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1 **Title:** The value of the Rorschach method in clinical assessment of migraine patients

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5

6 **Abstract:** Around 15% of the world population suffer from migraine. This affection is
7 recognized as one of the twenty leading causes of disability in the world (WHO) and therefore
8 constitutes a public health problem. Psychological factors such as depression, anxiety and
9 stress are involved in migraine. However, mentalization abilities are considered like a
10 protective factor against physical illness.

11 The last study of migraine in adults with Rorschach-test goes back to 2001 in Italy. We
12 propose to update the data in a French sample comparing migraine patients (N = 32) to
13 standards, with a focus on the mentalizing factors defined by de Tychev (2001). The results
14 highlight significant differences between migraine patients functioning at Rorschach and the
15 general population: representations are few and affective expression is restricted. Migraine
16 patients have difficulties to mentalize excitations.

17 In conclusion, mentalization-based treatment (Bateman & Fonagy, 2016) could be a beneficial
18 intervention for migraine patients.

19

20 **Keywords:** assessment; mentalization; migraine; neurology; Rorschach-test

21

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1 **Introduction**

2 According to the World Health Organization, headaches are one of the twenty leading causes
3 of disability in the world ('WHO | Headache disorders', 2017) and are considered to be the
4 first by professionals (Steiner et al., 2018). Headaches can be primary (without medical
5 explanation) or secondary (caused by another physical condition). Primary headaches include
6 migraine, cluster and tension-type headache. Primary headaches represent 90% of the
7 headaches and affect 15 % of the world population ('WHO | Lifting the burden', 2011). The
8 International Headache Society (IHS) published a classification for neurologists and general
9 practitioners helping the diagnosis of headaches (Headache Classification Committee of the
10 International Headache Society, 2013). This classification is regularly updated.

11 In France, FRAMIG-3 study – a nationwide population-based survey performed in France
12 using IHS classification – shows that 11.2% of the population were diagnosed with a strict
13 migraine and 10.1% as having probable migraine, a new category of headache introduced in
14 the 2004-IHS classification (Lantéri-Minet, Valade, Géraud, Chautard, & Lucas, 2005).

15 GRIM-2005 study – another french nationwide population-based survey – reported
16 informations about consultation experience of migraine patients: 28.4% had never consulted
17 for headaches, 30.8% were in active consultation and 40.7% had previously consulted but
18 lapsed. The reasons for not consulting were mostly self-medication (40.8%), insufficiently
19 frequent headaches (21.0%) and scepticism about the potential benefit of consultation (17.6%)
20 (Lantéri-Minet et al., 2007).

21 Headaches are recognized as a public health problem (Steiner et al., 2018). In Europe, the
22 annual cost for each patient is evaluated at 579 €: 10% are direct costs and 90% are indirect
23 costs, related to the reduction in productivity. In France, it is estimated that 15 million
24 working days are lost due to migraine (Géraud, 2010). Furthermore, Auray observed
25 intangible costs of headaches such as loss of self-confidence, renunciation of a career,

1 prolonged disruption of social or leisure activities (Auray, 2016). 60% of migraine subjects
2 consider that migraine had an adverse impact on their daily life (Lantéri-Minet, Radat,
3 Chautard, & Lucas, 2005).

4

5 **Migraine and psychological factors**

6 The vast majority of health professionals agree that psychological factors are involved in the
7 triggering, intensity, frequency or persistence of migraine attacks. Sacks, a leading neurologist
8 in the 20th century, observed with migraine patients the central role of the emotional life in
9 understanding some attacks (Sacks, 1986). In France, Marty (2008) described migraine as a
10 painful inhibition of the act of thinking or a bulwark against a psychotic collapse.

11 A lot of medical and psychological researches have raised the links between headaches and
12 depression, anxiety (Baldacci et al., 2015; Lantéri-Minet et al., 2005), panic disorder
13 (Yamada, Moriwaki, Oiso, & Ishigooka, 2011), perceived stress (Huber & Henrich, 2003),
14 coping strategy (Lantéri-Minet et al., 2007), alexithymic features (Neyal Muftuoglu, Herken,
15 Demirci, Virit, & Neyal, 2004), the role of pain catastrophizing (Goli, Asghari, & Moradi,
16 2016) ... There is a significant difference between personality characteristics of people
17 suffering from migraine headache and personality characteristics of healthy people (Bermas,
18 Najafi, & Masafi, 2011). Furthermore, psychological factors are associated with treatment
19 response (Lucas et al., 2007) and chronic aspect of headaches (Galli et al., 2017 ; Zampieri,
20 Tognola, & Galego, 2014). But all of these studies used only self-administered questionnaires
21 and sometimes interviews to investigate psychological factors. However, a lot of tools such as
22 projective tests could be used to appreciate psychological features.

