, 1.94% for sertindole, 1.57% for perphenazine, 1.94% for ziprasidone and even 1.17 for haloperidol increased diabetes risk,[71] whereas no increase in diabetes risk was detected for aripiprazole, amisulpride or quetiapine. On the other hand, a study on newly-onset schizophrenia patients revealed diabetes incidence patients with olanzapine initiation therapy (hazard ratio, HR=1.41) and with mid-potency conventional antipsychotics (HR=1.60).[49] Moreover, an FDA's database analysis in terms of diabetes, reported the following adjusted ratios hierarchy for diabetes-mellitus-related adverse outcomes: olanzapine 9.6 (95% CI 9.2–10.0), risperidone 3.8 (3.5–4.1), quetiapine 3.5 (3.2–3.9), clozapine 3.1 (2.9–3.3), ziprasidone 2.4 (2.0–2.9) aripiprazole 2.4 (1.9–2.9) and haloperidol 2.0 (1.7–2.3).[72] Clozapine and olanzapine are consistently associated with greater weight gain risk.[73]

Further, antidepressants may attribute to increased diabetes risk. Probable suggested mechanisms are their sedative effect, the increase in appetite, and weight gain.[74–76] A meta-analysis, though included only observational studies, reported increase in diabetes onset likelihood (OR 51.50, 95% CI 1.08–2.10, HR 51.19, 95% CI: 1.08–1.32).[77] However, most studies[78,79] provide evidence for elevated diabetes risk with the concurrent use of tricyclic antidepressants and selective serotonin reuptake inhibitors (SSRIs) (OR=1.89),[80] the long-term use of both tricyclic antidepressants (incidence rate ratio, IRR=1.77) and SSRIs (IRR=2.06) in at least moderate daily doses,[81] as well as the use of antidepressants medication in high-risk patients.[82] Further, amitriptyline, imipramide and mirtazapine are associated substantially with weight gain, nortriptyline and paroxetine appear to have intermediate effect, whereas bupropion and fluoxetine are linked with weight loss.[48]

Additionally, mood stabilizers, especially valproate itself[83] and lithium,[84] have been associated with insulin resistance and diabetes risk,[22,85] related possibly to weight gain,[86] and/or fatty liver infiltration.[87] However, little research has been performed in terms of concomitant application of different categories of medications[88,89] to reveal potential synergic action. One of those[89] conducted in Medicaid-enrolled youths, reported higher risk for diabetes incident for SGA initiators concomitantly to antidepressant use (OR .54, 95% CI 1.17–2.03, p=0.002), when compared to only SGA initiators. Further, first-episode and antipsychotic-naïve patients with schizophrenia as compared to chronic patients, are more vulnerable to severe weight gain, rapidly during the first few weeks, due to antipsychotics.[79]

Antipsychotics are associated with lipid abnormalities and thus could increase diabetes risk.[48,90] On the contrary, most of antidepressants[91] as well as lithium[92] observe no associated with dyslipidemia. Valproate

has been associated increased triglycerides and glucose, and insulin abnormalities.[93] Antipsychotics are not associated with hypertension, potentially due their alpha-1 blocking effects,[94] which can lower blood pressure. Among antidepressants, venlafaxine is most frequently associated with elevated blood pressure,[95] while mirtazapine has been found to be associated less than tricyclic antidepressants.[96] Generally, mood stabilizers have no effect on blood pressure, apart from chronic renal failure related to lithium volume distribution.

Genetic predisposition for comorbidity Schizophrenia and Type 2 Diabetes

Metabolic loading in patients with schizophrenia, such as dyslipidemia and insulin resistance, presents also prior to treatment onset,[97–99] implying genetic vulnerability. Henry Maudsley[112] already proposed the genetic link between diabetes and schizophrenia in his 1897 textbook "The Pathology of Mind". Prevalence of diabetes is estimated 1.27–1.63 fold higher in medication-naïve patients with schizophrenia as compared with the general population in the Netherlands.[100] Furthermore, similarly increased levels of IL-1β, IL-6, TNF-α, but also importantly elevated adiponectin levels were detected in drug naïve, first episode patients with schizophrenia and normal weight, as compared with obese or overweight individuals without schizophrenia, which suggest a potential unique pro-inflammatory role of adiponectin in patients with schizophrenia, leading to later metabolic syndrome.[101]

