VALIDATION OF THE COMOVAL PROCEDURE FOR THE SCID I/P DSM IV-TR RESEARCH VERSION (2002) centered on the Dimensional Approach

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In the past we validated the COMOVAL Procedure (*Comorbidity Assessment)*, on the SCID I/P DSM III-R, using a meta-analytic method (R. Perone., D. Pecori., 2002[1]). Our research enabled us to declare that the COMOVAL Procedure *further increased the validity of the diagnoses formulated using the SCIDI/P DSM III-R*. In particular, we noted the importance of collecting certain information for diagnostic purposes, namely: (i) the Patient's Life History and Anamnestic data and (ii) the Medical Data viewed from a temporal perspective. Our study also highlighted the importance of the application of the Temporal Dimension to the collective data (R. Perone, D. Pecori, 2002, p.123).

Subsequently, we made further improvements, gradually arriving at the definition *of the COMOVAL Procedure (Comorbidity Assessment)*, R. Perone, D. Pecori, 2007[2]) applied to the SCID I/P DSM IV-TR Research Version -2002^ [translated by R. Perone[3] (see www.scid4.org)].

We will now describe the results of our Validation of the latter Procedure, after summarizing its main contents.

It is our intention to adapt this Procedure to the SCID-5-RV, in compliance with the new contents of the DSM-5[4] and the aims of the DSM-5 Task Force: "*Despite problems posed by categorial diagnoses*, *… the organizational structure is meant to serve as a bridge to new diagnostic approaches without disrupting current clinical practice or research.… Such a reformulation of research goals should also keep DSM-5 central to the development of dimensional approaches to diagnosis that will likely supplement or supersede current categorical approaches in coming years*". (DSM-5 Page 13)

INTRODUCTION

We know that "*….because of its innovative and sometimes revolutionary features the DSM III[4] constitutes an important moment in the history of psychiatry and psychiatric nosography*" *"* (p. XVIII of the DSM IV-TR[5]).

Our work of many years, which we present here, has aimed to *highlight the importance of one*

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substantial part of the DSM III and subsequent editions. This is the introduction of "…a convenient scheme for organizing and communicating clinical information" which favors "…**the application of the biopsychosocial model** in clinical, didactic and research environments" (Multiaxial System – DSM IV-TR p.41). In this way, as also stated in the DSM-III-R, it is possible to resolve "*…the sterile conflicts between the biological and psychological approaches*" (p.XIV) (WHO, 1985[6]; 1986[7]; Houst, 2000[8]; Alonso, 2003[9], Zucconi, 2003[10]).

Even if the **"*DSM-5 has moved to a nonaxial documentation of diagnoses* *(formerly Axes I, II, II), with separate notations for important psychosocial and contextual factors (formerly Axis IV) and disability (formerly Axis V)*"**(DSM-5 p.19), it does actually admit that "… *it is not sufficient to simply check of symptoms in the diagnostic criteria to make a mental disorder diagnosis*" (DSM-5 p.21). And it goes on to say that "The *case formulation for any given patient must involve a careful clinical history and concise summary of the social, psychological and biological factors that may have contributed to developing a given mental disorder"*(DSM-5 p.21).

Our specific contribution consists of *having worked out a Procedure for Comorbidity Assessment,* i.e. **a method which can guide the Clinician during overall assessment of the patient and which improves the validity of the diagnosis.** This Procedure **makes it possible to fulfil the aims of the DSM**, as also stated in the DSM-5: "The *DSM is intended to serve as practical, functional and flexible guide for organizing information that can aid in the accurate diagnosis and treatment of mental disorders* ….designed to be a useful guide to clinical practice (DSM-5 Page LIII).

This Procedure defines *specific methods for integrating the information gathered from the 5 AXES envisaged in the DSM IV-TR, attributing a central role to the application of the Temporal Dimension* and of *an integrated approach centered on the Person.*

With regard to this we wish to point out that the application of the *Temporal Dimension* has a fundamental function during the assessment process, which leads to the Differential Diagnosis and the clear definition of the Psychopathological Condition of the subject under examination.

The application of an *integrated approach centered on the person* considerably enriches the quality of the information collected, allowing inclusion of the subjectivity of the meanings and of the patient's considerations during assessment of the stressors and symptoms and/or disorders which have been manifested during his life. Thus, added to the methodology, the phenomenological dimension and the personal and emotional meanings attributed by the person to their life events also take on particular importance.

The COMOVAL Procedure we have worked out offers a contribution to the correct application of the DSM, indicating a method for the systemization of the collected data using the SCID I/P DSM IV-TR Research Version (2002). In this way we achieve an *increase in the validity of the diagnoses and a better understanding of the patient's psychopathological picture.*

It examines the *subject's life course*, analyzing the temporal evolution or course of the disorders detected, of the medical conditions, of the stressors and of the patient's global functioning. In other words, the procedure envisages ordered, systematic data collection which is based on the life story of the subject under examination and is functional to the definition of their condition.

It thus allows Assessment of the patient's Psychopathological Condition by considering a wider reference frame which goes beyond mere identification of the disorders. It in fact envisages that this assessment should be based on the integration of various types of information regarding the patient's story, examined from a temporal point of view and processed according to a clearly-defined method.

We feel it is opportune to announce *our intention of adapting this Procedure to the SCID-5-RV, even if the DSM-5 has superseded the multiaxial system.* Our intention is to *apply the main contents of the Procedure we have worked out to the new method of describing the diagnosis and/or of combining the information collected about the patient under examination.*

THE COMOVAL PROCEDURE
APPLIED TO THE SCID I/P DSM-TR RESEARCH VERSION (2002)

The Multiaxial Assessment

"*The Multiaxial system assesses the patient using different Axes, each referring to different fields of information, thus helping the clinician to plan the treatment and foresee the result……This system takes into account the complexity of the clinical conditions and describes the heterogeneity of the individuals who present the same diagnosis*"(DSM IV-TR, 2002, p. 41).

Therefore, the aim of the DSM IV-TR is to allow the Clinician to establish and describe *the Subject's Psychopathological Condition, through an Assessment referring to the 5 AXES.*

The importance of such an assessment lies in the fact that it examines the subject from a global point of view. The DSM IV-TR thus proposes assessing the Subject by examining him/her from 5 different points of view (5 AXES).

The SCID I/P DSM IV-TR Research Version (2002) is a Semi-Structured Interview for the application of the DSM IV-TR. The sequence of the questions aims to reproduce the Differential Diagnostic Process of an expert Clinician.

By the *Subject's Psychopathological Condition* (the "phenomenon" assessed by the DSM IV-TR) we mean *the sum of psychopathological manifestations during the Subject's Lifetime*, considered in relation to the characteristics of his personality and medical condition, taking into account any stressful events and/or difficult conditions of life as well as his level of functioning.

The Subject's Psychopathological Condition, examined by the DSM IV-TR, is a *Complex Phenomenon* which is difficult to assess because of its varied composition.

It appears complex because the human being i.e. the bearer, is a complex system.

To carry out an assessment it is necessary, first of all, to gather a great deal of information, differentiated in content and referring to different dimensions. However, as it is difficult to assess a large quantity of information, it is opportune:

- not to make the mistake of reducing it to a schematic synthesis of the data collected;
- to create a *Logical Path* which can integrate the information, taking into consideration the reciprocal interactions among the different categories.

Thus, we think that *in order to thoroughly assess this Complex Phenomenon* using the DSM IV-TR, it is necessary:

- to gather valid, exhaustive and mutually exclusive information, referring to the unitary factors that identify the phenomenon (the 5 AXES);
- to integrate, at a descriptive and quantitative level, the different kinds of information which, otherwise, may risk not being well-homologated and systematic;
- and finally, to assess the interactions among the different AXES.

The Functions of the COMOVAL Procedure

The application of the conditions reported above could be facilitated by the definition of a *Procedure which would act as a useful guide for the Clinician during the Subject's Assessment*.

The *Functions* of the Procedure we have created are:

a) Facilitation of the Diagnostic Process; We believe that *a clearly defined method for selecting and integrating information,* useful for diagnostic inference, would certainly represent a support for and a verification of the *clinical judgment* (R. Perone, D. Pecori, 2002, p. 20)

b) Improvement of Validity of Diagnoses and of Comorbidity Assessment. In our opinion, assessment of the Subject's Psychopathological Condition should not be limited to the

separate presentation of the data obtained within each of the 5 AXES. It should also include the examination of relationships among the AXES and investigate the ways in which information from one AXIS influences that of another AXIS. In so doing, it is possible to *Reduce the Probability of "Diagnostic Mistakes*" and, as a consequence, *to increase Diagnostic Validity*.

c) Aid planning of Individualized Therapy Programs
d) Facilitation of Scientific Research

The Dimensional Approach as the Fulcrum of the COMOVAL Procedure

The *Dimensional Approach is the Fulcrum of the COMOVAL Procedure; It improves the Validity of the Comorbidity Assessment and the Understanding of the Patient's Psychopathological condition.*

The DSM-5 recognizes its importance when it states: *"The DSM-5 is designed to better fill the need of clinicians, patients, families and researchers for a clear and concise description of each mental disorder organized by explicit diagnostic criteria, supplemented, when appropriate, by dimensional measures that cross diagnostic boundaries"* (DSM-5 Page 6) and "… *the previous DSM approach considered each diagnosis as categorically separate from health and from other diagnoses, it did not capture the widespread sharing of symptoms and risk factors across many disorders that is apparent in studies of comorbidity…"* (DSM-5 Page 14)

We are convinced that (i) this approach should not be applied only to the severity of the symptomatology, but should also include the Temporal Dimension and that (ii) the application of the Temporal Dimension represents an essential condition for the Severity Assessment.

The *Dimensional Approach of our Procedure* (defined also as a *Bio-psycho-social and Longitudinal* one) considers *two Dimensions that interact*:

- The Temporal Dimension: the Procedure considers *the Centrality of the Temporal Dimension for the Differential Diagnosis,* i.e. for interpreting the information gathered from each AXIS and for integrating data referring to the 5 AXES. *The Temporal Dimension represents the most important Variable of the Procedure* we have created. It allows *a better understanding of the Dialectics between the Psychopathology and the Evolution of the Subject's Life Events* (Life History). In other words, it enables us to see the *Psychopathological Process* and to assess the subject from a medical and social-environmental point of view (Spitzer, 1992[11] p. 626).

  Applying the Temporal Dimension entails *considering the Course of Disorders in the light of all the information gathered on the different AXES*: not noting only ongoing present disorders, but also assessing all the episodes and/or sub-thresholds of every detected disorder, from the beginning onwards, applying a longitudinal logic and integrating all the gathered data.

  The Temporal Dimension identified by us fits well with the "Lifespan Approach" of the DSM-5 (p. xlii), which in fact states that: "*The case formulation for any given patient must involve a careful clinical history and concise summary of the social, psychological and biological factors that may have contributed to developing a given mental disorder. Hence, it is not sufficient to simply check off the symptoms in the diagnostic criteria to make e mental disorder diagnosis…"*and "*The ultimate goal of a clinical case formulation is to use the available contextual and diagnostic information in developing a comprehensive treatment plan …..*" (DSM-5, p.21)
- The Severity Dimension envisages a Severity Assessment of every disorder. In this way the homogeneity of the psychometric features of the SCID I/P DSM IV-TR Research Version (2002) is improved. *Disorder Sub-thresholds,* considered as "*Disorder Risks*" are also included (R. Perone, D. Pecori, 2002). The Severity Assessment of the disorder thus derives from the analysis of its evolution (Temporal Dimension). In this way, it is possible

to describe the heterogeneity of subjects who have the same diagnosis (DSM IV-TR, 2002, p. 41) *and to define Prognosis.*

The adaptation of our Procedure to the SCID-5-RV will need to take into account the following statement from the DSM-5: "*the boundaries between many disorder "categories" are more fluid over the life course..*, and many symptoms assigned to a single disorder "*may occur, at varying levels of severity, in many other disorders. These findings mean that DSM, like other medical disease classifications, should accommodate ways to introduce dimensional approaches to mental disorders*". (DSM-5 Page 6). We propose to carry out the severity assessment "….. *rating the intensity, frequency, duration, symptom count or other severity indicator of a disorder*" (DSM-5 Page 25) that is, the Course of the disorder.

Other Fundamental Aspects of the COMOVAL Procedure

The other Fundamental Aspects of the Procedure are:

- *Consideration of the Subject's Point of View for the 5 AXES*
- *Subjective Assessment of the Stressful Events and/or Conditions of the Subject's Life*
- *AXIS IV considered as the fundamental point of the integration system of the multiaxial assessment*, as it gathers data of extreme relevance for defining the diagnosis.
- *Diagnosis considered as a complex phenomenon* which cannot be based only on the presence/absence of a diagnostic picture characterized by a certain degree of severity in the here and now, but is generated from constructed in the system of the Person, through their life story.

Some integrations to the SCID I/P DSM IV-TR Research Version (2002)

The application of the COMOVAL Procedure entails *the insertion of some integrations to the SCID I/P DSM IV-TR Research Version (2002)* which include:

- Refinement of the Anamnestic Review [addition of the Patient's Life History and other anamnestic data]
- Refinement of AXIS I [for every disorder identified: tracking of Evolution, Severity Assessment (including Previous Severity) and Overall Assessment of the Disorder]
- Refinement of AXIS II
- Refinement of AXIS III
- Refinement of AXIS IV [including Patient's subjective Assessment of the most significant Stress Events in their life] Refinement of AXIS V
- Homogeneity among the 5 AXES, achieved by improving the assessment of each AXIS and the homogeneous application of "a new scoring system" to all AXIS I Disorders

These integrations entail the need for a further session with the Patient, during which the Additional Pages for AXES I, III, IV and V are administered.

