

# Neuropsychology and its relevance to clinical psychology in the non-specialist adult mental health setting

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## Abstract

**Objectives:** This study aims to investigate the prevalence of neuropsychological disorders in a non-specialist clinical psychology service in adult mental health service and also to explore the existence of neuropsychological symptoms in those subjects having psychiatric disorders.

**Method:** The yearly data of new referrals from the psychology register and record files of the patients was collected for this purpose and subsequently analysed. The two content scales of MMPI-2, ie. HEA2 and HEA3 were administered and scored.

**Results:** The results indicate that neuropsychological disorders were the second major referral source during this period and a significant difference ( $p = 0.001$ ) was found between the scores of HEA-2 and HEA-3, which suggest that the subjects reported more neuropsychological symptoms than symptoms of general health concern during their initial routine psychological assessment.

**Conclusion:** There is consistency in our findings regarding the questions raised in this study which indicates a prevalence of neuropsychological disorders in adult mental health settings. It also indicates a high rate of neurological symptoms in psychiatric patients with psychiatric disorders.

**Key words:** Neuropsychology; Relevance; Adult mental health.

## Introduction

Neuropsychology as an independent speciality has experienced unprecedented development in recent times. It is involved in extensive practical research and is developing qualitative and quantitative neuropsychological approaches for clinical application on an interdisciplinary as well as disciplinary basis. These approaches have been utilised by most practitioners working with patients in different health service settings to identify the strengths and weaknesses of the individual. Tests relate to their functioning at home, in business and work place settings, in the academic environment and social settings, etc. It is a client-based assessment, which is relevant to general clinical psychological practice.

Acquiring knowledge of this discipline can augment the skill and technical know how of clinical psychologists and could in turn make a distinctive contribution to the overall

care of clients attending adult mental health services. Primarily neuropsychological assessment is used to detect such disorders as cognitive and behavioural deficits, emotional problems like disinhibition, and lack of insight as a sequel to frontal lobe changes or strokes.<sup>1</sup> It has clinical usefulness in the form of intervention, enhancing one's ability to perform well in daily affairs.<sup>2</sup> Furthermore, the application of neuropsychological assessment could develop inroads into our understanding of psychiatric and other functional disorders specifically in forensic cases.<sup>3,4</sup>

There are some other crucial areas where neuropsychology becomes significant, such as early detection of dementia and related neurodegenerative diseases, the distinction between Alzheimer's, vascular dementia and frontal lobe dementia.<sup>5</sup> Also the differentiation between these and normal ageing memory disorder, executive dysfunction in alcoholics<sup>6</sup> and distinction between neurological conditions and functional disorders in adult mental health settings is of obvious importance.<sup>7</sup>

In addition its role is pivotal in identifying neuropsychological deficits as sequelae of head injury, brain tumour and epilepsy. Other medical conditions such as multiple sclerosis, Huntington disease, HIV/AIDS, vascular disease and cognitive deficits in substance use disorder increasingly are areas in which neuropsychology may play a central role.<sup>8</sup>

To recap, the literature reviewed demonstrates significant applications of neuropsychological investigation in a clinical psychology setting in adult mental health services. This study attempts to profile neuropsychological problems and their occurrence in clinical settings. Our aim was to explore the prevalence of neuropsychological problems occurring in an adult mental health setting during a one-year period. Also to discover the emergence of neuropsychological symptoms as a result of administering psychometrics for routine psychological assessment. It was hypothesised that the clients who were seen for initial assessment using content scales of MMPI-2 would have more neurological symptoms than symptoms related to general health concerns.

## Method

### Subjects

Subjects were all new referrals received by the psychology department of the adult mental health Services County Roscommon from Jan 1, 2007 to Dec 31, 2007. All were considered in the context of profiling the prevalence of neuropsychological disorders. Among them, those clients who were administered MMPI-2 were selected to analyse the data of two content scales.

### Instruments

- Record files of the clients, which included referral letters, and other relevant documents of the patients.

