

Literature Reviews

The Cognitive Behavioral Assessment (CBA) Project: Presentation and Proposal for International Collaboration

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Abstract

Aims: The main aim of this paper is to describe almost 30 years of work on psychological assessment using CBA, a research team, and to propose collaboration with Latin countries. **Methods:** The acronym CBA stands for Cognitive Behavioural Assessment and indicates both an overall approach to clinical assessment and a series of tests. Five general principles formed the basis on which the team developed their questionnaires: (1) assessment is not a passive collection of information, but an active process similar to problem-solving; (2) horizontal integration of questionnaires with other assessment methods; (3) vertical integration and hierarchical structure of assessment questionnaires; (4) idiographic perspective; (5) computer support. **Results:** The paper briefly presents the most important tests: CBA-2.0, a broad-spectrum Battery for patients who need counselling and/or psychotherapy; CBA-H (Hospital) for both in-patients and out-patients suffering from physical illnesses; CBA-SPORT for professional athletes; CBA-Y (young people) for adolescents and young adults; CBD-VE (treatment benefits) to assess the effectiveness of psychological treatment. **Conclusion:** These questionnaires have produced over 100 research works, published in Italian journals or presented in conferences. In the near future, we expect important, radical changes and hope to create an international research milieu.

Keywords: assessment, on-line questionnaires, treatment effectiveness, health psychology, counselling, sport

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Introduction

Psychological questionnaires are known to be sensitive to differences between cultures and languages (Harkness et al., 2010). However, a brief examination of data banks and of major scientific journals shows that most research works come from Anglo-Saxon countries. This may reflect not a paucity of research and experience in other countries, but rather the understandable interest of researchers in a debate within their own linguistic community, to which difficulties in publishing in international journals may also be added. A reciprocal disadvantage is the result, as the Anglo-Saxon world might also find interesting ideas and suggestions in other experiences.

The present article intends to briefly outline the activities of a research group usually referred to as the CBA. The acronym stands for Cognitive Behavioural Assessment and indicates an overall approach to clinical assessment,

and not only a series of tests. The article illustrates the general principles based on which, in almost 30 years of work, a research group has developed questionnaires and questionnaire batteries for broad-spectrum assessment. These instruments have been very popular in professional practice and have originated over 100 research studies, documented in Italian scientific journals or presented at conferences. Some of the questionnaires are intended for adolescents, adults, and elderly people who need counselling and/or psychotherapy. Others are intended for less motivated individuals: In-patients or out-patients suffering from physical illnesses; athletes who play professional sports; adolescents and young adults who could be motivated towards prevention initiatives. Another instrument, CBD-VE, has been developed to assess the effectiveness of the psychological intervention.

A second, but not minor aim is to develop a collaboration proposal for professionals and researchers from other countries to create an international network with those who share the same general positions.

The CBA Project

Its Origins

The CBA project was devised in 1981/82 by a group of Italian psychologists working or practising psychological assessment, counselling, and psychotherapy in general hospitals, psychiatric services, university departments, and private practices.

The first thing we all shared was the dissatisfaction with the psycho-diagnostic tests available in the 1970s: The Minnesota Multiphasic Personality Inventory and projective tests. The second reason to start the CBA project was theoretical. Our intention, then as now, was to understand and clarify the operations that a therapist actually carries out during an assessment; thus we had the objective of “taking psycho-diagnosis out the realm of art and moving it into the realm of science” (Hersen & Bellack, 1976, p. 4).

The third element was our attention to computer science. In those years, personal computers were making their first appearance in psychologists’ and psychotherapists’ offices. They were extremely helpful in reducing the time for administration and scoring of complex questionnaires. However, in interpreting complex tests and batteries of tests, a higher level of complexity is necessary: An interpretation programme does not only have to compute and provide scoring reports, but it must make interpretations, i.e., it must possess logical rules, make choices and decisions, hence our interest in ‘expert systems’.

Five Core Elements

The features of the CBA approach can be summarised as follows:

1) Assessment is an intelligent process — The assessment is not a passive collection of information, but an active process similar to problem-solving and decision-making processes. Moreover, we believe it should advance mainly via a process of hypothesis elimination rather than ‘verification’, *ad excludendum* rather than through a process of confirmation.

The psychologist, throughout the initial assessment, may be viewed as a powerful data processor. None of the questions he asks is independent of any logic of hypothetical-deductive type. It is also understood that the psychologist works intelligently throughout the initial assessment, generating hypotheses and making decisions, and thus checking and possibly rejecting them. His hypotheses concern various aspects explicitly or implicitly inherent in the case in question. They are subordinate only to the constraint of being logically compatible with the information

already in his possession and with knowledge on the principles and laws of psychological sciences, which the psychologist is able to exploit thanks to his scientific and professional background (Sanavio, Bertolotti, Michielin, Vidotto, & Zotti, 1986, p. 7).

