

Chapter 14

THE GLOBAL FUNCTIONING EVALUATION: KENNEDY AXIS V COMPARED WITH WHODAS 2.0

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ABSTRACT

The study aims to compare psychometric properties and clinical utility of Kennedy Axis V (K Axis) and 12-items version of the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0), a comparable version of the 36-items one included in DSM-5, comparing them with other significant instruments for the assessment of personality. A sample of 25 clinical inpatients of a therapeutic community in Northern Italy was assessed with different tools: K Axis, WHODAS 2.0, IPO, SCL-90-R and SIPP-118. K Axis showed low internal consistency, unlike WHODAS 2.0. Moreover, significant correlations were found between both WHODAS 2.0 and K Axis and IPO and SIPP-118. However, no significant correlations emerged between K Axis and WHODAS 2.0. Even if further investigation will be needed, such as the increase of the sample and the update of the WHODAS version, K Axis and WHODAS 2.0 has proven to be useful tools for the evaluation of global functioning; however, while WHODAS is more consistent from a psychometric point of view, K Axis presents a multidimensional view of the functioning of the patient.

Keywords: global functioning, K Axis, Axis V, WHODAS, DSM.

1. INTRODUCTION

For clinicians and researchers involved in the assessment of personality disorders, the severity of functioning is one of the most important predictors of consequent dysfunctions and of treatment outcome (Gunderson, Links, & Reich, 1991; Tyrer, 2005). The discrimination between global functioning evaluation and its severity has always been an elective issue because of the increasing diffusion of “difficult-to-treat” patients (Henggeler & Santos, 1997) and the related need to find specific and reproducible measures (Rey, Stewart, Plapp, Bashir, & Richards, 1988). Some authors have proposed to include the criteria of psychosocial functioning, personality style and degree of disability in order to classify psychiatric and personality disorders (Crawford, Koldobsky, Mulder, & Tyrer, 2011; Warren et al., 2003).

The first standardized measure of adaptive functioning was the Health-Sickness Rating Scale (HSRS – Luborsky, 1962), introduced in 1962 and later replaced by the Global Assessment Scale (GAS) through the revision made by Endicott, Spitzer, Fleiss, & Cohen (1976). The Global Assessment of Functioning scale (GAF – DSM-IV-TR, American Psychiatric Association [APA], 2000) included in Axis V of DSM-III-R (APA, 1987) and DSM-IV (APA, 1994; APA, 2000) has become the main and most widely used tool for the assessment of psychosocial functioning and symptomatic severity, despite some criticisms regarding its construct and concurrent validity (Goldman, Skodol, & Lave, 1992; Beitchman et al., 2001; Startup, Jackson, & Bendix, 2002). The latest edition of the Diagnostic and Statistical Manual of Mental Disorders, DSM-5 (APA, 2013), has encouraged further reflections on this issue, introducing a measurement of disability, the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0 – World Health Organization [WHO], 1988, 2001), as an alternative to GAF. WHODAS 2.0 is a self-administered and one-dimensional questionnaire for the evaluation of physical and mental disability. At the same time, DSM-5 has focused on the importance of the assessment of the level of impairment in personality functioning, which is requested in Criterion A of the alternative model for personality disorders proposed in Section III. However, the relationship between the level of impairment of the personality style and the

degree of disability, considered on a phenomenological level of severity in personality organization, hasn't been investigated yet.

2. BACKGROUND

Before the introduction of DSM-5, in order to overcome the limitations of the one-dimensional index of GAF, James Kennedy (2003, 2007) introduced the Kennedy Axis V (K Axis), as an alternative to GAF, for measuring the global functioning of psychiatric patients.

K Axis is a multidimensional instrument, consisting of seven subscales, that measures impairment, symptoms and social as well as professional abilities of the patient along a 100 points continuum and has already been tested as a good alternative to GAF in previous research (Kennedy, 2003, 2007; Bonalume, Crippa, & Giromini, 2007; Mundo, Bonalume, Del Corno, Madeddu, & Lang, 2010). Moreover, previous studies have also shown significant inter-raters reliability even in multi-professional teams (Higgins & Purvis, 2000; Bonalume et al., 2007, Mundo et al., 2010; Faay, Van de Sande, Gooskens, & Hafsteinsdóttir, 2013; Van de Sande et al., 2013).

