



Reliability and validity of the SPAID-G checklist for detecting psychiatric disorders in adults with intellectual disability

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ARTICLE INFO

Article history:

Received 8 August 2011

Received in revised form 24 August 2011

Accepted 24 August 2011

Available online 24 November 2011

Keywords:

Screening tool

Psychiatric assessment

Intellectual disability

Adult

Psychiatric disorders

ABSTRACT

SPAID (Psychiatric Instrument for the Intellectually Disabled Adult) is the first Italian tool-package for carrying out psychiatric diagnosis in adults with Intellectual Disabilities (ID). It includes the “G” form, for general diagnostic orientation, and specific checklists for all groups of syndromes stated by the available classification systems. SPAID was established to provide an easy and quick tool for daily practice of the personnel working with ID. The present study was aimed at evaluating psychometric and psychodiagnostic characteristics of the SPAID-G and at supplying new data on the prevalence rate of psychiatric disorders in a multicentric Italian sample of people with ID living in different settings. The SPAID-G was randomly applied to 304 participants with ID attending residential facilities or assessment services across Italy. A part of the sample was also consecutively assessed through the use of DASH, PDD-MRS and by the clinical application of the DSM-IV TR criteria. The correlation between SPAID-G scores and those provided by other evaluation tools was over 60%. Additionally, the internal consistency and inter-rater reliability resulted to be good. Psychopathological symptoms were detected in approximately 40% of the sample. Respectively, autistic spectrum disorders, impulse control disorders, mood disorders, and dramatic personality disorders were the diagnostic orientations providing the most prevalent over-threshold scores. SPAID-G seems to be a valid diagnostic tool, quick and easy to use in psychiatric disorders assessment within the Italian population with ID.

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1. Introduction

Even if Mental Retardation, more often defined as “Intellectual Disability” (ID), is usually included among the syndromes of psychiatric diagnostic manuals, it does not seem merely linked to a disorder or an illness, nor to a univocal condition of disability.

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It seems more properly defined as a meta-syndromic group that includes a wide range of evolutionary processes and existential pictures that are definitely different in etiology, physical disability, associated psychopathology and general functioning (Salvador-Carulla & Bertelli, 2008).

The criteria which define the common factors to all syndromic forms are a deficit in logical-deductive processes and a relevant limitation in adaptive functioning which arise before 18 years of age and influence the whole development process of the affected individual.

Such criteria actually respond to essential needs of results coding and of their exchange among professionals. However the codification of results often turns out to inevitably lessen and simplify the complexity of individual realities by finally losing their validity.

The variability in the worldwide prevalence rate of ID is between 1% and 4% (Durkin, 2002; Leonard, Petterson, Bower, & Sanders, 2003; Silka and Hauser, 1997; Van Schrojenstein Lantman-De Valk, Metsemakers, Haveman, & Crebolder, 2000) and reflects the diagnostic issues faced in clinical practice and in providing an univocal assessment of the various levels of cognitive and functional impairment. Even more uncertain are the prevalence estimations of psychiatric disorders in the population with ID, since they have been considered clinically and socially relevant only in the last three decades (Day & Dosen, 2002).

A recent study by Cooper, Smiley, Morrison, Williamson, and Allan (2007) highlights how psychiatric comorbidity may considerably vary depending on the applied diagnostic criteria, ranging from 52.2% in cases where the diagnosis is based only on clinical assessment, to 45.1% when the diagnosis is based on Diagnostic Criteria for Psychiatric Disorders in Adults with Learning Disabilities/Mental Retardation (DC-LD; Royal College of Psychiatrists, 2001), up to 11.4% in surveys applying the criteria of the Diagnostic and Statistical Manual of Mental Disorders 4th Edition – Text Revision (APA, 2000), or even up to 10.9% by application of the Diagnostic Criteria for Research of the International Classification of mental and behavioral disorders (DCR-ICD-10; WHO, 1993).

The establishment of criteria is only the first of various difficulties faced by the psychiatric diagnostic process in its application to individuals with ID. Many other issues are related to the methodology of assessment.