2) Horizontal integration — An assessment in clinical psychology must stress the multidimensionality of complex systems. The CBA Scales are tools in clinical equipment that need to be integrated with the information collected in the clinical interview, during observation and in other assessment procedures. The CBA Scales do not complete the patient's assessment. They simply explore the subject - in depth - along one of the many analysis levels: Self-assessment and subjective self-description - a level sometimes pointed to by assessment theorists as the “verbal-cognitive system” in a fairly independent way from other systems of behavioural, motor and psychophysiological responses (see Lang & Cuthbert, 1984).

3) Vertical integration and hierarchical structure — The heuristics typical of an assessment are an intelligently organised sequence of successive in-depth analyses. This is the reason why we distinguish between Primary and Secondary Scales and talk of vertical integration of these Primary and Secondary Scales.

Primary Scales offer a wide-range analysis, as they explore the main clinical variables, investigate and measure general constructs, and can be used with practically every individual that seeks the help of a psychotherapist.

Secondary Scales have three main aims: 1) in-depth study of specific problem areas; 2) widening basic knowledge where problems of differential diagnosis emerge, especially concerning personality disorders and psychoses; 3) collecting indications to assess diverse treatment strategies and techniques.

Secondary Scales are selected based on information gathered with Primary Scales and are therefore used with individuals that actually need those in-depth examinations. In addition, they collect information on the patient's resources and resilience, and on treatment techniques to be preferred.

It would, therefore, be useful if psychological tests were devised and constructed from the very beginning, taking into account various levels of specificity, for use in a hierarchically structured process for further examination.

4) Idiographic perspective — According to a frequently repeated formula, which dates back to Henry Murray, every man is in certain aspects: (a) like every other men; (b) like some other men; (c) like no other man (Murray & Kluckhohn, 1953). We believe that clinical assessment is a continuous tension between an idiographic and a nomothetic approach. On the one hand, the idiographic approach has an innate attention to the peculiarities of each individual case and longitudinal study typical of the clinical profession. On the other hand, the nomothetic approach makes available the enormous amount of knowledge that has been collected in over 100 years of research.

Diagnostic and Statistical Manual of Mental Disorder - V (DSM-V; American Psychiatric Association, 2013) and diagnostic classifications are never a point of arrival but rather a point of intermediate transition: They are part of the aspects indicated in point B “like some other men”. The highest part of the assessment is subsequent to the diagnosis and is the specific in-depth examination of the individual patient and of the multiple psychological variables.

Consequently, CBA does not supply diagnoses or classifications, but “patterns of in-depth examination”. The CBA Scale scoring yields both a series of scores for a number of constructs and “patterns of in-depth examination”. A pattern is a suggestion to carry out in-depth examinations: Every pattern can be seen as a hypothesis to be

checked out, not completely groundless. It translates into operative indications to better ‘target’ and examines in depth the interview, the use of Secondary Scales and other assessments ways (e.g., involving family members and significant others, making psychophysiological recordings, keeping diaries).

5) Computer support — From the very beginning the personal computer has been considered as a working tool in the therapist’s office. In the CBA Scales, the paper form and the computerised programme have evolved in parallel. In our intention, resorting to computerised procedures goes beyond the mere wish to shorten the phases of scoring and report drafting, as will be discussed below.

Important CBA Tests

CBA-2.0 Primary Scales

Within such a general framework, a wide-ranging Battery called CBA-1.0 Primary Scales was developed together with a first series of Secondary Scales and related computerised analysis. For some years the Primary Scales were studied and developed in different ambits, mainly at the intake assessment for surgeries, and in clinical psychology and psychotherapy services. The experience seemed, to us and to other colleagues all over Italy, a useful advance when compared to the assessment instruments that were then available in our Country.

From the evolution of CBA-1.0, the Battery CBA-2.0 Primary Scales was developed (Bertolotti, Michielin, Sanavio, Simonetti, Vidotto, & Zotti, 1985; Bertolotti, Michielin, Sanavio, Vidotto, & Zotti, 1990), which is still in use.

CBA-2.0 is a booklet composed by ten schedules, each with complete specific instructions. The core of the Battery is formed by a detailed autobiographical record card that guides the patient along the reconstruction of his or her personal history and of any psychological problems currently experienced (Schedule 4). This allows a self-administered standardised anamnesis. The main themes of Schedule 4 are:

- *Family of origin*: Intra-family relationships, evaluation of parents’ role, current relationships
- *School*: School achievement and possible difficulties
- *Affective-sexual area*: Quality of affective relationships, sex life, possible dysfunctions
- *Work and finances*: Job features, satisfaction, relationships with colleagues, possible financial problems
- *Significant events*: Changes and stressful events, bereavements, possible traumatic experiences, legal problems
- *Eating habits*
- *Addictive behaviours*: Tobacco, alcohol, light or hard drugs
- *Health and physical pain*
- *Sleep*: Quality of sleep, difficulties falling asleep, early awakenings
- *Suicidal experiences or ideas*
- *Quality of leisure time*
- *Description of the problem experienced*: Evaluation of seriousness level
- *Possible previous interventions*
- *Motivation level*: Reasons for applying for assessment, willingness to undergo psychotherapy

A series of scales and inventories develop around this core; some are devised by us (QPF-Psychophysiological Questionnaire and DQ-Depression Questionnaire; Bertolotti, Michielin, Sanavio, Vidotto, & Zotti, 2000) and four are translations of well-known tests: the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970), the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975), the Fear Survey Schedule (FSS; Wolpe & Lang, 1964), and Maudsley Obsessive Compulsive Questionnaire (MOCQ; Hodgson & Rachman, 1977; Sanavio & Vidotto, 1985).