Comparing K Axis with other instruments that measure global functioning, such as GAF, the Health of Nations Outcome Scale (HoNOS – Wing et al., 1998), the Brief Psychiatric Rating Scale (BPRS – Overall & Gorham, 1962) and the Skills Assessment and Definition of Goals (VADO – Morosini, Magliano, & Brambilla, 2002) demonstrated the concurrent validity of the tool. The results have shown high correlation of K Axis both with HoNOS and GAF, with an exception for the Substance Abuse, Medical and Ancillary Impairment Axis.

K Axis is therefore able to provide a complex and multidimensional assessment of the individual functioning and also a quick measurement of changes during the treatment.

The introduction of scales in order to assess the effects of substance abuse and physical impairment makes K Axis also very useful in residential treatment settings for patients with dual diagnosis (Mundo et al., 2010).

K Axis has introduced a multidimensional assessment that can express the complexity of the personality style and also its impairment in the daily life functioning of the patient. On the contrary, WHODAS 2.0 is still another one-dimensional measure of impairment of the patients' functioning and it does not investigate the complexity of the abilities and the resources of the patient itself.

Given the limitations of the WHODAS 2.0, the purpose of this study was to compare K Axis and WHODAS 2.0, and to examine their relationships with some measures of the level of impairment of the personality style.

3. OBJECTIVES

The main intent of the study was to investigate both WHODAS 2.0 and K Axis and their relationships with the level of severity and impairment of personality organization.

The first aim was to investigate and to compare psychometric properties of WHODAS 2.0 and K Axis. In particular, we analyzed reliability and validity of both tools. We have suggested significant correlations between some items of WHODAS 2.0 related to social and life activities and the scales of Social and Occupational Skills in K Axis.

The second aim was to explore the relationships between the level of psychosocial functioning and the level of impairment of personality organization, comparing both K Axis and WHODAS 2.0 measures with other self-reports for the assessment of symptoms and personality structure, such as the Inventory of Personality Organization (IPO – Kernberg & Clarkin, 1995), the Symptomatic Checklist (SCL-90R – Derogatis, 1977) and the Severity Indices of Personality Problems (SIPP-118 – Verheul et al, 2008). In this regard, we have assumed that K Axis might be able to describe the phenomenological level of those social and relational skills coming from intrapsychic functions of the personality organization (such as affect regulation, stability of self/other image and integration of identity, and level of defenses) evaluated by these self-reports. Especially, we have expected significant correlations between K Axis scales and other dimensions, measured by IPO and SIPP-118, such as interpersonal skills, level of identity

integration, stability of self-image and quality of defensive mechanisms. We also have estimated that Axis I - Psychological impairment would correlate with SCL-90-R global scales. On the contrary, we have assumed that WHODAS 2.0 would correlate with the measures of symptoms of SCL-90-R but not with the level of personality impairment, the level of defense and of the affect regulation measured by IPO and SIPP-118.

4. PARTICIPANTS

The sample of the study comprised 25 inpatients, from 16 to 53 years (Mean Age=38,14; SD=9.98; Male=17; Female=5), who were living in a therapeutic residential center, located in Northern Italy, specialized in Dialectical Behavioral Therapy (DBT – Linehan, 1993), a method structured according to a hierarchical organization of therapeutic goals and a specific monitoring during the therapeutic and residential treatment. Inpatients were mainly unemployed (61%) and single (66%); they mostly had a dual diagnosis of a psychiatric disorder and alcohol or drugs abuse (Dual Diagnosis=52%). The most of them had been diagnosed with a personality disorder: 32% NOS, 25% borderline and 13% antisocial disorders.

5. METHODS

All the clinical subjects were tested within the first month after the admission with K Axis, WHODAS 2.0, SCL-90-R, SIPP-118 and IPO. Patients, as required by the manuals, filled WHODAS 2.0 and the other self-reports while K Axis was scored according to the information collected both from the medical records and the clinical team. Brief descriptions of the administered tools are shown below.