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Table 1: Mean, standard deviation and t value between the scores of content scales HEA-2 and HEA-3

	Scales	Mean	SD	t	P
(n = 53)	HEA2	4.49	2.91	6.420	0.001
	HEA3	2.57	1.74		
Depression (n = 17)	HEA2	5.06	3.07	3.321	0.001
	HEA3	3.12	1.73		
Eating Disorder (n = 6)	HEA2	4.00	2.89	1.648	.001
	HEA3	2.28	1.98		
Obsessive Compulsive Disorder (n = 5)	HEA2	1.5	1.29	0.000	1.00
	HEA3	1.5	1.00		
Anxiety (n = 10)	HEA2	4.1	3.14	2.053	0.001
	HEA3	2.8	1.87		
Alcohol Problem (n = 15)	HEA2	5.13	2.61	7.407	0.001
	HEA3	2.20	1.69		

• The two Content MMPI-2 Scales the HEA-2, (neurological symptoms), and HEA-3 (symptoms of general health concern) were used in this study. These scales possess external validity that is equal or greater than that of the original MMPI clinical scales.<sup>9</sup> Moreover, it is also described that the content of objective personality scales have earned wider acceptance over the past few decades<sup>10,11</sup> and are considered to be as valid in describing and predicting personality variables as scales developed by other methods.<sup>12</sup>

### Procedure

The purpose of this study was discussed and agreed with the principal psychology manager including the relevance of the project to the adult mental health clinical psychology service. As an ethical issue, no identifying data relating to clients was included in the final description. As mentioned above, this study includes the yearly data (From January 2007 to December 2007) of those clients who were referred for routine psychological assessment. During this period, appointments were offered to all these clients. The initial psychological assessment includes a clinical interview and a battery of psychological tests including personality tests, memory tests, and intelligence tests. A comprehensive written report for each client was provided and a tentative diagnosis was communicated to referral sources. The data of all referrals (n = 111) was collected from the psychology register and record files of the relevant period. These were subsequently analysed and the frequency of referrals outlined in percentages. From the total group a further sub group was created consisting of clients (n = 53) who were administered MMPI-2 for their routine psychological assessment. The data of the two content scales, ie. HEA-2 and HEA-3 were then examined for the current study. T test was applied to find the differences between the two MMPI scales. The results are depicted in Figure 1 and Table 1 in the next section.

### Results

The data obtained from files indicated that neuropsychological disorders formed a cluster which included epilepsy, post head injury, memory disorder, dementia, Huntington

disease and multiple sclerosis and these were found the second major source of referrals, ie. 21% indicating a significant occurrence in the general adult mental health service. Further breakdown in Figure 1 shows the total attendance of 80, with 18%-19% not attending.

The analysis also discovered that 25% of clients had been assigned diagnoses of depression, 15% alcohol dependence, and 13.5% had anxiety, 7.2% had eating disorders and 5.4% had obsessive-compulsive disorder. Depression was found to be the most prevalent diagnosis in referrals. In addition the third, fourth and fifth commonest diagnoses from referrals were alcohol dependence 15%, anxiety disorders 13.5 %, and eating disorders 7.20% respectively. All had a significant difference (P.001) between scores on HEA-2 and HEA-3 (see Table 1). This suggests that those clients who had depression, alcohol dependence, anxiety and eating disorder presented with more neurological symptoms than the symptoms of general health concerns.

Only one disorder obsessive-compulsive disorder, which is attained the smallest percentage at 5.4%, had (p = 1.00) indicating no significant difference and in turn suggests that these clients appeared to have less neurological symptoms compared to symptoms of general health concern. However, the majority (n = 53) had significant differences between scores on HEA-2 and HEA-3 (p = 0.001).