The COMOVAL Procedure: The Logical Sequence of the PHASES

The Logical Sequence of the PHASES consists of *nine consecutive phases* which allow for the gradual integration of the different categories of the data collected, leading to a presumably definitive diagnostic assessment.

The MULTIAXIAL COMOVAL Procedure as expression of the integration between Qualitative and Quantitative Research

If we analyze our research which aimed at *improving the Diagnostic Validity of the SCID and* led first to the creation of the COMOVAL Procedure and then, the COMOVAL Procedure, our work can be defined in terms of *integration between Qualitative and Quantitative Research.*

Indeed, from the beginning of our research, we were aware that the *SCID I was not just the expression of a quantitative approach*, aiming to detect and measure, for every patient examined, the diagnostic criteria (according to the DSM for every AXIS I Disorder). As a *Semi-structured Interview, the instrument* very much resembled a "*Clinical Interview*" thus allowing the Clinician to collect the answers to the questions, as well as many other kinds of information about the Patient. This is also true of the SCID I/P DSM IV-TR Research Version (2002).

Our intention was gradually drawn more and more to the contents emerging from the administration. This spurred us on to introduce a *qualitative approach*, which would detect and define the emerging contents, regarding the patient's life experience.

As Stanghellini, Ambrosini and Ciglia (2009)[13] state, the aim of the qualitative analysis is "*the wide understanding of the subjectivity of patients… It is useful for focusing on the personal experiences of patients, their world, their lives and sub-clinical phenomena. The Qualitative approach seeks to find what is typical in the subjective experience of a single person ….*". Besides, the "*qualitative methods allow "the examination of more complicated phenomena".* Thus the quantitative dimension interacts with the phenomenological dimension, which besides the objective, symptomatological and criteria data also records the patient's experience and their way of constructing the experience. Thus, through the COMOVAL Procedure, the diagnosis is not only based on the recognition and classification of the "psychotic" or "narcissistic" etc. but on the possibility of recognizing the experiential reality (hence also in its symptomatological component) of the *person with psychotic, narcissistic etc. symptomatology….*

With the introduction of a qualitative approach it was possible to give us an ambitious aim: to identify a logical procedure aimed at (i) integrating all the information from the 5 AXES of DSM and (ii) improving the Diagnostic Validity of SCID I. This is how we came to our decision to try and *define a Diagnostic Procedure which could be applied to the main content of DSM IV-TR, i.e. Integrated Assessment of various types of information collected, useful for the Comorbidity Assessment.*

In this way, according to a *circular logic*, the *Quantitative Research stimulated the Qualitative Research that, in turn, offered a contribution to the former*, by improving the scores and also introducing some Additional Pages.

At the end of our work we fully agreed with F. Del Corno when he stated "*a research project that uses instruments for collecting and analyzing both qualitative and quantitative data can be of great use. The qualitative approach may draw clinical practice and research closer* together...." (F. Del Corno., P. Rizzi., 2010[14]).

M. A. Forrester also claims that **"***Together with the quantitative approaches, the qualitative methods are today an essential part of the research methods used by psychologists"* (Forrester, M.A., 2010[15]).

Scheme of the experimental design for verifying different Diagnostic Procedures

After having validated the COMOVAL Procedure (R. Perone, D. Pecori, 2002), the following years of our research activity were characterized by the *study of the effects of the progressive introduction of the Variables that we considered to have a crucial importance for the diagnostic assessment*. Therefore, we created four more Diagnostic Procedures applied to the SCID I/P DSM IV-TR Research Version (2002), until we reached the definitive Procedure corresponding to the fifth one, i.e. the *COMOVAL Procedure-Past Severity.*

We wish to specify that *the5 Diagnostic Procedures correspond to different levels of the Variable COMOVAL-MULTIAXIAL COMOVAL.*

To explain the logic behind the development of our work, Table 1 shows the gradual introduction *of the 4 Variables that characterize the different Diagnostic Procedures* (the Temporal Dimension, the Diagnostic Instrument, the Severity Dimension and Multiaxiality). We believe that the progressive levels of these variables help to gradually refine diagnostic validity. **Tab.1** shows the *Scheme of the progressive introduction of the above-mentioned variables.*

We wish to point out that the 1st COMOVAL Procedure-DSM III-R was applied to a sample of N = 112 subjects with Opioid Dependence, but the effects in terms of comorbidity were studied referring to a sample of n=69 test results established as valid after the meta-analytic process [administrations carried out from 1994 to 1997, research published in 2002]. Instead, the sample to which the other four Diagnostic Procedures were applied was composed by N = 50 subjects, also with Opioid Dependence [administrations carried out from 2008 to 2010].

Table. 1 - SCHEME OF PROGRESSIVE INTRODUCTION OF THE 4 VARIABLES WHOSE LEVELS SEEM APPROPRIATE FOR IMPROVING DIAGNOSIS VALIDITY (going from the 1st to the 5th Diagnostic Procedure)

Diagnostic Procedures	1. Temporal Dimension	2. Diagnostic Instrument	3. Severity Dimension	4. Multiaxiality
1. COMOVAL DSM III-R (2002)	Collection of Patient's Life History and Anamnestic Data	SCID I-P DSM III-R	Severity Assessment of Present Disorders alone and for some AXIS I' Disorders alone	=========
2. COMOVAL DSM IV-TR "Old Scores"	↓	SCID I-P DSM IV-TR Research Version (2002)	↓	=========
3. COMOVAL DSM IV-TR "New Scores"	↓	↓	Severiy Assessment for Present Disorders and all AXIS I' Disorders - New Scores	=========
4. COMOVAL DSM IV-TR "Additional Pages"	Collection of Patient's Life history and Anamnestic data+ Information for the 5 AXES, collected by the Additional Pages	↓	Severiy Assessment for all AXIS I' Disorders centred on the Course of the Disorder - New Scores	Additional Pages
5. COMOVAL DSM IV-TR "Previous Severity"	↓	↓	+ Past Severity, graded in the same way as Present Severity.	↓

Note: the arrows indicate that the level of the variable remains unchanged as compared to the level indicated before

Now we will describe *each single Procedure* in terms of *the Variables that characterize it*.

1. The COMOVAL Procedure - DSM III-R (2002)

The *Variables that characterize the 1st Procedure*, validated in the past(R. Perone, D. Pecori , 2002), are the following:

1. The Temporal Dimension. The 1st Diagnostic Procedure entails the collection of the Patient's Life History and Anamnestic data [by the I.N.A. –Intervista Narrativo-Anamnestica – (created by D. Pecori and R. Perone, in R. Perone and D. Pecori 2007 p. 63-74)]. The collection of these data allowed us to realize the aim of the DSM that, as R.L. Spitzer stated regarding the SCID I/P DSM III-R, is *"…to discriminate if, during the course of life, there has ever been a diagnosis on AXIS I or if there is a present episode (when the diagnostic criteria are satisfied during the past month)"* (Spitzer R.L., 1993 p. 3). This Procedure allows *a partial application of the "Temporal Dimension" Variable,* whose importance we demonstrated during our work on the Validation of the COMOVAL Procedure (R. Perone, D. Pecori 2002 p. 121 and following.).
2. The Diagnostic Instrument. The Diagnostic Instrument used was the *SCID I/P DSM III-R* that includes N = 34 Disorders on AXIS I.

3. The Severity Dimension The SCID I/P DSM III-R was based on the DSM III-R: :"…*Another mistaken concept is that all the subjects described as affected by the same mental disorder have similar important characteristics. Although all the subjects described as having the same mental disorder necessarily present the characteristics that define the disorder, they can differ because of other important elements which influence clinical management and its result*" (DSM III-R, pag 10). However, the interview allowed us to apply the "Severity Dimension only partially," as it was limited to assessing only the Severity of Present Disorders and considered only some AXIS I Disorders.
4. Multiaxiality. This first Procedure does not consider the Multiaxial Dimension. This is because data from the 5 AXES are not exhaustive, dishomogeneous and not fully integrated.

2. The COMOVAL Procedure - DSM IV-TR –"Old Scores"

The *Variables that characterize the 2nd Procedure* are the following:

1. The Temporal Dimension which is the same as in the 1st Procedure.
2. The Diagnostic Instrument. The 2nd Procedure introduces an optimized level of the "Diagnostic Instrument" dimension, that remains unchanged also for the following3 Procedures. This is the *SCID I/P DSM IV-TR Research Version (2002)* which includes *a greater number of disorders* compared to the *SCID I/P DSM III-R*. In fact, it includes N = 45 AXIS I Disorders (or 47 if we consider the specificity of "Other Disorders on AXIS I"). The *SCID I/P DSM IV-TR Research Version (2002) further refines the diagnostic criteria* introduced by DSM IV-TR.
3. The Severity Dimension is similar to the 1st Procedure and is not exhaustive. This is due to the fact that the Severity Assessment regards only Present ongoing Disorders and is applicable only to some AXIS I Disorders. The scores used are the same as the COMOVAL Procedure DSM III-R (2002)
4. Multiaxiality. This Procedure does not take the Multiaxial Dimension into consideration**.**

3. The COMOVAL Procedure - DSM IV-TR –"New Scores"

The *Variables that characterize the 3rd Procedure* are the following:

1. The Temporal Dimension. The same as in the first two Procedures.
2. The Diagnostic Instrument. The diagnostic instrument used is the same as the 2nd Procedure, i.e. the *SCID I/P DSM IV-TR Research Version (2002)*. We can apply the same considerations referred to that Procedure.
3. The Severity Dimension. With this Procedure *the "Severity Dimension" Variable becomes accurate*. Indeed, the Severity Assessment, although it continues to refer only to Present Disorders, *is extended to all AXIS I Disorders,* instead of being applied only to some Disorders. Moreover, this Procedure introduces *New Scores* that are applied homogeneously to all Disorders. In this way they become comparable. Thus *this Procedure renders homogeneous the scores of the Present Severity of every AXIS I Disorder in* the *SCID I/P DSM IV-TR Research Version (2002)*
4. Multiaxiality. This Procedure does not take the Multiaxial Dimension into consideration**.**

4. The COMOVAL Procedure - DSM IV-TR – "Additional Pages"

The *Variables that characterize the 4th Procedure* are the following:

1. The Temporal Dimension. The 4th Procedure introduces a level of greater accuracy of this variable and allows *the full application of the Temporal Dimension*. This improvement is due to the introduction of *some Additional Pages* which help describe the Course of Disorders on AXIS I and aid collection of data regarding AXES II, III, IV and V according to a "*temporal perspective*".
2. The Diagnostic Instrument. The Diagnostic Instrument used is the same as in the 2nd and 3rd Procedures, i.e. the *SCID I/P DSM IV-TR Research Version (2002)*. We can apply the same considerations. The Additional Pages referring to the 5 AXES of the DSM IV-TR are also administered.
3. The Severity Dimension. With this Procedure *the level of Severity Dimension is further improved* by the introduction of the "*Additional Pages*". The data referring to AXES I, II, III, IV and V, makes it possible to give a *Global Severity Assessment* "*centered on the Course of Disorder" for all the detected AXIS I Disorders*. Using this Procedure, the Severity Assessment refers not only to Present Disorders, but also takes into consideration the Course of Disorders and the integrated information coming from the 5 AXES. Furthermore, the scores and assessment of *Global Severity* of every AXIS I Disorder included in the SCID I/P DSM IV-TR Research Version (2002) show greater uniformity. However, the *scores of Past Severity are not graded*.
4. Multiaxiality. Thanks to the introduction of the "*Additional Pages,*" the 4th Diagnostic Procedure permits the collection of homogeneous data from the 5 AXES, which are sufficiently exhaustive and integrated, and take into account the temporal perspective. This enables *a Multiaxial Assessment to be made.*

5. The COMOVAL Procedure - DSM IV-TR –"Previous Severity"

The *Variables that characterize the 5th Procedure* are the following:

1. The Temporal Dimension. This is the same as in the 4th Procedure and is not subject to further improvements.
2. The Diagnostic Instrument. The Diagnostic Instrument used is the same as in the 3 previous Procedures; we can apply the same considerations.
3. The Severity Dimension. This Procedure introduces a level of greater accuracy. It includes the *Global Assessment of the Severity for every Disorder considered by the SCID I/P DSM IV-TR Research Version (2002), including also Previous Severity Assessment, graded in the same way as Present Severity.*
4. Multiaxiality. This is the same as the 4th Procedure and is not subject to further improvements.

Therefore, in synthesis, if we observe **Tab. 1**we can note that, gradually passing from the1st to 5th Diagnostic Procedure, the dimensions subject to greater changes regarding accuracy are:

- the *Temporal Dimension*
- the *Severity Dimension*

They appear to be KEY DIMENSIONS in the perspective of DSM-5.

Indeed, the Temporal Dimension allows us to see (i) the Course of Disorders and (ii) the evolution over the course of time of the information gathered from the 5 AXES. It thus offers an important contribution to the progressive Assessment of the Severity of AXIS I Disorders and of the other AXES, by allowing the integration of different categories of information. In other words, the Temporal Dimension, by making possible the gathering of information regarding the evolution of the Psychopathological Condition of the Patient, aids the formulation of an all-inclusive and ongoing diagnosis of greater validity and accuracy.

