

KENNEDY AXIS V ASSESSMENT IN AN ITALIAN

OUTPATIENT AND INPATIENT POPULATION

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L'applicazione dell'Asse V di Kennedy a un campione clinico italiano

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Kennedy Axis V Assessment in an Italian Outpatient and Inpatient Population

ABSTRACT

Objective: We examined the Kennedy Axis V's (K Axis') interrater reliability by using it with an Italian clinical population. The Kennedy Axis V (K Axis) acts as an alternative tool to the DSM-IV-TR Global Assessment of Functioning (GAF) Scale, which many researchers describe as a scale with poor interrater reliability and clinical utility. Unlike the GAF scale, K Axis provides a multidimensional and multi-axial approach to measure personal, social and interpersonal functioning in psychiatric outpatients and inpatients.

Methods: Clinicians used Kennedy Axis V to assess global functioning among 180 inpatients, in 9 psychiatric services in Lombardia and Piemonte. Patients were divided into 4 different diagnostic groups, according to the DSM-IV-TR criteria.

Results: Intraclass correlations between two independent raters' scores reveal high level of interrater reliability for all K Axis scales ($0,633 < ICC < 0,813$). Highly significant results in the Kruskal-Wallis test demonstrate that the patient's diagnosis influences all the scales' scores. Significant differences in patients functioning profiles in all K Axis scales, apart from the Violence scale, were noted between different diagnostic groups.

Conclusions: In this study a high level of raters' agreement was noted, even if the K Axis scales were used in different mental health services from different clinicians. K Axis scales provide a useful profile of patient global functioning, in line with the specific pathology.

Clinical Implications

- The Kennedy Axis V (K Axis) is a reliable alternative to the Global Assessment of Functioning (GAF) Scale to measure overall functioning of psychiatric inpatients and outpatients in different mental health services.
- The K Axis can profile psychological functioning in different diagnostic groups.
- The K Axis overcomes GAF limitations in planning psychiatric treatment and rehabilitation and in tracking outcome.

Limitations

- The sample size precluded detailed analyses of psychometric properties of the Kennedy Axis V.
- The sample was not balanced by diagnosis or demographics.
- Staff professionals have different professional backgrounds.

Keywords: V Axis, DSM, K Axis, global functioning, dual-diagnosis.

INTRODUCTION

In the last decades, studies of instruments for global functioning assessment for psychiatric inpatients and outpatients have changing from causal, unidimensional and nosographic-descriptive models to multidimensional and multi-method approach (1). Axis V to measure global inpatients functioning was introduced first in the third edition of Diagnostic and Statistical Manual of Mental Disorders (2), as measurement of “adaptive functioning”, such as abilities to have good social relationships, to have a job and to find entertainments and free time. Axis V, Global Assessment of Functioning (GAF), was continued through DSM-IV-TR (3) to evaluate patients' overall level of psychosocial functioning. The GAF Scale provides only a unidimensional score, as both overall index of severity of psychopathology and relational, social and occupational functioning. Despite its usefulness, studies on reliability and validity of the GAF are controversial: on one hand, different

studies have demonstrated high level of raters agreement; on the other, researchers have highlighted limitations of GAF in construct validity (1,4-6). According to the literature, weakness of GAF assessment depends on combining measures of psychological, social and occupational functioning with indexes of severity of symptomatology (4,5). Scoring both severity of psychopathology and psychosocial functioning creates overlapping measures of DSM Axis V and Axis I and II (1,12-14). Although Global Assessment of Relational Functioning Scale (GARF) and Social and Occupational Functioning Assessment Scale (SOFAS) were introduced in DSM-IV to evaluate relational skills distinctly from social and occupational functioning (8,10), these measures still provide an unidimensional score of a many-sided construct (7,15). Indeed, both these scales evaluate the complexity of patients functioning on a single axis and with an individual score (16). Recently, many authors have suggesting multidimensional and multi-method assessment for patients functioning, including measures of social and relational skills, occupational abilities and quality of life (17-20). Moreover, DSM Axis V lacks in measuring effects of medical impairments or drugs on inpatients functioning (1,21).

