

## THE EVIDENCE-BASED PRACTICE PARADIGM APPLIED TO JUDICIAL PSYCHOLOGICAL ASSESSMENT IN THE CONTEXT OF FORENSIC MEDICINE

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**Abstract: Purpose, methods and results.** Our study aims to present psychological assessment in a forensic medical context, from the point of view of the paradigm of evidence-based practice (EBP), which involves general fields such as forensic pathology, clinical psychology, psychiatry, psychology and mental health. This paradigm's work process involves patient evaluation, questioning in order to build the case, documentation and obtaining theoretical and practical evidence from specialized clinical literature, evidence assessment, applying and discussing the evidence, assessing the results and performance of the evaluation, conclusions and recommendations. Descriptive analysis indicates: 1. an average age of 56 years, 2. A decreasing hierarchy of frequency depending on the evaluated individuals' level of education - high school 14.7%, no education 13.2%, 4 grades 10.3%, higher education 9.3% - according to professional status: secondary education students 1.4% and pensioners 49.2% of N=1027 psychiatric forensic medical evaluations. Finalizing the EBP stages allows experts to identify solutions and discuss the most adequate case resolution process with the other experts. In order to support this approach, we will present a statistic of forensic medical psychological interventions carried out in the Forensic Medicine Institute of Cluj-Napoca between 2015 and 2017. The statistic will include the mean and standard deviation of psychopathologies and comorbidities presented by the evaluated patients, while also performing an inter-factor analysis of mental disorders. Following the evaluation of 1027 subjects, the following were calculated: Mean= 0.64, Std.dev.=0.48 in cognitive deterioration (neuro-cognitive disorder), i.e. 656 participants representing 63.9%, then a mean of M= 0.65, Std.dev.=0.478, i.e. 666 participants representing 64.8% individuals with a diagnosis of impaired judgment (deteriorated mental capacity) out of the total of 1027. The statistical analysis used the SPSS software and the IBM Watson/Engage the power of cognitive computing platform, in order to perform an accurate qualitative differential discrimination/diagnosis of mental disorders, according to international scientifically validated forensic medical protocols.

**Clinical implications and conclusions.** The statistic analysis had the following goals: a. to underline the large number of patients with co-morbidities, in order to grant adjudication of incapacity and b. to identify associated mental and personality disorders in patients suspected of having committed offenses.

**Keywords:** Cluj-Napoca Forensic Medicine Institute, psychiatry, forensic psychological evaluation, clinical psychology, psychology in the context of forensic medicine.

### INTRODUCTION

The argument for approaching this perspective of judicial psychological assessment in the context of forensic medicine is supported by the fact that evidence based practice is a combination of research methods, experience and expertise, following the guidelines for carrying out FMHA (Wettstein, 2005) and the competence of the experts involved in carrying out the assessments (Packer & Grisso, 2011). The forensic mental health assessment performed in the Cluj-

Napoca Institute is scientifically validated and founded, following all international forensic evaluation, testing and screening guidelines and protocols (Government Ordinance no.1 of January 20, 2000, regarding the organisation and operation of forensic medicine institutions, republished in Official Gazette no. 996/10 Nov. 2005).

In this context, the principles of ethics and professional norms are respected: fidelity and responsibility, integrity, respecting the rights and dignity of individuals, as well as justice and fairness (Martinez

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& Candilis, 2011, p. 60; Allan, Grisso, 2014). The forensic medical committee team consists of a forensic pathologist, two psychiatrists and a psychologist, with high academic training, competence and experience in the field. Psychiatric forensic examination is an applicative field of psychiatry, forensic medicine, but also of psychology, in the area of psycho-pathologically motivated antisocial acts. It aims to outline a clinical picture, in order to answer requests from a judicial court or family member, and/or in order to generate acts of disposition. The evaluation method consists of studying the documents on file, a clinical interview, as well as psychological testing with scientifically validated adapted instruments, recognised by the Romanian College of Psychologists.