In our opinion, **the application of the Dimensional Approach,** that characterizes the *DSM-5*, *should include the dialectic integration of the "Temporal Dimension" with the "Severity Dimension". We consider it impossible to correctly assess the Severity of AXIS I Disorders without*

knowledge of the information about the Patient referring to the other types of Information and to the Course of his/her life. Therefore, the Dimensional Approach cannot exclude Multiaxiality as we understand it.

We are convinced that, through the integration of the above-mentioned Variables, the Dimensional Approach could:

- *improve the Diagnostic Validity of the SCID I/P DSM IV-TR Research Version (2002)* and
- more effectively guide the *Clinical Judgment* of the operator, allowing him/her to formulate more valid Diagnostic Assessments (to make better diagnoses).

We consider it opportune to end this presentation with *some questions about the exhaustivity of the Multiaxiality of the DSM IV-TR:*

- are the 5 AXES examined really capable of completely representing the complex phenomena of the "Psychopathological Condition of the Patient"?
- Why not consider the Attachment Dimension?
- And that of Cognitive Functioning?
- What other dimensions could be added?

RESEARCH

The intention of this study is to compare the following Diagnostic Procedures: (1) COMOVAL Procedure DSM - III-R (2002), previously validated (sample, Table 1) (R. Perone , D. Pecori 2002) (2) COMOVAL Procedure - DSM IV-TR "Old Scores" (3) COMOVAL Procedure -DSM IV-TR "New Scores" (4) COMOVAL Procedure - DSM IV-TR - "Additional Pages" and (5) COMOVAL Procedure - DSM IV-TR - "Previous Severity" (sample, Table 2). As mentioned above, by "New Scores" we mean new criteria to achieve more homogeneous scores and to wholly eliminate those misleading correlation coefficients resulting from small samples. This lack of precision is present in both 1997 (N = 112) and 2010 samples (N = 50).

The aim was to verify whether the introduction of multiaxiality, resulting from the introduction of the Additional Pages, has a decisive influence on the validity of diagnostic assessment in the case of drug addiction and/or other Axis I Disorders. In other words, is the COMOVAL Procedure - DSM IV-TR - "Previous Severity" the most valid of the diagnostic procedures available?

In order to do this we worked out four *Experimental Questions (contexts)*, using specific sub-samples of our sample of addicted patients. These Questions may be of interest for research on the validity of the diagnostic assessments associated with drug addiction.

1st QUESTION:

"If we make an Axis I and Axis II disorder correlation table of our sample of drug users and if we isolate the subsample from the quadrant of Substance Use Disorders (Context No.1), which combinations of Personality Disorders emerge with significant frequency? Do these combinations change with the different Procedures? If so, which Procedure is no longer valid? Why?

2nd QUESTION:

"If within the same correlation table, we isolate the subsample from the quadrant of Disorders other than Substance Use (Context No.2), which combinations of Personality Disorders occur with significant frequency? Do the results change with the different Procedures? If so, which Procedure is no longer valid? Why?

3rd QUESTION:

"If we make an Axis I and Axis I Disorder correlation table, we can examine the subsample from the Axis I and Axis I combinations, eliminating all Substance Use Disorders (Context No.3).

Which Axis I Disorder combinations are most likely to emerge? Do the results change with the different Procedures ? If so, which procedure is no longer valid? Why?

4th QUESTION:

"If we examine the subsample from the correlation table mentioned above using Substance Use Disorder combinations (Context No. 4), which combinations of Substance Use Disorders emerge with significant frequency? In other words: are there typical combinations? Do the results change depending on the Procedures? If so, which Procedure is no longer valid? Why?

Each of these questions was studied using the five Procedures described above in order to understand the possible change in Disorder combinations (=comorbidity) and to decide on the Procedure that appears to be most valid.

2.1 Sample Description

The sample used for the validation of the COMOVAL Procedure COMOVAL applied to the SCID I/P DSM IV-TR Research Version (2002) consists of N=162 opiate addicts identified at the Ser.T. (Drug Addiction Service) of the A.S.L. 10 of Florence and the A.S.L. of Foggia (Local Health Authorities).

This sample includes:

- A 1st sample of N=112 subjects with opiate dependence (N=69 of which correspond to the subsample which was validated).To these the first Diagnostic Procedure, called COMOVAL Procedure, was applied [the administration was carried out from 1994 to 1997 by Rosanna Perone (see Perone R. and Pecori D., 2002)];
- A 2nd sample of N=50 subjects with opiate dependence (the administration was carried out from 2008 to 2010).To these the other 4 Diagnostic Procedures were applied.

The general social-demographic data of the two samples examined at different times are presented below. In **Table 2** we report those relating to the 1st sample of N=112 subjects with opiate dependence; in **Table 3**, the 2nd sample of N=50 subjects.

Table 2 - General social-demographic data (N = 112)

Sex	
Male	76%
Female	24%
	100%
Nationality	Italians
Age (mean)	
Males	32 yr.
Females	31 yr.
Place of birth	
Centre	85%
Other	15%
Residence	
Centre	95%
South	5%
Legal and/or penal problems	
Yes	69%
No	31%

Education	
Lower Secondary	67%
Upper Secondary	40%
1st-level Degree	3%
Working condition	
Unemployed	34%
Permanent job	11%
Temporary job	55%
Living and family conditions	
Original family	59%
Partner	23%
Friends or other	11%
None	7%

Table 3 presents the General social-demographic data for the 2nd Sample of N=50 subjects.

Table. 3 -General social-demographic data (N = 50)

Sex	
Male	74%
Female	26%
Nationality	100% Italians
Age (mean)	
Males	34 yr.
Females	36 yr.
Place of birth	
Centre	40%
South	40%
Other	20%
Residence	
Centre	58%
South	42%
Legal and/or penal problems	
Yes	54%
No	46%
Education	
Illiterate	2%
Elementary School	6%
Lower	60%

Secondary	
Upper secondary	30%
1st -level degree	2%
Working condition	
Unemployed	66%
Permanent job	18%
Temporary job	16%
Living and family conditions	
Original family	64%
Partner	18%
Friends or other	6%
None	12%

Comparison between the two samples reveals that the only substantial social-demographic difference between them is the subjects' place of birth; only Florence and Province of Florence in the first case, and two Italian Regions in the second case: Tuscany (Florence and Province) and Puglia (Foggia and Province).

For the other socio-demographic features, the two groups of subjects examined are practically homogeneous, despite the age difference of 13 years between the first and second groups. The two groups are mainly male, in the age-range 30-35 years, single, with legal and/or penal problems and low educational level. They have no stable employment or economic independence. Moreover they tend to live with their original families.

2.2 Materials and methods

The experimental design, as can be seen in section 2, has been transformed from the statistical point of view into *the study of the distinct effects of five different levels of the variable "PROCEDURES"* into four sub-samples of the variable "TYPES OF COMORBIDITY AMONG DISORDERS", corresponding to the number of the Questions.

The aim was to answer the part of the Questions dealing with *"Which combinations (=comorbidity) of Personality Disorders or Axis I Disorders emerge most frequently? Do these combinations vary with the variation of the Procedures?" Do these results vary with the variation of the Questions?*

The variable "TYPES OF COMORBIDITY AMONG DISORDERS" was assessed using:

(i) the comorbidity matrix of the Personality Disorders in the subsample of drug- addicted subjects, corresponding to the 1st Question;

(ii) the comorbidity matrix of Personality Disorders in the subsample of drug-addicted subjects, corresponding to the 2nd Question;

(iii) the comorbidity matrix of the Axis I Disorders other than Substance Use Disorders in the subsample of drug-addicted subjects, corresponding to the 3rd Question;

(iv) the comorbidity matrix of Substance Use Disorders using the subsample corresponding to the 4thQuestion.

In other words we have taken as levels of the dependent variable the *comorbidity* of the two-by-two combinations (i) of Axis II Disorders [Axis II/Axis II] (first and second Question) and (ii) of Axis I Disorders [Axis I/Axis I] (third and fourth Question).

Comorbidity was calculated using *Pearson's linear correlation coefficient*(*), relative to the distributions N=112 and N=50, isolating the chosen subsamples. *Student's t test* was applied to the values obtained in order to filter the significant correlations.

We thus began by considering the combinations of Axis II Personality Disorders with the various Procedures and so in succession for other questions.

Having completed the session for each Question, the Analysis of Variance (**) was then applied to the whole sample to verify the emergence of significant effects (i) at the level of the Procedures (ii) at the level of the Types of Comorbidity of the Disorders and (iii) *crossing these two levels*(Procedures and Types of Comorbidity) *in order to check the existence of any particularly frequent combination not due to any specific Procedure or to any specific Type*.

Finally we analyzed and compared the behavior of three DIAGNOSTIC CERTAINTY indicators when the Procedures were changed: (i) the mean significance of the comorbidity (ii) the total number of comorbidities and (iii) the most frequent types of comorbidity.

The aim was to answer the part of the questions regarding "Which is the most valid Procedure? Why?"

2.3 Analysis and Discussion of Results

In the following paragraphs we present the Tables with the results of the Analysis of Variance - Fisher's F test applied to (i) the Pearson correlations= comorbidity or "the Types of Comorbidity of the Disorders" considered two at a time (Factor A); (ii) the Pearson correlations=comorbidity associated with each type of Procedure (Factor B); and (iii) the combinations of particular types of comorbidity which are not imputable either to the type of procedure or the type of disorder.

2.3.1 Analysis of Variance: Types of Comorbidity among Personality Disorders and Diagnostic Procedures – 1st Question

Table 4 shows the results of the F Test on **Personality Disorders** – *Factor A* (Types of Comorbidity among Personality Disorders) – and the **Diagnostic Procedures** used – *Factor B* (Procedures). We can see that there are *important differences both in the Types of Comorbidity among Disorders (F = 4.602) and in the Diagnostic Procedures (F = 4.759)* [in Table 4 the significant values are highlighted in bold].

This means that:

- **there are indeed specific Personality Disorders which combine with Substance Use Disorders (Factor A);**

(*) *Pearson's Linear Correlation Coefficient* among the personality disorders was chosen as the observational variable, judging that it might be the most faithful expression of comorbidity of the disorders [Perone R., Pecori D. 2002 pag. 99].
(**) Analysis of Variance at two levels of crossed factors (Lucca A., Burigana L., 1980[15] p. 171) with Fisher's F test.[16] The work followed a multilevel logic in the sense that the two variables considered (Disorders and Procedures) were examined both at individual and interactive levels.

- **the type of diagnostic procedure used also influences the diagnostic assessment (Factor B);**

TABLE 4 - [1st Question] – Effects of the Diagnostic Procedures on the Significant Types of Comorbidity AXIS II/AXIS II sample N=162

F	4,602	p=0,01	H1 > 2,18	FACTOR A	TYPES OF COMORBIDITY AMONG PERSONALITY DISORDERS CORRELATED TWO BY TWO - 1st Question -
F_B	4,759	p=0,01	H1 > 3,32	FACTOR B	PROCEDURES
F_{AB}	0,278	p=0,01	H1 > 1,59	FACTOR AB	COMBINATIONS
		g.l.	584		

Let us examine **Table 5a** to understand how the Types of Comorbidity were obtained.

Regardless of the procedure used, in our sample there are recurrent comorbidities among Personality Disorders (e.g. between Borderline Disorder and Avoidant Disorder (2.352 for $p<0.01$) or between Narcissistic Disorder and Avoidant Disorder (1.765 for $p<0.05$) [**Table 6a**]. These comorbidities are responsible for the increase in significance of Factor A ($F = 4.602 > 2.18$) in the Analysis of Variance.

TABLE 5a – [Axis II/Axis II] - Table of the F values between Personality Disorders (1st Question) Total sample N = 162]

PERSONALITY DISORDERS (AXIS II) CORRELATED TO SUBSTANCE USE DISORDERS (AXIS I)	Schizoid Personality Disorder	Schizotypal Personality Disorder	Histrionic Personality Disorder	Narcissistic Personality Disorder	Borderline Personality Disorder	Antisocial Personality Disorder	Avoidant Personality Disorder	Dependent Personality Disorder	Obsessive–compulsive Personality Disorder	Personality Disorder N.O.S.	Passive-Aggressive Personality Disorder	Depressive Personality Disorder	H1 > F.01;12; 584 = 2,18
Paranoid Personality Disorder	0,011	0,006	0,029	0,688	1,071	0,017	0,249	0,413	0,141	0,003	0,065	0,038	H1 > F.05;12; 584 = 1,75
Schizoid Personality Disorder		0,001	0,004	0,526	0,866	0,001	0,364	0,290	0,074	0,024	0,130	0,089	
Schizotypal Personality Disorder			0,009	0,569	0,920	0,003	0,330	0,322	0,090	0,016	0,110	0,073	
Histrionic Personality Disorder				0,434	0,746	0,002	0,449	0,223	0,042	0,049	0,182	0,133	
Narcissistic Personality Disorder					0,042	0,487	**1,765**	0,035	0,205	0,776	1,177	1,048	
Borderline Personality Disorder						0,816	**2,352**	0,154	0,434	1,179	1,665	1,511	
Antisocial Personality Disorder							0,397	0,262	0,060	0,033	0,150	0,106	
Avoidant Personality Disorder								1,304	0,766	0,200	0,059	0,093	
Dependent Personality Disorder									0,071	0,482	0,807	0,701	
Obsessive–compulsive Personality Disorder										0,183	0,399	0,325	
Personality Disorder N.O.S.											0,042	0,020	
Passive-Aggressive Personality Disorder												0,004	

It appears evident from **Table 5b** that the comorbidities described above emerge with all the Procedures except for COMOVAL PROCEDURE - DSM III-R (2002), despite the resemblance between the SCID II-DSM III-R and the SCID II-DSMIV. *The most certain finding (F = 3.731) is obtained however with the 4th COMOVAL Procedure* - DSM IV-TR - "Additional Pages" (3.731 for p<0.01), *while the other Procedures stop at lower significance levels (p<0.05)*. **[Table 5b 4th column].**<u>This means that the Additional Pages seem to contribute substantially to the certainty with which we can make an assessment i.e. seem to increase the validity of the diagnostic procedure.</u>

TABLE. 5b – Comparison of Diagnostic procedures examined through the Types of Comobidity among Personality disorders (1st Question) *Total Sample N = 162*

DIAGNOSTIC PROCEDURES USED	3. COMOVAL Procedure - DSM IV-TR "New Scores"	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages"	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity"	1. COMOVAL Procedure DSM III-R (2002)	H1 > F.01;4; 584 = 3,32	H1 > F.05;4; 584 = 2,37
2. COMOVAL Procedure - DSM IV-TR "Old Scores"	0,002	0,101	0,001	**2,605**		
3. COMOVAL Procedure - DSM IV-TR "New Scores"		0,073	0,007	**2,757**		
4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages"			0,124	**3,731**		
5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity"				**2,496**		

It is worthwhile making some further comments on these results. Observing **Table 5b**, we can note that all the procedures using the SCID II-DSM IV differ

significantly from the one using the SCID II-DSM III-R. The COMOVAL Procedure -DSM IV-TR - "Additional Pages" is particularly different. Since the COMOVAL Procedure DSM III-R (2002) was already validated at an acceptable level, there would seem to be a significant increase in validity with the introduction of the DSM IV, the New Scores and the Additional Pages, which make Multiaxial Assessment possible (F = 3.731, for p <0.01).

