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Functional Cognitive Psychodiagnosis: An Exploratory Examination of a Complementary Tool

Vitali Tevelev[1], Yuval Wolf[2]

[1]Matzpen-Mental Health and Neurology Clinic, Tel Aviv, Israel
[2]Bar-Ilan University, Ramat Gan, Israel
Email: t.vitali@gmail.com, yuval.wolf@biu.ac.il

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Abstract

A major goal of evidence-based psychotherapy is to assess specific cognitive or emotional schemata and behavioral patterns associated with a particular disorder. The present study is an exploratory attempt to form a quantitative basis for this sort of clinical work in terms of Anderson's *Information Integration Theory* and the theory's methodological counterpart-*Functional Measurement*. The participants of the study' s three experiments were 24 adolescents who suffer from disruptive behavior disorders, 17 patients who suffer from a dual diagnosis (a combination of substance dependence and psychopathology), and 14 patients diagnosed as suffering from emotional disorders such as anxiety, depression, and panic attacks. The following three types of functional cognitive schemata were diagnosed: bio-psycho-social in the participants with disruptive behavior disorders; addiction in the participants with dual diagnosis, and inner speech schemata in the participants with emotional disorders. The results are presented in terms of the relative importance assigned to the components of each sort of schema. It is concluded that the study's findings exemplify the viability of the information integration as an infrastructure of a complementary psychodiagnostic tool.

Keywords

Psychodiagnosis, Information Integration Theory, Functional Mesurement, Conduct Disorder, Substance Dependence, Emotional Disorders

1. Introduction

This article is an exploratory attempt to examine the viability of Information Integration Theory and its methodological counterpart Functional Measurement

(hence IIT and FM, and as a paradigm title IIT-FM) as an appropriate framework for reflecting functional cognitive schemata of mental disorders in youth and adults for the sake of pre-treatment psychodiagnosis. Recently, there has been a growing demand in the field of evidence-based psychotherapy for an evaluation of patients' therapeutic needs (Antony & Barlow, 2010). One of the therapist's major goals in conducting a clinical evaluation is to assess certain cognitive and emotional schemata, and behavioral patterns associated with particular disorders. These schemata are thought to be a main sort of causes of the individual's problems (Beck, 2011; Barlow, 2014; Goldman & Greenberg, 2014).

Cognitive-behavioral therapy (CBT) is the best-known short-term empirically supported treatment. One of its main goals is to diagnose and modify dysfunctional cognitive schemata, appraisals, beliefs and behavioral patterns related to a certain disorder (Young, Klosko, & Weishaar, 2006; Beck & High, 2014; Barlow, 2014; Anderson & Armstrong, 1989; Anderson, 2002).

In the field of evidence-based therapy there is a variety of diagnostic schemata definitions and applications: Young's schema therapy (Young, Klosko, & Weishaar, 2006), Beck's cognitive schemas (Beck & High, 2014), and Greenberg's emotional schemas (Goldman & Greenberg, 2014). Schema definitions might include elements such as personality, social, emotional, and neurological.

Anderson's (1996, 2008, 2013) IIT, asserts that a schema is an integral of relevant factors in the context of particular social conditions. There are empirical exemplifications of the viability of IIT as a means to study bio-psycho-social information integration in clinical judgment and psychodiagnosis (Wolf & Shitrit, 1994; Simon & Wolf, 2002), evaluation and computation of cognitive schemata of PTSD (Yaron-Antar, 2006), anxiety (Monoszon, 2006), ADHD (Maor, 2010), juvenile delinquency and ADHD (Tevelev, 2008), family relationships (Anderson & Armstrong, 1989), and substance dependence (Wolf et al., 1995; Wolf, Katz, & Nachson, 1995). These studies seem to pave the way for a research of integrative diagnostic batteries.

This cognitive theory supposes that the entire arrays of individual's experience regarding specific aspects of reality are organized in terms of cognitive schemata. Such a schema functions as a processor and integrator of intra-personal and extra-personal bits of information on any sort of reality which is meaningful for any individual (Anderson, 1996). Schemata of blame, remorse, forgiveness, violence, and terror are but a few examples of the outcomes of such works (Anderson, 1996, 2008; Wolf, 2001, 2002; Gauche & Mullet, 2008).