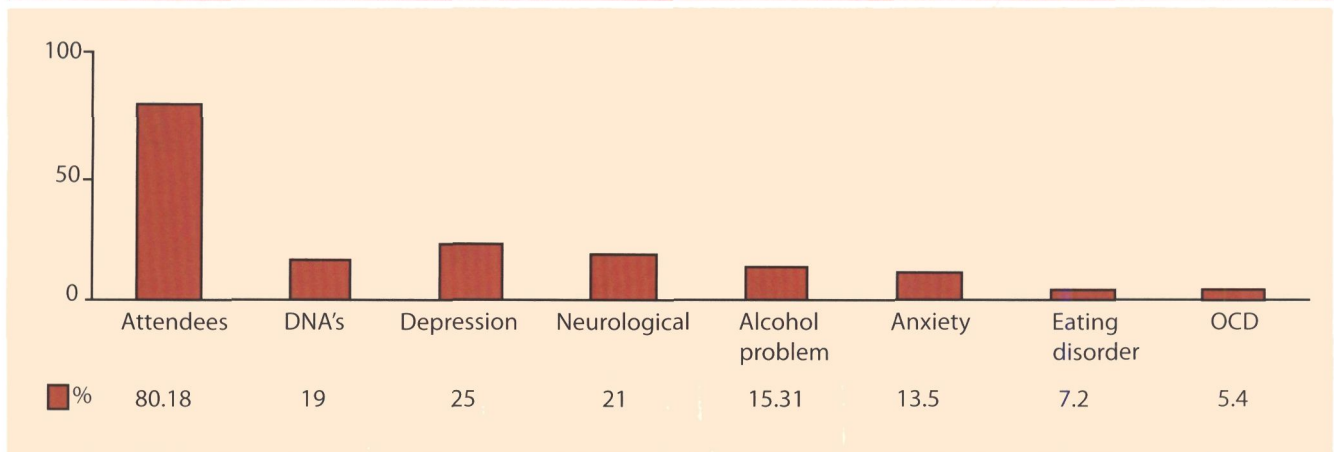
### Discussion

We endeavoured to explore the prevalence of neuropsychological disorders in generic clinical psychology practice in adult mental health settings, where patients with common psychiatric disorders were referred for routine psychological assessment. Further examination looked at the frequency of neurological symptoms versus symptoms of general health concern as defined by the MMPI-2.

Our findings indicated a significant occurrence of neuropsychological disorders amongst those referred in a one-year period and also discovered the highest incidence of neurological symptoms in the MMPI-2 profiles in those clients having psychiatric disorder. It is also significant that a range of neurological disorders presented during a one-year



Figure 1: Neuropsychological disorders



period that included epilepsy, post head injury or operation, concussions, memory disorder, dementia, Huntington disease and multiple sclerosis. In addition to this the clients that also had a diagnosis of psychiatric disorders and were referred for routine psychological assessment, reported more neurological symptoms than general health concerns, creating a context to conceptualise the common psychiatric disorders with reference to neuropsychological conditions.

There is evidence from literature supporting the aforementioned results. Previous studies have revealed that psychomotor slowing, impairment in memory and executive functions are found in depressed clients<sup>13</sup> and central executive deficits among alcoholics.<sup>14</sup> However, this association between neurological symptoms and psychiatric disorders has not been explained adequately<sup>15,16</sup> and needs more extensive research.

The significance of neuropsychological assessment in the initial investigation is therefore paramount. It would seem essential for all clinical psychologists working in the adult mental health settings to have grounding in neuropsychology to attempt to answer these questions. This would indicate whether clients should be referred for further advanced neurological investigations or whether it is linked to their anxiety and depression. Also differentiation may be possible between psychogenic memory disorders and factitious disorders. Furthermore, a comprehensive formulation including neuropsychological examinations would indicate the appropriate intervention to deliver an effective professional service. Moreover, the recent advances in clinical knowledge and development of Neuropsychological testing allow clinicians to access a valid and reliable assessment relevant to diagnosis and care plans.<sup>16</sup>

### Conclusion

The findings of this study demonstrate the prevalence of neuropsychological disorders in an adult mental health setting and also show more neurological symptoms than symptoms

of general health concerns in a range of psychiatric disorders over a one-year period. It suggests that neuropsychological assessment and intervention could be an integral part of clinical psychological practice and may emerge to play a more significant role in adult mental health. It further implies that clinical psychologists would benefit from the acquisition of special assessment and intervention skills in neuropsychological assessment. The field of neuropsychology provides an opportunity to apply scientific psychology, grounded in research, in an intellectually stimulating area, to help with real human problems and to alleviate distress in areas that otherwise may not be addressed.