2.3.2 Analysis of Variance: Types of Comorbidity among Personality Disorders and Diagnostic Procedures –subsample of Disorders other than Substance Use – 2nd Question

Table 6 shows the results of the F Test among **Personality Disorders** – *Factor A* (Comorbidity Types among Personality Disorders) – and the **Diagnostic Procedures** used – *Factor B* (Procedures). We can see that there are *no important differences among the Diagnostic Procedures (F = 0.889)* [in **Table 7**the significant values are highlighted in bold]. *There are instead significant differences for the Types of Comorbidity among Disorders (F = 4.935).*

This means that:

- **there are specific Personality Disorders which combine when subjects are examined with reference only to Disorders other than Substance Use Disorders – 2nd Question (Factor A).**

TABLE. 6 - [2nd Question] – Effects of Diagnostic Procedures on Types of Significant Comorbidity among AxisII/Axis II Disorders - Sample N=162

F_A	4,935	p=0,01	H1 > 2,18	FACTOR A	TYPES OF COMBORBIDITY AMONG PERSONALITY DISORDERS CORRELATED TWO BY TWO - Quesito 2 -
F_B	0,889	p=0,01	H1 > 3,32	FACTOR B	PROCEDURES
F_{AB}	0,396	p=0,01	H1 > 1,59	FACTOR AB	COMBINATIONS
		g.l.	2469		

Table 7 reveals that, regardless of the type of Procedure used, the association which most frequently emerges is the one between Borderline Disorder and Schizoid Disorder (p<0.01), when Disorders other than Substance Use are present on Axis I. These results remain substantially unchanged with the application of the different Procedures, despite the change in the comorbidity features of the 2010 sample as compared to the 1997 one.

If we then look at a lower significance level (p<0.05), we note that also the combination of Narcissistic and Borderline Disorders is likely to be frequently associated with the AXIS I Disorders other than Substance Use Disorders. This complies with what is reported in the international literature on the psychiatric

comorbidity of drug addicts, i.e. association of the Borderline Disorder with other Axis I Disorders other than Substance Use Disorders.

TAB. 7 - [AXIS II/AXIS II] - Table of F values among Personality Disorders examined in the subsample of subjects who present Disorders other than Substance Use Disorders (2nd Question) Sample total N = 162

AXIS II PERSONALITY DISORDERS	Schizoid disorder	Schizotypal disorder	Histrionic disorder	Narcissitic disorder	Borderline disorder	Antisocial disorder	Avoidant disorder	Dependent disorder	Obsessive-compulsive disorder	NOS Disorder	Passive-aggressive disorder	Depressive disorder	H1 > F.01;12; 2469 = 2,18
Paranoid disorder	1,071	0,054	0,631	0,746	0,217	0,110	0,010	0,005	0,162	0,394	0,010	0,000	H1 > F.05;12; 2469 = 1,75
Schizoid disorder		1,606	0,058	0,029	**2,251**	0,493	0,872	1,220	0,399	0,166	0,871	1,048	
Schizotypal disorder			1,055	1,201	0,054	0,319	0,111	0,027	0,404	0,739	0,112	0,059	
Histrionic disorder				0,005	1,588	0,214	0,481	0,746	0,153	0,028	0,480	0,614	
Narcissitic disorder					**1,767**	0,282	0,582	0,871	0,212	0,056	0,581	0,727	
Borderline disorder						0,637	0,321	0,157	0,754	1,195	0,322	0,227	
Antisocial disorder							0,054	0,162	0,005	0,087	0,053	0,103	
Avoidant disorder								0,029	0,091	0,277	0,000	0,008	
Dependent disorder									0,223	0,486	0,029	0,006	
Obsessive-compulsive disorder										0,050	0,091	0,154	
NOS Disorder											0,277	0,380	
Passive-aggressive disorder												0,008	

2.3.3 Analysis of Variance: Comorbidity Types among Disorders Other than Substance Use Disorders and Diagnostic Procedures -3rd Question

Table 8 shows the results of the F Test for **Comorbidity Types within Axis I Disorders other than Substance Use Disorders** – *Factor A* (Types of Comorbidity among Disorders other than Substance Use Disorders) - and the **Diagnostic Procedures** used – *Factor B* (Procedures). It can be seen that there is a lack of homogeneity *both for the Types (F = 8.201) and for the Diagnostic Procedures (F = 4.432 for p<0.01).*

This means that:

- **there are specific Axis I Disorders other than Substance Use Disorders which combine together- 3rd Question (Factor A).**
- **the Diagnostic Procedure used influences the results of the analysis.**

TABLE 8 - [3rd Question] – Effects of Diagnostic Procedures on the Types of Significant Comorbidity among Axis I Disorders other than Substance Use Disorders - Sample N=162

F_A	8,201	p=0,01	H1 > 1,50	FACTOR A	Types of Comorbidity of AXIS I Disorders other than Substance Use correlated two by two - 3rd Question
F_B	4,432	p=0,01	H1 > 3,32	FACTOR B	PROCEDURES

$F_{A \times B}$	1,219	p=0,01	H1 > 1,50	FACTOR AB	COMBINATIONS
		g.l.	1709		

In **Table 9a** we can observe that, regardless of the type of Procedure used, the association which most frequently emerges is the one between *Major Depressive Disorder* and the following disorders: Dysthymic Disorder, Agoraphobia without Anamnesis of Panic Disorder, Specific Phobia, Generalized Anxiety Disorder and Binge-eating Disorder.

The other association involves *Post-Traumatic Stress Disorder*, which is associated with the following disorders: Bipolar II Disorder, Dysthymic Disorder, NOS Depressive Disorder, Delirium Disorder, Substance-Induced Psychotic Disorder, Agoraphobia without Anamnesis of Panic Disorder, Specific Phobia, Obsessive-Compulsive Disorder, Generalized Anxiety Disorder, Substance-Induced Anxiety Disorder and Binge-eating Disorder.

With a lower significance level ($p<0.05$), other comorbidities emerge. These remain however associated with the Major Depressive Disorder and the Post-Traumatic Stress Disorder.

If we then compare the comorbidities of the AXIS I Disorders other than Substance-Use Disorders with Substance Use Disorders, we note that some types of combination are particularly frequent ($p<0.01$, **Table 9a)**.

TABLE 9a - [AXIS I*AXIS I] - Table of F values among Disorders other than Substance Use Disorders examined in the subsample of subjects presenting AXIS I Disorders other than Substance Use Disorders (3rd Question) Sample total N = 162

AXIS I DISORDERS OTHER THAN SUBSTANCE USE DISORDERS	Bipolar disorder I	Other bipolar disorder	Major depressive disorder	Dysthymic disorder	NOS depressive disorder	Mood disorder Med. Gen. cond.	Subst.-ind. mood disorder	Schizophrenia	Schizophreniform disorder	Schizoaffective disorder	Delusional disorder	Brief psychotic disorder	Psychoti	Subst.-ind. psychotic disorder	NOS psychotic disorder	disturbo di panico	Agoraphobia senza anam. dist. panico	fobia sociale	fobia specifica	disturbo ossessivo-compulsivo	disturbo Post Traum da Stress	disturbo di ansia generalizzato	disturbo d'Ansia x Cond.Med.Gen	disturbo d'Ansia ind. da Sostanze	disturbo d'Ansia NAS	disturbo di somatizzazione	disturbo algico	disturbo somatoforme indifferenziato	hypochondria	Body dysmorphic disorder	Anoressia nervosa	Bulimia nervosa	Binge-eating disorder	Adaptation disorder	Acute stress disorder	Minor depressive disorder	Mixed anxious-depressive disorder
Bipolar disorder I	0,394	0,224	0,284	0,651	0,288	0,048	0,249	0,224	0,224	0,224	0,374	0,083	0,224	0,407	0,125	0,047	0,682	0,214	0,679	0,413	0,500	0,665	0,008	0,292	0,141	0,224	0,224	0,224	0,138	0,224	0,036	0,089	0,510	0,224	0,224	0,224	0,224
Bipolar disorder II		0,024	1,347	0,032	0,008	0,168	0,017	0,024	0,024	0,024	0,000	0,116	0,024	0,000	0,076	0,170	0,039	0,027	0,039	0,000	1,783	0,035	0,291	0,008	0,064	0,024	0,024	0,024	0,066	0,024	0,193	0,859	0,007	0,024	0,024	0,024	0,024
Other bipolar disorder			1,011	0,112	0,004	0,065	0,001	0,000	0,000	0,000	0,019	0,034	0,000	0,027	0,014	0,066	0,124	0,000	0,124	0,029	1,393	0,118	0,148	0,005	0,010	0,000	0,000	0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Major depressive disorder				1,795	1,144	0,564	1,064	1,011	1,011	1,011	1,308	0,672	1,011	1,371	0,784	0,560	1,844	0,990	1,841	1,380	0,031	1,818	0,386	1,152	0,824	1,011	1,011	1,011	0,817	1,011	0,520	0,055	1,555	1,011	1,011	1,011	1,011
Dsythymic disorder					0,073	0,347	0,095	0,112	0,112	0,112	0,038	0,270	0,112	0,029	0,206	0,350	0,000	0,119	0,000	0,027	2,294	0,000	0,516	0,071	0,187	0,112	0,112	0,112	0,190	0,112	0,383	1,223	0,009	0,112	0,112	0,112	0,112	0,112
NOS depressive disorder						0,101	0,001	0,004	0,004	0,004	0,006	0,062	0,004	0,010	0,034	0,103	0,083	0,006	0,083	0,011	1,548	0,078	0,201	0,000	0,026	0,004	0,004	0,004	0,027	0,004	0,121	0,698	0,031	0,004	0,004	0,004	0,004
Mood disorder Gen. Med. Cond.							0,079	0,065	0,065	0,065	0,154	0,005	0,065	0,176	0,018	0,000	0,369	0,059	0,367	0,180	0,857	0,357	0,017	0,104	0,024	0,065	0,065	0,065	0,023	0,065	0,001	0,267	0,246	0,065	0,065	0,065	0,065
Substance-ind. Mood disorder								0,001	0,001	0,001	0,013	0,045	0,001	0,019	0,021	0,080	0,107	0,001	0,106	0,021	1,455	0,100	0,168	0,002	0,015	0,001	0,001	0,001	0,016	0,001	0,096	0,636	0,046	0,001	0,001	0,001	0,001
Schizophrenia									0,000	0,000	0,019	0,034	0,000	0,027	0,014	0,066	0,124	0,000	0,124	0,029	1,393	0,118	0,148	0,005	0,010	0,000	0,000	0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Schizophreniform disorder										0,000	0,019	0,034	0,000	0,027	0,014	0,066	0,124	0,000	0,124	0,029	1,393	0,118	0,148	0,005	0,010	0,000	0,000	0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Schizoaffective disorder											0,019	0,034	0,000	0,027	0,014	0,066	0,124	0,000	0,124	0,029	1,393	0,118	0,148	0,005	0,010	0,000	0,000	0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Delusionaldisorder												0,105	0,019	0,001	0,067	0,156	0,046	0,022	0,045	0,001	1,739	0,042	0,273	0,005	0,056	0,019	0,019	0,019	0,058	0,019	0,179	0,828	0,011	0,019	0,019	0,019	0,019
Brief psychotic disorder													0,034	0,123	0,004	0,005	0,290	0,031	0,288	0,126	0,990	0,279	0,039	0,064	0,008	0,034	0,034	0,034	0,007	0,034	0,010	0,343	0,182	0,034	0,034	0,034	0,034
Psychotic disorder Gen. Med. cond.														0,027	0,014	0,066	0,124	0,000	0,124	0,029	1,393	0,118	0,148	0,005	0,010	0,000	0,000	0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Subst.-ind. Psychotic disorder															0,081	0,178	0,035	0,031	0,035	0,000	1,811	0,031	0,302	0,010	0,069	0,027	0,027	0,027	0,071	0,027	0,202	0,878	0,006	0,027	0,027	0,027	0,027
NOS psychotic disorder																0,019	0,223	0,012	0,222	0,084	1,125	0,214	0,070	0,035	0,000	0,014	0,014	0,014	0,000	0,014	0,027	0,425	0,131	0,014	0,014	0,014	0,014
Panic disorder																	0,372	0,061	0,370	0,182	0,852	0,360	0,016	0,105	0,025	0,066	0,066	0,066	0,024	0,066	0,001	0,265	0,249	0,066	0,066	0,066	0,066
Agorophobia minus Panic dis.amn.																		0,132	0,000	0,034	2,350	0,000	0,543	0,081	0,203	0,124	0,124	0,124	0,206	0,124	0,406	1,264	0,012	0,124	0,124	0,124	0,124
Social phobia																			0,131	0,032	1,368	0,125	0,140	0,006	0,008	0,000	0,000	0,000	0,008	0,000	0,075	0,579	0,064	0,000	0,000	0,000	0,000
Specific phobia																				0,033	2,346	0,000	0,541	0,080	0,202	0,124	0,124	0,124	0,205	0,124	0,404	1,261	0,012	0,124	0,124	0,124	0,124
Obsessive-compulsive disorder																					1,822	0,030	0,307	0,010	0,071	0,029	0,029	0,029	0,074	0,029	0,206	0,885	0,005	0,029	0,029	0,029	0,029
P-T. Stress Disorder																						2,320	0,634	1,558	1,172	1,393	1,393	1,393	1,164	1,393	0,803	0,167	2,022	1,393	1,393	1,393	1,393
Generalized anxiety disorder																							0,528	0,076	0,194	0,118	0,118	0,118	0,198	0,118	0,393	1,242	0,010	0,118	0,118	0,118	0,118
Anxiety disorder (Gen.Med. Cond.)																								0,204	0,082	0,148	0,148	0,148	0,080	0,148	0,010	0,150	0,391	0,148	0,148	0,148	0,148
Subst.-ind. anxiety disorder																									0,027	0,005	0,005	0,005	0,029	0,005	0,124	0,704	0,030	0,005	0,005	0,005	0,005
NOS anxiety disorder																										0,010	0,010	0,010	0,000	0,010	0,035	0,454	0,115	0,010	0,010	0,010	0,010
Somatization disorder																											0,000	0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Algic disorder																												0,000	0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Indifferentiated somatoform disorder																													0,010	0,000	0,081	0,595	0,058	0,000	0,000	0,000	0,000
Hypochondria																														0,010	0,033	0,449	0,118	0,010	0,010	0,010	0,010
Body dysmorphic disorder																															0,081	0,595	0,058	0,000	0,000	0,000	0,000
Anorexia nervosa																																0,237	0,277	0,081	0,081	0,081	0,081
Bulimia nervosa																																	1,026	0,595	0,595	0,595	0,595
Binge-eating disorder																																		0,058	0,058	0,058	0,058
Adaptation disorder																																			0,000	0,000	0,000
Acute stress disorder																																				0,000	0,000
Minor depressive disorder																																					0,000