Functional schemata in various fields of psychology were conceptualized and tested empirically via FM, the methodological counterpart of IIT. This methodology focuses solely on individuals. It enables treatment-relevant applications designed to measure reflections of schema of psychopathology. The following sections describe three exemplifications of measurement of mental disorders schemata using FM. The main goal of this work is to show how this methodology can be applied as a means to provide a rather quantitative-experimental complementary diagnostic tool. The unique contribution of such an instrument is its

provision of a balance like picture in terms of the relative importance at several substantive aspects of a specific psychopathology.

2. Experiment 1: Disruptive Behavior Disorders

Imagine a 15-year-old adolescent who suffers from severe symptoms of ADHD, associated with frustrating social rejection. Not surprisingly he tends to hit back, physically and verbally. According to IIT-FM, an integrative representation of himself as a member of a generally normative society should form in his cognitive system. While the theory postulates integrative processing of such information, there is no viable diagnostic tool to assess the relative importance of the meaningful prognostic parameters as perceived by the beholders. Experiment 1 is an attempt to shed preliminary light on a possible way to extract adolescents' integrative perception of the personal implications of their disruptive behaviors.

The focus here is on neurodevelopmental pathology, neuroticism and social rejection as primarysymptoms of youngsters who suffer from Disruptive Behavior Disorders (DBD). There is extensive literature that elaborates on the causes of DBD. These causes have been shown to include neurodevelopmental, social and psychological factors (Manor & Tyano, 2012; Apter et al., 2010; Gottfredson, 2001; McCrae & Costa, 1990; Sameroff, Peck & Eccles, 2004). Children who suffer from DBD are liable to develop impulsive, harmful and violent behaviors (verbally, physically, and sexually) (Sadock & Sadock, 2014).

Neurodevelopmental pathology (NDP) is claimed to originate as a result of abnormal birth, sexual, emotional, or physical abuse in early childhood, neglect in child care or environmental/industrial pollution (Martin & Volkmar, 2007; Colbom, 2006; Debellis, 2001; Szpir, 2006). Such causeslead to NDP, in which the main symptoms reported are increased tiredness, lack of ability to concentrate, attention deficit, learning disabilities, hyperactivity, emotional dysregulation, nocturnal enuresis, and stuttering.

If NDP appears in a child who has grown up in a non-normative environment, feelings of social rejection (SR) are expected to develop. In families with a child who suffers from DBD, there are greater family tensions, conflicts, and feelings of failure in fulfilling parenting roles in comparison to families that do not have a child with DBD (Manor & Tyano, 2012).

Later on, in childhood and adolescence, such emotional experiences of social rejection combined with NPD are liable to facilitate development of salientpersonality traits. This combination can result also in related phenomena, e.g. indifferent and even disrespectful attitudes toward the value of learning and scholastic achievements, cultivation of mental effort toward external and social behaviors, displacement of anger toward oneself and self-hatred, and violent thoughts and behaviors toward society in general (Manor & Tyano, 2012).

As a result, certain pathological personality traits contribute to the development of delinquent behavior and are even liable to develop into personality disorders in adulthood. Gottfredson (2001) states that young people with DBD are likely to develop such personality traits as neuroticism, impulsiveness, emotional

instability, worry, envy, selfishness and demand for immediate gratification.

The present study examines NDP, Neuroticism, Social Rejection and DBD in the framework of a bio-psycho-social schema, which is assumed to represent perceived involvement in DBD in the eyes of the beholders. This work is based on Anderson's (1972, 1996; Farkas & Anderson, 1979) assumption that functional cognitive schemata regarding any personally meaningful reality is consolidated in one's cognitive systemas hypothetically represented in Equation (1).

$$\boldsymbol{DBD} = \boldsymbol{NDP} \oplus \boldsymbol{N} \oplus \boldsymbol{SR} \quad (1)$$

The terms NDP, N and SR stand for perceived bio-psycho-social components of the schema; the symbol $\oplus$ denotes an algebraic cognitive integration among NDP, N, and SR (shown to be averaging, see Anderson, 1982). An array of experimental and mathematical-statistical tools (detailed below) is offered by FM (e.g., Anderson, 1981, 2001) as a means to characterize the relevant schemata. The present study focuses on the relative importance assigned by each participant to the components of the schema investigated.