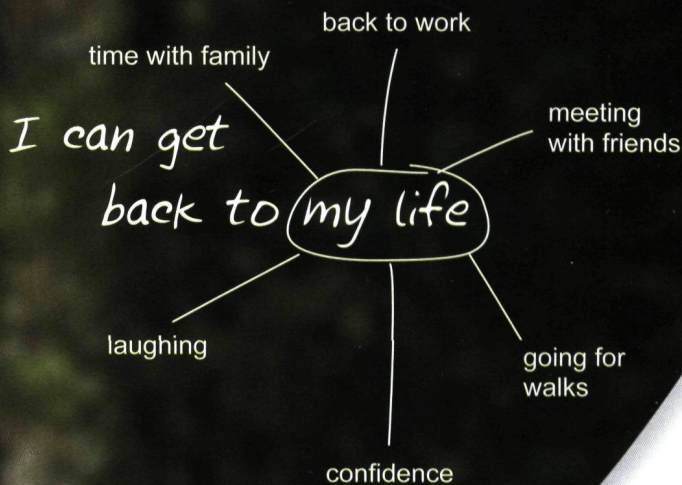
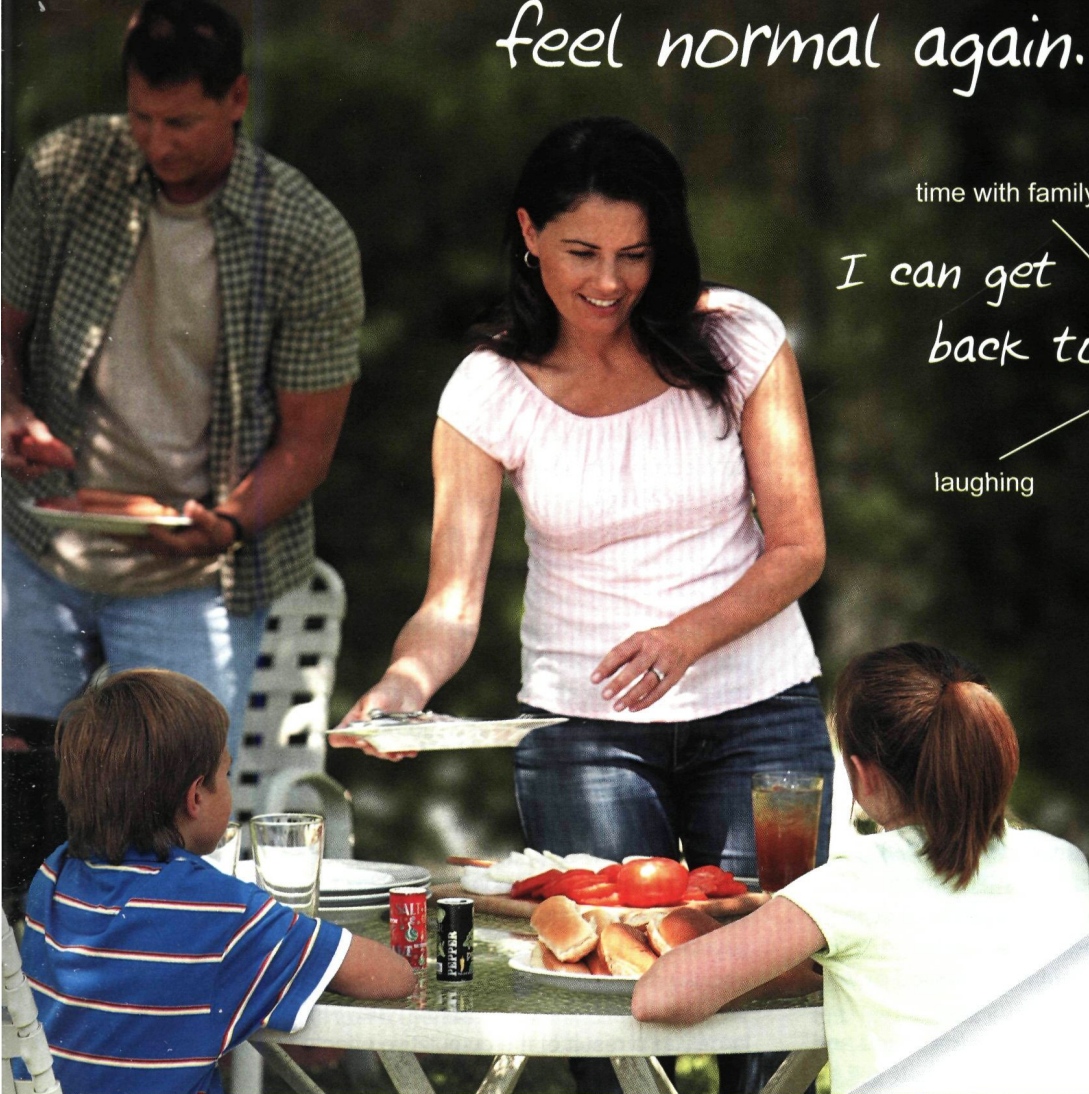
Declaration of interest: None.