H1 > F.01;37; 1709 = 1,50 H1 > F.05;37; 1709 = 1,30

The results for the comorbidities described above are the result of application of the DSM IV-TR. Examination of **Table 9b** shows that the Procedures subsequent to the COMOVAL Procedure DSM III-R (2002) differ significantly from the former $p<0.01$).

Of course, as we have already stated, the significant changes among the comorbidities can also be attributed to the different features of the 1997 and 2010 samples of "opioid drug addicts".

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TABLE. 9b - [AXIS I/AXIS I] - Significant correlations within Factor B levels **- [Comorbidity among Disorders other than** *Substance Use Disorders examined in relation to Substance Use Disorders with variation of the 5 Diagnostic Procedures*

AXIS I DISORDERS OTHER THAN SUBSTANCE USE DISORDERS CORRELATED TO SUBSTANCE USE DISORDERS	3. COMOVAL Procedure - DSM IV-TR "New Scores"	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages"	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity"	1. COMOVAL Procedure DSM III-R (2002)	H1 > F.01;4; 1709 = 3,32	H1 > F.05;4; 1709 = 2,37
2. COMOVAL Procedure - DSM IV-TR "Old Scores"	0,048	0,015	0,006	**2,403**		
3. COMOVAL Procedure - DSM IV-TR "New Scores"		0,009	0,020	**3,131**		
4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages"		0,000	0,002	**2,798**		
5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity"		0,000	0,000	**2,648**		

2.3.4 Analysis of Variance: Comorbidity Types among Substance Use Disorders and Diagnostic Procedures – 4th Question

Table 10 shows the results of the F Test on **Comorbidity Types among Axis I Substance Use Disorders** – *Factor A* (Type of Comorbidity among Substance Use Disorders)– and the **Diagnostic Procedures** used – *Factor B* (Procedures) – We can see that there is a lack of homogeneity *both for the Types (F = 2.963) and for the Diagnostic procedures (F = 5.384) for p<0,01.*

This means that:

- **there are specific Axis I Substance Use Disorders which combine with one another – 4th Question (Factor A)**
- **the diagnostic Procedure used influences the results of the analysis**

TABLE. 10 - [4th Question] – Effects of Diagnostic Procedures on Significant Types of Comorbidity among AXIS I Substance Use Disorders - Sample N=162

F_A	**2,963**	**p=0,01**	**H1 > 2,51**	**FACTOR A**	**TYPES OF COMORBIDITY AMONG AXIS I SUBSTANCE USE DISORDERS CORRELATED TWO BY TWO - 4th Question**
F_B	**5,384**	**p=0,01**	**H1 > 3,32**	**FACTOR B**	**PROCEDURES**
F_{AB}	**0,535**	**p=0,01**	**H1 > 1,70**	FACTOR AB	COMBINATIONS

g.l. 1709

Further investigation of the reasons for the differences in Factor A **(Table 11a)** shows they are to be attributed to the *comorbidity between Hallucinogen Dependence and Sedative-hypnotic-anxiolytic Substance Dependence*, a combination which appears to emerge as the result of the application of the COMOVAL Procedure-DSM IV-TR - "Additional Pages" even if it is already present with introduction of the New Scores alone (COMOVAL Procedure - DSM IV-TR "New Scores"**(Table 11b).**

These results indicate that *to obtain a valid Diagnostic Procedure for the assessment of the Disorders detected with the SCID I/P, it is important not only to introduce the Additional Pages but also to apply homogeneous scores ("New Scores").*

TABLE 11a - [AXIS I/AXISI] - Significant correlations within Factor B **[***Comorbidity among AXIS I Substance Use Disorders*

INTERCORRELATED SUBSTANCE USE DISORDERS	Cannabis dependence	Cocaine dependence	Dependence on several substances	Alcohol dependence	Hallucinogen dependence	Dependence on sed. hypn. & anxiolytics	Stimulant dependence	OTHER	H1 > F.01;8; 1709 = 2
Opioid dependence	0,461	0,001	0,000	0,115	0,838	0,213	0,048	0,370	H1 > F.05;8; 1709 = 1
Cannabis dependence		0,496	0,488	0,116	0,056	1,302	0,212	0,005	
Cocaine dependence			0,000	0,133	0,885	0,191	0,060	0,401	
Dependence on several substances				0,128	0,873	0,196	0,057	0,393	
Alcohol Dependence					0,332	0,641	0,014	0,072	
Hallucinogen dependence						2,520	0,485	0,095	
Sed. hypn. & anxiolytic dependence							0,463	1,144	
Stimulant dependence								0,151	

TABLE 11b - [AXIS I/AXIS I] - Significant correlations within Factor B [Comorbidity among AXIS I Substance Use Disorders examined in relation to Disorders other than Subtance Use Disorders with variation of the 5 Diagnostic Procedures]					
INTERCORRELATED SUBSTANCE USE DISORDERS	3. COMOVAL Procedure - DSM IV-TR "New Scores"	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages"	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity"	1. COMOVAL Procedure DSM III-R (2002)	$H_1 > F_{.01;4;\ 1709=\ 3,32}$
2. COMOVAL Procedure - DSM IV-TR "Old Scores"	0,037	0,012	0,005	**3,012**	$H_1 > F_{.05;4;\ 1709\ =\ 2,37}$
3. COMOVAL Procedure - DSM IV-TR "New Scores"		0,007	0,016	**3,719**	
4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages"			0,002	**3,398**	
5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity"				**3,253**	

2.3.5 General Considerations on the Results of the Analysis of Variance

The Analyses of Variance carried out with the comorbidities among Personality Disorders (obtained using the SCID II) quite clearly show the difference in the features of the 1997sample as compared to the 2010 one. In fact, the associations between Personality Disorders and Substance Use Disorders are different. This is true even if the SCID II DSM III-R is not particularly different from the SCID II DSM IV. So to what should we attribute the different comorbidities between Borderline Disorder/Avoidant Disorder and between Narcissistic Disorder/Avoidant Disorder (Table 5a), associated with Substance Use Disorders?

The types of drug addicts seem in fact to have changed over 13 years; this fact seems to be confirmed by both international literature and Italian data (Back S. et al.. ,2000; Cabinet Office – Annual Report of Anti-drug Policy Department, 2010).

The results referring to Substance Use Disorders indicate a change in the comorbidity between Hallucinogen Dependence and Sedative/Hypnotic/Anxiolytic Dependence **(Table 11a).**

Moreover an *evident difference emerges between the diagnostic assessments of comorbidity obtained with the first "COMOVAL Procedure" of 2002 (1997 sample)and those obtained with the "COMOVAL Procedure* DSM IV-TR - "Additional Pages" *(2010 Sample).*This result highlights the importance of the introduction of the **Additional Pages** for the Diagnostic Procedure.

Another finding which emerges is the **importance of the introduction of homogeneous scores ("New Scores")**, because they allow us to make a uniform, graduated assessment of AXIS I Disorders.

Moreover, although **the introduction of the assessment of Graduated Previous Severity of AXIS I Disorders (5th and last Diagnostic Procedure)** seems not to produce any substantial change in the results, it actually **constitutes an undoubted logical improvement, allowing the perfect application of the Dimensional Approach presented at the beginning of this paper.**

Finally, regarding the comorbidity between the Substance Use Disorders and AXIS I Disorders other than Substance Use Disorders, *there are signs in the 2010 sample of an emergence of the Major Depressive Disorder and the Post-Traumatic Stress Disorder* in association with a range of other AXIS I Disorders.

2.3.6 Hypothetic Variables for the Assessment of Diagnostic Validity

The Longitudinal (otherwise known as Temporal) dimension has always played a fundamental role during our clinical work. We consider it *indispensable for the formulation of valid diagnoses*. It in fact allows identification of the Psychopathological Condition of the Patient through consideration of his Life History and the longitudinal examination of his Disorders (Course of Disorders).

This dimension plays a crucial role also in our *research work*. We in fact retain that continuous perfecting of the Diagnostic Procedures can increase the Validity of diagnostic assessments. For this reason, we have gradually tried to correct banal errors (e.g. non-comparable scores, severity assessment envisaged only for Present Disorders and not for Previous ones, lack of information about the Course of Disorders and so on).

We have retained it opportune to compare the various Procedures progressively worked out by us over numerous years of research, asking ourselves: *which Procedure gives the best diagnostic outcomes in terms of validity?*

To this end we chose *three "Diagnostic Certainty Indicators" to confirm the VALIDITY* of each Diagnostic Procedure examined:

1. Mean significance of the comorbidity $p \leq 0.05$
2. Total number of significant comorbidities $p \leq 0.05$
3. Most frequent types of comorbidity.

Let us consider now the 1st Diagnostic Indicator, i.e. MEAN SIGNIFICANCE OF THE COMORBIDITY $p \leq 0.05$, for the 6 different types of comorbidity combinations represented **(Table 12).**

Table 12 SECURITY: MEAN SIGNIFICANCE OF COMORBIDITY p≤0,05	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure -DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
1. AXIS I (substances) * AXIS I (non-substances)	**2,38**	**3,17**	**3,31**	**3,21**	**3,06**
2. AXIS I (non- substances) * AXIS I (substances)	**3,56**	**5,48**	**4,72**	**3,31**	**3,53**
3. AXIS I (substances) * AXIS I (substances)	**2,67**	**3,10**	**2,93**	**3,19**	**3,23**
4. AXIS I (substances)* AXIS II	**2,33**	**2,38**	**2,62**	**2,62**	**2,73**
5. AXIS I (non-substances)* AXIS II	**2,63**	**3,22**	**3,01**	**3,02**	**3,06**
6. AXIS II * AXIS II	**2,92**	**3,31**	**3,24**	**3,24**	**3,24**

The comorbidity expressed by Pearson's correlation of the Disorders of the three subgroups AXIS I (non-substance), AXIS I (substances), and AXIS II, generally tends to increase in significance (calculated using mean significant values p≤0.05 according to Student's t distribution) when we pass from the 1st Procedure (COMOVAL Procedure DSM III-TR) to the 5th.

We can reflect and ask ourselves: is the considerable change found in the type and number of the comorbidities when passing from the 1st Procedure to the other Procedures referring to the DSM IV-TR produced by the difference in the features of the DSM IV as compared to the DSM III-R? Or is it due to the difference between the 1997 and 2010 samples?