2.1. Method

2.1.1. Participants

Twenty four 15 - 17 year-old adolescents, 21 boys and 3 girls, participated. With regard to preponderance of boy sit should be noted that: 1) the sample ratio is consistent with the population ratio; 2) no phenomenological gender differences are reported in the literature (Sadock & Sadock, 2014). The participants were recruited from three Israeli welfare institutions-acommunity-based hostel, a special education school, and a social welfare department in a densely populated, urban neighborhood in greater Tel Aviv. Each participant was diagnosed by a licensed child-and-adolescent psychiatrist. The participants were diagnosed with a conduct disorder and oppositional defiant disorder, according to the ICD-10 (WHO, 2014).

Children with autistic spectrum disorders, mental retardation, psychosis, or a history of psychological referrals for other than violenceat home and school were excluded from the study. The participants were not asked to provide information about ethnicity and socioeconomic status, but evidently all were Caucasian and from low-to-middle socio-economic background (based on residence). No recorded gender related differences were found.

2.1.2. Design and Procedure

Functional measurement methodology served as the means to assess the DBD schemata of the participants. Each participant was tested individually by the experimenter, a CBT expert. An explanation of the purpose and procedure preceded oral consent. This was followed by approximately 10 minutes of calibration and practice. Next, the participant was asked to imagine a series of protagonists with a psycho-social background similar to his or her own. A total of eight such protagonists were imagined, each with a different combination of three bits of relevant information based on a complete three-factorial design

with two levels of each factor: bio (no/yes); psycho (yes/no); and social(no/yes) of the protagonist. The participant was then asked for a spontaneous likelihood rating (0 - 100) of each of the experimental conditions. The instructions for the participant were as follows:

> Consider a boy or a girl in the case of a female participant] who is having (or not having) learning difficulties and troubles at school. It is difficult (or not difficult) for him to concentrate and maintain attention during classes. He has (or doesn't have) a temper and can (or can't) promptly get impatient and angry. He does not have (or has) friends and thinks (or doesn't think) that everybody (teachers, parents, etc.) wants to irritate/bother/provokehim.

The participant was then asked to repeat the above information in his or her own words, before responding. Then he or she made his likelihood ratings.

2.1.3. Data Analysis

Three statistics were computed for each of the following components of the DBD schema: NDP (Diagnostic Ratio = DRndp), N (DRn) and SR (DRsr), as defined in Equation (2). The terms NDP, N and SR represent independent assignment of importance to the components of the DBD schema; the term DRndp denotes the relative weight assigned to NDP.

$$\boldsymbol{DRndp} = \boldsymbol{NDP}/\left(\boldsymbol{NDP} + \boldsymbol{N} + \boldsymbol{SR}\right) \tag{2}$$

This model captures eight ratings of for each individual participant. An individual matrix of ratings is presented in Table 1 based on demo results. The computational specifics of the example are based on Anderson (1982: p. 267-272). The difference between the marginal means of the two right and two left columns (65 and 25, respectively) indicates the NDP value. Similarly, the difference between the marginal means of the upper and lower rows (50 and 45, respectively) indicates the N value. The difference between the marginal means of the second and fourth columns and first and third columns (55 and 35, respectively) indicates the SR value. In Equation 2, DRndp = 40/(40 + 5 + 20) = .61. This relative weight, along with the two others, derive from the computational aspect of the model (DRn and DRsr) should add up to 1.00. It means that in the above example the demo participant assigned the majority of relative weight (importance) to neuro-developmental pathology, and only .39 of the relative importance was assigned to neuroticism and social rejection.

Table 1. A demo of a three-factorial 2^3 rating matrix.

	Neurodevelopmental Pathology			
	NO		YES	
Social rejection Neuroticism	No	Yes	No	Yes
Yes	20	40	60	80
No	10	30	50	70

The appropriateness and viability of this measure was introduced and demonstrated by Anderson (1996, 2001, 2008) and exemplified by Wolf (2001, 2002). Accordingly, the findings are presented in terms of individuals relative weightings of the components of the schemata.

2.2. Results and Discussion

Table 2 presents the mean relative importance for the likelihood ratings of the 24 participants for each of the four variations of the 2^3 original model. Based on Padesky (1994), who stated that a well-balanced schema is capable of summarizing a range of life experiences, the findings of Experiment 1, as reflected in Table 2, imply that the near-balanced schemata represent viable cognitive systems.