To explain this comorbidity between schizophrenia and diabetes in genetic terms, linkage studies as well as genome-wide association studies (GWAS) are applied to shed light into this direction. As linkage studies are concerned, one could start with probing the gene involved in both glucose and dopamine pathways. According to the data queried from Genetic Association Database[102] (http://geneticassociationdb.nih.gov/), a total of 37 common genes are detected across these susceptibility genes of schizophrenia and diabetes. For instance, chromosome 1q may harbor genes influencing working memory[103] and diabetes-related traits.[104] Moreover, association studies suggest that chromosome 1q21-24 may harbor risk genes for diabetes.[105] Among others, genes with involvement in both glucose metabolism and cognitive function which may increase the risk of diabetes in patients with schizophrenia vice-versa, are proposed to be nitric oxide synthase 1 (neuronal) adapter, aka, carboxyl-terminal PDZ ligand of neuronal nitric oxide synthase protein (CAPON), Nitric oxide synthase 1 adaptor protein (NOS1AP), glycogen synthase kinase 3 gene GSK-3, catecholamine O-transferase gene COMT, tyrosine hydroxylase (TH) gene.[106] Association findings further support that TCF7L2, which is responsible for diabetes, increases risk of schizophrenia in two further studies.[107,108] Web-based catalog for published genome-wide association studies (GWAS) to search for overlapped findings for diabetes and schizophrenia[109] provided no evidence for shared etiology (with a significance level of p<10?8). Proposed explanation therefore is that the genetic overlap for schizophrenia and diabetes may depend on combination of rare variants with small effect acting in concert to cause both diseases or to variants other than single nucleotide polymorphisms (SNPs).[106] Another GWAS analysis failed to detect risk variants associating schizophrenia with diabetes in a Japanese population.[110] Moreover, pathway analysis retrieved 2,104 proteins, 364 of them found simultaneously interacting with susceptibility proteins of both diabetes and schizophrenia, therefore proposed as new candidate risk factors for both diseases.[111]

Prevention and therapy

Clinical practice guidelines and individualized medicine are keys to improve health of patients with schizophrenia. The American Diabetes Association (ADA) highlights the importance of patient-centered care, defined as care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions. Annual screening for people with schizophrenia for prediabetes or diabetes is recommended. Changes in weight, glycemic control, blood pressure and cholesterol levels should be carefully monitored and the treatment regimen should be reassessed.[29]

Motivation in the direction of healthy lifestyle choices, such as healthy eating, physical activity, tobacco cessation, weight management and effective strategies for coping with stress, should belong to health providers' priorities. Providers should assess social context, including potential food insecurity, housing stability, and financial barriers, and apply that infor-

mation to treatment decisions. Patients should be referred to local community resources when available and provided with self-management support from health coaches, navigators, or community health workers when available.[29]

Finally, collaborative, multidisciplinary teams are best suited to provide care for people with chronic conditions such as diabetes and to facilitate patients' self-management. The care team, which includes the patient, should prioritize timely and appropriate intensification of lifestyle and/or pharmacological therapy for patients who have not achieved the recommended metabolic targets. Redefining the roles of the health care delivery team and empowering patient self-management are fundamental to achieve diabetes prevention and bring optimal therapeutic results.[29]

Conclusion

Coordinated management of diabetes or prediabetes and schizophrenia is recommended to prevent diabetes onset and achieve diabetes treatment targets, promoting equal health services and reducing disparities in populations.

Σχιζοφρένεια και σακχαρώδης διαβήτης τύπου 2

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Η σχιζοφρένεια συνδέεται με αυξημένο κίνδυνο για εμφάνιση σακχαρώδους διαβήτη τύπου 2, συμβάλλοντας σε επίταση του καρδιαγγειακού κινδύνου και περιορισμό του προσδόκιμου επιβίωσης σε ασθενείς με σχιζοφρένεια. Σε ό,τι αφορά στο προσδόκιμο ζωής, αυτό ανέρχεται συνολικά σε 14,5 έτη πιθανής απώλειας ζωής και συνολικό μέσον όρο προσδόκιμου ζωής τα 64,7 έτη. Ο ακριβής επιπολασμός του διαβήτη τύπου 2 στα άτομα με σχιζοφρένεια διαφέρει στις μελέτες και κυμαίνεται από 2–5 φορές υψηλότερος σε σχέση με τον γενικό πληθυσμό. Η αιτιολογία του σακχαρώδους διαβήτη τύπου 2 στους ασθενείς με σχιζοφρένεια είναι πολύπλοκη και πολυπαραγοντική. Εκτός από τους κοινούς διαβητογόνους παράγοντες, που απαντώνται και στον γενικό πληθυσμό, όπως η παχυσαρκία, η υπερλιπιδαιμία, το κάπνισμα, η υπέρταση, η κακή διατροφή και η περιορισμένη σωματική δραστηριότητα, η συνύπαρξη σχιζοφρένειας και διαβήτη αποδίδεται σε επιπλέον ιδιαίτερους παράγοντες. Συγκεκριμένα, ο καθιστικός τρόπος ζωής, κοινωνικοοικονομικοί παράγοντες, οι ανεπιθύμητες ενέργειες των αντιψυχωτικών φαρμάκων και η περιορισμένη πρόσβαση στις υπηρεσίες υγείας θεωρούνται επιβαρυντικοί παράγοντες για την εμφάνιση του διαβήτη και τη χαμηλή ποιότητα διαχείρισής του. Η ίδια η σχιζοφρένεια θεωρείται αιτιολογικός παράγοντας για εμφάνιση σακχαρώδους διαβήτη, δεδομένου του παρατηρούμενου υψηλότερου επιπολασμού του διαβήτη σε νεαρούς ασθενείς, που έχουν πρόσφατα διαγνωσθεί με σχιζοφρένεια και δεν έχουν εκτεθεί σε αντιψυχωτικά. Επιπλέον, οι μελέτες υποστηρίζουν γενετική προδιάθεση για διαβήτη μεταξύ των ατόμων με σχιζοφρένεια, υποδηλώνοντας ότι κοινοί γενετικοί παράγοντες ευθύνονται τόσο για τη σχιζοφρένεια όσο και για τον σακχαρώδη διαβήτη, ενώ έχει προσδιορισθεί ένας αριθμός αλληλεπικαλυπτόμενων υπεύθυνων