5.1. Kennedy Axis V (Kennedy, 2003, 2007)

K Axis is an assessment measure of global functioning; it comprises seven subscales: (1) Psychological Impairment; it examines the severity of symptoms and coping skills, including the degree of motivation and social withdrawal; (2) Social Skills; it refers to the real capabilities of the patient, such as warmth, empathy and respect for social norms and not his reluctance to use them or the limitations resulting from symptoms; (3) Violence; intentional and self/against other directed behaviors, not in response to substance abuse or other psychopathological conditions such as depression or paranoia; (4) Occupational Skills; it includes employment and study; (5) Substance Abuse; (6) Medical Impairment; (7) Ancillary Impairment; it is due to environmental, legal or economic stressors.

Scores range from 0 to 100, with anchor points at each 10s, which describe specific level of functioning. K Axis also provides two global indexes: the GAF-Equivalent (GAF-Eq.), the average score of the first four scales, and the Dangerousness Level (DL), the lowest score of the seven scales. Its psychometric properties were demonstrated satisfactory in several studies (Higgins & Purvis, 2000; Bonalume et al., 2007; Mundo et al., 2010; Faay et al., 2013; Van de Sande et al., 2013).

5.2. World Health Organization Disability Assessment Schedule 2.0 (WHO, 1988, 2001) – 12 items Version

The World Health Organization Disability Assessment Schedule 2.0 is a questionnaire that assesses the patient's perception of physical and mental disability. The items refer to the last thirty days of life and treatment and explore six areas: (1) Cognition, (2) Mobility, (3) Self-care, (4) Getting along, (5) Life activities, (6) Participation. Measurement is performed using a 5-point Likert scale, rating from “none” to “extreme” difficulty perceived by the subject. WHODAS 2.0 is available both in a Self-administered and an Interviewer-administered version. DSM-5 includes the 36 items version, while this study, which began prior to its publication, has chosen the 12-items version (Federici, Meloni, & Lo Presti, 2009; Luciano et al., 2010).

5.3. Symptom Checklist-90-R (Derogatis, 1977)

SCL-90-R is a self-administered questionnaire that measures psychological and physical symptoms in the last week, on a 5-point scale, from “no symptoms” to “many

symptoms". Scores are grouped in nine categories: somatization, obsessive-compulsive, social insecurity, depression, anxiety, hostility, phobic fear, paranoid thinking and psychoticism. It is also possible to obtain three global indexes: the Global Severity Index (GSI), corresponding to the average score of all the items, the Positive Symptom Total (PST), which is the number of items with a score different from zero, and the Positive Symptom Distress Index (PSDI), equivalent to the sum of the scores divided by the PST. The psychometric properties have been investigated in several studies and resulted satisfactory both in clinical and control populations (Derogatis, 1977; Müller, Postert, Beyer, Furniss, & Achtergarde, 2010).

5.4. Inventory of Personality Organization (Kernberg & Clarkin, 1995)

This self-report is an operationalization of the dimensions investigated in Kernberg's structural model (1984). It consists of 155 items, 57 of which are grouped in three main subscales: Identity Diffusion, Primitive Defenses and Reality Testing. The other items measure additional aspects of personality's functioning: aggression, coping strategies, moral values and object relations. In our study, we used the 57 items version, taking into account the three main subscales. Items are evaluated on a 5-point Likert scale, from "never true" to "always true". In addition to the original version (Lenzenweger, Clarkin, Fertuck, Kernberg, & Foelsch, 2001), several translated versions of the IPO are available and are validated with satisfactory psychometric properties both within clinical and control populations (Normandin et al., 2002; Ben Dov et al., 2002; Igarashi et al., 2009). An abridged version of the tool has also been validated (IPO-R – Smits, Vernote, Claes, & Vertommen, 2009).