23

24

25

1 **Rorschach-test: a robust methodology**

2 Rorschach-test is one of the most well-known projective-test. It is recognized like an efficient
3 tool in psychosomatic medicine (Bash, 1986; Porcelli, 2004, Sultan & Porcelli, 2004; Timsit,
4 1978). For example, some Rorschach indicators such as inanimate movement (*m*), diffuse
5 shading (*SumY*), number of responses (*R*) or the percentage of pure form response (*Form%*)
6 are considered as good markers of stress, anxiety or depression, particularly for patients with
7 inflammatory bowel disease. Moreover, it is possible to predict aggravation of
8 biopsychological distress in chronic diseases with two Rorschach composite indices (*D/Adj D*
9 and *SumY*) (Porcelli, 2010). In an individual approach, Rorschach data may complement
10 information from clinical interviews and help to plan treatment in uncovering depressive
11 emotions in cystic fibrosis patients (Flahault, 2010) or in exploring emotional distress and
12 changing motivation in a context of alcohol addiction (Kostogianni, 2010).

13 The use of the Rorschach-test in psychosomatic medicine has a threefold goal (Sultan, 2010):

14 1 – To assess personality traits and their potential impact on health: this is primary
15 prevention.

16 2 – To identify psychological factors in health behaviors (adherence, follow-up...):
17 this is secondary prevention.

18 3 – To observe psychological responses of patients for rehabilitation purposes.

19 A lot of physical conditions like diabetes (Sultan, Jebrane, & Heurtier-Hartemann, 2002),
20 obesity (Grutta, Epifanio, Iozia, Marino, & Baido, 2018), low back pain (Acklin & Bernat,
21 1987), strokes (Balottin et al., 2018) and headaches in children and teenagers (Balottin et al.,
22 2018 ; Esposito et al., 2017) have used Rorschach methodology.

23 In contrast, there is a lack of works concerning Rorschach and headaches in adults. To our
24 knowledge, the most recent work was done in the 2000s in Italy. Pizza, Spitaleri & Colucci
25 d'Amato (2001) studied personality profile and alexithymic syndrome through the Rorschach-

1 test of 240 primary headache patients drawn from Headache Centre of Neurological Science
2 Institute of the Second University of Naples. Protocols containing a number of responses
3 lower than 10 were excluded and scoring was done by both examiners according to the
4 Rorschach Roman School. They compared Rorschach alexithymia variables between different
5 groups of primary headache: cluster headache, migraine with aura, migraine without aura,
6 tension-type headache and control patients. They showed that all headache groups present
7 “*strong deficits in imaginative and symbolic functions, in affective and empathic capacity and*
8 *in socialization*”, which is similar to alexithymic syndrome.

9 Scapicchio et al. (2000) focused their Rorschach study on chronic daily headaches to describe
10 the distinctive personality traits and their interest in the development of the chronic form of
11 headaches. According to the criteria of the IHS, 139 adult outpatients were included in seven
12 Italian headache centers. Protocols were scored blindly. Results showed that both neurosis
13 associated with anxious-depressive elements and inhibited emotional overflowing are
14 important factors in the genesis of chronic daily headaches. More generally, in these two
15 studies (Pizza, Spitaleri, & Colucci d’Amato, 2001; Scapicchio et al., 2000), headache
16 patients showed a marked restriction in fantasy, with concrete and stereotypic thought, poor
17 adaptive emotional responsiveness, and lack of relational mechanisms and adaptability to
18 environment. Moreover, in comparison to other chronic pain patients on projective test,
19 migraine patients appear to be more exhibitionist and “*to have a lessened capacity to*
20 *constructively manipulate their impersonal surroundings*” (Panek, Skowronski, & Wagner,
21 2002). In France, this affection has not been studied with Rorschach-test since the 80's, in
22 spite of promising results (Timsit, 1978; Pholien, Timsit, Timsit-Berthier, Schoenen, &
23 Maertens, 1985).