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sustained increase in blood pressure while receiving duloxetine, consider either dose reduction or gradual discontinuation. Caution in patients taking anticoagulants or products known to affect platelet function, and those with bleeding tendencies. Hyponatraemia has been reported rarely, predominantly in the elderly. Caution is required in patients at increased risk for hyponatraemia, such as elderly, cirrhotic, or dehydrated patients, or patients treated with diuretics. Hyponatraemia may be due to a syndrome of inappropriate anti-diuretic hormone secretion (SIADH). It is general clinical experience that the risk of suicide may increase in the early stages of recovery from depression. Other psychiatric conditions for which Cymbalta is prescribed can also be associated with an increased risk of suicide-related events. Patients with a history of suicide-related events or those exhibiting a significant degree of suicidal thoughts prior to commencement of treatment are known to be at greater risk of suicidal thoughts or suicidal behaviour, and should receive careful monitoring during treatment. A meta-analysis of placebo-controlled clinical trials of antidepressants in psychiatric disorders showed an increased risk of suicidal behaviour with antidepressants compared to placebo in patients less than 25 years old. Close supervision of patients, and in particular those at high risk, should accompany drug therapy, especially in early treatment and following dose changes. Patients (and caregivers of patients) should be alerted about the need to monitor for any clinical worsening, suicidal behaviour or thoughts, and unusual changes in behaviour, and to seek medical advice immediately if these symptoms present. Since treatment may be associated with sedation and dizziness, patients should be cautioned about their ability to drive a car or operate hazardous machinery. Cases of akathisia/psychomotor restlessness have been reported for duloxetine. In patients who develop these symptoms, increasing the dose may be detrimental. Duloxetine is used under different trademarks in several indications (major depressive episodes, generalised anxiety disorder, stress urinary incontinence, and diabetic neuropathic pain). The use of more than one of these products concomitantly should be avoided. Cases of liver injury, including severe elevations of liver enzymes (>10-times upper limit of normal), hepatitis, and jaundice have been reported with duloxetine. Most of them occurred during the first months of treatment. Duloxetine should be used with caution in patients with substantial alcohol use or with other drugs associated with hepatic injury. **Interactions** Caution is advised when taken in combination with other centrally acting medicinal products and substances, including alcohol and sedative medicinal products, exercise caution when using in combination with antidepressants. In rare cases, serotonin syndrome has been reported in patients using SSRIs concomitantly with serotonergic products. Caution is advisable if duloxetine is used concomitantly with serotonergic antidepressants like SSRIs, tricyclics, St John's Wort, venlafaxine, or triptans, tramadol, pethidine, and tryptophan. Undesirable effects may be more common during use with herbal preparations containing St John's Wort. **Effects on other drugs:** Caution is advised if co-administered with products that are predominantly metabolised by CYP2D6 (risperidone, tricyclic antidepressants [TCAs], such as nortriptyline, amitriptyline, and imipramine) particularly if they have a narrow therapeutic index (such as flecainide, propafenone, and metoprolol). **Anticoagulants and antiplatelet agents:** Caution should be exercised when duloxetine is combined with oral anticoagulants or antiplatelet agents due to a potential increased risk of bleeding. Increases in INR values have been reported when duloxetine was co-administered with warfarin. **Undesirable Effects** The majority of common adverse reactions were mild to moderate, usually starting early in therapy, and most tended to subside as therapy continued.