Indeed the reliability of the information source, including the same individuals with ID being assessed, is often uncertain. These patients may have poor verbal expression abilities, may be inclined to acquiescence and, for certain peculiarities in the experiential range, may show deviations from the norm according to the attribution of meaning to communicative contents (psychosocial masking; Sovner, 1986). In addition, mainly in the most severe cases, some individuals may show 'cognitive distortion' (Sovner & Des Noyers Hurley, 1986), which consists of difficulties in introspection capacity, in defining ones own life experiences and in communicating states of uneasiness or suffering (Cooper, Melville, & Einfeld, 2003).

In this specific field the sources of information other than the individual himself result to be limited, heterogeneous and contradictory. Family members are often in difficulty in finding answers aimed at detecting the presence of further mental functioning disorders. First-line support personnel, both assistants and social-health operators, do not have appropriate tools for discriminating the observed behaviors and relating them to a possible pathological meaning. Furthermore, clinical files and other records are often incomplete and not correct.

Another frequent problem is the diagnostic overshadowing (Reiss, Levitan, & Szyszko, 1982; Reiss & Szyszko, 1983) between ID and psychiatric disorders, which is the difficulty clinicians find in distinguishing between psychiatric symptoms and behavioral alterations or expressive ways that could be both typical for ID in general or for certain phenotypes in particular. In addition, the different psychic functionings of people with ID may lead to several ways of presentation of the psychiatric conditions that are substantially different from the norm. Cognitive deficits could inhibit some symptoms or symptomatologic patterns and increase others (Sovner, 1986; Sovner & Des Noyers Hurley, 1986), making psychopathological pictures confused or vague. The symptomatology could be chaotic, intermittent, fluctuating, atypical, masked, mixed, poorly defined, or even extremely rigid.

1.1. Tools for psychiatric diagnosis

For all of the reasons mentioned above, the application of rating scales developed for the general population to people with ID has demonstrated considerable problems in obtaining valid results. This situation has stressed the need for the creation of specific tools. In the beginning, these tools were meant not only to simplify the psycho-diagnostic procedure, but also to support reliability of epidemiological estimations and to provide more knowledge on mental health issues in ID (Day & Dosen, 2002).

The first issued tool was PIMRA (Psychopathology Instrument for Mentally Retarded Adults; Matson, Kazdin, & Senatore, 1984; Swiezy, Matson, Kirkpatrick-Sanchez, & Williams, 1995), that in some contexts is still considered a benchmark test. It is based on a structured interview, available both in a self- and hetero-administered form, related to DSM diagnostic criteria. Although showing more and more frequent difficulties of concordance between evaluators (Linaker, 1991; Minner, Savelsberg, & Hoogduin, 1994; Sturmey & Ley, 1990) PIMRA revealed itself to be very useful in research settings, in therapeutic planning and in the evaluation of the treatment outcomes (Swiezy et al., 1995).

The second issued tool, DASH (Diagnostic Assessment for the Severely Handicapped), was created and revised (DASH-II) by Matson, Gardner, Coe, and Sovner (1991) and Matson (1995). In this specific case, the assessment procedure is based mainly on the detection of several key symptoms related to different syndromic groupings, which could be defined by frequency, duration and severity.

The PAS-ADD (Psychiatric Assessment Schedule for Adults with Developmental Disabilities Checklist; Moss et al., 1993) was more recently developed as a practical tool for a rapid identification and diagnosis of psychiatric disorders in adults and

for gathering useful information to establish the following assistance approach. This instrument has been shown to have reasonable reliability and validity (Costello, Moss, Prosser, & Hatton, 1997; Moss et al., 1997, 1998). The PAS–ADD is a semi-structured interview developed by the Hester Adrian Research centre and created to produce a diagnosis according to ICD-10; the first version was based on the Present State Examination and the revised version was derived from the Schedules for Clinical Assessment in Neuropsychiatry (SCAN). The instrument is also available in two other forms. The Mini PAS–ADD (Prosser et al., 1998) provides a framework for professionals to collect relevant information on psychiatric symptomatology and is aimed at case identification rather than diagnosis. The short version PAS–ADD Checklist (Moss et al., 1998) is a screening instrument designed to identify mental health diseases in people with ID. It is a questionnaire developed to help care-takers recognize people with ID at risk of developing psychiatric disorders and determine whether or not an individual requires further assessment. The PAS–ADD Checklist has 25 items (scored from 0 to 2) for a range of psychiatric symptoms and gives three total scores: affective/neurotic disorder, possible organic disorder and psychotic disorder. Scores equal to or above specified thresholds indicate that further assessment is necessary.