There are some validity indexes that allow deciding whether the answers supplied by a specific patient can actually be considered valid and reliable. Two indexes assess response accuracy, another two highlight possible interferences due to a state of anxiety while filling in the instrument, another checks simulation attempts, and, lastly, some questions explore the motivations that have driven the subject to take the test.

On the whole, it is a wide-ranging Battery, useful to explore most of the adult cases that are referred for psychological assessment in a clinical setting (Table 1; Sanavio et al., 1986).

Table 1

The CBA-2.0 Primary Scales Battery

Schedule	Items	Score	Inquiry area
1	25	--	General data
2	20	STAI-X1	State anxiety (initial)
3	20	STAI-X2	Trait anxiety
4	59	--	Case history
5	48	EPQ-R	Extraversion, neuroticism, psychoticism, lie
6	30	QPF-R	Psychophysiological symptoms
7	58	FSS-R	Fears and phobias
8	24	QD	Dysphoria and depressive symptoms
9	21	MOCQ-R	Obsessions and compulsions
10	0	STAI-XI-R	State anxiety (final)
		STAI-DIFF	State anxiety fluctuations
		STAI-ACC	Accuracy and validity
	6	IR	Repeated Items – Accuracy and validity

Note. STAI: State Trait Anxiety Inventory; EPQ-R: Eysenck Personality Questionnaire, Reduced; QPF-R: Psychophysiological Questionnaire, Reduced; FSS-R: Fear Survey Schedule, Reduced; QD: Depression Questionnaire; MOCQ-R: Maudsley Obsessive Compulsive Questionnaire, Reduced; STAI-X1-R: State Trait Anxiety Inventory X1, Reduced; STAI-DIFF: STAI Difference; STAI-ACC: STAI Accuracy; IR: Repeated Items.

The normative group was updated in 1997 and comprises 2304 individuals. The normative values are presented divided by gender and age groups. For these over 60, separate values are presented from an epidemiological study on 583 elderly people, aged between 60 and 94 and mainly with low schooling levels, defined as “cognitively sound” based on neuropsychological tests (Della Sala & Zotti, 1994; Zotti et al., 1996).

Also available are some normative values regarding over 6000 patients hospitalised for rehabilitative treatment in the fields of cardiology, pulmonology, neurology, physiatry, dystonias, and occupational diseases (Bertolotti, Sanavio, Vidotto, & Zotti, 1994). They are a useful reference for those using the battery in hospitals.

The reliability and validity of the Scales are documented in the original manual (Sanavio et al., 1986). Test-retest reliability ranges from .72 and .85 (seven days), and from .61 and .89 (30 days). Cronbach’s alpha ranges from

.74 and .92 (community), and from .68 and .97 (patients), except for the P Scale of the Eysenck Personality Questionnaire (.32). Validity checks include focus group, correlations with validated tests and factor analysis.

Over the years many research studies have utilised the Battery. The list below presents the different problems that were focused.

Medical Problems and Research Studies With the CBA-2.0 Primary Scales Battery (From: Bertolotti et al., 1994; Sanavio & Vidotto, 1996)

- Alcoholism
- Anxiety disorders
- Before and after aorto-coronary bypass
- Before and after kidney transplantation
- Behavioural risk factors for cardiovascular disease: smoking, obesity, stress
- Blepharospasm
- Bronchial asthma
- Cancer
- Cephalgia
- Chronic obstructive pulmonary disease (COPD)
- Chronic pain
- Drug addiction
- Epileptic patients
- Faecal and urinary incontinence
- Focal dystonias
- Gynaecological patients
- Head injury patients
- Health psychology
- Heart transplantation
- HIV patients
- Impact of oxygen therapy on quality of life
- Impact of anti-hypertension therapy on quality of life
- Impact of low-dose Interferon in patients affected by chronic hepatitis C
- Nervous anorexia
- Obstructive sleep apnoea syndrome (OSAS)
- Patients with gastroenterological problems
- Patients undergoing dialysis
- Pregnant women
- Preventive and occupational medicine
- Professional cramps

- Psychiatric disorders
- Rehabilitation medicine
- Spasmodic torticollis
- Spina bifida

Automatic Interpretation — The software for scoring and interpretation of the Battery includes:

- A programme to input and visualise answers, to enable computer self-administration, and to save the answers given;
- A scoring programme, which computes the quantitative indexes;
- A programme to print the synthetic report, with an explanatory comment and a narrative report;
- A programme able to reveal a number of “patterns of in-depth examination”, to indicate the Secondary Scales, and proposals for the following interviews as well as other assessment methods.