More specifically, the three ratios in the upper row of Table 1 show a tendency to cognitive balance between social rejection (an extra-personal vector) and the other two intra-personal vectors (.55 vs. .15 + .30, respectively).The second row reflects another validation of this type of measurement. It shows that neuroticism is associated cognitively with "conduct problem" relapse. In addition, social rejection is associated with friendliness (row 3) and neuroticism with self restrain (row 4).

The striking differences in relative importance across the four variations of the DBD model support the study's assumption concerning functional coding of psychopathological reality. Overall, the findings show that disruptive behavior disorders are reflected in cognitive weighting of relevant aspects of the related reality. In more general terms, the findings show support for this study's suggestion that IIT and Functional Measurement has potential use as part of a psycho-diagnostic battery in the context of DBD (Tevelev, 2008).

3. Experiment 2: Substance Dependence

Experiment 2 examined the viability of FM as a means to provide a functional cognitive view of dual diagnosis, a psychopathology which shares with DBD a generalized component-social rejection.

This experiment focused on functional cognitive schemata of patients who suffer from comorbidity of substance abuse associated with mental disturbance, e.g. emotional disorder or schizophrenia. Due to the severity of such a disorder, the affected patient is treated institutionally (Laker, 2008; Schulte, et al., 2008). Such treatment primarily features pharmacological and psycho-social interventions.

Perception of substance dependence on the part of users has been described in the literature as related to craving, to social rejection and as a mental disorder and as existential emptiness (Chen, 2006; Corte & Stein, 2007; Ford, 1996; Gerwood, 1998; Khantzian & Albanese, 2008; Potvin, et al., 2008; Wolf, Katz, & Nachshon, 1995).

According to epidemiological surveys, schizophrenia, emotional disorders (depression and anxiety), and psychotic states are special cases of psychopathol-

Table 2. Mean values of relative importance in a DBD schema.

	DRsr	DRn	DRndp
Replication			
Acquaintance	.55	.15	.30
Conduct	.21	.64	.15
Friendliness	.71	.11	.18
Self restrain	.21	.60	.18

ogy (PP) which are accompanied by self-administered medication (Schulte, et al., 2008; Walsh, Buchaman, & Fahy, 2002). The idea behind self-adminstered medication is that the choice of a specific substance(s) is due to the specific patient's psychopathology (Khantzian & Albanese, 2008; Martinotti, Cloninger, & Janiri, 2008).

Craving (Cr) is a psycho-physiological aspect of dual diagnosis, and an integral part of the addict's everyday life motivational profile. Mental (as compared to physical) craving is more likely to cause a substance relapse. The development of coping skills is conceived as a vital part of related therapeutic intervention (Matto, et al., 2008; Yamada, 2008). Social rejection (SR) is another important factor in the present context. There are empirical indications of a connection between social rejection and substance abuse (Ramo, et al., 2005). Addicts report on social isolation and rejection as a painful experience (Stein, et al., 2007).

The literature relates to existential emptiness (EE) as a meaningful component of substance addiction and dual diagnosis. Even after treatment, addicts claim that they still experience a lack of meaning in life (Chen, 2006; Greaves, 1980; Wolf, Katz, & Nachson, 1995). The aforementioned authors found that while developing a coping mechanism for existential emptiness, an addict attributes much importance to immediate physical gratification regardless of future considerations.

Experiment 2 applied IIT-FM as a framework for the study of the psychological combination between dual diagnosis (DD) and the above mentioned components, as formalized in Equation (3):

$$\boldsymbol{DD} = \boldsymbol{Cr} \oplus \boldsymbol{Pp} \oplus \boldsymbol{SR} \oplus \boldsymbol{EE} \tag{3}$$

3.1. Method

3.1.1. Participants

Seventeen male patients, ranging in age from18 to 29 years with a dual diagnosis, participated in this study. They were recruited from an Israeli community-based hostel (residential facility) for dual diagnosis treatment in densely populated, urban neighborhoods. The participants were diagnosed with substance dependence and either emotional disorders or schizophrenia on the basis of ICD-10 criteria (WHO, 2014) by a licensed psychiatrist with a specialization in narcology as well. Patients with mental retardation or psychotic episodes were excluded

from the study. The participants were not asked to provide information about ethnicity and socioeconomic status, but all were Caucasian and from low-to-middle socio-economic background based on residence.