γονιδίων. Ως εκ τούτου, πρέπει να δοθεί ιδιαίτερη προσοχή στην πρόληψη του διαβήτη σε άτομα με σχιζοφρένεια μέσω παρέμβασης σε όλους τους δυνατούς τροποποιήσιμους παράγοντες κινδύνου. Η εφαρμογή κατάλληλης αντιψυχωτικής αγωγής, η παροχή επαρκών κινήτρων για ισορροπημένη διατροφή και φυσική δραστηριότητα και η διευκόλυνση της πρόσβασης στις υπηρεσίες υγείας, θα μπορούσαν να χρησιμεύσουν στη μείωση του επιπολασμού του διαβήτη. Από την άλλη πλευρά, γίνεται ακόμα πιο επιτακτική η έγκαιρη διάγνωση του διαβήτη, η εφαρμογή κατάλληλης αντιδιαβητικής θεραπείας και η αυστηρή επίβλεψη της συμμόρφωσης στη θεραπεία, για τον περιορισμό της αυξημένης θνησιμότητας λόγω καρδιαγγειακών επεισοδίων σε άτομα με σχιζοφρένεια. Επιπλέον, τα προγράμματα υγείας πληθυσμού θα μπορούσαν να βοηθήσουν στην παροχή ενημέρωσης, συμβουλών και στην πρόληψη του κινδύνου διαβήτη, παράλληλα με τον έγκαιρο έλεγχο του πληθυσμού και την πρώιμη διάγνωση, περιορίζοντας πληθυσμιακές ανισότητες. Τέλος, οι πάροχοι υπηρεσιών ψυχικής υγείας θα μπορούσαν να βελτιώσουν σημαντικά την ποιότητα της προσφερόμενης θεραπείας σε ασθενείς με σχιζοφρένεια, μέσω μιας ολιστικής εξατομικευμένης προσέγγισης, λαμβάνοντας σοβαρά υπόψη και τη σωματική υγεία των ασθενών μέσα από τη στενή συνεργασία και σε πλαίσια τόσο πρόληψης όσο και θεραπείας, με παθολόγους και διαβητολόγους.

Λέξεις ευρετηρίου: Σχιζοφρένεια, διαβήτης τύπου 2, αντιψυχωσικά φάρμακα, πρόληψη.

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Brief communication
Σύντομο άρθρο

Psychiatry trainees' attitudes towards euthanasia and physician-assisted suicide

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We investigated the attitudes towards Euthanasia (EUT) and Physician-Assisted Suicide (PAS) in a sample of Greek Psychiatry trainees (PT), (n=120, mean age 32.01±0.21, male 60.0%) and compared these to those of medical trainees of other specialties (OMT), i.e. internal medicine, surgery, intensive care (n=154, mean age 32.97±1.17, male 57.1%). Most of the responders were for the acceptance of EUT and PAS under some circumstances. More often PT answer "never" in the question regarding the permission to withdraw life-sustaining medical treatment to hasten death, if that requested by a terminally ill patient ($p<0.001$) and also more often answer "never" to the question regarding the permission to hasten the death of a patient if that is requested by family members ($p<0.01$). On the other hand OMT were more often for the acceptance of EUT ($p<0.001$) and more often expressed a positive view in the case allowing PAS in patients with incurable-terminal illness and low expected quality of life ($p<0.001$). According to the results of this study there is a need for special education of PT on end of life decisions. Also, it is important for educators to have understanding the views of the trainees since soon in the future, the new generation of physicians will have to make end of life decisions.

Key words: Euthanasia, physician assisted suicide, Psychiatry trainees, Greece.

Introduction

Euthanasia (EUT) and physician-assisted suicide (PAS), i.e. voluntary euthanasia have received increased attention over the last decades. In our days, medical assistance in dying is legal in many European countries (i.e. Switzerland, Netherlands, Belgium, Luxemburg) as well as in many states of U.S.A. (Oregon, California, Vermont, Montana, Washington).[1,2] In Greece, which has one of the lowest rates of suicide, EUT and PAS are illegal and punishable criminal acts.[3–6] Numerous surveys have explored attitudes toward EUT expressed by lay public, terminally ill patients and/or their relatives and medical professionals.[1,7,8] Comparative studies regarding attitudes towards EUT and PAS among psychiatry

trainees are scarce. We investigated the attitudes towards EUT and PAS in a sample of Greek psychiatry trainees (PT) and compared these to those of medical trainees of other specialties (OMT).