24

25 **Mentalization and psychosomatic illness**

1 In addition, Rorschach-test permits to evaluate mentalization capacities. In literature,
2 alexithymia and deficits in mentalization are related (Dimaggio, Nicolò, Brüne, & Lysaker,
3 2011; Fonagy, 2007; Löf, Clinton, Kaldo, & Rydén, 2018; Moriguchi et al., 2006;
4 Ogrodniczuk, Piper, & Joyce, 2011). Alexithymia and somatization are related as well (Bailey
5 & Henry, 2007; Cohen, Auld, & Brooker, 1994; Hosoi et al., 2010; Mattila et al., 2008;
6 Moriguchi et al., 2006).

7 Debbané, Bateman and Fonagy define mentalization as resulting from the development of
8 representations of mental states in the mind of the human infant (Debbané, Bateman, &
9 Fonagy, 2016; Bateman & Fonagy, 2013). It enables each to interpret human behavior
10 (Bouchard et al., 2008).

11 In the Parisian School approach, mentalization is considered as the capacity to elaborate
12 excitations. The Parisian School was founded by Rausch de Traubenberg for the Rorschach
13 test on the legacy of the American School of the 1950s represented by Rappaport, Gill and
14 Schafer (1946). According to Verdon et al. (2014), the Parisian School “*is part of a clearly*
15 *defined position involving the theoretical foundations of the analysis of psychic functioning*
16 *within the field of applied psychoanalysis*”.

17 Debray (1991; 1998; 2016), one of the most well-known professors, psychoanalyst and
18 projectivist in the Parisian School, puts forward the concept of psychosomatic economy.
19 Everyone uses different regulation modes to manage excitations: it could be behavior,
20 character, activities, mentalization and somatization. So, migraine could be understood as an
21 attempt to regulate excitations. Debray defines mentalization as the capacity to tolerate and
22 treat anguish in mental area (Debray, 1991). In psychosomatic theory, high capacities of
23 mentalization are considered like reducing the risk of developing physical illness (Aisenstein
24 & Smadja, 2010; Bouteloup, Belot, Bonnet, Mariage, & Vuillier, 2017; Debray, 2016; Gubb,
25 2013; Marty, 2007).

1 Riem and al. (2018) studied the role of mentalization in medically unexplained somatic
2 symptoms (MUSS). They hypothesized that severity of MUSS is related to deficits in
3 mentalization of one's own and others' mental states: there is an association between poor
4 mentalization, interpretation of bodily states and higher level of somatization.
5 For nearly 30 years in France, De Tychey and al. developed quantitative and qualitative
6 mentalization features on Rorschach-test (De Tychey, Diwo & Dollander, 2000, Rebourg, De
7 Tychey & Vivot, 1991). They have undertaken a critical review to define mentalization and
8 have made a listing in literature of the indicators in the field of Rorschach-test. They
9 determinate, among other qualitative signs, eight quantitative factors: lower number of
10 responses, *F%* higher, *F+%* higher, lower movement responses, lower partial/animal/object
11 movement responses, *A%* higher, *P* higher, *Anguish-Index%*⁶ higher. They compared these
12 Rorschach indicators in somatic patients, heroin addict patients and nevrotic patients (De
13 Tychey & Bacqué, 1995). Maternal mentalization was also evaluated thanks to these
14 Rorschach indicators in two matched groups of mothers with infant presenting or not a
15 somatic disorder (Belot & De Tychey, 2015). According to Porcelli & Kleiger (2016),
16 Rorschach human movement responses are related to a high mental process such as
17 mentalization. With these Rorschach-indicators, it is possible to appreciate mentalization
18 abilities of subjects and how they treat excitations induced by the test.

19

20

21 **Materials and methods**

⁶ $AI\% = (\text{Partial human responses} + \text{Anatomic responses} + \text{Sexe responses} + \text{Blood responses}) / \text{Total number of responses} \times 100.$

1 Our study was conducted from May 2016 to May 2018 and was approved by the local clinical
2 ethics committee and the protection to persons and property committee. It obtained all legal
3 authorizations and has been registered⁷. All patients gave their written informed consent.