## MATERIALS AND METHODS

The procedure used was file analysis, psychiatric evaluation, clinical interview and psychological testing, all according to the legal norms and procedures and respecting all international forensic evaluation, testing and screening guidelines and protocols (Government Ordinance no.1 of January 20, 2000, regarding the organisation and operation of forensic medicine institutions, republished in Official Gazette no. 996/10 nov.2005, and the guidelines issued by the Romanian College of Psychologists in 2004 and subsequently).

Work instruments and materials:

- Standard Progressive Matrices MPRS was created in order to assess the intelligence of individuals aged between 6 and 80. The test was applied to 645 patients of the total of 1027. The average IQ is 65.

- The Cognitive Aptitude Psychological Test battery consists of 23 tests and is a new generation of psychological tests. The test was applied to 702 patients of the total 1027. The BTPAC average is 17.14.

- The psychological tasks which form part of SEC (addressed to adults, children or adolescents) were selected starting from the paradigm of scientifically validated psychodiagnosis and clinical evaluation. The test was applied to 1023 patients of the total of 1027, and the SEC average is 40.16.

- The Global Deterioration Scale (GDS), validated by Reisberg B, Fewrris SH, de Leon MJ, Crook T (1982), published in the American Journal of Psychiatry 139: 1136-9. Was applied to 129 patients of the total of 1027, and the GDS average is 4.85.

- Mini-Mental State Examination, Second Edition (MMSE) is a standardised clinical examination for the evaluation of cognitive deterioration, being

considered as one of the most popular and trustworthy instruments of its kind. The test was applied to 481 patients of the total of 1027, and the MMSE average is 16.05.

- Functional assessment staging (FAST) in Alzheimer was applied to 86 patients of the total of 1027, and the FAST average is 4.81.

- The Eysenck Personality Questionnaire (EPQ), in its revised form, was applied to 61 patients of the total of 1027. The EPQ average is 52.95.

- Hare Psychopathy Checklist-Revised has become, ever since its first edition in 1991, the defining standard in the evaluation of psychopathic personality. The test was applied to 60 of the total of 1027, and the PCL-R average is 33.5.

- ABAS provides a comprehensive evaluation, based on carefully selected norms, of a person's adaptive abilities. The test was applied to 404 patients of the total of 1027, and the ABAS average is 45.67.

- Minnesota Multiphasic Personality Inventory-2 is the best known and most used instrument for the diagnosis and evaluation of adult personality and psychopathology in the clinical environment or in research. The test was applied to 15 patients of the total of 1027, and the MMPI average is 37.67.

- Millon® Clinical Multiaxial Inventory-III (MCMI-III) is a psychometric instrument meant to provide information regarding psychopathology, including disorders included in the DSM-V. The test was applied to 47 patients of the total of 1027, and the MCMI-III average is 40.87.

- State-Trait Anxiety Inventory (Form Y) is the revised and improved version of the STAI inventory, Form X, which is considered by many to be the most well made psychometric instrument for the evaluation of anxiety. The test was applied to 9 patients of the total of 1027, and the STAI average is 36.11.

- The YSQ test was applied to 6 patients of the total of 1027, the YSQ average being 58.5.

- The ZKPQ questionnaire was elaborated ad-hoc in order to assess the defining dimensions of the Alternative Five-Factor Model – AFFM: Impulsive thrill seeking; Sociability; Neuroticism – anxiety; Aggression – hostility; Activity. The test was applied to 4 patients of the total of 1027, obtaining a ZKPQ average of 39.15.

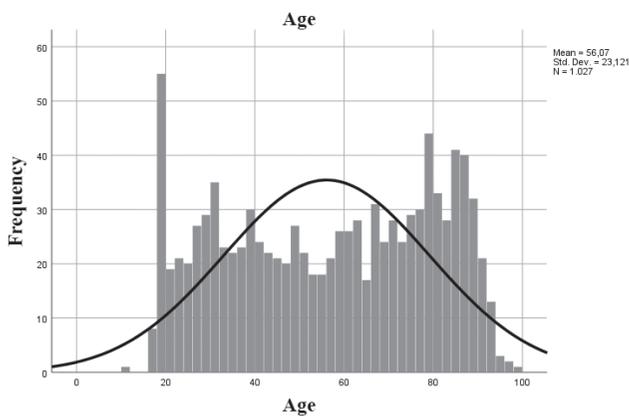
- The Beck Depression Inventory – second edition (BDI - II) is a self assessment instrument consisting of 21 items, built to measure the severity of depression in adults and adolescents over 13 years old. The test was applied to 10 patients of the total of 1027, and the BDI average obtained is 15.