Although studies do not confirm validity of these scales, they are widely used both clinically and in research projects, because overall functioning assessment is considered an important index of patients' progress and outcome: both clinicians and researchers agree about the usefulness of global functioning scores in treatment planning and outcome evaluation (15,16). When assessment and diagnosis are defined, treatment planning and its reviewing would be set. In Italy many psychiatric services need useful, simple and quick instruments to measure reliably, accurately and acceptably patients' functioning by all professionals who track and evaluates daily functioning changes and treatment outcome. (9,19,22,23). Recently, Health of the Nation Outcome Scales (HoNOS) (18,24,25) has been introduced in Italy to have a multidimensional and recurrent measure of outcome of inpatients program of mental health care and facilities (26-33). However, HoNOS, as many other simple and quick-administrated tools, shows some limitations: different studies reveal controversial results about interrater agreement (34,35); HoNOS construct validity is fair, compared

to other measures of social functioning; finally, HoNOS scales do not discriminate different diagnosis, severity of pathology and social functioning (18,36). Among instruments for overall functioning assessment, Kennedy Axis V (K Axis) (37, 38) can consolidate needs of clinicians to measure changes, outcomes and procedures of treatment, according to the guidelines for DSM-V (39). K Axis is created as an alternative to the Global Assessment of Functioning (GAF) Scale. As demonstrated by Kennedy (38), K Axis scores are highly related to the GAF scale; however, unlike the GAF scale, the Kennedy Axis V provides a multidimensional approach to global functioning assessment, composed of individual subscales for psychological, social and relational functioning. Specifically, K Axis subscales evaluate psychological functioning, social skills, violence, activities of daily living and occupational skills, substance abuse, medical limitations and ancillary impairments. While the Kennedy Axis V preserves features of Global Assessment of Functioning (GAF) Scale – as the dimensional structure – scales for violence, substance abuse and medical limitations were introduced to measure patients functioning in very different clinical contexts (facilities for treatment of drug addiction, rest and nursing homes, and prisons). K Axis tries to overcome GAF limitations, by differentiating measures for symptoms reductions to improvement of quality of life. Studies have demonstrated that Kennedy scales can support both clinical practice and treatment in different mental health services. Results have also shown that the K Axis has good psychometric properties (40-45). Specifically, psychological functioning scale have revealed excellent construct validity, if compared to Symptom Check List 90 Revised scores (SCL-90-R) (44). In this study, we examined psychometric properties and clinical usefulness of the Italian version of K Axis subscales; specifically, we evaluated the interrater reliability and discriminant validity among different diagnosis groups. Interrater agreement was investigated by comparing assessments made by raters from different professions (nursing, social work, psychology, and psychiatry). After training on the K Axis' administration and coding rules, two coders, blinded from each other, coded patients functioning according to descriptions of the K Axis subscales. Scores

from different diagnostic groups were compared in order to analyze the K Axis' capacity to profile overall functioning of patients with different pathologies.

METHODS

Participants

Clinicians and social-workers from nine different psychiatric services in Lombardia and Piemonte used Kennedy Axis V to assess global functioning among 180 inpatients (Table 1).

Table 1. Mental health services and patients sample (N=180)

Services	Patients	Staff professionals
Centro Residenziale Terapeutico (CRT) Istituti Clinici Zucchi – (Carate Brianza)	N=19	psychiatrist nurse
Comunità Psicoergoterapica "Villa Gorizia" (Sirtori, Lecco).	N=15	psychologist- educatore
SPDC – Guardia Seconda Policlinico di Milano	N=28	psychiatrist psychiatrist
Centro Crisi “Agape” di Vercelli	N=11	psychologists psicoterapeuti
Centro di Salute Mentale – ASL II Torino	N=16	Psychiatrists
CPS 3, UOP 55, AO Fatebenefratelli Milano	N=19	nurse social worker
Comunità Terapeutica Diurna (DTC) “Il laboratorio”, UOP 55, AO Fatebenefratelli (Milano)	N=14	social workers
CPS 19 II, UOP 55, AO Fatebenefratelli (Milano)	N=17	social workers

Comunità Riabilitativa ad Alta Assistenza (CRA), AO	N=41	psychologist
Busto Arsizio, Presidio di Saronno		psichiatri

The psychiatric services involved both inpatients and outpatients, both psychiatric and dual-diagnosis patients with different treatment approach. Each patient was assessed by two different staff professionals (nurses, social workers, psychologists and psychiatrists) about patients functioning during the last one month period. Sample was composed by 180 outpatients, 91 male and 89 female, from 20 to 79 years old ($M=46,13$; $SD=13,15$). According to the criteria of DSM-IV-TR Axis I and II, patients were divided into 4 different diagnostic groups: psychosis ($N=67$), mood disorders ($N=37$), personality disorders ($N=29$), substance abusers ($N=47$).