Methods

The Greek Questionnaire on EUT and PAS consists of 20 items and requires about 10 minutes to complete. The answers on the Questionnaire are assessed by fixed response items with three response options (yes, no, do not answer/a great deal, moderately, not at all/ never, under circumstances, always). Questions about responder's demographics, personal experience with terminally ill patients, family members or friends and factors that influence the view on the issues of EUT and PAS were included.[9] More information about the Questionnaire has been presented in detail elsewhere.[6] A random sample of Greek psychiatric trainees (n=120, mean age 32,01±0,21, male 60.0%) and a random sample of other medical trainees (n=154, mean age 32,97±1,17, male 57.1%) completed the Questionnaire. Among OMT there were 104 trainees in internal medicine, 23 in surgery and 27 in intensive care. Trainees were informed briefly about the aim of the study. The study was anonymous and no identifying information was placed in the questionnaire. 15.2% of PT and 17.4% of OMT refused to participate in the study. Descriptive statistics including comparisons between PT and OPT on the frequency of the questionnaire responses using the chi-square test were made. The significance level was set at $p<0.001$ (Bonferroni Correction). P values< 0.01 were interpreted as "trends".

Results

As table 1 shows, most of the trainees were informed about EUT and PAS. Yet, most of the responders were for the acceptance of EUT and PAS under some circumstances.

Table 1. Comparison between psychiatry trainees (PT) and other medical trainees (OMT) on the answers of the questionnaire regarding Euthanasia (EUT) and Physician-Assisted Suicide (PAS)

Question	Answer	PT (%)	OMT (%)	Stat. Sign. X^2, P
1. Are you informed about euthanasia and physician-assisted suicide?	YES	70.8	79.8	0.89, NS
2. Do you think that euthanasia (involuntary) may be morally acceptable under some circumstances?	YES	51.6	73.4	14.82, P<0.001
3. Do you think that physician-assisted suicide (voluntary) may be morally acceptable under some circumstances?	YES	82.5	75.9	6.51, NS
4. If you had a terminal illness would you consider obtaining a physician's assistance to end your life?	NO	99.2	93.5	O.59, NS
5. If you had a family member or friend who had a terminal illness would you consider obtaining a physician's assistance to end his/her life?	NO	98.2	100.0	0,44, NS
6. Do you believe that a physician should be permitted to withdraw life-sustaining medical treatment to hasten death, if that requested by a terminally ill patient?	NEVER	49.3	26.6	14.81, P<0.001
7. Do you believe that a physician should be permitted to prescribe drugs in high dosages which may hasten death, if that is requested by a terminally ill patient?	UC+A	82.5	75.9	6.51, NS

(Continued)

Table 1. Continuation.

8. Do you believe that a physician should be permitted to hasten the death of a patient, if that is requested by his/her family members?	NEVER	87.5	80.1	9.25, p<0.01
9. How important would be for you the patient's excepted shortness of life time, in deciding whether physician-assisted suicide should be allowed?	AGD+M	44.5	38.3	4.54, NS
10. How important would be for you the patient's expected low quality of life, in deciding whether physician-assisted suicide should be allowed?	AGD+M	49.5	73.3	16.51, p<0.001
11. How important would be for you the financial burden of the patient or the patient's family, in deciding whether physician-assisted suicide should be allowed?	AGD+M	56.7	65.6	2.27, NS
12. To what degree influence your view on the issue of PAS your personal ethics?	NA	69.2	58.4	3.34, NS
13. To what degree influence your view on the issue of PAS your religious beliefs?	NA	86.7	81.8	2.86, NS
14. To what degree influence your view on the issue of PAS the physician's role to protect the patient's life according to Hippocrates oath?	AGD+M	95.0	95.4	0.77, NS
15. To what degree influence your view on the issue of PAS your previous experience with terminal ill patients?	NA	48.7	51.6	6.28, NS
16. To what degree influence your view on the issue of PAS the risk that physician-assisted suicide might be misused concerning certain disadvantaged groups?	AGD+M	98.3	97.4	3.01, NS
17. Do you believe that there will be sufficient legal safeguards regarding the legislation of EUT?	YES	89.1	91.5	5.76, NS
18. Do you believe that the legalization of EUT may be a risk for the legitimate everyday medical practice?	YES	96.7	98.1	6.51, NS
19. Do you believe that psychiatric evaluation of the patient is required in the case of PAS?	YES	98.0	96.6	0.75, NS
20. Do you believe that a request for PAS from a terminally ill patient is prima-facie evidence of a mental disorder (i.e. depression)?	YES	30.8	35.1	0.54, NS

AGD: A great deal, M: moderately, NA: Not at all, N: Never, UC: under circumstances, A; Always

The comparison between PT and OMT revealed some statistically significant differences. More often PT answered "no" in the question regarding the permission to withdraw life –sustaining medical treatment to hasten death if that requested by a terminally ill patient (p<0.001) and also more often answered "never" to the question regarding the permission to hasten the death of a patient if that is requested by family members (p<0.01) (trend).

On the other hand OMT were more often for the acceptance of EUT (p<0.001) and more often expressed a positive view in the case allowing PAS in patients with low expected quality of life (p<0.001).