5.5. Severity Indices of Personality Problems 118 (Verheul, et al., 2008)

This self-report questionnaire consists of 118 items, measured with a 4-point Likert scale, where "4" indicates the maximum score correlation. The items intend to investigate the adaptive capacities of the subject during the last three months considering sixteen dimensions: emotion regulation, aggression regulation, effortful control, frustration tolerance, self-respect, stable self-image, self-reflexive functioning, enjoyment, purposefulness, responsible industry, trustworthiness, intimacy, enduring relationships, feeling recognized, cooperation and respect. Higher-level macro-dimensions are also highlighted: Self-control, Identity Integration, Relational Capacities, Responsibility and Social Concordance. One of the advantages of this instrument is its ability to discriminate clinical subjects from control groups according with the severity of global functioning. Reliability and validity of the tool have proven to be satisfactory (Verheul, et al., 2008; Feenstra, Hutsebaut, Verheul, & Busschbach, 2011).

6. DATA ANALYSIS

Statistical analyses were performed using SPSS software (Barbaranelli & D'Olimpo, 2007). Internal consistency was investigated using Cronbach's Alpha and Intraclass Correlation Coefficient (ICC). The comparisons between K Axis, WHODAS 2.0 and the other self-report measures were investigated through the Spearman's Rho non-parametric correlation coefficient. Finally, the differences between WHODAS 2.0 and K Axis measures according to different diagnosis groups and between patients, with or without a dual diagnosis, were analyzed with the non-parametric test of Kruskal-Wallis for k-samples and the Mann-Whitney test for two independent samples.

7. RESULTS

7.1. Basic statistics

The mean values of K Axis scores ranged respectively from a moderate to a severe level of impairment (GAF-EQ: M=62.38, SD=11.11 – DL: M=46.25, SD=10.84), with the exception of the averages of occupational skills, medical and ancillary impairment subscales. WHODAS 2.0 and the other self-reports scores confirmed the level of severity.

7.2. K Axis and WHODAS 2.0 internal consistency

The internal consistency and the intraclass correlation coefficients of WHODAS 2.0 resulted both good (Cronbach’s $\alpha=0.893$; single measures ICC=0.410, average measures ICC=0.893). The same analyses for K Axis data were less satisfactory for GAF-Eq (Cronbach’s $\alpha=0.614$; single measures ICC=0.185, average measures ICC=0.614). The only significant correlations were found between Axis I – Psychological Impairment and Axis II – Social Skills ($\rho_s=0.680, p=.000$) and between Axis III – Violence and Axis VII – Ancillary Impairments ($\rho_s=0.638, p=.001$).

7.3. Construct validity’s analysis: K Axis, WHODAS 2.0, SCL-90-R, IPO and SIPP-118

Neither significant correlations were found between K Axis scales and the items of WHODAS 2.0, nor between global indexes of SCL-90-R and the single subscales of K Axis.

According to the comparison between the K Axis scales and other measures, negative and significant correlations were found between GAF-Eq and all IPO’s dimensions, while only the dimension of Identity Diffusion correlated negatively with Dangerousness Level in K Axis. In relation to the single-axis correlations, we found that Psychological Impairment, Social Skills and Violence negatively and significantly correlate with Primitive Defenses, while, in addition, only Axis I correlates with the remaining dimensions of IPO. Specific results are shown in Table 1.

Table 1. Spearman correlations between K Axis and IPO scores (n=25).

K AXIS SCORES		PRIMITIVE DEFENSES	IDENTITY DIFFUSION	REALITY TESTING
GAF Equivalent	ρ_s^*	-.709	-.531	-.459
	<i>p</i>	.000	.011	.032
Dangerousness Level	ρ_s	-.281	-.485	-.341
	<i>p</i>	.205	.022	.121
Psychological Impairment (Axis I)	ρ_s	-.645	-.539	-.534
	<i>p</i>	.001	.01	.01
Social Skills (Axis II)	ρ_s	-.527	-.366	-.337
	<i>p</i>	.012	.094	.125
Violence (Axis III)	ρ_s	-.439	-.29	-.196
	<i>p</i>	.041	.191	.382
Occupational Skills (Axis IV)	ρ_s	-.37	-.103	-.095
	<i>p</i>	.09	.649	.674
Substance Abuse (Axis V)	ρ_s	-.167	-.408	-.214
	<i>p</i>	.458	.06	.339
Medical Impairment (Axis VI)	ρ_s	-.269	-.311	-.264
	<i>p</i>	.226	.159	.235
Ancillary Impairment (Axis VII)	ρ_s	-.134	.17	.147
	<i>p</i>	.553	.45	.514