- Millon Adolescent Clinical Inventory (MACI) is a self assessment inventory specifically created for evaluating personality traits and clinical syndromes in adolescents. The test was applied to 1 patient of the total of 1027, obtaining a MACI score of 63.

- The OMNI-IV Inventory of Personality Disorders is an instrument which allows the self assessment of specific disorders on Axis II of the DSM-IV. The test was applied to 10 patients of the total of 1027, and the OMNI average obtained is 46.44.

### Participants

The results presented in the Figure 1 indicate an average age of 56 years. Table 1 details the frequency



**Figure 1.** Descriptive results regarding the age of participants in evaluation and testing.

**Table 1.** Frequency and validation of age mean for the participants

		Year of examination			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2015	320	31.2	31.2	31.2
	2016	349	34.0	34.0	65.3
	2017	297	28.9	29.0	94.2
	2018	59	5.7	5.8	100.0
	Total	1025	99.8	100.0	
Missing	System	2	0.2		
Total		1027	100.0		

**Table 2.** Descriptive results regarding cognitive deterioration

		Deterioration			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	371	36.1	36.1	36.1
	1	656	63.9	63.9	100.0
	Total	1027	100.0	100.0	

**Table 3.** Frequency and mean validation for mental capacity

		Capacity			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	361	35.2	35.2	35.2
	1	666	64.8	64.8	100.0
	Total	1027	100.0	100.0	

and validation of the age average of the participants in evaluation and testing performed by the committees of Cluj-Napoca Forensic Medicine Institute.

The descriptive results regarding year of psychological evaluation and testing are presented in Table 1.

The education level can be summarised as follows: high school 14.7%, zero grades 13.2%, 4 grades 10.3%, higher education 9.3%, while according to their professional status, 1.4% were secondary students and 49.2% were pensioners out of the total N=1027.

## RESULTS

### Descriptive results regarding comorbidities

The results show that 656 cases of the total 1027 fall under cognitive deterioration (neuro-cognitive disorder). Table 2 details frequency and mean validation in cognitive deterioration for the participants to the psychological evaluation and testing performed by the committees of IML Cluj.

Therefore, we have 666 participants with a diagnosis of impaired judgment (deteriorated mental capacity) out of the total of 1027 psychiatric forensic examinations performed. Table 3 details the frequency and mean validation for the participants' mental capacity.

**Descriptive results regarding cognitive deficit**

The degree of disability and eligibility for social services: developmental delay, biologic risk factors, cranial trauma, autism, ADHD, learning and behavioural disorders, sensory insufficiency, physical trauma or disability, poor health, motor impairment, emotional disorders, cerebral lesions, stroke, dementia, Alzheimer’s disease, substance abuse, psychotic disorders and multiple disabilities.

Table 4 illustrates frequency and mean validation – where 0 is absence of deficit and 1 is presence of deficit – for the participants evaluated by the forensic psychiatric committees of IML Cluj Napoca.

**Descriptive results regarding social deficit**

The degree of disability and eligibility for social services: developmental delay, biologic risk factors, cranial trauma, autism, ADHD, learning and behavioural disorders, sensory insufficiency, physical trauma or disability, poor health, motor impairment, emotional disorders, cerebral lesions, stroke, dementia, Alzheimer’s disease, substance abuse, psychotic disorders and multiple disabilities.

There are 647 cases of social deficit out of the total of 1027 forensic psychiatric examinations performed. Table 5 presents the frequency and mean validation – where 0 is absence of deficit and 1 is presence of deficit – for the participants evaluated by the forensic psychiatric committees of IML Cluj Napoca.