PIMRA was translated and adapted to Italian by Balboni, Battagliese and Pedrabissi (2000), DASH-I by Bertelli et al. (2003) and DASH-II by Guaraldi, Ruggerini, Neviani, and Vicini (2002). Before SPAID, the only tool built and standardized in Italy was VAP-H (Evaluation of Psychopathological Aspects in Handicap; Pilone, Muzio, & Levrero, 2000). Its initial formulation was part of an evaluation package defined as “Functional Profile” (Pilone, 1992), that was used for estimating abilities, deficits and problematic social–emotional and maladjusted behaviors. In fact, the application of the VAP-H is oriented to a structured collection of information on behavioral and social–emotional aspects that could contribute to formulate a psychiatric diagnosis. This tool is indeed useful for the evaluation of psychopathological evolution, thus including the monitoring of therapeutic interventions and the assessment of their effectiveness.

Clinical application and research have shown problems of reliability and validity for each of the tools listed below. PIMRA may produce false negatives in assessing the presence of psychiatric disorders due to the frequent omission of items involving high linguistic competence or abstract reasoning in people with more severe ID (La Malfa, Notarelli, Hardoy, Bertelli, & Cabras, 1997). Problems of inter-rater reliability have been pointed out for the hetero-administered form by evaluations being carried out by different professionals and/or in absence of specific training (Havercamp & Reiss, 1996).

In regards to DASH, the structure and the content of this specific tool can support incorrect diagnostic hypotheses: the items are numerically unbalanced compared to the various psychic dimensions and consist of symptomatological and behavioral descriptions that cannot be related to standardized groups.

PASS–ADD showed problems of sensitivity, especially for schizophrenic spectrum disorders, and of inter-rater reliability. Another limitation is identifiable in the time frame borders imposed on the assessment of psychiatric symptomatology which do not allow the use of screening-relevant retrospective data.

The most used tools at the international level had been compared in a recent study by Myrbakk and von Tetzchner (2008). In this study, against a high concordance in the general scoring, the sensitivity to single psychiatric disorders results quite varied. This finding seems to indicate that the benefit of the current screening tools used among the population with ID concerns the general indication of the presence of a psychiatric disorder and only in part the specification of its nature.

The VAP-H items refer to the international classification system diagnostic criteria (ICD-10), which is not the main reference system used in research; in addition the extreme length of VAP-H could threaten the validity and reliability of the collected data (Zammuner, 1998).

1.2. The SPAID project (*Psychiatric Instrument for the Intellectually Disabled Adult*) and SPAID-G

The SPAID project was created in response to the scientific need of acquiring a deeper knowledge of the issues related to psychiatric comorbidity in ID, especially in terms of clinical and epidemiological features, and to provide the various professionals working in this field with a tool for psychopathological evaluation able to elaborate a more refined assessment method. A method with the essential characteristics of sensitivity and validity, that should work independently without relying on the compiler and the rapidity of supplying and calculating results. Last but not least, it should reduce training times to minimum levels for users.

To overcome the limits of other tools in distinguishing single psychiatric disorders, SPAID was designed not as a single instrument but a package of tools, which includes a general version (SPAID-G) used for the preliminary identification of the most important psychopathologic diagnostic areas and area-specific modules helping to carry out a differential diagnosis between disorders belonging to the same group, thus obtaining a defined diagnostic categorization. While the G form does not provide any chronological limits in surveying of symptoms, a large number of items related to the area-specific modules precisely refer to the chronological criteria of DSM syndromes.