It is worth noting that almost all the trainees (98.0 vs 96.6%) believe that psychiatric evaluation is required in the case of PAS. However, a small proportion of them (30.8% vs 35.1%) believe that a request for PAS is prima-facie evidence of a mental disorder.

Comments

Studying attitudes on EUT and PAS in medical trainees is important as they are the future generation of physicians who will soon have to make and of life decisions. Especially, PT will have in the future the responsibility to decide about the patient's mental health status and the ability to decide about the desire for PAS.

Certainly, it is worth noting that there is a disagreement among clinicians as to whether psychiatric consultation should be mandatory for every patient who requests PAS. Some support the importance of involving an expert in assessing capacity and identifying and managing mental illness. However, others disagree citing mainly the fact that most psychiatrists have little experience and motivation treating the terminal ill.[7,10–12]

Given the special role of PT in end of life decisions in the future, it is important to compare attitudes of them with those of trainees of other medical specialties on the topics related to EUT and PAS.

To our knowledge up to now only one comparative study focused on the differentiations regarding EUT and PAS attitudes of medical trainees of different speciality fields. In 1997, Weiss-Roberts et al[13] compared residents in three medical speciality fields (internal medicine, emergency medicine, psychiatry). They found that psychiatry residents expressed greater opposition to PAS and EUT than emergency medicine residents.

According to the results of this study there were also differentiations between PT and OMT in some parameters related to EUT and PAS. Therefore, there is a need for special education of PT on end of life decisions and also is important for educators to have understanding the views of the trainees although most of them feel uncomfortable with death and dying patients.[2,14–19]

Απόψεις ειδικευομένων στην Ψυχιατρική σχετικά με την ευθανασία και την υποβοηθούμενη από γιατρό αυτοκτονία

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Μελετήθηκαν οι στάσεις σχετικά με την Ευθανασία (ΕΥΘ) και την Υποβοηθούμενη από Γιατρό Αυτοκτονία (ΥΓΑ) σε ένα δείγμα Ελλήνων ιατρών ειδικευομένων στην Ψυχιατρική (ΕΨ) (n=120, μέση ηλικία 32,01±0,21, άνδρες 60,0%) και συγκρίθηκαν με τις στάσεις ειδικευομένων ιατρών σε άλλες ιατρικές ειδικότητες (ΕΑΕΕ) όπως παθολογία, χειρουργική, εντατική φροντίδα (n=154, μέση ηλικία 32,97±1,17, άνδρες 57,1%): Οι περισσότεροι από τους ειδικευόμενους ιατρούς ήταν υπέρ της άποψης της αποδοχής της ΕΥΘ και της ΥΓΑ υπό προϋποθέσεις. Συχνότερα οι ΕΨ απάντησαν «ποτέ» στην ερώτηση σχετικά με την επιθυμία ασθενούς που πάσχει από ανίατη-καταληκτική ασθένεια να πραγματοποιηθεί διακοπή της μηχανικής υποστήριξης των ζωτικών του λειτουργιών (p<0,001), και ακόμη

συχνότερα απάντησαν «Ποτέ» στην ερώτηση σχετικά με την επιθυμία συγγενών του ασθενούς που βρίσκεται σε μη αναστρέψιμη κατάσταση προκειμένου να τερματιστεί η ζωή του ασθενούς (p<0,01). Εξάλλου οι ΕΑΕΕ ήταν συχνότερα υπέρ της αποδοχής της ΕΥΘ κάτω από ορισμένες προϋποθέσεις (p<0,001) και συχνότερα υποστήριζαν την άποψη της θετικής στάσης απέναντι στην ΕΥΘ και την ΥΓΑ σε ασθενείς με ανίατη-καταληκτική νόσο και χαμηλή ποιότητα ζωής (p<0,001). Σύμφωνα με τα αποτελέσματα της μελέτης υπάρχει ανάγκη ειδικής εκπαίδευσης των ειδικευομένων στην Ψυχιατρική σε θέματα χειρισμού αποφάσεων τερματισμού της ζωής. Επίσης θεωρείται σημαντικό για τους εκπαιδευτές να γνωρίζουν τις απόψεις των ειδικευομένων στα εν λόγω θέματα.

Λέξεις ευρετηρίου: Ευθανασία, υποβοηθούμενη από γιατρό αυτοκτονία, ειδικευόμενοι στην Ψυχιατρική, Ελλάδα.

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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 (along with a short abstract in Greek).
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. Twice a year the issues will be published in English (with extensive abstract in Greek, about 400 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.
11. All articles should be accompanied by abstracts, both in Greek and English, about 400 words each. The articles that are referred as Brief communication and as Case reports should be accompanied by abstracts, both in Greek and English about 200 words each.

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.

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 (400–500 words) as well as 4–6 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 the first six 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 8 in the Editorials and the Letters to the Editor.

The DOI number should be included at the end of the reference. If an article without DOI is included in PubMed, then its PMID number should be reported at the end of the reference.