Procedure

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID I) and Structured Clinical Interview for DSM-IV Axis I Disorders (SCID II) (46,47) were used to assess psychiatric diagnosis according to DSM-IV-TR Axis I and II criteria (3). A couple of coders for each service (as Table 1) have followed a short training to learn the K Axis administration, coding and interpretation rules. At the end, each couple has chosen at least 20 inpatients according to casual criteria: selected patients have been treated for at least a one month period. Both raters used the K Axis, double-blinded to each other, to rate each patient according to patients' functioning in the last month. The Kennedy Axis V breaks out the areas of a patient's functioning into seven subscales; each subscale generates its own score ranging from 0 (very severe impairment) to 100 (superior functioning); the scale provides anchor definitions for each of the ten intervals.

The subscales address:

- Psychological impairment, such as psychotic symptoms, poor motivation, mood disturbance, personality disturbance, poor focus on attention, eating disorders;
- Social skills, such as limitations in interpersonal, communication and social behaviors skills;
- Violence, such as suicidal, homicidal, assaultive and violent behaviors;

- Activities of daily living or occupational skills, such as job, self-care and survival skills and hygiene;
- Substance abuse, including use and abuse of alcohol and other substances;
- Medical impairment, such as all physical and medical symptoms;
- ancillary impairments, an optional subscales to measure stressor events, such as financial, legal, and environmental problems, as also addressed in the DSM-IV-TR's Axis IV.

In addition to the seven subscales scores, K Axis provides an overall clinical picture of the patient functioning in two global areas: GAF Equivalent, a global assessment of functioning score, and Dangerousness Level. In addition to quantitative measures of the patient functioning, clinicians can write individualized and qualitative descriptions of patient functioning in each subscales areas.

Analysis

Inter-rater reliability for all K Axis scales was investigated by comparing two independent raters's scores with Intraclass Correlation Coefficients (ICC). According to Cicchetti (48), ICC values are interpreted as follows: excellent ($ICC > .74$), good ($.60 < ICC < .74$), fair ($.40 < ICC < .59$), and poor ($ICC < .40$)(49). In order to analyze the effects of diagnosis to K Axis subscales scores, non-parametric test for independent samples was calculated (Kruskal-Wallis test), according to non-balanced diagnostic groups, as factor (psychosis, mood disorders, personality disorders, substance abusers).

RESULTS

The mean (average) values for all K Axis subscales rated by the clinicians range from moderate to severe levels of impairment (GAF Equivalent: $M=56.18$, $SD=12.16$; Dangerousness Level: $M=48.90$; $SD=12.99$), apart from Violence, Medical Impairment and Ancillary Impairment subscales which ranged from mild to medium levels of impairment ($M=68.56$, $SD=16.02$;

M=74.11, SD=14.13; M=68.01, SD=17.03). Intraclass correlation coefficients demonstrate good interrater reliability for all subscales; ICC value for GAF Equivalent is excellent (Table 2).

Table 2: Intraclass correlation coefficients (ICC) of two raters coding for K Axis subscales (N=180)

K Axis subscales	ICC
Psychological Impairment	0.721
Social Skills	0.633
Violence	0.673
Occupational Skills	0.746
Substance Abuse	0.813
Medical Impairment	0.709
Ancillary Impairment	0.667
GAF Equivalent	0.779
Dangerousness Level	0.662

Even if all subscales scores ranging from moderate to mild impairment, there are significant differences between scores according to diagnosis. Kruskal-Wallis test demonstrates that the K Axis subscales, except for Violence, can differentiate patients functioning according to diagnosis (Table 3).

Table 3. Kruskal -Wallis test on subscales scores according to diagnostic groups (psychosis N=67, mood disorders, N=37; personality disorders, N=29; substance abusers, N=47).

K Axis subscales	H	P
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Psychological Impairment	32.380	.000
Social Skills	17.322	.001
Violence	5.847	.119
Occupational Skills	22.269	.000
Substance Abuse	71.742	.000
Medical Impairment	22.091	.000
Ancillary Impairment	11.366	.010
GAF Equivalent	13.462	.004
Dangerousness Level	8.549	.036

Results reveal that GAF Equivalent is highly significant in discriminating overall functioning according to different psychopathological category ($H=13.46$; $p=.004$).