4 *Participants*

5 Our sample consisted of 32 persons suffering from migraine. At first, we included 38 non-
6 psychiatric, non-pregnant patients consulting a specialist at the consultation of primary
7 headaches depending on the neurological department of the Regional University Hospital
8 center of Besancon (France). To be included, patients had to suffer from migraine with and
9 without aura according to the new International Headache Society classification (IHS-3), and
10 had to be 25 years old or over. In addition, it must have been the first time that patients
11 consulted a neurologist. However, after this selection, six patients were excluded post
12 recruitment based on medical criteria.

13 Table 1: Descriptive statistics of socio-demographic data

14 Enter Table 1 about here

15 Socio-demographic characteristics are reported in Table 1. The majority of the patients were
16 female (87.1%) and the average age was 41.1 (\pm 10.3). These demographic data are
17 representative of a French migraine population (Lantéri-Minet et al., 2005). Repartitions of
18 educational level and family status in our sample follow general french population
19 distribution, except for single status which is under-represented compare to National Institute
20 of Statistics and Economic Studies statistics (INSEE, 2010; INSEE, 2017). INSEE collects,
21 analyses and disseminates information on the French economy and society. INSEE doesn't
22 take into account common-law couples: legally, subjects are considered to be single. If we
23 made demographic groups the same way, our sample follows the general french population
24 distribution.

⁷ CNIL number and Clinical Trials Registration

1 *Procedure*

2 Selected Rorschach variables

3 We decided to focus our attention on the number of responses (*R*) and three groups of
 4 Rorschach variables, according to the coding principle of the Parisian School (Chabert, 2012,
 5 Azoulay, Emmanuelli, & Rausch de Traubenberg, 2012):

6 - The location of the answer in the card: whole location (*W%*), frequent detail location (*D%*),
 7 unusual detail location (*Dd%*) or white detail location (*S%*).

8 - The determinant of the answer: form responses (*F%*) and quality of the form responses
 9 (*F+%*), human movement (*M*), animal, object or partial human movement (*m*), color
 10 responses (*C*) and shading, texture or perspective responses (*E*).

11 - The main contents of the answers: animal responses (*A%*), human responses (*H%*) and
 12 popular responses (*P*).

13 We also considered the *RC%*⁸ and *Anguish-Index%* indices. Those assess emotional
 14 involvement and responsivity to the color cards.

15 We made comparisons on these selected Rorschach variables between our sample and general
 16 norms in the French population. We referred to the work of De Tychey, Huckel, Rivat, &
 17 Claudon (2012) which updated adult French norms on the Rorschach using the system of the
 18 Parisian school. This study examined 310 adults aged 25 to 65 representative of the French
 19 general population. A structural summary evaluation was conducted to define whether the
 20 subject could be included, as it was recommended by Rosso, Camoirano & Schiaffino (2015).

21 All protocols were double-blinded scored by two experienced psychologists. Some norms
 22 appear stable since Rorschach's initial work (1921) and others have shown a marked
 23 evolution. Standard values of our selected variables Rorschach are presented in Table 2.

24 Table 2: Standards values of selected Rorschach variables (De Tychey et al., 2012)

⁸ *RC%* = ratio of responses to the last 3 cards over total number of responses X 100.

1 Enter Table 2 about here

2

3

Rorschach administration and scoring

4

No later than three weeks after the first neurological consultation, the Rorschach-test was administered by a psychology researcher with prior experience and formation in projective

5

6

test assessment. The coding was performed according to the technical standards of the

7

Parisian School (Azoulay, Emmanuelli, & Rausch de Traubenberg, 2012; Chabert, 2012).

8

This approach has positive psychometric indicators in France (Azoulay et al., 2007). Initially,

9

scoring was done by the administrator. In a second stage, all protocols were independently

10

reviewed by two double-blinded scorers so as to homogenize results as much as possible.

11

These scorers (the second and the third authors) are both graduates from the Parisian School⁹,

12

ensure the teaching of the projective methods at the university and are experienced Rorschach

13

users who have been using the Rorschach-test for research purposes for many years.

14

15

Statistical analysis

16

Data have been compared with standard values (de Tychev, Huckel, Rivat, & Claudon, 2012).