The structure of the summary report can be schematised as follows:

1. A first page with socio-demographic information;
2. A page with analysis of validity indexes, computation of the scores on the different Scales and related conversion into z scores and percentiles;
3. Signalling possible omissions and possible critical items;
4. A summary of the information from Schedule 4, where the subject’s personal history is described;
5. A final page with a narrative summary of the main test results with the suggestions produced by the ‘patterns of in-depth examination’, which will guide subsequent interviews and possible resorting to Secondary Scales.

This software is no longer subject to copyright and can freely circulate in its Italian version.

In conclusion, the main and originally intended use of the CBA-2.0 has been, and continues to be, in the psychologist’s office, where a potential patient turns to a psychologist asking for help. It is a relatively favourable setting as regards motivation and willingness towards wide personal self-opening. First of all, CBA-2.0 offers the basic information necessary, in our opinion, for the assessment. Secondly, it offers a series of hypotheses. From the data collected emerge: a) hypotheses for broadening the problem and for going in depth into the problem which can help psychologists to focus on their assessment strategies; b) hypotheses on the mechanisms through which current problems and psychological disorders may have originated; and 3) hypotheses on the most appropriate intervention strategies. Third, it offers a fairly large amount of measures, which supply the necessary data to construct one or more ‘baselines’ to which any progress (hopefully), taking place during the psychological intervention and in subsequent follow-ups, can be compared.

CBA-H (Hospital)

As already noted, the Battery CBA-2.0 has been widely used in the psychological assessment of patients with physical illnesses.

The CBA-H form (H = Hospital) has been developed in order to allow a more rapid assessment specifically contextualised in health and in somatic disease (Zotti et al., 1989). The CBA-H form is made up of 147 short simple items. The answer system is the true/false kind and is the same for all the test sections. Administration takes about 10-20 minutes. CBA-H is articulated over 4 cards:

Card A - Focuses on the present time (e.g., hospitalisation, being told of a diagnosis, etc.) and investigates emotional state, anxiety and depression reactions, fears and worries;

Card B - The instructions ask the patient to focus on the previous three months. The items examine emotional states, possible psychophysiological disorders, and signs of stress;

Card C - The instructions ask the patient to describe his or her general character and behaviour. The items analyse stable traits and characteristics, among which introversion/extroversion, emotional stability/instability, anxiety, assertiveness, social hostility and rigidity, irritability and impatience;

Card D - Collects biographical information, explores lifestyle and possible health risk factors.

Thanks to the different time lags CBA-H gives the opportunity to distinguish between the emotional states and behavioural changes linked to the recent hospitalisation (or disease diagnosis) and the patient's pre-existing characteristics.

CBA-H is meant for both in-patients and out-patients nearing an important health event (communicating the diagnosis of an important illness, getting ready to give birth, awaiting surgery, seropositivity test, psychological support for a chronic or terminal illness, etc.).

Thanks to the collaboration of several centres, CBA-H has been administered to diverse clinical cases from which a new normative group of 4888 subjects was formed. Reliability (Cronbach's alpha) is adequate and validity checks included interviews with patients and doctors, correlations with CBA-2.0 and other validated inventories, factor analysis (Zotti, Bertolotti, Michielin, Sanavio, & Vidotto, 2000, 2010).

CBA-H includes a software programme which has been recently updated and which supplies both quantitative measures and in-depth examination patterns and suggestions for suitable interventions in health psychology and behavioural medicine.

CBA-H has been widely used in hospitals in Italy and has succeeded in reconciling the hospital world with psychological health and behavioural medicine interventions. In some hospitals, especially in rehabilitation centres, the traditional standard practice of referring a limited number of patients to psychological examination has been overcome. It is no longer the hospital ward doctor who refers a patient to the psychology and psychotherapy services. As a routine procedure, psychologists assess all patients soon after admission and they then inform the doctor of possible problems and of patients' psychological and behavioural characteristics. This work pattern allows the optimal use of health psychology and behavioural medicine interventions while patients are still hospitalised.

The GISSI-2 Research — CBA-H is especially connected with the GISSI-2 (acronym for Italian Group for the Study of Survival following Myocardial Infarction) research, which in 1990 assessed the efficacy of streptokinase. Part of the trial aimed at checking the influence of psychological and behavioural variables on the development of acute infarction. CBA-H was administered to 2710 patients with acute infarction recruited in 165 coronary units all over Italy. Although the patients were in extremely serious conditions, the protocols were filled in and collected without any particular problems.

Many important results were obtained, but here we will only mention one: the survival prognosis six months after the myocardial infarction. It is well known that, besides the biological variables, some psychological variables do impact survival of infarction sufferers, although the mechanism through which this happens is not yet clear.