The **2nd Diagnostic Indicator,** i.e. **TOTAL NUMBER OF SIGNIFICANT COMORBIDITIES**, is shown in **Table 13** for 6 different types of comorbidity combinations.

Table. 13 TOTAL NUMBER OF SIGNIFICANT COMORBIDITIES	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure -DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
1. AXIS I (substances) * AXIS I (non-substances)	**18**	**11**	**8**	**9**	**9**
2. AXIS I (non-substances) * AXIS I (non-substances)	**10**	**8**	**12**	**8**	**8**
3. AXIS I (substances) * AXIS I (substances)	**6**	**5**	**5**	**3**	**3**
4. AXIS I (substances) * AXIS I (non-substances)	**21**	**13**	**11**	**10**	**10**
5. AXIS I (non-substances) * AXIS II	**27**	**21**	**21**	**20**	**20**
6. AXIS II * AXIS II	**30**	**22**	**26**	**26**	**26**

We may note that the *total number of significant comorbidities* (expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non-substance), AXIS I (substances) and AXIS II *generally tends to decrease when we pass from the 1st to the 5th Procedure*. The number of AXIS II disorders remains

practically the same (just slightly lower) because this AXIS is not greatly affected by the changes in Procedures.

The **3rd Diagnostic Indicator**, i.e. **MOST FREQUENT TYPES OF COMORBIDITY**, is shown in **Tables 14, 15, 16, 17, 18, 19**, which show the *6 different types of comorbidity combinations.*

*The variety of significant comborbidities (p≤0.05)*expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non- substance), AXIS I (substances) and AXIS II *generally tends to decrease when we pass from the 1st to the 5th procedure.*

Table 14 shows: (a) the clear homogeneity of the types obtained with the Procedures referring to the DSM IV-TR, as compared with those referring to the DSM III-R; (b) that the rarefaction is perfectly inverse to the increase in the diagnostic categories envisaged in the SCID I/P DSM IV-TR Research Version (2002), as compared with those envisaged in the SCID I/P DSM III-R; (c) that a substantial difference occurs in the results with the introduction of the Additional Pages, which allow a more correct identification of the Disorders.

The *Major Depressive Disorder* is detected with Procedures 1, 2 and 3, despite the differences between (i) the DSM III-R and the DSM IV-TR and (ii) the 1997 and 2002 samples. We note on the other hand that it disappears with the introduction of the Additional Pages (4th Procedure). It may be deduced that without the Additional Pages we risk underestimating the comorbidity of the Major Depressive Disorder with Substance Use Disorders.

Table. 14 MOST FREQUENT TYPES OF COMORBIDITY Substance Use Disorders correlated to AXIS I Disorders other than Substance Use Disorders	1. COMOVAL Procedure DSM III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure - DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
Major Depressive Disorder	4	3	2	0	0
Obsessive Compulsive Disorder	4	0	0	0	0
Sedative-Hypnotic-Anxiolytic Dependence	4	0	0	0	0
Post-traumatic Stress Disorder	0	4	3	3	3
Cocaine Dependence	0	3	3	4	4

The variety of the significant comorbidities (p≤0.05) expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non- substance), AXIS I (substances) and AXIS II *tends to decrease when passing form the 1st to the 5th procedure.*

We can note in **Table 15** (a) the clear homogeneity of the types obtained with the Procedures referring to the DSM IV-TR as compared with those referring to the DSM III-R; (b) that the rarefaction is perfectly inverse to the increase in the diagnostic categories envisaged in the SCID I/P DSM IV-TR Research Version (2002), as compared to those envisaged in the SCID I/P DSM III-R; (c) that a substantial difference in results occurs with the introduction of the Additional Pages (a finding already seen in the previous comorbidity combination).

Bipolar Disorder I and Generalized Anxiety Disorder persist despite both the change in the Procedures (from DSM III-R to DSM IV-TR) and the sample change. As stated above we can deduce that *without the Additional Pages there is the risk of inadequately assessing comorbidity.*

Table. 15 MOST FREQUENT TYPOLOGIES OF COMORBIDITY AXIS I Disorders other than Substance Use Disorders correlated to AXIS I Disorders other than Substance Use Disorders	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
Major Depressive Disorder	2	2	2	0	0
Obsessive Compulsive Disorder	2	0	0	0	0
Sedative-Hypnotic-Anxiolytic Dependence	0	0	0	0	0
Post-traumatic Stress Disorder	0	0	0	0	0
Cocaine Dependence	0	0	0	0	0
Generalized Anxiety Dependence	2	3	4	2	2
Bipolar I Disorder Dependence	2	0	2	2	2
Panic Disorder Dependence	2	0	2	0	0
Social Phobia Dependence	2	0	0	0	0
Substance-Induced Psychotic Disorder			2	2	2

For Substance Use Disorders the comorbidities with p≤0.05 significance, expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non- substance), AXIS I (substances) and AXIS II *tend to remain numerically comparable*.

Observing **Table 16,** on the other hand, we note that the types change. Passing from COMOVAL Procedure DSM III-R to the subsequent ones in fact a substantial change can be noted: from Opioid, Cannabis and Combined Substance Dependence to Stimulant, Cocaine and Hallucinogen Dependence.

It is also possible to observe that introduction of the Additional Pages (4th Procedure) causes a greater number of comorbidities to emerge. The New Scores of the 5th Procedure seem instead to lead to the disappearance of Poly Substance Dependence.

Table. 16 MOST FREQUENT TYPES OF COMORBIDITY Substance Use Disorders correlated to Substance Use Disorders	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure -DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
Cannabis Dependence	2	0	0	0	0
Opioid Dependence	2	0	0	0	0
Poly Drug Dependence	2	2	2	1	0
Stimulants Dependence	0	3	3	3	3
Cocaine Dependence	0	0	0	1	1
Hal./PCP Dependence	0	0	0	1	1

The variety of significant comorbidities (p≤0,05) expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non- substance), AXIS I (substances) and AXIS II *tends to remain similar as regards the number of Substance Use Disorders, but not in their types*. The types in fact seem to have completely changed from 1997 to 2010, confirming) the change in the features of the sample.

Moreover, it can be noted in **Table 17** that (a) with the introduction of the New Scores there is a substantial change in the types (2010 sample); (b) with the introduction of the Additional Pages, Opioid Dependence disappears. In the 2010 sample the Obsessive-Compulsive Personality Disorder, Cocaine Dependence and Cannabis Dependence emerge; the historical comorbidity of Substance Use Disorders with Borderline Personality Disorders instead disappears.

Table.17 MOST FREQUENT TYPES OF COMORBIDITY Substance Use Disorders correlated to Personality Disorders	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure -DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
Cannabis Dependence	0	0	0	2	2
Poly Drug Dependence	4	0	0	0	0
Opioid Dependence	0	4	2	0	0
Sedative-Hypnotic-Anxiolytic Dep	4	0	0	0	0
Cocaine Dependence	0	0	2	2	2
Hal./PCP Dependence	0	0	2	2	2
Borderline Personality Disorder	5	0	0	0	0
Dependent Personality Disorder	0	3	0	0	0
Obsessive–compulsive Personality Disorder	0	0	5	4	4

The variety of significant comorbidities (p≤0,05) expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non- substance), AXIS I (substances) and AXIS II *tends to increase as compared to the number of Substance Use Disorders*. Moreover, passing from the COMOVAL Procedure DSM III-R to the 5th Procedure, the types seem to have changed completely.

Observing **Table 18** it is possible to note that *the introduction of the Additional Pages makes it possible to identify a greater number of significant comorbidities among the Personality Disorders and the AXIS I Disorders other than Substance Use.*

Table. 18 MOST FREQUENT TYPES OF COMORBIDITY AXIS I Disorders other than Substance Use Disorders correlated to Personality Disorders	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure - DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
Major Depressive Disorder	5	0	0	5	5
Generalized Anxiety Disorder	0	3	8	0	0
Social Phobia	0	0	0	5	5
Borderline Personality Disorder	6	4	0	0	0
Avoidant Personality Disorder	0	4	4	4	4
Depressive Personality Disorder	0	0	0	4	4

The difference in the significant comorbidities (p≤0,05) expressed by Pearson's correlation of the disorders in the three subgroups AXIS I (non- substance), AXIS I (substances) and AXIS II *highlights the different features of the 1997 and 2010 samples.*

The two samples appear to be different in terms both of Type of Personality Disorders and Number of Disorders: the Borderline Personality Disorder of the 1st sample is substituted in the 2nd sample by the Depressive and Narcissistic Personality Disorders. The Paranoid Personality Disorder persists, albeit less markedly.

The change observed cannot be justified by the change in the form of the tool administered, because the SCID II DSM IV administered to the 2nd sample, hasn't particularly important changes as compared to the SCID II DSM III-R, administered to the 1st sample.

Table 19 reveals the importance of the new scores, which keep the diagnosis stable.

Table 19 MOST FREQUENT TYPES OF COMORBIDITY Personality Disorders correlated to Personality Disorders	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR -"Old Scores" 2010 sample	3. COMOVAL Procedure - DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
Passive-Aggressive Personality Disorder	7	0	0	0	0
Paranoid Personality Disorder	7	4	5	5	5
Dependent Personality Disorder	0	6	0	0	0
Narcissistic Personality Disorder	0	4	5	5	5
Borderline Personality Disorder	0	4	0	0	0
Depressive Personality Disorder	0	0	6	6	6

2.3.7 Limitations of the Research

One difficulty encountered during our research was the **considerable difference in the features of the 1st and 2nd samples in terms of Comorbidity** (significant correlations among Disorders). Analysis of the Comorbidity of the two Samples in fact showed significant changes in both the types and the recorded values (see Analysis of Variance tables). This means that *the time lapse of 13 years between the two samples leads to a significant change in the psychiatric comorbidity of the patients examined, above all as regards substance use.*

Our findings are borne out by epidemiological data both from international literature (Grant B.F. et al., 2004[17], Back S. et al., 2000[18]) and from Italian surveys (Cabinet Office, 2010).

The difference between the 1st and 2nd Samples reported in the literature was however demonstrated by us through *the different incidence of the Personality Disorders detected with the SCID II*, which has not undergone any substantial changes over time. **Table 20** instead shows a much slighter difference between the 1st and 2nd samples.

Table 20 COMPARISON BETWEEN TWO SAMPLES OF SUBJECTS WITH OPIOID DEPENDENCE

		FREQUENCIES		PERCENTAGE FREQUENCIES OF THE LARGE GROUPS OF DISORDERS		PERCENTAGES	
		year 2002 n°=69	year 2010 (n°=50)	year 2002 n°=69	year 2010 (n°=50)	year 2002 % (n°=69)	year 2010 % (n°=50)
PERSONALITY DISORDERS	**AXIS II**						
	GROUP A			**13,40**	**18,13**		
	Paranoid Disorder	30	21			43,48	42,00
	Schizoid Disorder	6	6			8,70	12,00
	Schizotypal Disorder	3	4			4,35	8,00
	GROUP B			**39,86**	**40,35**		
	Histrionic Disorder	21	6			30,43	12,00
	Narcissistic Disorder	24	15			34,78	30,00
	Borderline Disorder	46	28			66,67	56,00
	Antisocial Disorder	25	20			36,23	40,00
	GROUP C			**46,74**	**41,52**		
	Avoidant Disorder	25	8			36,23	16,00
	Dependent Disorder	27	9			39,13	18,00
	Obsessive–compulsive Disorder	25	16			36,23	32,00
	Passive-Aggressive Disorder	30	25			43,48	50,00
	N.O.S. Disorder	5	0			7,25	0,00
	Self-defeating Disorder	24				34,78	
	Depressive Disorder		13				26,00
	Total of Frequencies	291	171				

We note in fact that the overall composition of the Personality Disorders of the 1st sample (N=291) is slightly different from that of the 2nd Sample (N = 171) and that the differences are not very marked, in contrast to what we had previously found with the comorbidity study. *This would seem to demonstrate that the data expressed in terms of simple percentage frequency might be less reliable than those deriving from the analysis of comorbidity* .

2.3.8 Supplementary considerations on the "additional pages" for the purposes of diagnostic validity

First we should point out that the application of the COMOVAL Procedure applied to the SCID I/P DSM IV-TR Research Version (2002) generally envisages four sessions of about 45-60 minutes with the patient, in order to administer:

- *the I.N.A.* (Narrative-Anamnestic Interview worked out by us) during the *first session*
- the SCID II during the *second session*
- the SCID I during the *3rd session* and finally
- the *Additional Pages of AXIS I,II,III,IV and V* during the *4th session*.

We decided to assess **the contribution of use of the Additional Pages to the formulation of the Diagnosis on AXIS I of the DSM IV-TR.**

To this end, for each Patient examined, we first compiled the SCID I/P DSM IV-TR Research Version (2002) after the 3rd session, and gave the definition "*Without Additional Pages*" to the diagnoses thus obtained.

Then we reformulated the diagnoses after administering and processing the Additional Pages, giving the definition "*With Additional Pages*" to the new assessments.
Finally *we compared the results obtained in order to assess the effects of the introduction of the Additional Pages in terms of Diagnostic corrections.*
We then examined the characteristics of these corrections obtained after administering and processing the Additional Pages.
It was thus possible to distinguish 3 TYPES OF DIAGNOSTIC CORRECTION FOR AXIS I:

- Corrections regarding the *Disorders*
- Corrections regarding the *Severity*
- Corrections regarding the *Main Diagnoses.*

Let us now examine each of these in turn.