3.1.2. Design and Procedure

Each participant was interviewed individually by the experimenter. The overall context of the experiment and the specifics of the task were presented to him, and then he signed a consent form. Following approximately 10 min of calibration and practice, he was asked to imagine a series of characters (protagonists), each typified by a specific combination of the two levels of Cr, Pp, SR and EE in the dual diagnosis model. The instructions for the dual diagnosis schema were as follows:

> Consider a man who feels (or does not feel) a drug craving. He feels (or does not) an inner emptiness in his life. He has (or does not have) anxiety (or another psychopathology, up to his diagnosis). He doesn't have (or has) friends and feels (or does not feel) that he is rejected by everybody.

The participant was then asked to repeat the above information is his own words before the beginning of the procedure. Two replications were conducted where the participant was asked to rate (1 - 100) the likelihood that the protagonist was: 1) familiar with the related syndrome; and 2) would undergo drug relapse. The relative weight of each of the DD schema's components (DRee, DRcr, DRpp and DRsr) was computed.

3.2. Results and Discussion

Table 3 presents mean DR values for all 17 participants. In line with the findings of Experiment 1greater importance was assigned to psycho-social factors (such as existential emptiness and social rejection) than to factors such as craving and psychopathology (Table 3). This finding, like the results of the previous experiment, supports the study's assumption regarding patients' functional coding of their psychopathological reality, and speaks to the potential for embedding FM in apsychodiagnostic battery in the context of substance dependence.

4. Experiment 3: Emotional Disorders

Experiment 3 focuses on functional cognitive schemata of patients who suffer from emotional disorders (ED). The main concern is the relationships among symptoms of ED, such as cognitive misappraisals, negative affect and treatment-

Table 3. Mean values of relative importance in a DD schema.

	DRee	DRcr	DRpp	DRpp
Replication				
Acquaintance	.34	.27	.05	.34
Substance relapse	.55	.41	.01	.03

relevant tasks, which are considered the most significant psychological experience for participants with emotional disorders.

According to Anderson (1989), emotions should be considered as an integral aspect of cognition. For instance, snake phobia is facilitated in a situation where expectancy (of a snake's appearance) is associated with fear of a snakestimulus (Anderson, 1989; Klitzner & Anderson, 1977). A fear of victimization schema appears together with expectancy to get hurt or incuraserious injury, and expectancy for self-defense (Monoszon, 2006).

A pain assessment schema emerges where such elements as information about a patient's illness, facial expression, and movements, together with the patient's verbalization of pain and willingness to engage in interpersonal contact coincide (Igier, Sorum, & Mullet, 2014). Pain anxiety and social anxiety schemata develop when anxiety, emotional sensitivity to a specific stimulus, and event expectancy are cognitively integrated (Chung, Moore, & Peterson, 2005; Moore, et al., 2009).

According to Barlow et al., (2010), the CBT framework enables unification of all emotional disorders into one nosological group of constructs. In this group, mental disorders, characterized in particular by emotional dysregulation, interact with anxiety and mood disorders. According to Barlow's (2014) current research, it follows from this that all emotional disorders share common underlying psycho- and physiological-emotional processes. From a CBT point of view, emotional dysregulation should be considered an important component of a unified set of disorders.

A patient with emotional disorders is assumed to perceive each situation through the lens of a cognitive schema, which marks the importance of two components: cognitive misappraisals (e.g. negative expectations), and negative effect. Therefore, in a unified psychodiagnostic protocol the practitioner relates to antecedent cognitive misappraisals, as well as antecedent-based negative and undesirable emotions. These misappraisals and negative/undesirable emotions seem to facilitate emotional avoidance, behavioral avoidance, or overreaction, which should be reflected in the patient's related cognitive schema.