All actual tools involved in the SPAID system – to date SPAID-G, SPAID-DPS for Pervasive Developmental Disorders, SPAID-P for psychotic disorders and SPAID-U for mood disorders – were constructed considering the possibility of identifying psychiatric symptoms starting from the observation of behaviors, which is the only survey method applicable to all ID cases. The existence of a language disorder must not preclude the patient from expressing his state of suffering on a non-verbal level nor preclude the clinician from making inferences on the basis of the patient’s attitudes and behaviors.

The 52 items that compose the SPAID-G evaluation define behavioral indicators of all the appearing symptoms with different aggregations into the various DSM-IV TR diagnostic categories. For example, “to glance at areas where no object is to be perceived and/or to gaze constantly” defines the observational/behavioral indicators of the visual hallucination symptom.

In the calculation process of the current behavioral indicators, the SPAID-G refers to the following meta-syndromic groups of DSM-IV TR: eating disorders, psychotic disorders, depressive disorder, manic disorder, anxiety disorders, medication side effects, delirium, dementia, substance-related disorders, cluster A (strange) personality disorders, cluster B (dramatic) personality disorders, cluster C (anxious) personality disorders, impulse control disorders, identity disorders, simulation and sexual disorders.

The score for each item is dichotomous (zero or one) according to the presence or absence of the stated behavior. The score for a symptom may contribute to the scores of different groupings in the same way in which some of the symptoms are transversely present in more than one psychiatric condition. The score of a grouping becomes relevant and indicates the use of area-specific SPAID, if more than the half of its items are rated as 1.

2. Materials and methods

The study sample was constituted by 304 adult individuals with ID, randomly or consecutively chosen among those living in residential facilities of the National Healthcare System, or in private institutes of care, or those attending psychiatric outpatient clinics. The 6 recruitment centers which took part in the study were located in 4 different regions across Italy: 2 in Lombardia (North), 3 in Tuscany (Center), 1 in Basilicata (South), and 1 in Puglia (South-East). In order to reduce the limits obtained in first studies (Bertelli, La Malfa, Lassi, & Scuticchio, 2004; Scuticchio, 2004) the number of participants living in groups homes and/or into their own families was here increased. In respect to last study sample (Bertelli et al., 2010), the current one was implemented for number and differentiation of living condition and geographical provenance.

The entire sample was subjected to psychopathological assessment through the use of a rating scale for psychodiagnostic orientation, SPAID-G. The checklist was administered by 20 psychiatrists, 50 psychologists and 20 nurses, 43 males and 47 females and to informants that have close relationships (teachers, social workers, family members, psychologists and general physicians) with the person under evaluation. In many cases the SPAID-G assessment was carried out directly by the psychiatrist without the involvement of a third party.

Part of the sample was also evaluated with the Italian adaptations of Matson's DASH-II (76 participants) and with Krajer's PDD-MRS (Pervasive Developmental Disorder – Mental Retardation Scale) (29 participants). For 18 participants clinical diagnoses were carried out by 15 experienced psychiatrists (12 for a single subject, 3 for 2 participants) according to the DSM-IV criteria. All these clinicians were blind to the study procedures and results.

The study of inter-rater reliability was carried out through a special session, in which 9 evaluators (3 psychiatrists, 4 psychologists and 2 nurses) separately assigned scores on a clinical case presented by an educator who was unaware of the purpose of his presentation.

Another special session was made to estimate the psychometric properties of SPAID-G obtained by a comparison with DASH. During this session, 54 evaluators (6 psychiatrists, 13 psychologists, 5 nurses, 28 educators, and 2 social workers) independently assigned scores on a clinical case presented.

The statistical analyses were carried out according to the following methods: for the socio-demographic variables, calculation of averages and standard deviations; for the SPAID-G scores, calculation of averages and standard deviations; for the prevalence of the SPAID-G scores of interest (>0.5), sum of integers and percentages; for the estimation of internal coherence, calculation of the Cronbach's α coefficient and of the KR-21 (Kuder and Richardson); for the estimation of the inter-rater reliability, calculation of the Cohen's K coefficient; for the influence of background variables on score attribution, calculation of Student's t test; for the estimation of a concurrent validity between PDD-MRS and SPAID-G diagnoses, calculation of Pearson's and Spearman's correlation coefficients; for the evaluation of SPAID-G validity, a first ratio between clinical diagnoses and SPAID-G results, a second ratio between DASH and SPAID-G results, and a final ratio between PDD-MRS and SPAID-G results.