Corrections regarding the Disorders

We distinguished **3 types of Correction according to their content:**

1. Corrections requiring *Addition of Disorders*
2. Corrections requiring *Elimination of some Disorders*
3. Corrections requiring *Substitution of one Disorder with another.*

These corrections *include both Present Disorders and Previous Disorders*.

Table 21 and **Figure 1** present the number of corrections effected after administration of the Additional Pages, distinguishing the types and specific Disorders on the AXIS I they refer to.

Table 21 Corrections of Disorders after using Additional Pages				
Axis I Disorders	**Number of added Disorders**	**Number of eliminated Disorders**	**Number of replaced Disorders**	**Total Number of corrected Disorders**
Major Depressive Disorder	7	1	1 (with Substance-induced Mood Disorder)	**N = 9**
Bipolar II Disorder			1 (with Substance-induced Mood Disorder)	N = 1
Substance-Induced Mood Disorder	4			N = 4
Cannabis Dependence	4			N = 4
Cocaine Dependence	3		1 (Abuse substituted with Dependence)	N = 4
Opioid Dependence	3	2		N = 5
Alcohol Dependence	3			N = 3
Substance-Induced Psychotic Disorder	2	1		N = 3
Substance-Induced Anxiety Disorder	2			N = 2
Delusional Disorder		2		N = 2
Generalized Anxiety Disorder		2		N = 2
Sedative-Hypnotic-Anxiolytic Dependence	1			N = 1
TOTAL	**N = 29**	**N = 8**	**N = 3**	**N = 40**

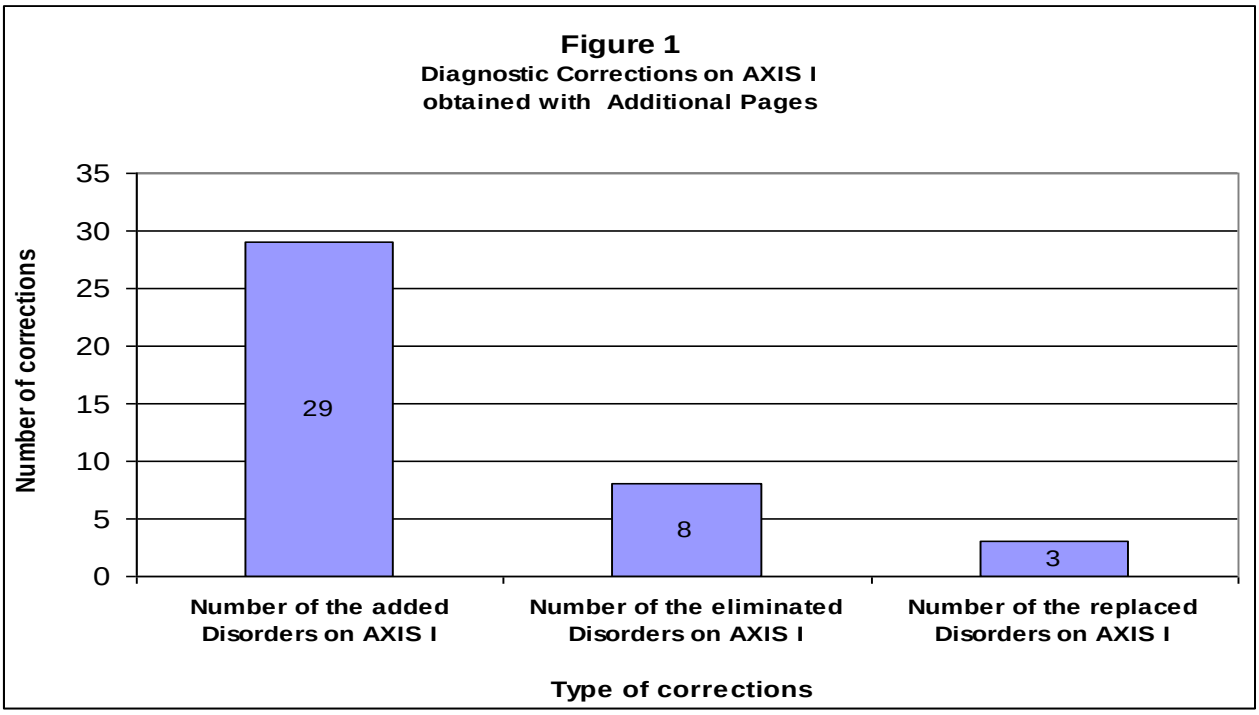

Table 21 and **Figure 1** show that **the number of corrections effected after having used the Additional pages is quite high (N = 40).**

The corrections mainly regard the addition of Disorders (N =29). A lower number of corrections regard the *Disorders eliminated* (N =8) and only very few corrections regard *Substitution of one Disorder with another* (N=3).

From the table we can see that it is the *Major Depressive disorder which undergoes the greatest number of corrections* (N =9), mostly regarding the addition of Disorders (N= 7).

The other Disorders undergoing several corrections are: *Opioid Dependence* (N=5), *Cocaine Dependence* (N =4), *Cannabis Dependence* (N=4) and *Substance-Induced Mood Disorder* (N=4). For these Disorders too the corrections mainly consist of the addition of Disorders.

It would thus seem that **if the SCID I/P is administered without the Additional Pages there is the risk of committing the diagnostic error of not detecting some disorders.**

The risk of not detecting the correct psychiatric pathology regards above all the **Major Depressive Disorder**, **which thus risks being underestimated**. But to a lesser degree it also **regards another four disorders**, i.e. *Opioid Dependence, Cocaine Dependence, Cannabis Dependence* and *Substance-Induced Mood Disorder*.

Table 22 shows the Disorders which have obtained a high number of corrections following the use of the Additional Pages. Then we compared the Number of Disorders detected with the SCID I/P with the *Number of Disorders corrected after using the Additional pages.*

Table 22
Comparison of Disorders detected using SCID/I P and number of corrections made with Additional Pages

Disorders with greatest number of corrections	Number of Disorders detected with SCID I/P	Number of Disorders corrected with Additional Pages	Percentage of corrections for each disorder
Major Depressive Disorder	**N = 17**	**N = 9**	**53%**
Opioid Dependence	**N = 49**	**N = 5**	**10%**
Substance-Induced Mood Disorder	**N = 29**	**N = 4**	**14%**
Cannabis Dependence	**N = 40**	**N = 4**	**10%**
Cocaine Dependence	**N = 32**	**N = 4**	**13%**

It can clearly be seen **that the disorder presenting the highest percentage of diagnostic corrections is the Major Depressive Disorder. This means that the application of the COMOVAL Procedure allows the diagnostic validity of the SCID I/P to be improved for this Disorder. In other words the Procedure worked out by us makes the tool much more sensitive for detection of the Major Depressive Disorder**.

It should be noted that Substance-Induced Mood Disorder presents a 14% correction percentage. The correction percentages for Cocaine Dependence (13%), Opioid Dependence (10%) and Cannabis Dependence (10%) are less significant.

This means that, if the SCID I/P DSM IV-TR Research Version (2002) is used without the Additional Pages, the risk of Diagnostic Error is significant and consists particularly of underestimating the presence of the Major Depressive Disorder above all, but also of the other Disorders reported above.

Corrections relative to Disorder Severity

N =12 Corrections regarding Disorder Severity were made in all**,** as seen in **Table 23.**

It may be noted that *the highest number of corrections in Severity regard Opioid Dependence* (N =5).

The *majority of the corrections refer to an increase in Severity.*

This means that:

- **application of the COMOVAL Procedure makes the SCID I/P DSM IV-TR Research Version (2002) a more sensitive tool for the detection of Disorder Severity.**
- **If the Additional Pages are not used there is the risk of committing the diagnostic error of underestimating the Severity of Disorders, with particular reference to those shown in Table 23, of which Opioid Dependence is the most significant.**

Table 23
Corrections regarding Severity of Disorders
after using Additional Pages

AXIS I Disorders	Number of Disorders corrected by increasing Severity	Number of Disorders corrected by decreasing Severity	Number of Disorders corrected regarding Severity
Opioid Dependence	3	2	**N = 5**
Cannabis Dependence	3		**N = 3**
Alcohol Dependence	2		**N = 2**
Social Phobia	2		**N = 2**

Corrections relative to the Principal Diagnoses

After using the Additional Pages we made **N = 5 corrections in all regarding the Principal Diagnoses.**

They are shown in Table 24.

Table 24 Corrections of Principal Diagnoses after using Additional Pages		
Principal Diagnoses formulated with SCID I/P		**Principal Diagnoses formulated after using Additional Pages**
Alcohol Dependence	→	Opioid Dependence
Opioid Dependence	→	Substance-Induced Mood Disorder
Opioid Dependence	→	Cocaine Dependence
Opioid Dependence	→	Bipolar I Disorder with Psychotic aspects

Considering that the *Principal Diagnosis is the "condition which is retained responsible for hospitalization…the condition mainly responsible for outpatient medical treatment…which represents the center of the attention or the treatment"*(DSM IV-TR, p.19), its identification is particularly important.

Diagnostic error in this sense may in fact be responsible for the drawing up of inadequate treatment plans, since they do not correspond to the Patient's psychopathological conditions.

Even if the diagnostic corrections applied are few, observing **Table 24** we can note *that the Additional Pages allow the emergence of different Principal Diagnoses from Opioid Dependence.* This means that they may be particularly useful for staff of Drug Addiction Service, who generally tend to focus too specifically on substance use and pay too little attention to other AXIS I Disorders.

2.4 Conclusions

We conclude our research work with *(i)* the most significant results obtained and *(ii)* some considerations on the development of future research.

Our work of Validation by means of the Analysis of Variance(Fisher's F test with a two-factor, crossed-level model) has shown *a clear change in the diagnostic assessments of comorbidity obtained with the 1st COMOVAL Procedure DSM III-R and those obtained with the COMOVAL Procedure - DSM IV-TR - "Additional Pages"*. This finding revealed **the importance of the introduction of the Additional Pages and the "New Scores"** (which allow the uniform and graduated assessment of the AXIS I Disorders). **The further introduction of the Assessment of the Graduated Previous Severity of AXIS I Disorders** (5th and last Diagnostic Procedure), although this seems not to produce any substantial change in the results, actually constitutes an undoubted logical improvement **which allows the Dimensional Approach presented at the beginning of this paper to be fully applied.**

Analysis of the results of some Variables in the Longitudinal Procedure (*Diagnostic Certainty Indicators*) reveals that the passage from the 1st to the 5th procedure produces both an **increase in certainty in terms of mean significance of the comorbidity (*p≤0.05)*** and a decrease in the total **Number of significant Comorbidities**.

Finally, a study of the effects of the Additional Pages shows that **their introduction allows us to effect quite a large number of diagnostic corrections. This means that if the SCID I/P DSM IV-TR Research Version (2002) is used without the Additional Pages, the risk of Diagnostic Error is significant, particularly concerning underestimation of the presence of the Major Depressive Disorder, but also of other disorders.**

Moreover, application of the COMOVAL Procedure makes the **SCID I/P DSM IV-TR Research Version (2002) a more sensitive tool for the measurement of Disorder Severity**.

Even if the **diagnostic corrections effected for the Principal Diagnoses** are few, we can note that the *Additional Pages allow the emergence of different Main Diagnoses from Opioid Dependence.*

It would now seem opportune to make some considerations about clinical activity and the development of future research.

If we wish to help a person to find the way to wellbeing, it is essential to identify what, in that moment of his existence, are the "*Risk Factors*" for his life, how much time we have to intervene, and the best way of doing this.

The factors derive from his personal history and from the way they came into being and have acted, whether singly or by interacting and additively. The consequent "*Dimensional Severity*" is the "Force" with which these factors have formerly presented and now present themselves.

The DSM has called these factors "AXES", defining their levels (categories) and Indicators (severity) by means of a long study. We retain that the psychodiagnostic tool constructed for the application of the DSM (SCID) *(i)* does not take into consideration all the necessary Factors for the description of the Patient's psychopathological condition, and that (ii) it does not represent all the levels and indicators which are indispensable for carrying out a valid measurement.

The study of "Multiaxiality" is in our opinion progressing towards "Dimensionality": analytical description and global synthesis should be made to harmonize, each of them being perfected by the addition of other Types of Information (e.g. for the assessment of Attachment) or of other DSM levels.

In our opinion this harmonization could be achieved if the phenomenon were studied using a longitudinal view of the dynamic and interactive development of comorbidities.

The study might be perfected with the "*Quantitative representation of the interaction of the Risk Factors*", expressed through its own specific levels and indicators.

Moreover the "*Dimensional Severity*" might be expressed in terms of "*Probability of the Occurrence of Pathological Phenomena*", a global parameter which is able to indicate how much time we have for intervening, how we can intervene and what short- medium- and long-term results we can expect.

This may be an aim which goes beyond the DSM-5.

APPENDIX: CLINICAL CASE ANALYZED WITH THE 5 DIAGNOSTIC PROCEDURES

We thought it interesting to present the Clinical Case of a drug addict patient assessed by applying *the 5 Diagnostic Procedures* gradually worked out by us. *The aim is to highlight the difference in the results obtained.*

The SCID I/P DSM IV-TR Research Version (2002) was administered to the patient. We wish to point out that the anamnestic data was collected using the I.N.A. [Narrative-Anamnestic

Interview of Pecori D. and Perone R., contained in the book by Perone R. and Pecori D. (2002)], and that most of the information on the Course of the Disorders was gathered by administering the Additional Pages.