17

Selected Rorschach variables are presented as means, standard deviations, median, minimum

18

and maximum, skewness and kurtosis (Table 3). The values for skewness and kurtosis

19

between -2 and +2 are considered acceptable in order to prove normal univariate distribution

20

(George & Mallery, 2010). Two variables (*S%* and *Sum E*) don't follow a normal distribution

21

and were submitted to a non-parametric statistical comparison according to the *Wilcoxon Test*.

22

Other variables were submitted to a statistical comparison according to the *Student t-Test*. All

23

statistical analyses were performed using *SPSS* version 19.0.

⁹ DUPP (Diplôme Universitaire de Psychologie Projective): this university diploma is a two-year complementary training on projective methods.

1 Table 3: Means (SD), median, minimum and maximum, skewness and kurtosis of selected
2 Rorschach variables

3 Enter Table 3 about here

4

5

6 **Results**

7 Table 4: Comparisons of selected Rorschach variable means to standard values

8 Enter Table 4 about here

9 In general, protocols were poor and scoring was easy. Responses are unvaried and lacking in
10 complexity. However, patients seemed to appreciate this exercise and were in position of
11 opening and were curious about the Rorschach-test. After the test has been completed, many of
12 them asked the psychologist about the origin of the test, the use and the aim of this tool.

13 Comparisons of selected Rorschach variable means to standard values are reported in Table 4.

14 Migraine patients gave significantly fewer number of responses than the general population.

15 This reflects a fantasy-life inhibition and weakness of imagination. Representations are few in
16 numbers and associative capacities are poor. Because of the low number of answers,

17 comparisons of the selected variables expressed in value and not in percentage could be
18 discussed (e.g. *M*, *m*, *C*, *E*, *P*). Nevertheless, this result should not influence interpretation.

19 First of all, in the Parisian School coding or in the Comprehensive System scoring, these
20 indices are always expressed in values (Chabert, 2012; Conklin, Malone, Fowler, 2012).

21 Then, in the Parisian School, answers that involve movement – in particular human movement
22 – are considered as an indicator of the capacity to deal with impulses and to organize

23 harmoniously perception and projection. In the same way, color or shading responses refer to
24 the ability to manage emotional life. These indices are considered to be independent of the

25 number of representations (Chabert, 2012; Richelle, 2017). For example, we presented in a

26 previous study (Belot & De Tychev, 2015) two contrasted cases about mentalization. The case

1 of high-level of mentalization presented 19 responses including 8 movement responses and 6
2 color responses while the case of low-level of mentalization presented 16 responses including
3 2 movement responses and 3 color responses. It is therefore legitimate to consider M , m , C , E
4 and P indices in value and not in percentage regardless of the number of responses.

5

6 *Locations of the responses*

7 Migraine patients show higher whole responses ($W\%$) and lower details responses ($D\%$)
8 compare to the standards. They are even functioning the opposite of the general population
9 according to these two indices. In addition, they perceive more unusual details ($Dd\%$) but are
10 in the standard concerning white detail location ($S\%$). Higher $W\%$ could be a global adaptive
11 mechanism to fight against the emergence of internal reality by using objective reality. The
12 weakness of detail responses ($D\%$) and the increase in unusual details ($Dd\%$) sign an isolation
13 deficit. The representation-affect connection seems to be poor. This way of apprehending the
14 cards marks intellectual functioning without creativity. Responses are made with
15 superficiality and without effort of psychic construction or elaboration. Imaginary capacities
16 are inhibited and the relation with reality appears to be rigid.

17

18 *Determinants of the responses*

19 The first notable result is the $F+\%$ index in the standard. This index evaluates the strength of
20 the Ego and the capacity to adapt to visual percept (Chabert, 2012). It shows possibilities to
21 elaborate responses in an appropriate way and puts migraine patients in neurotic register.
22 However, $F\%$ is higher in the migraine group in relation with the general population. This
23 marks an intellectual apprehension of the card. Contact with reality is rationalized, without
24 emotional involvement: responses are only descriptive. Chabert (2012) interprets this way of
25 apprehending the cards like filling a psychic vacuum.