Note: * ρ_s =Spearman’s Rho

There were significant correlations between K Axis single scales and some SIPP-118 dimensions: Axis II correlated with “Frustration Tolerance” ($\rho_s=0.519, p=0.013$), “Feeling Recognized” ($\rho_s=0.611, p=0.003$), “Purposefulness” ($\rho_s=0.446, p=0.038$) and “Enduring Relations” ($\rho_s=0.554, p=0.007$), while Axis VI correlated with “Emotion Regulation” ($\rho_s=0.430, p=0.046$) and “Enjoyment” ($\rho_s=0.465, p=0.029$).

Some significant and positive correlations between the macro-dimensions of SIPP-118 and K Axis scales and indexes were found. These results are shown in Table 2.

Table 2. Spearman correlations between K Axis macro-dimensions and SIPP-118 scores (n=25).

SIPP-118 SCALES		GAF-Eq.	DL	Axis I	Axis II	Axis III	Axis IV	Axis V	Axis VI	Axis VII
Self-Control	ρ_s	.392	.582**	.291	.434*	.286	-.18	.401	.382	-.153
	<i>p</i>	.071	.004	.189	.044	.197	.424	.064	.08	.498
Social Concordance	ρ_s	.319	.519*	.226	.373	.197	.005	.433*	.216	.011
	<i>p</i>	.148	.013	.311	.087	.38	.098	.044	.335	.96
Identity Integration	ρ_s	.413	.42	.454*	.422	.21	.069	.342	.33	-.228
	<i>p</i>	.056	.052	.034	.05	.349	.761	.119	.133	.307
Relational Capacities	ρ_s	.423*	.248	.4	.508*	.279	.142	.184	.021	-.123
	<i>p</i>	.05	.266	.065	.016	.209	.528	.411	.926	.586
Responsibility	ρ_s	.371	.387	.281	.429*	.32	.04	.34	.161	.036
	<i>p</i>	.09	.075	.205	.046	.147	.86	.122	.475	.873

Note: ρ_s Spearman's Rho
 ** $p < .01$ * $p < .05$

According to the comparison between WHODAS 2.0 and the other measures, we found positive and significant correlations between WHODAS 2.0 total index and IPO's dimensions of Primitive Defenses and Reality Testing, as we can see in Table 3. WHODAS 2.0 was also negatively correlated with Self Control and Social concordance. No relevant correlations were found between WHODAS 2.0 and SIPP-118 sub-dimensions.

Table 3. Spearman correlations between WHODAS 2.0 and SIPP-118 and IPO indexes (n=25).

WHODAS 2.0 (TOTAL INDEX)		
	ρ_s	<i>p</i>
IPO INDEXES		
Identity	.407	.067
Primitive defenses	.560	.008**
Reality testing	.634	.002**
SIPP-118		
Self-Control	-.511	.018*
Social Concordance	-.496	.022*
Identity Integration	-.419	.058
Relational Capacities	-.340	.131
Responsibility	-.318	.168

Note: ρ_s Spearman's Rho
 ** $p < .01$ * $p < .05$

7.4. K Axis scores differences in diagnostic groups

The results of Mann-Whitney measures for two independent samples of “dual diagnosed” and of patients with single diagnosis, demonstrated no significant differences both in the global index and subscales scores of the K Axis and in the WHODAS 2.0 measures.

In the same way, the results of Kruskal-Wallis analysis revealed no relevant differences in both K Axis and WHODAS 2.0 scores, according to the specific personality disorders.