A discriminating analysis was then calculated in order to determine the linear functions capable of effectively stressing the differences between the tool items according to their peculiarities, including possible differences of scoring among the 4 most frequent study evaluators. An eigenvalue, which corresponds to a certain variance percentage, was calculated for each discriminating linear function. A Wilks test was also carried out in order to express the eigenvalue meaning.

For the creation, the updating of the database and for further processing of the statistics data, the statistic pack SPSS 16.0 for Windows has been used.

For a quick calculation of the SPAID-G scoring, an original software was used in the two available versions for DOS and Windows operating systems.

3. Results

3.1. Socio-demographic characteristics of the sample

The sample was composed of 304 participants, 164 male (53.9% of the whole sample) 125 female (41.1%). The M/F gender ratio is 1.31. Gender data on 15 participants (4.9%) are not available. Age fell within the range of 16–90 years with the average age of 46.64 ± 16.3 .

The ID degree was distributed as follows: mild in 53 participants (17.4%), moderate in 97 (31.9%), severe in 76 (25.0%) and profound in 33 (10.9%). For the rest of the sample (45 participants – 14.8%) no level of ID was expressed. Data on level of institutionalization were missing for 146 participants. One hundred and two participants (64.6%) lives in residential facilities, 18 (11.4%) with their own family, 38 (24.1%) attends day centers.

In respect to the SPAID-G previous study (Bertelli et al., 2010), this sample presented lower mean age, lower percentage of participants living in residential facilities, higher percentage of participants with mild ID and lower with severe.

3.2. Psychometric characteristics of SPAID-G

The test reliability was considered as internal coherence and inter-rater reliability. In the first case the homogeneity level of all items was measured through the Cronbach α calculation, whose value was stated as equal to 0.81; the value obtained using the Kuder and Richardson formula was 0.97.

Result of the comparison between grouping scores – expressed by the various raters during the special session for the evaluation of inter-rater reliability – is shown in Fig. 1. The almost total overlap of the 9 lines, one for each evaluator, highlights a consistent correspondence of the rawscores of the different SPAID-G groups. This also highlights a strong homogeneity of score attribution to single items.

The evaluators' reliability, measured through the Cohen K coefficient, is 0.76 confirming a non-significant error margin due to subjective score attribution and to criteria of scores attribution. Discrepancies were only noticed in one evaluator. These were in general non-significant and do not affect the polarity of diagnostic guidance. The most relevant lack of conformity was measured in items 11, 21, 48 and 51. Non-conformity factor of item 11 is 0.44 (4 out of 9), 0.33 (3 out of 9) for all other items.

A further statistic check revealed that the evaluators' gender, profession and age did not represent a variable affecting the score attribution.

Direct comparison of the psychometric characteristics between DASH and SPAID-G shows that as far as regards the chronological criteria, DASH has some limits for extension and applicability while SPAID-G is more accurate. The severity of psychiatric disorders as for DASH is measured using the level of symptom whereas for SPAID it is assessed using the level of syndrome. Furthermore SPAID-G allows considering exclusion criteria unlike DASH. The frequency criterion in SPAID-G is counted only when useful while in DASH it is always estimated and always contributes to score. Lastly DASH is more time consuming than SPAID-G.

During the discriminating analysis of three centroid groups' functions equal eigenvalues were calculated: 3.140, 2.057 and 1.752, corresponding respectively to the following explained variance percentages: 45.2, 29.6 and 25.2. The first two discriminating functions represent an appropriate percentage of variance, higher than 70%. The Wilks test showed that the first two linear discriminating functions are significant ($p < 0.001$) and explain the differences among items very well. Evaluations were therefore judged as collectable following two main standard discriminating functions.