A multicentre sub-project (called GIPSY) was included in the GISSI-2 study to systematically assess the impact of the psychological variables and their interaction with the biological ones in survival after six months. A rich database emerged on 2449 infarction sufferers who had filled in the CBA-H; 63 of them died during the six months of the study. [Carinci and collaborators \(1997\)](#) investigated the prognostic power of the survival variables measured by the CBA-H. They isolated two different patterns of risk: The first is given by pooling together the high scores on the Card B Scales, vascular damage being equal. Patients reporting such a pattern, called vital exhaustion, at a time immediately preceding the heart attack, have a mortality risk 2.2 times higher than other patients. The second pattern presents high dysphoria, but absence of strong anxiety and absence of vital exhaustion. In that case patients have a mortality risk 3.2 times higher than other patients (vascular damage being equal).

[Carinci and collaborators \(1997\)](#) underlined that these two patterns can at all effects be considered as prognostic risk indexes, at the same level as risk indicators like hypertension, stress test outcome, and other important cardiologic assessments.

Other Researches With the CBA-H — CBA-H has also been used in several other studies with diverse clinical populations (for details see: [Zotti et al., 2000, 2010](#)):

- before and after aortocoronary by-pass and heart transplantation;
- cancer;
- care givers of patients in permanent vegetative state (evaluation of their reactions);
- chronic acute pain;
- diagnosis of seropositivity (HIV+);
- gastric disorders;
- ischemic cardiac patients before and after a cognitive behavioural intervention within a rehabilitation programme;
- multiple sclerosis;
- patients carrying an Implantable cardioverter defibrillator (a device capable of detecting and immediately correct the arrhythmias that can lead to sudden death);
- quality of life evaluation among patients undergoing dialysis.

CBA-SPORT

Psychological assessment applied to sport has played an important part in the use of the CBA-2.0 Battery. This experience has shown, however, that the Battery seems too intrusive and clinically oriented. In collaboration with sports psychology researchers we have then devised the CBA-SPORT.

The number of cards remained the same, but filling in required less time: The most intrusive parts in the autobiographical schedule were removed and the response modality was made faster. Specific in-depth examinations in the athletic/sports ambit allows less frequent use of Secondary Scales. To compute reliability, Cronbach's alpha was used; all coefficients are larger than .70. Validity was verified by factor analysis and results satisfactory ([Vidotto, Salvini, & Turchi, 1996](#); [Vidotto, Turchi, Salvini, Apollonia, & Iacopozzi, 2002](#)).

CBA-SPORT is meant both for high-level athletes and those sportsmen and women who, from the age of 14, have practised amateur sports involving frequent training and competition. The normative sample is composed of 1275 individuals, 1060 male and 215 female. Mean age is about 25 years with a range between 15 and 50. They have practised their discipline for a minimum of one year to a maximum of 35 years. They are distributed as shown below (for details, see [Vidotto et al., 2002](#)):

- 364 footballers (Premier League, Division One, Division Two, and lower divisions);
- 92 tennis players (Italian divisions B and C1);
- 63 drivers (F3, rally, prototype, autocross, and test drivers);
- 63 handball players (Italian divisions A1 and A2);
- 77 professional cyclists;
- 80 professional basketball players (Italian divisions A1, A2 and B1);
- 100 karate players, divided in three groups according to their level or belt colour;
- 90 professional volleyball players (Italian divisions A1 and A2);
- 100 swimmers, professional and Master category;
- 74 climbers, divided in two samples: one Italian and one English;
- 100 cyclists, Amateurs Under 23 and Elite division.

The report that emerges from CBA-SPORT has been considered an important fact-finding phase in the collaboration among athlete, trainer, and sports doctor.

CBA-VE: Assessment of Treatment Benefits

The CBA Scales were often repeatedly administered, with time intervals, in order to evaluate the development of a patient in treatment, the advancement of a psychological treatment, and the results of psychotherapy.

For some time now, the need for questionnaires specifically devised to verify and document the effectiveness of psychological and psychotherapeutic treatments, provided by both public and private services, has been felt.

The necessary requisites include brevity, easiness of administration, scoring and interpretation. There is growing awareness that assessment cannot only address symptoms and psychological discomfort, but must also consider 'positive' constructs like psychological well-being, adjustment, coping abilities, self-esteem, and self-efficacy. Indeed, the aim of psychological treatment is not simply reducing symptoms and discomfort, but also increasing well-being and self-efficacy, improving personal functioning and coping, perceived positive change and perceived support from others.

Hence the creation of the CBA-VE: Italian acronym for 'Valutazione dell'esito', assessment of treatment benefits. Unlike the previous CBA tests, CBA-VE does not simply examine symptoms and psychological discomfort, it also addresses 'positive' constructs like psychological well-being, adjustment, coping abilities, self-esteem, and self-efficacy.