**Descriptive results regarding applicative/practical deficit**

The degree of disability and eligibility for social services: developmental delay, biologic risk factors, cranial trauma, autism, ADHD, learning and behavioural disorders, sensory insufficiency, physical trauma or disability, poor health, motor impairment, emotional disorders, cerebral lesions, stroke, dementia, Alzheimer’s disease, substance abuse, psychotic disorders and multiple disabilities.

There are 642 cases of applicative/practical deficit out of the total of 1027 forensic psychiatric examinations performed. Table 6 shows the frequency and mean validation – where 0 is absence of deficit and 1 is presence of deficit – for the participants evaluated by the forensic psychiatric committees of IML Cluj Napoca.

**Descriptive results regarding personality disorders**

There are 134 cases of personality disorders out of the total of 1027 forensic psychiatric examinations performed. Table 7 illustrates the frequency and mean validation – where 0 is absence of disorder and 1 is presence of disorder – for the participants evaluated by the forensic psychiatric committees of IML Cluj Napoca.

**Descriptive results regarding behavioural disorders**

There are 196 of behavioural disorders out of the total of 1027 forensic psychiatric examinations

**Table 4.** Frequency and mean validation - 0 (absence of deficit)/ 1 (presence of deficit)

		Deficit C			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	403	39.2	39.2	39.2
	1	624	60.8	60.8	100.0
	Total	1027	100.0	100.0	

**Table 5.** Frequency and mean validation for social deficit - 0 (absence of deficit)/ 1 (presence of deficit)

		Deficit S			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	380	37.0	37.0	37.0
	1	647	63.0	63.0	100.0
	Total	1027	100.0	100.0	

**Table 6.** Frequency and mean validation for applicative/ practical deficit

		Deficit A			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	385	37.5	37.5	37.5
	1	642	62.5	62.5	100.0
	Total	1027	100.0	100.0	

performed. Table 8 shows the frequency and mean validation – where 0 is absence of disorder and 1 is presence of disorder – for the participants evaluated by the forensic psychiatric committees of IML Cluj-Napoca.

**Descriptive results regarding schizophrenia spectrum**

There is a mean of 169 regarding the schizophrenia spectrum out of the total of 1027 forensic psychiatric examinations performed. Table 9 shows the frequency and mean validation – where 0 is absence of disorder and 1 is presence of disorder – for the participants evaluated by the forensic psychiatric committees of IML Cluj-Napoca.

**Descriptive results regarding adaptive participation in testing and evaluation**

There is a mean of 476 cases of maladaptive

participation out of the total of 1027 forensic psychiatric examinations performed. Table 10 details the frequency and mean validation – where 0 is absence of maladaptive participation and 1 is presence of maladaptive participation – for the participants evaluated by the forensic psychiatric committees of IML Cluj-Napoca.

**Descriptive results regarding anxiety/depression disorder**

There is a mean of 1 anxiety/depression out of the total of 1027 forensic psychiatric examinations performed. Table 11 illustrates the frequency and mean validation – where 0 is absence of disorder and 1 is presence of disorder – for the participants evaluated by the forensic psychiatric committees of IML Cluj-Napoca.

**Table 7.** Frequency and mean validation - 0 (absence of disorder)/ 1 (presence of disorder)

		Personality			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	893	87.0	87.0	87.0
	1	134	13.0	13.0	100.0
	Total	1027	100.0	100.0	

**Table 8.** Frequency and mean validation - 0 (absence of behavioural disorder) / 1 (presence of behavioural disorder)

		Behaviour			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	831	80.9	80.9	80.9
	1	196	19.1	19.1	100.0
	Total	1027	100.0	100.0	

**Table 9.** Frequency and rate of schizophrenia spectrum in the examined patients

		Spectrum S			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	858	83.5	83.5	83.5
	1	169	16.5	16.5	100.0
	Total	1027	100.0	100.0	

**Table 10.** Frequency and mean validation regarding adaptive participation to testing

		Maladaptive participation			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	551	53.7	53.7	53.7
	1	476	46.3	46.3	100.0
	Total	1027	100.0	100.0	

