

ASSESSMENT OF THE DIAGNOSIS OF DEPRESSION BY GRAPHOLOGICAL ANALYSIS

⁽¹⁾Lorenzo Lorusso, ⁽²⁾Lucia Cazzoletti, ⁽³⁾Guido Bertolini, ⁽⁴⁾Antonietta Citterio
⁽⁵⁾Iride Conficoni, ⁽⁶⁾Claudia Dander, ⁽⁷⁾Margherita Zerbi, + ⁽⁸⁾Lucetta Banchi,
⁽⁹⁾Luisa Linguini

⁽¹⁾Neurology Dept., "M. Mellini" Hospital - Chiari; ⁽²⁾ Medical Statistics and
Clinical Epidemiology Dept. – University of Verona; ⁽³⁾ Clinical Epidemiology
Lab., Institute of Pharmacology "M. Negri" - Ranica; ⁽⁴⁾ Epidemiology Lab. "C.
Mondino" Neurology Inst. – University of Pavia; ⁽⁵⁾ Graphologist - Reggio Emilia;
⁽⁶⁾ Graphologist - Mezzocorona; ⁽⁷⁾ Graphologist - Bolzano; + ⁽⁸⁾ Graphologist -
Florence, ⁽⁹⁾ General Practitioner - Porto Torres.

Summary

The aim of this study was to verify whether graphological analysis might be of help to clinicians in diagnosing depression, especially in its early stages. One hundred and twenty pieces of handwriting by 73 depressed patients and 47 controls were assessed. Patients were recruited according to the clinical criteria laid down in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Graphological analysis was blind tested by 4 graphologists and based on the Moretti method. Data were analysed by Cohen's kappa to calculate the index of agreement between clinical diagnosis and graphological assessment by each graphologist, and the kappa index for global agreement between the 4 graphologists. The data were processed using STATA software, version 7.0.

INTRODUCTION

Complementary and alternative medicine (CAM) is defined as "a diagnostic, therapeutic and preventive approach as different from orthodox medicine, which meets the requirements of its users" (Ernst, 1999). CAM has become popular and the reasons behind its diffusion are complex. Graphology is one area of CAM. It is adopted in psychological testing, in expert assessment and to complement personality tests. Very few studies have evaluated its application in the neuropsychiatric field (Berti and Cionini, 1977; Van Rooij and Hazelzet, 1997). These limited researches have nonetheless demonstrated that the graphological approach may prove helpful in neuropsychiatric diagnostics.

Clinically, handwriting is used as a diagnostic complement in patients with organic pathologies of both the central and peripheral nervous systems. Very little

research has been conducted in the absence of evident organic alterations, as in the psychiatric domain. Depression is the most widespread neuropsychiatric disorder and is difficult to circumscribe, particularly in its early stages. On this premise we decided to use graphological investigation as an aid in the diagnosis of depression.

Depression lends itself to graphological assessment because individuals tend to express psychological situations through their handwriting, as subjective distress and feelings of discouragement, that are unlikely to emerge on administration of questionnaires or neuropsychological tests. The difficulty in diagnosing this illness lies in making a distinction between sadness, demoralization and depression. Mood changes lie along a continuum, gradually moving from normality to pathology, with no clear-cut boundaries. Diagnostic difficulties increase because patients are generally reluctant to acknowledge and express their psychic distress. Another problem is that physicians subjectively detect and interpret patients' symptoms. Graphological analysis may, in association with other instruments, prove to aid objective diagnosis of depression.

OBJECTIVES

The main aim of the study was to assess whether graphological analysis could be used to support conventional clinical practice in diagnosing depression. A secondary objective was to divide patients into two subgroups: those affected by major or unipolar depression and those with dysthymia.

MATERIALS AND METHODS

The research was conducted in collaboration with four graphologists (referred to by the letters A, B, C, D) who examined the handwriting of the depressed patients (unipolar depression and dysthymia), recruited according to the clinical criteria laid down in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV, 1995), and the handwriting of the non-depressed subjects.

The research was conducted in two stages: one clinical and one graphological. Recruited patients presented with unipolar depression and dysthymia. The control subjects were not affected by neuropsychiatric and/or organic illnesses. The subjects were invited to write a short biography, without making explicit reference to emotional status. The handwriting was sent to each of the four graphologists, together with a graphological form filled out by the physician. The graphologists blind tested the material and were in possession solely of the subjects' personal details, educational level, marital status and occupation. At the start of the study, the

graphologists agreed on the graphical signs that might correspond to a depressive disorder, based on their common training in the Moretti method.