In the instructions, patients are asked to report to the previous two weeks. It is made up of 80 items and articulated over five Scales:

1. Anxiety, 14 items (e.g., "I have been upset about trivial things");

2. Well-being, 15 items (e.g., “I have done things that interested and involved me”);
3. Perception of positive change, of being able to cope with difficulties and getting others’ support, 11 items (e.g., “I have tried to deal with difficulties rather than avoid them”);
4. Depression, 19 items (e.g., “I have been tormented by feelings of guilt”);
5. Psychological discomfort, serious symptoms of disorder and poor control over impulses, 21 items (e.g., “I have felt debased or mocked”).

The five-correlated-factor theoretical structure was validated through the Multi-Group Confirmatory Analysis (MGCA), with LISREL 8.71 software (Michielin et al., 2008).

The most interesting psychometric analyses concern sensitivity to change. They were conducted on patients undergoing psychotherapy in private practice, at family advisory bureaus, department of mental health clinics, and drug addiction services run by the local health authority. The control group was made up of patients on the waiting list, re-assessed a few months later. The changes before and after treatment, in the five dimensions, correlate with the clinical judgment on the percentage of therapeutic goal achievement.

CBA-VE Software — The programme is accessed through a password that can be personalised by the user. Personal data and test data are kept in databases (archived in the computer) whose information is encrypted and not accessible for outside subjects.

The software is made up of three parts:

- Personal data form: It is the same as the paper-and-pencil version of the CBA-VE where the patient’s personal data are revealed, such as first name, family name, date of birth, disorders, etc.
- Test form: It presents the items and possible answers of the CBA-VE. The patient reads the item and selects the answers. When the information input is over, confirmation is given and the data are saved, the software computes the CBA-VE score and shows the results in a special part of the patient’s private data form.
- Report form: Visualisation of patients’ profiles. Each report shows the values of the scores obtained by the patient in each Scale across administrations and, also a graphic section, in which the patients’ scores are shown on graded Scales to make the profile easier to read and to verify treatment efficacy.

Both test and software are distributed free by the ‘Ordine degli Psicologi’ (the Board of Italian Psychologists).

CBA-Y (Young People)

Many colleagues encouraged us to introduce changes to the CBA Scales so that they could also be used with adolescents. However, we thought that, rather than changes, a radical rethinking was necessary to delve into the problems typical of late adolescence and early adulthood. Thus, the project CBA-Y started.

The CBA-Y form is very similar to an interview on various issues, a coherent sequence that touches on young people’s history and experiences, their habits, beliefs, interests. As already mentioned, the philosophy underlying the CBA project is to reproduce in the questionnaires what happens in initial interviews in good clinical practice. In these cases the young person’s willingness to open up is minimal and the main problem the therapist faces is constructing a good therapeutic relationship. Therefore we wished the CBA-Y to be as little intrusive as possible, to develop as a ‘tactful’ interview and to avoid exerting any pressure.

Another new feature is that patients do not have to answer a fixed array of questions, but can choose to present themselves through the items that they decide to select. They are invited to read each item and select (tick) it only

if they think it best fits their case. They can choose to describe themselves with only a few statements or with many. This provides additional information on their degree of insight, on their motivation in answering the questionnaire, etc. This allows response styles to be assessed: An index that we call 'self-opening'.

The check-list modality is a particular type of dichotomous response that also allows selecting only one item in case respondents are fully convinced of their choice. The format has a history of at least 50 years in psychology (Gough & Heilbrun, 1965; Zuckerman, 1960). Such a response system is only partially comparable to the traditional True/False system and implies different normative values and interpretation procedures.

A research work has compared this 'check-list modality', as we called it, with the traditional True/False modality: 50 college students filled in both paper versions 28 days apart. To counteract any order effects half of them filled in one version first and the other half the other version.

The interviewees thought the check-list modality was less intrusive and inquisitive than the traditional True/False modality. Unsurprisingly, the answers were significantly fewer in the check-list modality, and this was so in all the test sections. Completion time was remarkably lower: 30 minutes for the check-list compared with 37 for the True/False. What mattered most was that the profiles emerging from the different formats would be the same. And this is indeed what happened.

CBA-Y includes five main Scales that emerged from the factor analyses:

- Psychiatric Risk: helplessness, depression, suicidal ideation, nightmares, persecutory ideation, admitting to psychological problems (30 items; $\alpha = 0.87$)
- Emotional Instability: anxiety, agitation, irritability, sudden mood changes (25 items; $\alpha = 0.87$)
- Well-Being: relaxation, quietness, self-confidence, confidence in others (22 items; $\alpha = 0.84$)
- Sensation Seeking: risk-taking, euphoria seeking (16 items; $\alpha = 0.80$)
- Risk behaviours and unusual experiences: alcohol and drug abuse, dissociative and paranormal experiences, antisocial behaviours (13 items; $\alpha = 0.77$)

Also, the Y-form has 3 control Scales, built in to decide on the validity of each protocol, and several content Scales.

In this case too, the normative group was particularly large: 1914 men and 923 women, mean age 18 years, recruited from the normal population.

The psychometric analyses involved 1539 high school students and clinical groups for a total of 623 drug addicts (Sica et al., 1998).