**Table 11.** Frequency and rate of anxiety/ depression disorder

		Anxiety/Depression			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	0.1	100.0	100,0
Missing	System	1026	99.9		
Total		1027	100.0		

**Table 12.** Frequency and rate of patient simulation/dissimulation

		Simulates/dissimulates			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	0.4	100.0	100.0
Missing	System	1023	99.6		
Total		1027	100.0		

### ***Descriptive results regarding simulation/dissimulation***

There is a mean of 4 participants with simulation/dissimulation out of the total of 1027 forensic psychiatric examinations performed. Table 12 illustrates the frequency and mean validation – where 0 is absence of disorder and 1 is presence of disorder – for the participants evaluated by the forensic psychiatric committees of IML Cluj Napoca.

## **DISCUSSION**

The results above show the existence of a larger rate of neurocognitive disorder, developmental intellectual disability and schizophrenia spectrum (psychotic disorders, schizophrenia and other associated mental disorders). A forensic model for the evidence-based practice (EBP) paradigm has been emphasised in the evaluation activity of the Cluj-Napoca Institute of Forensic Medicine.

The results obtained by the members of the committee were in concordance with each other, but also with the results obtained from psychological testing. Consequently, no clarifications or discussions were required on the aspects which were evaluated/tested. There is a continuous preoccupation for the improvement of evaluation procedures, by increasing the duration of an examination and using more performant instruments and devices. For instance, in the case of paedophilia, we aim to purchase and use a modern device which can provide much more complex information for establishing differential diagnosis compared to the instruments which have been used up to now.

Another goal is to use examination time more efficiently, aiming to increase the duration of an evaluation, in order to obtain relevant information which would converge in establishing a diagnosis or the conclusions of an examination.

**In conclusion**, the results obtained within the evaluation committees show that, following legal and procedural norms, they have generated correct and just decisions for adjudication of incapacity until the clarification of comorbid psychopathology which may

have remained unidentified in the initial evaluation which the patients had undergone before being examined by IML Cluj-Napoca.

Using modern testing instruments, legal procedures and approaching the evidence based practice (EBP) paradigm are the resources and means by which psychological evaluation in the forensic field has a double role, both a complementary one and one of confirming psychiatric results.

### **Conflict of interest**

The authors declare that they have no conflict of interest.

## **References**

1. Edmond G, Found B, Martire K, Ballantyne K, Hamer D, Searston RA, Thompson MB, Cunliffe E, Kemp R, San Roque M, Tangen J, Dioso-Villa R, Ligertwood A, Hibbert B, White D, Porter G, Roberts A. Model forensic science. *Australian Journal of Forensic Sciences*. 2016; 48(5): 496-537.
2. Edmond G, Martire KA. Forensic science in criminal courts: The latest scientific insights. *Australian Bar Review*. 2016; 42(3): 367-384.
3. Chin JM, Ribeiro G, Rairden A. Author Notes, *Journal of Law and the Biosciences*. 2019; 6 (1): 255-288.
4. Ross R, Kramer K, Martire KA. Consistent with: what doctors say and jurors hear, *Australian Journal of Forensic Sciences*. 2019; 51:1: 109-116.
5. Martire KA, Edmond G. Rethinking expert opinion evidence. *Melbourne University Law Review*. 2017.
6. Martire KA, Kemp RI, Newell BR. The psychology of interpreting expert evaluative opinions. *Australian Journal of Forensic Sciences*. 2013; 45(3): 305-314.
7. Styck KM, Walsh SM. Evaluating the prevalence and impact of examiner errors on the Wechsler scales of intelligence: a meta analysis. *Psychol Assess*. 2016; 28:3-17.
8. Ordonanță nr.1 din 20 ianuarie 2000 privind organizarea activității și funcționarea instituțiilor de medicină legală. Textul actului republicat în M.Of. nr. 996/10 noi. 2005, [http://www.cdep.ro/pls/legis/legis\\_pck.htp\\_act\\_text?id=67669](http://www.cdep.ro/pls/legis/legis_pck.htp_act_text?id=67669) (Romanian).