Those observed from spontaneous reporting and in placebo-controlled clinical trials in depression, generalised anxiety disorder, diabetic neuropathic pain, and fibromyalgia at a rate of  $\geq 1/100$ , or where the event is clinically relevant, are: *Very common* ( $\geq 1/10$ ): Nausea, headache, dry mouth, somnolence, fatigue, insomnia, dizziness, and constipation. *Common* ( $\geq 1/100$  and  $< 1/10$ ): Weight decrease, palpitations, tremor, paraesthesia, dysgeusia, lethargy, blurred vision, linitus, yawning, diarrhoea, vomiting, dyspepsia, flatulence, sweating increased, rash, night sweats, musculoskeletal pain, muscle tightness, muscle spasm, decreased appetite, flushing, abdominal pain, chills, erectile dysfunction, agitation, libido decreased, anxiety, orgasm abnormal, abnormal dreams, sleep disorder. Clinical trial and spontaneous reports of anaphylactic reaction, hyperglycaemia (reported especially in diabetic patients), mania, hyponatraemia, SIADH, hallucinations, dyskinesia, serotonin syndrome, extra-pyramidal symptoms, convulsions, akathisia, psychomotor restlessness, glaucoma, mydriasis, syncope, tachycardia, supra-ventricular arrhythmia (mainly atrial fibrillation), syncope, hypertension, hypertensive crisis, epistaxis, gastritis, haematochezia, dysuria, gastro-intestinal haemorrhage, hepatic failure, hepatitis, acute liver injury, angioneurotic oedema, Stevens-Johnson syndrome, trismus, and gynaecological haemorrhage have been made. Cases of suicidal ideation and suicidal behaviours have been reported during duloxetine therapy or early after treatment discontinuation. Cases of aggression and anger have been reported particularly early in treatment or after treatment discontinuation. Discontinuation of duloxetine (particularly abrupt) commonly leads to withdrawal symptoms. Dizziness, sensory disturbances (including paraesthesia), sleep disturbances (including insomnia and intense dreams), fatigue, agitation or anxiety, nausea and/or vomiting, tremor, headache, irritability, diarrhoea, hyperhidrosis, and vertigo are the most commonly reported reactions. The heart rate-corrected QT interval in duloxetine-treated patients did not differ from that seen in placebo-treated patients. No clinically significant differences were observed for QT, PR, QRS, or QTcB measurements between duloxetine-treated and placebo-treated patients. In clinical trials in patients with DPNP, small but statistically significant increases in fasting blood glucose were observed in duloxetine-treated patients compared to placebo at 12 weeks. At 52 weeks there was a small increase in fasting blood glucose and in total cholesterol in duloxetine-treated patients compared with a slight decrease in the routine care group. There was also an increase in HbA<sub>1c</sub> in both groups, but the mean increase was 0.3% greater in the duloxetine-treated group. For full details of these and other side-effects, please see the Summary of Product Characteristics, which is available at <http://www.medicines.ie/>. **Overdose** Cases of overdoses, alone or in combination with other drugs, with duloxetine doses of 480mg were reported. Some fatalities have occurred, primarily with mixed overdoses, but also with duloxetine alone at a dose of approximately 1000mg. **Legal Category** POM. **Marketing Authorisation Numbers and Holder** EU/1/04/296/001 EU/1/04/296/002 EU/1/04/296/003 EU/1/04/296/004 Eli Lilly Nederland BV Grootslag 1-5 NL-3991 RA Houten The Netherlands. **Date of Preparation or Last Review** July 2008. **Full Prescribing Information is Available From** Eli Lilly and Company Limited Lilly House, Priestley Road Basingstoke, Hampshire, RG24 9NL Telephone: Basingstoke (01256) 315 999 or Eli Lilly and Company (Ireland) Limited Hyde House, 65 Adelaide Road Dublin 2, Republic of Ireland Telephone: Dublin (01) 661 4377. **CYMBALTA** (duloxetine) is a trademark of Eli Lilly and Company. **Date of preparation** January 2009. **Reference:** 1. Zimmerman M, McGlinchey JB, et al. *Am J Psychiatry* 2006;163:148-150.

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