A Prospective Study — In 2000, a prospective study began. It focused on the entire population of Ponte San Nicolò, a small town in the outskirts of Padua (Northern Italy) where in the past a particularly high rate of suicides had been recorded. Alongside the CBA-Y, the Inventory of Suicide Orientation (ISO-30; King & Kowalchuk, 1988) was also administered. The latter is a 30-item inventory that yields two scores: a raw score that reveals the presence of suicidal orientation, and a critical item score that recognises suicidal ideation. The combination of the two gives the overall risk classification - The adolescent is classified according to three levels of risk: high, moderate, and low.

The study was prospective and had the goal of following the youth's development as long as possible to check for the onset of possible psychological disorders, mental disorders, suicide, and suicide attempts. The aim is to evaluate the predictive validity of the test every 10 years.

Revision in Progress — The revision work started three years ago with a series of focus groups among clinicians that had used the CBA-Y for a long time. Language was brought up to date, anachronistic data were removed, items on the Internet and on new dependences were included. Items that better examined resilience, coping skills, self-efficacy, and interviewees' strengths were also added.

Most items had a positive formulation (e.g., "I am spontaneous and at ease with my friends") rather than asking about social anxiety and passive assertiveness as is usual. That was an explicit choice of our group. In late adolescence and early adulthood assessment is often difficult and the clinical interview can be fatiguing, reticent, occasionally even hostile. The young person meets the therapist not because of his or her deep conviction, but because he/she is urged by parents, teachers and doctors, and sometimes even because of a court order.

The current revision of the CBA-Y includes 500 items and contemplates two different formats: Traditional filling in of paper forms, and electronic filling in using a computer keyboard.

Electronic vs. Paper Version — Possible differences were expected between filling in the questionnaire in its electronic form vs. the paper form, like for example different filling-in times or a different distribution of response frequency. Two groups were compared, each made up of 50 female university students (mean age 23). One group filled in the paper form, the other the electronic form.

No differences were found between the completion times of the two versions. Average time for the electronic form was 29 minutes ($SD = 6.27$) and for the paper form 30 minutes ($SD = 7.27$).

Although this result cannot be widely generalised as it relates to two groups of university students, there seems to be no difference between the two presentation ways, either in the completion times or in the obtained scores.

CBA-BG (Well-Being of Young People)

In 1993, a reduced form of the test called CBA-BG (Italian acronym for *Benessere Giovanile*, Well-being of Young People) was devised. The number of items was halved and administration time went down to less than 20 minutes (Michielin & Sica, 1996).

The full form is to be preferred in clinical use, whereas this short form is more suitable for use in research on youth and in initiatives to promote health and prevent youth maladjustment.

At that time a phenomenon that had raised public alarm in Italy was, and unfortunately still is, the high number of deaths in accidents caused by youth under the influence of drugs or alcohol. They were sadly known as 'Saturday night binges'. CBA-BG has been used in campaigns aiming at promoting safe driving, safe sex, appropriate eating habits - concerning all the risk of anorexia in adolescents - and addiction prevention.

The Ogliastra Study — The utility of tests for health psychology and community psychology interventions can be better illustrated through an actual experience.

In 2006, the instrument was used in Ogliastra, a region of Sardinia that has gone through many important economic and social changes. Two psychologists, Dr. Mario Angelo Sette and Dr. Antonino Schilirò, from the local health authority of Lanusei, a town in the district, carried out the research study. The test was completed by 449 students attending the fourth year at high school, with ages ranging from 18 to 21.

Here are some of the most interesting findings:

- 11% of boys and 8.3% of girls admitted to psychological problems: “I think I have some psychological problems”;
- 16% of boys and 20.3% of girls admitted to times of dysphoria: “I often wonder if life is worth living”;
- 7.5% of boys and 6% of girls reported they “have been very close to suicide”;
- 19% of boys and 2.8% of girls admitted to an excessive use of alcohol “I often drink too much and get drunk”;
- 27% of girls, an alarming percentage, were underweight. Even more alarming, most of them admitted neither to eating disorders nor to psychological problems (Table 2).
- Alarming was also their careless behaviour when driving their scooters:

Table 2

Ogliastra Study: Behaviour When Driving Scooters

Item	M%	F%
266 I always use a crash helmet	49.1	77.8
267 I never carry a passenger on my scooter	7.3	0.0
269 I like wheelies	72.7	22.2
272 When I drive I never use my cell phone	34.5	55.6
290 I never go over the speed limit	5.5	33.3

CBA-3.0 (in Progress)

The CBA team is at present working on a radical revision of the CBA-2.0 Battery, which will be replaced by CBA-3.0, planned to come out in 2013/2014. Provisionally, we think that the central part, Schedule 4, needs some minor adjustments. In the other cards the changes will be more important: personality assessment, which has been done through EPQ, will be replaced by a new test that will assess the Big Five Personality Factors (Vidotto, Bertolli, & Romaioli, 2010). The assessment of anxiety, done through STAI, will be replaced by two separate Scales, one on the cognitive component (worry), and one on the psychophysiological component. MOCQ will be relinquished and replaced by more modern Scales.