The tool validity was evaluated through the concordance of diagnostic orientations between SPAID-G and the diagnoses obtained through PDD-MRS, DASH and DSM-IV-TR criteria application used by clinicians. Comparisons between SPAID-G diagnostic orientations and the PDD-MRS evaluations of 76 participants showed result coherence in 77.6% of the cases (59 participants) (ratio = $59/76 = 0.776$). This value tends to increase, if rough scores of PDD-MRS and SPAID-G autism area are considered regardless of the cut-off value. Values of Spearman's ρ and Pearson's r correlation coefficients are respectively 0.44 and 0.48 with $p < 0.001$.

The percentage calculation was used to verify the correspondence of diagnostic orientations between SPAID-G and DASH. 44 out of 76 possible comparisons (57.89%) showed concordance. The possibility to compare SPAID-G results with DSM-IV criteria-related diagnosis was possible only for 18 participants. In 77.7% of the cases (14 participants) evaluations concordance existed.

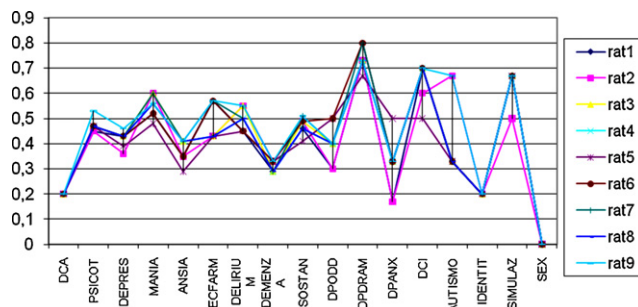


Fig. 1. Inter-rater reliability – score details.

Table 1
Prevalence of interest scores for diagnostic orientation groups.

	Number	Percentage (%)
Axis I – clinical disorders		
Eating disorders	15	4.9
Psychotic disorders	47	15.5
Depression	36	11.8
Mania	59	19.4
Anxiety disorders	44	14.5
Substance-related disorders	50	16.4
Impulse control disorders	82	27.0
Autism	125	41.1
Identity disorders	16	5.3
Simulation	29	9.5
Sexual disorders	35	11.5
Delirium	60	19.7
Dementia	58	19.1
Axis II – personality disorders		
Cluster A	55	18.1
Cluster B	73	24.0
Cluster C	47	15.5
Axis III – general medical conditions		
Medication side effects	44	14.5

3.3. Prevalence of diagnostic orientation groups

The application of SPAID-G on a sample of 304 participants highlighted a total amount of 875 interest scores referring to all diagnostic tool-related orientation groupings, with an average of 2.87 interest scores for each subject. The participants positive screening data are 235 (77.3%), 67 (22.0%) of which revealed 1 interest score, 44 (14.5%) 2, 34 (11.2%) 3, 23 (7.6%) 4 and 67 (22.1%) 5 or more. Only 69 (22.7%) of the participants came up negative during the screening.

Table 1 shows the number and percentages of studied sample cases that have received interest scores for single diagnostic groupings. On the chart, diagnostic groupings are split into the three DSM-IV TR main axes.

Table 2 shows the prevalence (in number) of interest scores for the various diagnostic groupings in the 4 subgroups of Mental Retardation level.

Gender seemed to significantly affect the average values in regards to the total SPAID-G score and to almost all diagnostic areas. The only pathologic dimensions with non-significant score differences due to gender were: cluster C personality disorder, autism and sexual disorders.

The age of the participants is another possible and significant variable in determining the presence and type of disorder. The Spearman coefficient calculation revealed significant score variations in almost all diagnostic areas, except for DCA, medications side effects, dementia, cluster A and C personality disorder, autism and sexual disorders.

Table 2
Prevalence of interest scores for diagnostic orientation groups by level of intellectual disability.

Diagnostic groups	ID			
	Mild	Moder.	Severe	Profound
Axis I – clinical disorders				
Eating disorders	4	8	2	1
Psychotic disorders	14	14	11	1
Depression	10	11	9	1
Mania	12	24	12	3
Anxiety disorders	10	12	15	1
Substance-related disorders	10	21	10	3
Impulse control disorders	22	24	23	3
Autism	14	42	35	13
Identity disorders	0	9	4	1
Simulation	6	10	10	0
Sexual disorders	6	12	8	3
Delirium	16	21	11	4
Dementia	12	21	13	5
Axis II – personality disorders				
Cluster A	11	18	14	3
Cluster B	18	23	20	6
Cluster C	6	18	9	5
Axis III – general medical conditions				
Medication side effects	12	13	7	5

4. Discussion

In this study, the review of theoretical and experimental contributions was carried out with the utmost care. However, it is possible that the collected literature data is not completely exhaustive. Possible limitations could be overcome in future studies.