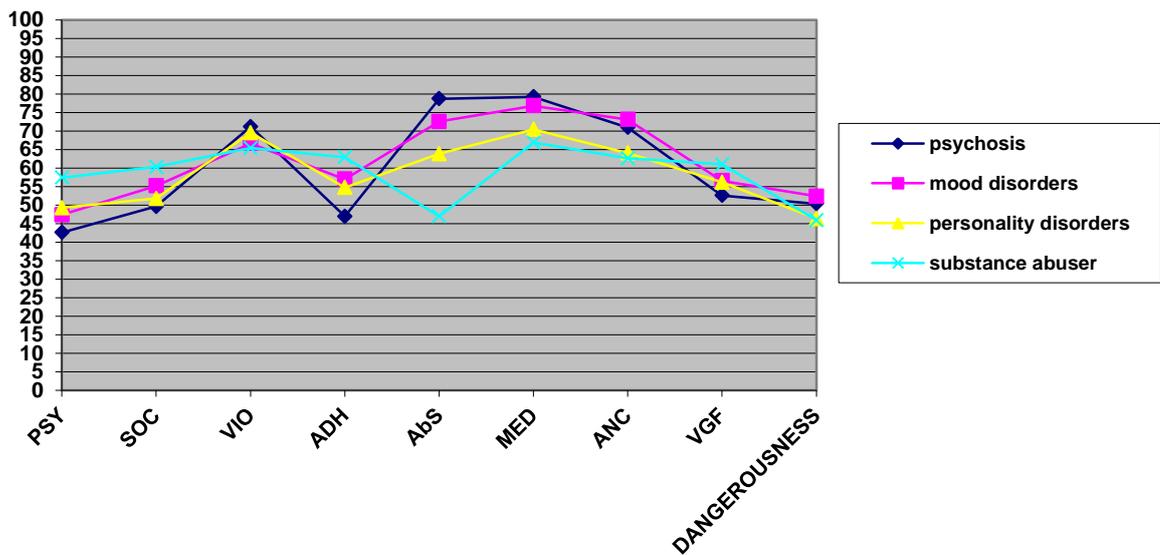
There are no significant results for Violence scale according to the diagnosis, because scores place all at a high level of functioning ($H=5.84$; $p=.119$; $M=68.56$; $SD=16.02$).

Looking at each diagnostic profile, as predicted, psychosis profiles show severe impairment in psychological functioning, social and occupational skills. Contrasting with psychosis, substance abusers' profile presents high level of impairment in medical, legal and financial functioning, as well as, in the Substance Abuse scale ($M=47.02$) (Figure 1).

Indeed, K Axis scores can be used to profile patients with “dual-diagnosis”, as subjects with both substance use problems and severe psychological symptoms. On the other hand, mood and personality disorders show less impairment in psychological functioning. Results support Kennedy's predictions of K Axis' usefulness in differentiating severe psychological impairments of psychotic patients from fairly high functioning of substance abusers. According to Kennedy, substance abusers usually show high functioning scores on the skills subscales because of their

ability to find, buy and take substances. Also as predicted, substance abusers show significant impairment which is reflected by low scores on the Substance Abuse subscale.

Figure 1. Mean profile of each diagnostic category (psychosis N=67; mood disorders, N=37; personality disorders, N=29; substance abusers, N=47). (PSY = Psychological Impairment; SOC = Social Skills; VIO = Violence; ADH = Activities of daily living - occupational skills; AbS = Substance Abuse; MED = Medical Impairment; GAF = GAF Equivalent; DANGEROUSNESS = Dangerousness Level)



DISCUSSION

This preliminary study indicates that K Axis subscales' interrater reliability ranges from good to excellent, even if administrated by staff with different psychiatric professional backgrounds, as well as from different many mental health services. Despite non-balanced sample according to diagnosis and demographics, results confirm Kennedy's predictions about the K Axis subscales' usefulness in profiling overall functioning of patients with different pathologies. In the future it would be better to investigate psychometric properties and clinical usefulness with a more extended sample of inpatients and outpatients from other facilities. According to *multi-method assessment* approach, overall functioning assessment should be combined with personality and psychological indexes from other instruments in order to plan treatment and to evaluate outcome.

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