It should be noted that this composition is committed to psychodiagnosis in the context of CBT. An integral part of the clinical discourse of CBT is called "inner speech". Fernyhough (1997) proposed that Vygotsky's (1934/1986) notion of "inner speech" has an analogous cognitive schema. According to Vygotsky (1934/1986), one of the main characteristics of this sort of cognitive process is the abbreviation ("adhesion", according to Vygotsky) of inner speech. That is, the extent to which inner speech passes through an individuals' mind is abbreviated (adhesed) or detailed (expanded). The rate of abbreviation of inner speech is assumed to correlate with both cognitive development and mental states (Fernyhough, 1997).

Experiment 3 examines the importance assigned to cognitive misappraisals (CM), affect (A), and abbreviation of inner speech (IS) in terms of individuals' ratings of emotional disorders. Equation 4 is a representation of this process:

$$\boldsymbol{ED} = \boldsymbol{CM} \oplus \boldsymbol{A} \oplus \boldsymbol{IS}$$

4.1. Method

4.1.1. Participants

Fifteen participants (8 men and 7 women) ranging in age from 18 to 55 years participated. All of these participants were diagnosed by a licensed psychiatrist as suffering from emotional disorders such as anxiety, depression and panic attacks, in terms of ICD-10 criteria (WHO, 2014). They were recruited from an (another) Israeli community-based mental health clinic in a densely populated, urban neighborhood. Patients with mental retardation, psychotic episodes, and psychiatric disorders in which emotional dysregulation is not a core symptom were excluded for reasons of internal validity. The participants were not asked to provide information about ethnicity and socio-economic background, but all were Caucasian and based on residence were low-to-middle SES.

4.1.2. Design and Procedure

Each participant was interviewed individually by the experimenter. The overall context of the experiment and the specifics of the task were described by the experimenter and then the participant signed a consent form. Following approximately 10 min of calibration and practice, the participant was asked to imagine a series of characters (protagonists) each characterized by a specific combination of levels of CM, A, and IS, yielding a 2 × 3 × 2 model. The instructions were as follows:

> Consider a man who feels (or does not feel) unreasonable and excessive anxiety and fear. He is preoccupied (or not) with internal worries and negative expectations about himself, the world and the outcome of relationships (or with positive thinking).

Next the participant was asked to repeat the above information in his or her own words before beginning the experiment. Three replications were conducted where the participant was asked to rate (1 - 100) the likelihood that the protagonist was: 1) familiar with the related syndrome; 2) would experience emotional disorder regression; 3) wouldfocus attention on inner speech (both negative and positive thoughts).

4.2. Results and Discussion

Table 4 presents the DR values of the 15 participants. It shows that information on affect was weighed higher than information on inner speech and cognitive

Table 4. Mean values of relative importance in an ED schema.

	DRcm	DRa	DRis
Replication			
Acquaintance	.25	.42	.33
ED regression	.47	.49	.04
Inner speech	.54	.33	.13

misappraisals for two variations of the design-acquaintance with the related syndrome (DRa = .42, DRis = .33, DRcm = .25) and emotional disorder regression (DRa = .49, DRcm = .47, DRis = .04). In the 3rd variation of the model which focused on the attention directed to inner speech, the weights assigned to cognitive misappraisals are greater than the weights assigned to affect and inner speech: DRcm = .54, .33 and .13 for cognitive misappraisals, affect and inner speech, respectively.

Overall, these findings, as well as the findings of Experiments 1 and 2, validate the study's assumptions that suffering from disruptive behavior disorders (Experiment 1), substance dependence in combination with a mental disorder (Experiment 2) or emotional disorders (Experiment 3) are reflected in his or her relative weighting of relevant aspects of the related reality.

5. General Discussion

From a CBT perspective, disorders and syndromes are generated by mutual influence of cognitive misappraisals, negative attitudes and biases, dysfunctional emotional responses, and behavioral patterns (Barlow, 2014). Adequate clinical assessment requires tools that meet the diagnostician's need for an overarching understanding of the state of the patient's problems. The primary objective of a therapist in clinical work is to obtain a diagnosis and to conceptualize the main bio-psycho-social problems of the patient. Achieving this goal should assist the practitioner in developing and implementing a targeted therapeutic plan. During this process, the CBT therapist must pinpoint the cognitive and the emotional schemata that are targeted for therapeutic modification. The present findings exemplify the viability of FM as a means to reflect the patient's coding of his or her psychopathological reality. This was demonstrated in three domains: Disruptive Behavior Disorders, Substance Dependence and Emotional Disorders.