Moretti’s approach by graphic signs and their combination can arrange every graphism and to explain different aspect of the personality (Moretti, 1995). Three main aspects Moretti’s method have been analyzed: pressure, graphic and automatism gestures. The first is variation of tone and rhythm of the morpho-psychological mark of the individual. The second graphic is the synthesis of unique spontaneous movements for each writer. The third: the automatism is projection of characteristics and individual attitude automatics (Palaferrri, 2001).

Moretti divided main graphic signs in: essential (fundamental possession of the individual psycho-phisc constitution), modificatives (these signs can accentuate or reduce the individual characterization of essential signs) and accidentals (concerning the potential inner) (Palaferrri, 2001). In this study graphologists have correlated graphological signs with main symptoms or signs for major or unipolar depression and dysthymia by DSM-IV criteria (Tab. 1).

Tab. 1: CORRELATION BETWEEN GRAPHOLOGICAL AND CLINICAL DIAGNOSIS.

MAJOR OR UNIPOLAR DEPRESSION	DSM IV
<ul style="list-style-type: none"> - CURRENT DEPRESSION - HIGH-RISK DEPRESSION 	Presence of at least 5 symptoms out of 9 listed, for at least 2 weeks, and must constitute a marked change compared to prior level of functioning.
	MORETTI METHOD
	Presence of at least 3 high-grade essential signs (from 7/10).
DYSTHYMIA	DSM IV
<ul style="list-style-type: none"> - MODERATE-RISK DEPRESSION 	Presence of depressed mood, detected subjectively and objectively by others, lasting at least 2 years.
<ul style="list-style-type: none"> - LOW-RISK DEPRESSION 	MORETTI METHOD
	Presence of a substantial, high grade sign (7/10) accompanied by at least 3-4 moderate-grade signs (4-5/10).
CONTROLS	DSM IV
	Depressive manifestations absent
CONTROLS	MORETTI METHOD
	Presence of the following graphological signs:
	<ul style="list-style-type: none"> - Balanced triple width with fluid rhythm; - Balanced temperament; - Absence of high-grade signs (over 8/10).

Graphological signs for unipolar or major depression were classified as high and current depression because shown the presence of serious clinical depression, mainly: agitation or retardation, poor self-esteem and guilt feeling and (Tab. 2) and associated with handwriting of at least 3 high-grade essential signs from 7/10 and over of a value scale proposed by Moretti. This scale measures from 1 to 10 tenths different aspects of graphic sign, for example: type of pressure, size of letters and etc (Moretti, 2000, Palaferri, 2001) (Tab. 1).

Tab.2: CORRELATION BETWEEN GRAPHOLOGICAL SIGNS AND SOME CLINICAL SYMPTOMS OF MAJOR OR UNIPOLAR DEPRESSION

AGITATION OR RETARDATION	– Ink spotting (intozzata II) over 4/10
POOR SELF ESTEEM	– Marked unevenness and falls in letter size; – Meticulous;
GUILT FEELINGS	<u>Combinations:</u> Impulsive – Wide space between words; Meticulous – Wide space between words; Laboured – Wide space between words; (Each combination is worsened by the presence of ink spotting (intozzata II))

Dysthymia was considered as moderate and low risk depression for graphologists because clinical aspects were characterized by minor difficulties and/or symptoms, mainly: chronic indecision and asthenia or anergy (Tab. 3) and characterized by presence of a substantial, high grade sign (7/10) accompanied by at least 3-4 moderate-grade signs (4-5/10) (Moretti, 2000; Palaferri, 2001) (Tab. 1).

Tab. 3: CORRELATION BETWEEN GRAPHOLOGICAL SIGNS AND SOME CLINICAL SYMPTOMS OF DYSTHYMIA

CHRONIC INDECISION	– High grade hesitancy; – Wavering hesitancy;
ASTHENIA – ANERGY	– Slow, wistful; – Phlegmatic; <u>Combinations:</u> – Descending; – Sloping 8/10;

Controls were handwritings characterized by graphological signs regarded by Moretti’s method as healthy (Tab. 1).

Data was analysed using Cohen’s kappa, which is a measurement of agreement that compensates and corrects for chance, i.e. which acknowledges that a proportion of the observed agreements may be due to chance. An index of agreement between clinical diagnosis and graphological assessment could be calculated for each graphologist, based solely on two possible judgements: depressed or not depressed (control).

A kappa index was also calculated for global agreement among the four graphologists. Data analysis was conducted using STATA software, version 7.0 (StataCorp, College Station, TX, USA).

RESULTS

One hundred and twenty subjects were recruited, of whom 73 were depressed (42 affected by major or unipolar form and 31 by dysthymia) and 47 were not depressed (controls). Mean age of the depressed was 47 years (range: 21-79 years); 58 were females and 15 males; 43 were married, 18 single, 10 widowed and 2 divorced. Mean age of the controls was 43.7 years (range: 18-77 years); 36 were females and 11 males.