1 Compare to the standards, migraine patients report less movement responses (*sum M* and *sum*
2 *m*). A low number of human movement responses shows difficulties to link fantasy-life and
3 external reality (Flanagan, 2006). Representations of human relationships are poor. There is a
4 lack of relational scenario. Timsit (1985) has called this phenomenon “movement responses
5 distortions”, which consists of a “*repressiveness of movement with kinesthetic shock and*
6 *petrified or devitalized contents*”. In addition, a low number of an animal, object or partial
7 movement responses confirms difficulties in investigating the test in a projective dimension.
8 However, according to the Parisian School, “*projection offers a defensive solution with*
9 *regards to internal excitation, by placing unpleasant stimuli in the exterior, and avoiding*
10 *them along with all external danger*” (Verdon et al., 2014). Migraine patients appear to have
11 difficulties in using this defensive strategy. This is confirmed by the study of the weakness of
12 sums of color and shading responses compare to the general population. These indexes show a
13 deficit in expressing feelings and emotions. However, the RC% is standard and the majority
14 of protocols presents many remarks on colors: migraine patients appear to be sensitive to
15 color and shading but are not able to integrate it into an elaborate answer. Migraine patients
16 present an affective inhibition and a distance from emotions. The inhibition of the thinking
17 (low *R*) could therefore be understood as a difficulty of psychic regression (Chabert, 2012).

18

19 *Main contents of the answers*

20 The two main contents of the responses (animal and human) are both in the standards. By
21 contrast, in our sample, the number of popular responses is significantly under-represented.
22 The low number of popular responses could reveal a failure of an automatic process and
23 difficulties in social integration. However, this result must be moderate. The A% index is in
24 the standards and is considered by the Parisian School as the conformism index (Chabert,
25 2012). This signs subject’s abilities to live in a social world and interact with others.

1 Moreover, H% index in the standard shows capacities to identify to human image: human
2 representation is not impeded. Finally, Anguish Index is also in the standard while migraine
3 patients are described as anxious in literature and recognize themselves as such. As we noted
4 earlier, migraine patients present affective inhibition. This could be understood as a blockage
5 of emotional expression, whether it is a negative or a positive emotion.

6

7 **Discussion**

8 In literature, migraine patients are described like neurotic patients (Ashina et al., 2017 ;
9 Invernizzi et al., 1989 ; Kentle, 1997). The analysis of some Rorschach variables ($F+\%$, $H\%$
10 and $A\%$ on standards) leads us to the same conclusion. Migraine patients have capacities to
11 socialize, to identify human representations and to have adaptive responses during the test.
12 However, the relation with reality is concrete and rationalized. Representations are few (R)
13 and affective expression is restricted (C and E). The way of apprehending the cards reveals
14 mainly a need for control and mastery. Pizza and al. (2001) concluded almost the same way in
15 their study on migraine patients with Rorschach-test: “*relation with reality is rigid,*
16 *stereotypic, almost obsessive*”. The oldest study we have identified about migraine patients on
17 Rorschach-test already reported this result: 75% of the responses were whole responses (Ross
18 & McNaughton, 1945). Timsit & al. (1985) identified a characteristic profile in migraine
19 patients. This profile combines a strong instinctual activity and a process of control and
20 contention.

21 These results suggest that migraine patients may present a mentalization failure. Four of the
22 eight quantitative factors evidenced by De Tychey, Diwo & Dollander (2001) are significantly
23 different from the standards in our study, in particular human movement responses and
24 animal/object/partial human movement responses. Porcelli & Kleiger (2016) evidenced the
25 link between M responses and mentalization and concluded that “*M is related to the effective*

1 *use of the mentalization function*". Moreover, a protocol including 3 or more human
2 movement responses is considered to present adequate mentalization capacities (Conklin,
3 Malone & Fowler, 2012).

4 Concerning the care, behavioral approach techniques are considered for migraine patients as
5 the most useful therapy to recognize and deal with feelings (Holroyd & Drew, 2006 ; Pizza et
6 al., 2001 ; Weatherby, Brown, Newman, & Noad, 2012). However, our results highlight that
7 migraine patients have a specific functioning that could not be only treated on behavioral way.
8 Bateman and Fonagy (2013) developed another type of therapy, crossroads of psychoanalytic
9 and behavioral approaches: mentalization-based treatment. In our study, we showed that
10 migraine patients may have difficulties to mentalize excitations. Capacities of linking
11 representation and affect are poor. In fact, *"high levels of mentalization typically show [...] effective coregulation of stress and adversity. These individuals typically have also a good*
12 *capacity to explore both external world and their own internal world"* (Bateman & Fonagy,
13 2013). We believe that, with migraine patients, it's necessary to lead the patient to mentalize
14 in order to reduce symptomatology instead of only concentrate intervention on behavioral
15 therapy. According to Gubb (2013), in the case of psychosomatic illness, the work of
16 sensation in the body must be associated to the work of making sense of these sensations and
17 interpreting them.