The present work exemplifies how a well established paradigm, i.e., IIT-FM (Anderson, 1981, 1982, 1996, 2001, 2008, 2013; Wolf, 2001) can insert a non existed flag in a conceptual-less area. The field of medical psychodiagnosis, which involves psychological reflections of problems, suffers from a lack of theory-based diagnostic tools (Fine, 2006). The present approach and findings support the suggestion that the unique combination of IIT and FM can provide both a theory and a set of measurement tools to the psychodiagnosis and assessment (see Sales, et al., 2006).

Speaking comprehensively, this field sanctifies battery psychodiagnosis, where the diagnostician collects information from various, apparently related, tests and integrates this multiple information into a workable, however idiosyncratic, diagnostic decisions. IIT-FM offers an integral of theoretical framework and methodological tool which can turn the quasi-subjective and guild related procedure into a sort of scientific tool.

There is a mounting literature which speaks of causes for outbreaks of mental disorders, such as social, personality or organic. One common denominator of this line of work is the attempt to diagnose in terms of standardized or quasi-

standardized spectacles. A complementary approach is suggested by the present work and its first round findings. That is to add to the conventional diagnostic tools a quantitative reflection of the way individual's psychopathological history is coded in his or her functional cognitive system. Another potential contribution of the present work is the exemplification of the ability of IIT-FM to provide specific starting points with regard to the construction of a therapeutic plan for a given patient.

Nevertheless, there should be a long way to go from the pre-preliminary stage of tool creation to the desired phase where a psychodiagnostic work, including the final integrative decision, will be based on a combination of scientific conception and methodology. However, such integration of a multiplicity of diagnostic information can be assimilated into the final therapeutic decision as well (Tevelev, 2012). While each part of the desired battery components speaks a different theoretical language, it complies with the need to relate to the well agreed upon distinction between the bio-psycho and social reflections of each patient's array of problems.

The present work provides a tool which enables an integration of such information on the basis of IIT-FM terminology. From the perspective of IIT, the result of each battery component speaks in biopsychosocial language, which FM quantifies in terms of relative importance. For instance, one of this composition's writers, who belong professionally to the two worlds, clinical and scientific, reports on a use of FM results as a framework for his psychodiagnostic and therapeutic decisions. In terms of DBD diagnosis he was able to consider negation of the possibility of ADHD facing tests results which pointed to an assignment of greater importance to neuroticism and socialrejection.

Recalling the importance assigned in the literature to the bio-psycho-social model, it can be recommended that future work will add the social aspect to this study's focus on cognitive integration between the bio and the psycho aspects of the due problems. Assuming that functional measurement is preferable for future experimentation regarding this issue, an educated (based on content analysis) use of the beholders verbal reasoning, i.e., their verbal account for the related phenomena is recommended. Moreover, it is recommended to compare related functional cognitive schemata of therapists with those of their patients.

Finally, Staats (1999) advocates overarching, with a critical reference to the chaotic multiplicity of paradigms which relate to nearly any psychological phenomenon. He marks IIT-FM as a leading paradigm in this term. The present work might be taken as a preliminary exemplification of overarching between various scientific approaches to psychodiagnosis, and especially between scientific and psychotherapeutic guild work.

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Acronyms

A = Affect
CBT = Cognitive-behavioral therapy
CM = Cognitive misappraisals
DBD = Disruptive Behavior Disorders
DBDbps = Bio-psycho-social schema
EE = Existential emptiness
FM = Functional measurement
IS = Inner speech
DRa = Diagnostic Ratio assigned to the affect component
DRcm = Diagnostic Ratio assigned to the cognitive misappraisals component
DRcr = Diagnostic Ratio assigned to the craving component
DRee = Diagnostic Ratio assigned to the existential emptiness component
DRis = Diagnostic Ratio assigned to the inner speech component
DRndp = Diagnostic Ratio assigned to the neurodevelopmental pathology component
DRn = Diagnostic Ratio assigned to the neuroticism component
DRpp = Diagnostic Ratio assigned to the psychopathology component
DRsr = Diagnostic Ratio assigned to the social rejection component
NDP-Neurodevelopmental pathology
N = Neuroticism
PTSD = Post-traumatic stress disorder
SR-Social rejection