The current sample is more representative of the general population with ID than in the previous studies (Bertelli et al., 2004; Scuticchio, 2004). It is in fact larger, it refers to distributed collection areas in different regions of Italy, it shows a higher proportion of non-institutionalized participants, a better male/female ratio and a greater control on clinical classification validity. Nevertheless a majority of institutionalized participants is here still present as a high average age, a considerable heterogeneity among the different age groups and most of all a strong prevalence of moderate-severe levels of ID.

A limit to the possibility of carrying out further comparisons was the lack of information on the effective medical conditions and psychiatric diagnoses of the here evaluated participants.

4.1. Reliability

The Cronbach's α value obtained for the SPAID-G items is 0.889, which corresponds to an optimal level of reliability. Some authors (Cattell & Kline, 1977; Pedrabissi & Santiniello, 1997) argue that a too high internal consistency is conceptually antithetical to the validity of a tool that aims to assess dimensions of a certain width.

The construct assessed by SPAID-G, which corresponds to the entire range of psychiatric diseases, is really wide. According to this interpretation the high homogeneity of the items could decrease their sensitivity to identify different diagnostic groupings reducing the tool's validity in relation to its theoretical assumptions (Cattell, 1973).

A careful consideration of the SPAID-G characteristics allows to understand that this theory is only partially applicable to SPAID-G. In fact the tool investigates the presence of mental disorder indicators, maintaining a certain transversal value according to single diagnoses. The area-specific versions allow for the identification of more specific criteria, such as the chronological ones.

Only a few items of SPAID-G help to increase the score of a single diagnostic category. All others respond to common symptoms of several psychiatric disorders and converge on different orientation scores.

No psychometric instrument created so far has items that correlate perfectly with the score of the evaluation criteria without a basic consistency between them (Kline, 1996). Also the PAS-ADD, a similar to SPAID-G tool according to its formulation and purpose, whose usefulness in the diagnostic psychiatric process for people with ID has been widely assessed, has a α of 0.87 (Moss et al., 1998).

Due to the shortage of cases subjected to multiple and contiguous evaluations, the study does not include the validity test-retest assessment.

4.2. Validity

The raters agree on the clarity of the SPAID-G items formulation.

Correlation estimates (obtained by comparing the diagnoses made with other similar instruments and those made with DSM criteria) indicate that the contents of items reflect the construct that SPAID-G aims to measure.

The statistical significance of the correlation between instruments was less strong for DASH than for the other comparison tools. This feature could already be explained by differences in the background variables and by the diagnostic sensitivity of the compilers.

A further causal factor of great relevance is that the comparison concerns only positivity in diagnostic groupings and not to their raw scores. In fact in the comparison with the PDD-MRS, where the analysis has considered all scores, evaluations were overlapping in a very high percentage of cases.

SPAID-G has turned out to be a useful tool for workers in various professions, even without training, both immediately understandable and enabling rapid compilation in about 30 min.

Such characteristics are likely due to the relatively small number of items and their sufficiently clear formulation. The evaluators and informants found a good correlation between the question formulation and the expression of sophisticated contents.

They also said that they managed to concentrate and to feel motivated during the compilation. Furthermore, the SPAID-G version, considered as a tool for preliminary assessment of psychopathological areas, considers the whole psychiatric history of patients, without relating to a chronological limit. Other similar instruments put rigid timing borders in the detection of behaviors and attitudes, thus excluding upfront the possibility of comprehensively assessing the psychopathological reality lived by a patient throughout his/her lifetime. In this way, they also ignore the psychological vulnerability that could be linked. What also vouches for the usefulness of SPAID-G is the compliance of diagnostic orientations with the categories of psychiatric disorders according to DSM, the currently most used international classification system.