C.R. is a 35-year-old illiterate Italian man who has been co-habiting for 11 years. He did not do national service due to drug addiction problems.

He lives with his partner who owns her home. She is 48 years old with a Political Science degree, and she works as a graphic designer; in the past she used alcohol for a year.

The patient has had legal problems for receiving stolen goods and theft, followed by prison sentences. During imprisonment he showed self-harming tendencies.

C.R. is illiterate and no member of his family has studied. He is currently unemployed. In the past he has done temporary jobs as a gardener, driver, bricklayer, decorator etc.

His father, who died when the patient was 16 years old, worked in a funfair; his mother (64 years old) was born in the Abruzzo Region and is illiterate. The patient is the youngest of 8 brothers and sisters, almost all of whom are married.

C.R. shows a certain difficulty in communicating the memories of his Babyhood (0-3 years), particularly with reference to his mother, whom he describes as "deeply wicked with a perverse mind". The mother has had other children with other men and has abandoned them.

Referring to the period of his Infancy (3-6 years), he recounts that his mother was violent, beating him with a gas pipe and forcing him to stay in bed. She also beat the other children and her husband, provoking physical injuries.

Concerning the period of his Childhood (6-11 years), he reports that his mother abandoned the family when he was 7-8 years old. During that period his brothers took heroin.

He talks little about his Pre-adolescence and Adolescence(12- 15 years). He says only that "he threw himself into life". After his father's death when he was 16 years old, he had a period of deep depression (for about a year), after which he began to take heroin daily up to the age of 25 years. He also began to take hallucinogenic drugs up to the age of 23 years. From 21 to 23 years he used cocaine; during this period he had anxiety symptoms. From 25 to 27 years he did not take drugs; during this period however the patient suffered from generalized anxiety.

From the age of 27 years on the patient lived through various highly stressful periods, during which he almost constantly used heroin to reduce his psychic distress. Usually when his stressful life conditions got worse he tended to increase the amount of drug he took (heroin). After a period of strong drug use, he developed a deep depression at 28 years old, which is still present.

The patient refers that his mother's partner, of whom he was very fond, had died four months before the administration of the Interview. Straight afterwards he began using heroin again in large amounts and subsequently had a strong relapse of depression accompanied also by some panic attacks. For about two months he has stopped using heroin.

We refer *the diagnostic results obtained with the different procedures* (**Table 25**).

TABLE. 25 - DIAGNOSTIC RESULTS OBTAINED WITH THE 5 PROCEDURES					
DISORDERS DETECTED	1. COMOVAL Procedure DSM - III-R (2002) - 1994 sample	2. COMOVAL Procedure - DSM IV-TR - "Old Scores" 2010 sample	3. COMOVAL Procedure -DSM IV-TR "New Scores" - 2010 sample	4. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Additional Pages" - 2010 sample	5. MULTIAXIAL COMOVAL Procedure - DSM IV-TR - "Previous Severity" - 2010 sample
			FOR ALL THE DISORDERS DETECTED: with introduction of homogeneous scores the Severity Assessment is possible but not too satisfactory because the data of the Additional Pages are not used	**FOR ALL THE DISORDERS DETECTED: with the further introduction of the Additional Pages the Severity Assessment is seen to be satisfactory. It is in fact possible to carry out Global Severity Assessment "centred on the Course of the Disorder".**	**FOR ALL THE DISORDERS DETECTED : an even higher level of accuracy is introduced. The Global Severity Assessment of each disorder is envisaged, also including assessment of Previous Severity graduated in the same way as Present Severity**
Principal Diagnosis	NOT APPLICABLE	NOT DETECTABLE	**Opioid Dependence** (Previous, Initial complete Remission) Moderate Severity	**Substance-Induced Mood Disorder (Prevoius and Present) - Moderate Severity**	**Substance-induced Mood Disorder (Previous and Present)- Moderate Severity**
Other Disorders detected	NOT APPLICABLE	**Substance-induced Mood Disorder (Previous and Present) Severity not assessable**	**Substance-induced Mood Disorder (Previous and Present) - Mild Severity**	**Substance-induced Mood Disorder (Previous and Present) - Moderate Severity**	**Substance-induced Mood Disorder (Previous and Present) - Moderate Severity**
	NOT APPLICABLE			**Major Depressive Disorder (Previous)**	**Major Depressive Disorder (Previous)- Mild Severity**
	NOT APPLICABLE	**Opioid Dependence (Previous, Initial Complete Remission) (Severity not assessable)**	**Opioid Dependence (Previous, Initial Complete Remission) Moderate Severity**	**Opioid Dependence (Previous, Initial Complete Remission) Moderate Severity**	**Opioid Dependence (Previous, Initial Complete Remission) Moderate Severity**
	NOT APPLICABLE	**Generalized Anxiety Disorder (Previous) (Severity not assessable)**	**Generalized Anxiety Disorder (Previous)**	**Generalized Anxiety Disorder (Previous)**	**Generalized Anxiety Disorder (Previous) - Mild Severity**
	NOT APPLICABLE	**Hallucinogen Abuse (Previous) (Severity not assessable)**	**Hallucinogen Abuse (Previous)**	**Hallucinogen Abuse (Previous)**	**Hallucinogen Abuse (Previous)**
	NOT APPLICABLE	**Cocaine Abuse (Previous) (Severity not assessable)**	**Cocaine Abuse (Previous)**	**Cocaine Abuse (Previous)**	**Cocaine Abuse (Previous)**
	NOT APPLICABLE	**Subthreshold Value for Substance -Induced Anxiety Disorder (Previous)**	**Subthreshold Value for Substance -Induced Anxiety Disorder (Previous)**	**Subthreshold Value for Substance - Induced Anxiety Disorder (Previous)**	**Subthreshold Value for Substance - Induced Anxiety Disorder (Previous)**

1. The COMOVAL Procedure - DSM III-R (2002)

It was not possible to apply this Procedure to the patient since the *SCID I/P DSM IV-TR Research Version (2002)* was administered to him rather than the SCID I/P DSM III-R envisaged by this Procedure.

We wish however to point out that, if it had been possible to apply it, we would not have been able to detect the Substance-Induced Mood Disorder (previous and present), a diagnosis envisaged by the DSM IV-TR but not by the SCID I/P DSM III-TR. This disorder was instead detected by the SCID I/P DSM IV-TR Research Version (2002) and assessed using the other 4 diagnostic procedures.

2. The COMOVAL Procedure - DSM IV-TR–"Old Scores"

The *SCID I/P DSM IV-TR Research Version (2002)* was administered to the patient, thus it was possible to apply both this Procedure and the other 3 we analyzed.

This second Procedure does not envisage the administration of the Additional Pages and is characterized by the application of the Old Scores, i.e. the scores envisaged by the *SCID I/P DSM III-R* which have the characteristic of not being homogeneous for all the disorders envisaged by the Interview.

With this procedure it was possible to identify the Substance-Induced Mood Disorder (previous and present) which manifested itself from the age of 28 onwards, following consumption of large amounts of heroin. But, *not being able to take into account the information emerging from the Additional Pages, it is not possible to correctly assess the severity of this Disorder*. In fact we retain that the Severity assessment must be based above all on the examination of the Course of the Disorder during the patient's Life History and not only on the assessment of the Present Disorder.

Moreover *the application of non-homogeneous scores* for all the Disorders envisaged by the Interview *negatively affects the reliability and validity of the severity assessment*. The Disorders detected can in fact only be listed; their measurement does not make it possible to correctly

establish their severity or to identify the Principal Axis I Diagnosis, on which the treatment must be based.

The same considerations apply to the other Disorders identified, i.e. for Opioid Dependence (previous, Initial Complete Remission, from 17 to 25 years of age, then from 27 to 35 years, interruption of use approximately 2 months before the administration of the SCID I), the Generalized Anxiety disorder (previous, from 25 to 27 years, a period during which he did not take any drugs), the Hallucinogen Abuse (previous from 17 to 23 years), Cocaine Abuse (previous, from 21 to 23 years) and the Subthreshold Value related to the Substance-Induced Anxiety Disorder).

The impossibility of correctly carrying out the Disorder Severity Assessment *does not therefore allow identification of the Principal Axis I Diagnosis.*

3. The COMOVAL Procedure -DSM IV-TR–"New Scores"

This third Procedure is characterized by the *New Scores which are applied homogeneously to all the Disorders*, which thus become comparable. The Severity Assessment, while continuing to refer only to Present Disorders, *is extended to all the AXIS I Disorders.*

With the introduction of homogeneous scores *the Severity Assessment is possible but not very satisfactory*, because the data from the Additional Pages are not used.

The *Principal Diagnosis* identified with this Procedure is Opioid Dependence (previous, Initial Complete Remission – Moderate Severity).

The other disorders identified are as follows: Substance-Induced Mood Disorder (previous and present – Mild Severity), Generalized Anxiety Disorder (previous), Hallucinogen Abuse (previous), Cocaine Abuse (previous) and a Subthreshold Value referring to Substance-Induced Anxiety Disorder (previous)

4. The COMOVAL Procedure- DSM IV-TR –"Additional Pages"

The introduction of the Additional Pages allows identification of the Course of the AXIS I Disorders and the collection of data pertaining to the other AXES by applying a "*temporal dimension*". This means that it allows the *Overall Assessment of* Severity to be carried out *"on the basis of the Course of the Disorder".*

We can note from **Table 25** that the application of this Procedure allows *a different Principal Diagnosis* to be formulated from the one identified with the 3rd procedure*: Substance-Induced Mood disorder instead of Opioid Dependence.*

Besides allowing a greater amount of collected information to be systematized, it allows *correction of the level of Severity of the Substance-Induced Mood Disorder*: Moderate Severity instead of Mild.

Finally, this Procedure enables us to identify another disorder, *Major Depressive Disorder* (previous), which goes back to the period following his father's death (after the age of 16, for about a year).

The other disorders diagnosed are the same as those identified in the 3rd Procedure.

5. The COMOVAL Procedure - DSM IV-TR –"Previous Severity"

This Procedure allows a greater degree of accuracy in the Severity Assessment. In fact for the Overall Assessment of each Disorder, it also includes the Assessment of Previous Severity, scored in the same way as Present Severity.

Table 25 shows that the diagnostic results of the clinical case under examination are very similar to those obtained with the 4th Procedure.

It is noteworthy however that the assessment of Previous Severity, scored in the same way as Present Severity, allows us to:

- *add the Severity Assessment for the previous Major Depressive Disorder:* Mild Severity.
- identify the Severity Assessment for the Previous Generalized Anxiety disorder : Mild Severity

The other disorders identified are the same as those found with the 4th Procedure.

In brief, **analysis of the diagnostic results for the case under examination, obtained by applying various diagnostic Procedures, reveals that a gradual diagnostic correction is obtained if we pass from the 1st to the 5th Procedure, by which we achieve:**

- "*reduction of the probability of diagnostic error*" and
- greater appropriateness of the pharmacological treatment.

It may be noted in particular that *introduction of the Additional pages of the 4th procedure appears to be a fundamental condition for the formulation of valid diagnoses*. In fact it enables us to:

- correct the Main Diagnosis (not Opioid Dependence but Substance-Induced Mood disorder).
- correctly assess the Severity level of the Substance-Induced Mood Disorder (Moderate instead of Mild) and
- identify another disorder, i.e. *Major Depressive Disorder (Previous)*
- The 5th procedure also offers further improvement in the diagnosis of the case examined since it enables us to identify with greater precision the Severity level of the:
- *Previous Major Depressive Disorder* (Mild Severity)
- *Previous Generalized Anxiety Disorder* (Mild)

We conclude the presentation of this case with **Table 26** which presents the application of the Temporal Dimension during the diagnostic assessment of the patient.

Table. 26 - DESCRIPTION OF SOME SIGNIFICANT STAGES IN THE PATIENT'S LIFE COURSE IN TERMS OF LIFE EVENTS AND DISORDERS AND/OR PSYCHOPATHOLOGICAL SYMPTOMS

Some significant stages in the patient's life course	From 16 to 17 years	From 17 to 25 years	From 25 to 27 years	From 27 to 35 years
Life events	Father's death	(Period of life with drug use to reduce distress)	More tranquil period of life	Highly stressful period of life. At 35 yr (4 months before SCID admnistration) death of mother's partner of whom he was very fond.
Disorders and/or psychopathological symptoms	**Major Depressive Disorder (Previous)**	**Opioid dependence** (17 - 25 yr); **Hallucinogen abuse** (Previous, 17 - 23 yr); **Cocaine abuse** (Previous, 17 - 23 yr.)	**Generalized Anxiety Disorder** (Previous, 25 - 27 anni)	**Opioid dependence** (Previous, Initial Complete Remission, 27-35 yr); stopped using 2 months ago. **Substance-Induced Mood Disorder** (various episodes from 28 to 35 yr; situation worsened after mother's partner's death ; still present); Substance-Induced Anxiety Disorder (Subthreshold value)

The table describes *some significant stages in the life course of the subject* under examination, in terms of life events and disorders and/or psychopathological symptoms. The aim is to point out the importance of information about patient's life history in order to get a more accurate picture of the patient's psychopathological condition.

Our aim now is to build a *computer program for processing the data obtained with the SCID*, which will be able also to produce a clear graphic representation of the information about the subject's life course gathered on the 5 AXES. This representation might also provide the Clinician with useful data for understanding the patient's problems and working out the treatment plan.

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