8. CONCLUSION/DISCUSSION

The limitations of the study, associated with the scarce size of the sample, forced to use mainly non-parametric tests and did not allow generalizing our results. However, as expected,

the results demonstrate that the “global functioning” measures, for both K Axis and WHODAS 2.0 scores, are significantly correlated with specific aspects of the personality structure and its level of impairment measured by IPO and SIPP-118.

These results demonstrate that the construct of “global functioning” is related to different aspects of personality functioning, resources, functions, impairment and abilities. Therefore, global functioning seems to be less associated with dual diagnosis or type of personality disorders.

In details, K Axis global score, GAF-Equivalent, correlates with all the dimensions of IPO, as well as, more specifically, the Axes I (Psychological Impairment), II (Social Skills) and III (Violence) with the measure of Primitive Defenses. On the contrary, WHODAS 2.0 global score correlates with Primitive Defenses and Reality testing indexes. Similarly, both K Axis and WHODAS 2.0 significantly correlate with some of the personality dimensions and resources investigated by SIPP-118. Specifically, K Axis global scores and its subscales correlate both with global measures of SIPP-118 (Self-Control, Social Concordance, Relational Capabilities) and its micro-dimensions (Frustration Tolerance, Feeling Recognized, Purposefulness, Enduring Relations, Emotion Regulation).

The dimensions of enjoyment and emotion regulation seem to change according to medical impairment; improvements in daily life functioning may include most enjoyable activities and greater management of emotions that may improve clinical conditions. The data reveals that the Dangerous Level (DL) may be associated with the abilities of these patients to control themselves and to create conditions for good social concordance. In line with that, K Axis DL measure may be very useful in clinical setting in order to measure independently symptomatic and maladaptive functioning and to be able to discriminate those from the adaptive structure, according to the personality functioning Similarity; on the other hand, WHODAS 2.0 results related to the Self Control and Social Concordance, but it is not associated with the sub dimensional scores of SIPP-118. We hypothesized that the multidimensional structure of K Axis would also allow it to capture associations with more specific functions of personality organization. However as expected, from a psychometric point of view, as expected, K Axis displayed very low levels of internal consistency, probably because of its multidimensionality and due to the specificity of its axis in discriminating different areas of the individual global functioning.

On the contrary, WHODAS 2.0 seems to provide a more valid and consistent measure, even if it uses a one-dimensional view of the impairment of the patient and it is limited to the evaluation of the impairment and the disability of the patient. According to that, although both K Axis and WHODAS 2.0 could potentially measure behavioral and phenomenological aspects of the dynamic organization of personality, as investigated by IPO, and the personality functions, as evaluated by SIPP-118, the results reveal the absence of significant correlations between them: thus K Axis and WHODAS 2.0 probably measure different constructs and dimensions of functioning. According to this, they may be useful both in psychiatric and non-psychiatric settings. However, K Axis may better describe both the level of abilities and impairment in a multidimensional way, while WHODAS may be more consistent than K Axis, but limited in measuring disabilities.

9. FUTURE RESEARCH DIRECTIONS

This study offers different clinical information in the area of psychological assessment, but it is limited by the small size of the sample; it is our purpose to increase the sample in order to explore more data and to be able to generalize them.

This WHODAS 2.0 version could also be updated with the new one included in DSM-5 (APA, 2013).

Another purpose of investigation might be to explore the significant results found between single scales, such as “Emotional Regulation” and “Enjoyment”, in SIPP-118, and the “Medical Impairment” in K Axis. This aim might be really interesting and useful due to its promising clinical applications.

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KEY TERMS & DEFINITIONS

Cronbach's Alpha: statistical coefficient that estimates the internal consistency of a test.

Disability: results from an impairment that may involve different areas (e.g. physical, cognitive, emotional).

Dual diagnosis: condition that involves both a mental illness and a comorbid substance abuse disorder.

Global functioning: refers to different levels of psychological, social and occupational functioning of adults.

Intraclass Correlation Coefficient: descriptive statistic that describes correlations between data organized in groups.

Personality disorder: defines a class of mental disorders characterized by maladaptive and enduring patterns of behaviour, cognition and inner experience exhibited in several contexts and differing significantly from those recognized by the individual's culture.

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