Beyond the criticism of its potential role in individuals' isolation, which is related to the process of diagnostic labelling, and of the doubtful atheoretical approach and objectivity of the DSM criteria (Kline, 1996), this manual de facto supported

reproducibility and communicability of the diagnosis through a universally shared language. Similarly a SPAID-G prerogative is its possibility to replicate the obtained results through subsequent applications and to transferring clinical information among professionals.

4.3. Prevalence of diagnostic orientations

The prevalence of psychiatric disorders detected in our sample is slightly higher than those reported in the literature. This difference is significantly reduced (and actually disappears) when the reviewed data refers to samples showing greater impairment of functioning or when researchers use methods that are more sensitive to the meta-syndromic dimensions than to categorical diagnoses.

In a recent epidemiological survey Cooper et al. (2007) assessed the psychiatric diagnoses prevalent in a sample of 1023 participants with ID using 4 different methodologies: clinical evaluations, the application of DC-LD (Diagnostic Criteria for Psychiatric Disorders in Adults with Learning Disability/Mental Retardation; Royal College of Psychiatrists, 2001), the application of DCR ICD-10 (Diagnostic Criteria for Research of the International Classification of Diseases, 10th revision; WHO, 1993) and application of DSM-IV TR criteria (Diagnostic and Statistical Manual of Mental Disorders – Text Revision; APA, 2000). The prevalence of comorbidity assessed by clinical evaluations is the closest one to SPAID-G. This comparison showed a good agreement regarding the prevalence of depressive disorders and impulse control disorders/behavioral problems.

Lower concordance is present with psychotic disorders, anxiety disorders, manic states and autism spectrum disorders. In all these cases SPAID-G detected a higher prevalence rate.

The scores from Cooper's most recent study (2007) are the highest among the major studies of the last 30 years (Corbett, 1979; Lund, 1985; Cooper & Bailey, 2001), excluding psychotic disorders (Corbett, 1979), organic diseases (Lund, 1985, Cooper & Bailey, 2001) and anxiety disorders (Cooper & Bailey, 2001; Smiley, 2005) which were higher in the past.

Research literature indicates that the use of screening tools is nearly always associated with high prevalence rates (Iverson & Fox, 1989; Reiss, 1990; Moss et al., 1998).

The superiority of these rates compared with those made directly by clinicians has been shown in a valid comparison by Deb, Thomas, and Bright (2001).

Many other factors should be discussed in further detail in order to explain the high prevalence rate of positive participants in this study.

The most important element of SPAID-G is that it does not provide diagnoses: it detects aggregate symptoms according to a diagnostic orientation value.

In fact, as mentioned above, it represents a preliminary screening tool to the application of other SPAID tools, which would produce specific scores for different diagnostic groups.

Furthermore, the average state of health and functioning of our sample compared with other studies is more complex. In fact most evaluated participants live in residential facilities for ID and are in need of great support in order to carry out daily activities.

If compared with similar samples where dimensional tools were applied, our prevalence data become almost perfectly aligned.

For example, Pervasive Developmental Disorders appear in our sample with a much higher frequency than in Cooper et al. (2007), but this frequency is still overlapping with Kraijer's studies (1997), who used a tool that was also sensitive to non-diagnostic symptom clusters and provided prevalence estimates for every range of severity and level of residentiality.

In this study, males reported the highest rate of diagnostic groupings with remarkable scores, even in areas of psychiatric disorders such as depression and anxiety, where females usually present higher prevalence according to the general population. This finding is not as strange as it may appear. Most of the studies do not see any correlations between genders and the average prevalence of various disorders. Indeed the relationship between gender and mental health problems in adults with ID will require further research.

5. Conclusions

SPAID-G seems to have good psychometric features and appears to be a valid, reliable and easy screening tool which provides also rapidity in its use by different professionals even without specific training.

This study seems to confirm the hypothesis of being able to carry out instrumental assessments of the presence of clusters of psychiatric symptoms even in those individuals with ID in which communication skills are completely missing, uniquely considering the observation of behavioral repertoires, recurrent actions and reactions.

Findings also indicate a very high prevalence of mental health problems in adults with ID, by confirming the same rate that had been detected throughout similar studies in other European countries and in the United States of America.

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