The following paradigms illustrate the various reference categories:

1. Journal article with DOI
   Bebbington EP, Freeman D. Transdiagnostic Extension of Delusions: Schizophrenia and Beyond. *Schizophr Bull* 2017, 43:273–282, doi: 10.1093/schbul/sbw191
2. Journal article with PMID
   Deckersbach T, Savage CR, Phillips KA, Wilhelm S, Buhlmann U, Rauch SL et al. Characteristics of memory dysfunction in body dysmorphic disorder. *J Int Neuropsychol* Soc 2000, 6:673–681, PMID: 11011514
3. Chapter in book
   Brenner M. Influence of the Social Environment on Psychology: The Historical Perspective. In: Barrett JE (ed) *Stress and Mental Disorder*. Raven Press, New York, 1979
4. Book
   Kinden A. *Stress and emotion*. Springer, Berlin, 1990
   American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th ed. American Psychiatric Publishing, Arlington, VA, 2013
5. Article in journal supplement
   McKee M, Balabanova D, Basu S, Ricciardi W, Stuckler D. Universal health coverage: a quest for all countries but under threat in some. *Value Health* 2013, 16(Suppl 1):S39–S45, doi: 10.1016/j.jval.2012.10.001
6. Presentation in Congress – Abstract book
   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
7. Webpage
   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

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 τέσσερεις φορές τον 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.psychiatriki-journal.gr ή www.betamedarts.gr

Το περιοδικό "ΨΥΧΙΑΤΡΙΚΗ" δέχεται προς δημοσίευση εργασίες που αφορούν σε 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 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 από μέλη της Διεθνούς Συμβουλευτικής Επιτροπής ή μετά από πρόσκληση της Συντακτικής Επιτροπής (μέχρι 700 λέξεις και 7–8 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 3.000 λέξεις.
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 (έως 8 συγγραφείς).
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. **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 3.000 λέξεις).
6. **Ενδιαφέρουσες περιπτώσεις:** Η κατηγορία αυτή περιλαμβάνει ενδιαφέρουσες αναφορές περιπτώσεων και περιγραφές περιπτώσεων όπου εφαρμόσθηκαν νέες διαγνωστικές ή/και θεραπευτικές μέθοδοι (μέχρι 1.500 λέξεις).
7. **Γενικά άρθρα:** Η *ΨΥΧΙΑΤΡΙΚΗ* δέχεται και άρθρα που εκφράζουν θεωρητικές απόψεις στον 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. 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 (συνοδεύεται από σύντομη αγγλική περίληψη).
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. Δύο τεύχη ετησίως θα κυκλοφορούν εξ ολοκλήρου στην αγγλική (με εκτεταμένη ελληνική περίληψη, περίπου 400 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.
11. Όλες οι εργασίες θα πρέπει να συνοδεύονται από ελληνική και αγγλική περίληψη, περίπου 400 λέξεων η κάθε μία. Οι εργασίες που αναφέρονται ως σύντομα άρθρα και ως ενδιαφέρουσες περιπτώσεις θα πρέπει να συνοδεύονται από ελληνική και αγγλική περίληψη, περίπου 200 λέξεων η κάθε μία.

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* Οι οδηγίες προς τους συγγραφείς και το «συνοδευτικό έντυπο υποβολής» υπάρχουν στο website του περιοδικού: www.psychiatriki-journal.gr

Το περιοδικό «ΨΥΧΙΑΤΡΙΚΗ» καταχωρείται και περιλαμβάνεται στα MEDLINE/PubMed, Index Copernicus, Google Scholar, EMBASE/Excerpta Medica, PsychINFO, GFMER, CIRRIE, SCIRUS for Scientific Inf., EBSCOhost™ and in Iatrotek

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 CD 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». 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 400 λέξεις). Στην περίληψη ανακεφαλαιώνονται τα κύρια μέρη της εργασίας. Φράσεις όπως «τα ευρήματα συζητούνται» πρέπει να αποφεύγονται. Στο τέλος της περίληψης αναγράφονται 4–6 λέξεις ευρετηρίου.

Αγγλική περίληψη: Στην τρίτη σελίδα γράφεται η αγγλική περίληψη, που πρέπει να έχει έκταση περίπου 400 λέξεων, ο τίτλος του άρθρου τα ονόματα των συγγραφέων και η προέλευση του άρθρου (ίδρυμα). Στο τέλος της περίληψης αναγράφονται 4–6 λέξεις ευρετηρίου. Η περίληψη πρέπει να δίνει ουσιαστικές πληροφορίες.

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 των έξι πρώτων συγγραφέων. Στον 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 8.