The agreement between each of the four graphologists’ assessments and the clinical assessment is indicated in Tab. 4.

Tab. 4: AGREEMENT BETWEEN GRAPHOLOGICAL AND CLINICAL DIAGNOSIS

Graphologist	Observed agreement	kappa	95% CI
A	69.0%	0.31	0.14-0.48
B	64.1%	0.30	0.07-0.51
C	77.8%	0.50	0.34-0.66
D	70.2%	0.29	0.13-0.44

None of the graphologists achieved a satisfactory Cohen’s kappa index, i.e. 0.70, with results ranging from 0.29 for graphologist D to 0.50 for graphologist C. Assessment of inter-observer consistency, by calculating the index of agreement between several observers, yielded a Cohen’s kappa of 0.32 (95%CI: 0.23-0.40). If we classify the results by category (control, dysthymic, major or unipolar) rather than dichotomously (control, depressed), Cohen’s kappa for the weighted mean kappa for each judgement, becomes 0.25 (Tab. 5).

Tab. 5: AGREEMENT AMONG THE GRAPHOLOGISTS

Judgement	Kappa
Control	0.31
Dysthymic	0.14
Unipolar	0.33
Total	0.25

CONCLUSIONS

Results showed marked inconsistencies between the judgement expressed by each graphologist and clinical diagnosis, and in the judgements expressed by each graphologist compared to the others. This also applies to classification by category: if we observe Cohen's kappas for each of the 3 categories, we see that global agreement between the four graphologists was relatively low, and even lower for the dysthymic category.

Poor agreement between the various graphologists suggests that diagnosis was based chiefly on personal experience, taking little account of classificatory criteria that have been proposed at the beginning of the study. Graphologists in their work generally haven't precise guidelines to examine the handwritings. Their evaluation is based mainly on background and this research is the first work to provide systematic instructions arranged in guidelines. Discordance might also be due mainly because graphologists haven't examined more handwriting of the same subject. In clinical practice the physician examines the patients more time to do a definite clinical diagnosis in especially in psychiatric disorders. In the same condition graphologist needs to see more handwritings to make a definite graphological evaluation. This explain the lower concordance for dysthymic diagnosis in particularly. Another aspect could be to differences in culture and professional training between the graphologists involved.

Other studies are warranted to confirm the results of this study, with modifications, as having each graphologist examine several pieces of handwriting by the same person, which may enable a more complete analysis.

Acknowledgements

This work is dedicated to Lucetta Banchi for her enthusiasm and important advices that have been important for the research.

We thank Dr Joanne Fleming for her assistance in English translation.

REFERENCES

- ERNST E., 1999, Alternative views on alternative medicine. *Ann Intern Med*, **131**, 229-230.
- BERTIG., CIONINI L., 1977, Il problema della convalida della diagnosi grafologica nel campo delle sindromi psichiatriche. *Rassegna di Studi Psichiatrici*, **LXVI**, 1-14.
- VAN ROOIJ J. J. F., HAZELZET A. M., 1997, Graphologists' assessment of extraversion compared with assessment by means of a psychological test. *Perceptual and Mot Skills*, **85**, 919-928.
- DSM-IV, 1995, *Manuale Diagnostico e Statistico dei Disturbi Mentali*, Masson Italia, Milano.
- MORETTI G., 1995, *Trattato di Grafologia*, Messaggero, Padova.
- Palaferrri N., 2001, *Dizionario grafologico morettiano*, Libreria Moretti, Urbino.
- Moretti G., 2000, *Scompensi ed anomalie della psiche e grafologia*. Messaggero, Padova.

VALUTAZIONE DELLA DIAGNOSI DI DEPRESSIONE MEDIANTE ANALISI GRAFOLOGICA

RIASSUNTO

Lo studio ha cercato di verificare se un'eventuale analisi grafologica può essere d'aiuto al clinico nella diagnosi, specie precoce, della depressione. Sono state valutate 120 scritture di cui 73 depressi e 47 controlli. I pazienti sono stati reclutati secondo criteri clinici del manuale diagnostico e statistico dei disturbi mentali (Diagnostic and Statistical Manual of Mental Disease IV -DSM-IV). La valutazione grafologica è stata condotta da 4 grafologhe, in cieco, adottando il metodo Moretti. L'analisi dei dati è stata effettuata con il kappa di Cohen per calcolare un indice di accordo tra la diagnosi clinica e la valutazione grafologica per ciascuna grafologa e l'indice di kappa relativo all'accordo globale tra le 4 grafologhe. I dati sono stati elaborati utilizzando il software STATA, versione 7.0.