CBA-3.0 will privilege computer administration and its paper version is meant as a subordinate possibility. Normative values will be developed according to the two different administration modalities.

The administration of CBA-3.0 could be done through web resources with answers being recorded on a national database. A web site devoted to CBA-3.0 will be developed and this will allow:

- On-line administration of the Battery;
- Visualisation and printing of the output for each patient;
- Access to the whole database, based on a personalised login and password.

On-line administration will allow continuous updating of the database over the years, thanks to the contribution of the various structures that have already agreed to the project and of others that will be involved later on. The ultimate goal is to build a larger national database for on-line administration.

The national database will be achieved by utilising the most up-to-date computer resources, which allow managing large amounts of data obtained via on-line administrations. It will be based on software like Perception 4.0. which allows the simultaneous administration of several on-line questionnaires and databases of the MySQL or Oracle type.

Conclusive Remarks and Future Developments

To sum up: In the near future we expect five important changes in how questionnaires are constructed and utilised in our professional community:

- Less emphasis on DSM-IV and -V diagnoses and greater use of standardised questionnaires (at least within behavioural and cognitive therapy);
- Gradually going from pencil-and-paper administration to on-line administration;
- Automatic updating of normative values and construction of national databases (rigorous privacy safeguard);
- Wider circulation of the check-list format;
- Variable number of items, run by the testing programmes.

As already noted, from the very beginning of the CBA project, computers were conceived as working instruments in the psychotherapist's office. Certainly the wish of the CBA team is to abandon the paper form and increasingly utilise the on-line presentation. Abandoning paper and resorting to tablets, monitors and keyboards has been a basic part of the CBA project and we believe that this will be inevitable for any kind of inventory or questionnaire.

In the 1980s and '90s our professional community showed little familiarity with technology and they showed they preferred the traditional paper form, even if it required much more time-consuming operations of scoring and interpreting. They also maintained that patients found themselves at a loss in front of a computer.

We now trust in a changed scenario and hope that the CBA project as a whole can veer off towards a tablet/monitor presentation. We think that it can be made easier if indeed we start with the CBA-Y, given that youth nowadays are more familiar with the keyboard than with pen and paper.

The next step is the end of a separation between Primary and Secondary Scales. Such a separation reflects our present day, when psychologists administer the Primary Scales in one session, analyse them in the following days, and then administer the Secondary Scales in another session. In on-line administration the programme analyses and interprets the answers in real time, just as respondents are still giving their answers, and it can therefore proceed to administer possible Secondary Scales. Of course, the original administration modality and the original normative values of many current tests have to be preserved together with the respect of their copyrights. However, in the future, other questionnaires could be developed with characteristics and psychometric requisites that are in accordance with on-line administration.

The huge number of items must not disconcert. Another advantage of computer presentation is that in test administration not all of the items need to be presented. We are actually working on the software presentation so that

it can do a preliminary analysis of the answers. In other words, for instance, if there are 20 items for a construct, it may be unnecessary for the interviewee to read all 20 of them.

In many cases item presentation can stop once a given cut off score has been reached. If anxiety evaluation reached a critical score just after a few items, it might be irrelevant to continue asking questions that would only serve to increase an already critical score.

For example, if the control Scales showed that the interviewee is not answering accurately, but in a random or contradictory way, the programme could stop administration by stating 'invalid task'. This would save time and immediately alert the therapist to the problem, whereas in the paper and pencil format it would be shelved until the next meeting.

Today, all this is possible also thanks to technical and technological advances which were not available in the 1980s and on which our colleagues focused in their recent papers (Spoto, Stefanutti, & Vidotto, 2010; Spoto, Vidotto, Postal, & Pondoni, 2008).

A final word on a related question: Costs. In Italy tests are protected by copyright and distributed by large companies, and costs are absurdly high. As regards CBA-VE, we have chosen to hand it over to our Psychologists' Association who allows free use of it to all its members. Italian psychologists simply log into the Association's web site and download any material they need. We believe this is the best way to proceed and we dearly hope that other associations will indeed follow this way to favour the free distribution of questionnaires and inventories among their members.

Proposal for International Collaboration

The CBA Scales have been translated into several languages in accordance with the guidelines set out in the literature:

CBA-2.0 Albanian, Polish, Spanish

CBA-H German

CBA-Y French, Ukrainian

CBA-BG Spanish

CBA-VE English (Canadian), English (UK), German

Other translations of CBA-VE are underway: Albanian, French, Indian languages (Tamil), Portuguese, Spanish.

It is not up to us to say whether our work deserves attention beyond the borders of Italy; however, we believe that it may be of interest to the international community to examine the present article.

Briefly, the aim of the present paper is to start a collaboration that goes beyond its mere translation. The CBA team wishes to start collaborations with colleagues speaking different languages and coming from different countries to create an international milieu of research and professional development to think, plan, and build together new generations of questionnaires.

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