Στο τέλος κάθε βιβλιογραφικής αναφοράς θα πρέπει να αναγράφεται ο ψηφιακός αναγνωριστικός αριθμός του άρθρου (DOI). Αν δεν υπάρχει DOI για ένα άρθρο, αλλά αυτό περιλαμβάνεται στο PubMed, τότε πρέπει να αναγράφεται ο σχετικός κωδικός της (PMID) στο τέλος της αναφοράς. Ο βιβλιογραφικός κατάλογος συντάσσεται με αύξοντα αριθμό, που αντιστοιχεί στη σειρά εμφάνισης των βιβλιογραφικών παραπομπών στο κείμενο. Στα ακόλουθα παραδείγματα παρουσιάζονται διάφορες κατηγορίες αναφορών:

1. Άρθρο σε περιοδικό με DOI
   Bebbington EP, Freeman D. Transdiagnostic Extension of Delusions: Schizophrenia and Beyond. *Schizophr Bull* 2017, 43:273–282, doi: 10.1093/schbul/sbw191
2. Άρθρο σε περιοδικό με PMID
   Deckersbach T, Savage CR, Phillips KA, Wilhelm S, Buhlmann U, Rauch SL et al. Characteristics of memory dysfunction in body dysmorphic disorder. *J Int Neuropsychol* Soc 2000, 6:673–681, PMID: 11011514
3. Κεφάλαιο βιβλίου
   Brenner M. Influence of the Social Environment on Psychology: The Historical Perspective. In: Barrett JE (ed) *Stress and Mental Disorder*. Raven Press, New York, 1979
4. Βιβλίο
   Kinden A. *Stress and emotion*. Springer, Berlin, 1990
   American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th ed. American Psychiatric Publishing, Arlington, VA, 2013
5. Παράρτημα περιοδικού
   McKee M, Balabanova D, Basu S, Ricciardi W, Stuckler D. Universal health coverage: a quest for all countries but under threat in some. *Value Health* 2013, 16(Suppl 1):S39–S45, doi: 10.1016/j.jval.2012.10.001
6. Παρουσίαση σε Συνέδριο – Τόμος Πρακτικών
   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
7. Ιστοσελίδα
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Οι συντμήσεις των περιοδικών πρέπει να γίνονται με βάση το *Index Medicus*.

Πίνακες: Γράφονται με διπλό διάστημα 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, και τη συμπληρωματική της επόμενης σελίδας συγγραφικής ευθύνης, οικονομικής γνωστοποίησης και ευχαριστιών)

- Παρακαλώ συμπληρώστε/τσεκάρετε όλα τα σημεία του εντύπου
- Είδος εργασίας (σημειώστε με Χ):

❑ ΑΝΑΣΚΟΠΗΣΗ ❑ ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ ❑ ΣΥΝΤΟΜΟ ΑΡΘΡΟ

❑ ΕΙΔΙΚΟ ΑΡΘΡΟ ❑ ΓΕΝΙΚΟ ΑΡΘΡΟ ❑ ΠΑΡΟΥΣΙΑΣΗ ΠΕΡΙΠΤΩΣΕΩΣ

- Τίτλος εργασίας .....

.....

- Ονοματεπώνυμα συγγραφέων .....

.....

.....

.....

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

.....

.....

- Υπεύθυνος συγγραφέας για την αλληλογραφία .....

Ονοματεπώνυμο .....

Διεύθυνση .....

Τηλέφωνο ..... Fax: ..... E-mail: .....

- Επιβεβαιώστε (σημειώστε με Χ) όλα τα παρακάτω σημεία της εργασίας σας:

❑ Περίληψη της εργασίας στα Ελληνικά και Αγγλικά, σύμφωνα με τις προδιαγραφές του περιοδικού

❑ 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 περιεχόμενό 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 τη συγκατάθεσή τους πριν συμπεριληφθούν στην έρευνα. Οι συγγραφείς ακόμη δηλώνουν ότι δεν υπήρξε πηγή οικονομικής υποστήριξης (εάν υπήρξε πρέπει να δηλωθεί).

Υπογραφές συγγραφέων Ημερομηνία

ΨΥΧΙΑΤΡΙΚΗ: ΣΥΓΓΡΑΦΙΚΗ ΕΥΘΥΝΗ, ΟΙΚΟΝΟΜΙΚΗ ΓΝΩΣΤΟΠΟΙΗΣΗ ΚΑΙ ΕΥΧΑΡΙΣΤΙΕΣ

Με τη συμπλήρωση και υπογραφή του παρόντος εντύπου, ο συγγραφέας αλληλογραφίας αναγνωρίζει και αποδέχεται πλήρως την ευθύνη εκ μέρους όλων των συγγραφέων που συνεισέφεραν, των δηλώσεων σχετικά με τη Συγγραφική Ευθύνη, την Οικονομική Γνωστοποίηση, και την Υποστήριξη Χρηματοδότησης.

ΣΥΓΓΡΑΦΙΚΗ ΕΥΘΥΝΗ

Με την υπογραφή του παρόντος εντύπου και υπογράφοντας στα αντίστοιχα πεδία, ο συγγραφέας αλληλογραφίας πιστοποιεί ότι κάθε συγγραφέας πληροί όλα τα παρακάτω κριτήρια (Α και Β) και στη συνέχεια προσδιορίζει τη συνεισφορά τού κάθε συγγραφέως, σημειώνοντας το όνομά του/της, δίπλα στο αντίστοιχο πεδίο.