18
19 The Rorschach-test is an efficient tool that can help the identification of the resources of each
20 migraine patient. Analyzing individual psychic functioning within a dynamic perspective
21 makes it possible to identify a subject's strengths and weaknesses to adapt the care.

22

23 **Declarations of interest:** none

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1 Table 1: Descriptive statistics of socio-demographic data

Demographical characteristics	Migraine patients (%)
Gender	
Women	87.1%
Men	12.9%
Age : years ; mean (SD)	41.1 (10.3)
Educational level	
GNVQ Intermediate or under	19.36%
High-school degree	22.58%
BTEC HND	12.90%
Bachelor	16.13%
Over Bachelor	29.03%
Family status	
Single	6.45%
Common-law couple	16.13%
Married	51.61%
PACS ¹⁰	25.81%

2

3 Table 2: Standards values of selected Rorschach variables (De Tychey et al., 2012)

Rorschach variable	Standards : Mean (SD)
R	28.16 (14.75)
W%	36.83 (18.17)
D%	57.24 (15.95)
Dd%	3.13 (4.96)
S%	1.99 (3.15)
F%	57.81 (17.16)
F+%	60.86 (14.65)
Sum M	2.42 (2.04)
Sum m	3.82 (3.44)
Sum C	3.36 (2.87)
Sum E	1.04 (1.26)
RC%	35.94 (8.71)
A%	42.55 (13.6)
H%	15.85 (8.42)
P	4.83 (1.57)
Anguish Index %	13.30 (8.85)

4

5

6 Table 3: Means (SD), median, minimum and maximum, skewness and kurtosis of selected
7 Rorschach variables

¹⁰ Civil Union in France.

Rorschach variable	Means (SD)	Median	Min-Max	Skewness	Kurtosis
R	17.06 (5.21)	16.5	7-27	0.27	-0.6
W%	59.84 (20.50)	58	20-100	0.30	-0.32
D%	31.03 (16.74)	29	0-73	0.29	0.73
Dd%	5.28 (5.24)	5	0-15	0.41	-1.28
S%	3.72 (7.01)	0	0-28	2.56	6.58
F%	66.38 (14.99)	65	33-93	-0.05	-0.36
F+%	59.28 (16.37)	60	23-100	0.21	0.53
Sum M	1.62 (1.58)	1	0-6	1.09	1.04
Sum m	1.78 (1.68)	1.5	0-6	1.02	0.38
Sum C	1.23 (0.73)	1	0-2.5	0.30	-0.77
Sum E	0.41 (0.75)	0	0-3.5	3.15	10.83
RC%	35.41 (8.61)	33	22-53	0.37	-0.72
A%	40.47 (12.36)	39	19-67	0.51	-0.21
H%	14.56 (8.15)	14	0-34	0.57	0.16
P	3.81 (1.51)	4	1-7	0.22	-0.43
Anguish Index %	14.31 (12.13)	13	0-48	0.96	0.63

1

2 Table 4: Comparisons of selected Rorschach variable means to standards values

Rorschach variable	Test	<i>p</i> -value
R	-12.05 ^a	.000
W%	6.35 ^a	.000
D%	-8.86 ^a	.000
Dd%	2.32 ^a	.027
S%	.770 ^b	.441
F%	3.23 ^a	.003
F+%	-.55 ^a	.589
Sum M	-2.74 ^a	.010
Sum m	-6.87 ^a	.000
Sum C	-16.49 ^a	.000
Sum E	-3.75 ^b	.000
RC%	-.35 ^a	.728
A%	.95 ^a	.348
H%	-.89 ^a	.378
P	-3.81 ^a	.001
Anguish Index %	.47 ^a	.640

^a Student T-test ; ^b Wilcoxon test

3

4