❑ Α. Ο συγγραφέας αλληλογραφίας πιστοποιεί ότι:

- Η υποβληθείσα εργασία αποτελεί πρωτότυπη και έγκυρη εργασία και το κείμενό της ή άλλο με παρεμφερές περιεχόμενο στα πλαίσια της συγγραφής μου δεν έχει δημοσιευθεί ή υποβληθεί για δημοσίευση κάπου αλλού, εκτός της περίπτωσης όπου μαζί με την εργασία περιγράφεται και επισυνάπτεται το σχετικό κείμενο. Εφόσον ζητηθεί, ο συγγραφέας αλληλογραφίας, θα παρέχει τα δεδομένα ή θα συνεργαστεί πλήρως στη συγκέντρωση και παροχή των δεδομένων στα οποία βασίζεται η εργασία. Κάθε συγγραφέας έχει εξουσιοδοτήσει τον συγγραφέα αλληλογραφίας να λειτουργεί ως ο κύριος εκπρόσωπος της συγγραφικής ομάδας, και να προβαίνει σε βελτιώσεις της εργασίας με βάση τις υποδείξεις των κριτών του περιοδικού.

❑ Β. Κάθε συγγραφέας έχει δώσει την τελική έγκριση για να γίνει η υποβολή τής εργασίας, έχει συμμετάσχει επαρκώς στην εργασία και αναλαμβάνει δημόσια την ευθύνη για όλο το περιεχόμενο και πληροί τις προϋποθέσεις για συγγραφή, εφόσον υπάρχει το όνομά του/της στην αντίστοιχη γραμμή των πεδίων των συνεισφορών που αναφέρονται παρακάτω.

Οι συγγραφείς που αναφέρονται παρακάτω έχουν συνεισφέρει σημαντικά στην εργασία στα διάφορα πεδία που αναφέρονται παρακάτω.

(ανέφερε τον αντίστοιχο συγγραφέα δίπλα στο κάθε πεδίο- κάθε συγγραφέας πρέπει να περιλαμβάνεται τουλάχιστον σε ένα πεδίο. Περισσότεροι από ένας συγγραφείς μπορεί να αναφέρονται σε κάθε πεδίο)

– Ιδέα και σχεδιασμός .....
– Συγκέντρωση δεδομένων .....
– Ανάλυση και ερμηνεία των δεδομένων .....
– Σύνταξη του κειμένου .....
– Επανεξέταση του κειμένου .....
– Στατιστική ανάλυση .....
– Χορήγηση χρηματοδότησης .....
– Διοικητική, τεχνική ή υλική υποστήριξη .....
– Εποπτεία .....

ΟΙΚΟΝΟΜΙΚΗ ΓΝΩΣΤΟΠΟΙΗΣΗ

❑ Από όλους τους συγγραφείς που έχουν συνεισφέρει στην εργασία δεν υπάρχει σύγκρουση συμφερόντων, συμπεριλαμβάνοντας ειδικά οικονομικά συμφέροντα, σχέσεις και συνεργασίες σχετικές με το αντικείμενο της υποβληθείσας εργασίας.

ή

❑ Βεβαιώνω ότι όλες οι συγκρούσεις συμφερόντων, συμπεριλαμβανομένων ειδικών οικονομικών συμφερόντων, σχέσεις και συνεργασίες σχετικές με το αντικείμενο της υποβληθείσας εργασίας είναι οι ακόλουθες:

Χορήγηση Χρηματοδότησης και ο Ρόλος του Χορηγού

❑ Δεν έλαβα χρηματοδότηση ή άλλη οικονομική ενίσχυση.

ή

❑ Βεβαιώνω ότι όλη η χρηματοδότηση, άλλη οικονομική ενίσχυση, και υλική υποστήριξη για την έρευνα και/ή την εργασία προσδιορίζονται σαφώς στη δήλωση συμφερόντων στο τέλος της εργασίας

ή

Η χρηματοδότηση ή άλλη οικονομική ενίσχυση και υλική υποστήριξη για την έρευνα και/ή την εργασία προσδιορίζονται ευκρινώς παρακάτω:

ΕΥΧΑΡΙΣΤΙΕΣ

Ο συγγραφέας αλληλογραφίας βεβαιώνει ότι:

Όλα τα άτομα που έχουν συνεισφέρει σημαντικά στην εργασία (π.χ. συλλογή δεδομένων, ανάλυση, γραφή ή συμβολή στην έκδοση) αλλά δεν πληρούν τα κριτήρια συγγραφής ονοματίζονται με τη συγκεκριμένη συνεισφορά τους στο κείμενο της εργασίας στις Ευχαριστίες. Όλα τα άτομα που ονοματίζονται στις Ευχαριστίες έχουν δώσει γραπτή συγκατάθεση προκειμένου να αναφερθεί το όνομά τους.

Αφού ολοκληρώσετε όλα τα παραπάνω απαιτούμενα πεδία, αυτή η φόρμα θα πρέπει να σταλεί μέσω φαξ ή e-mail ηλεκτρονικά μαζί με το συνοδευτικό έντυπο υποβολής και την υποβληθείσα εργασία.

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