**Research Data**

**Article Title**

**Exploring the interplay between cognitive impairment and different data including symptom domains and insight in Egyptian patients with Schizophrenia**

**Authors**

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**Abstract**

**A total of 109 newly admitted patients with schizophrenia were recruited from the Institute of Psychiatry, Ain Shams University Hospitals (ASAP). Patients were assessed using Structured Clinical Interview for DSM-IV Axis I diagnosis (SCID-I), Positive and Negative Syndrome Scale (PANSS), Scale to Assess Unawareness of Medical Disorder (SUMD). Cognitive functions were assessed using the Wechsler Adult Intelligence Scale (WAIS), the Wisconsin Card Sorting Test (WCST), and the Wechsler Memory Scale (WMS). Patients were interviewed and demographic characteristics were collected. Then, the neuropsychological test battery was conducted by an experienced clinical psychologist after the second week of patient admission to the ASUIP. Significant negative correlation was noted between WAIS (all subscales) and PANSS (all subscales). Regards WMS, information & orientation, digit span memory and visual memory span were significantly negatively correlated to PANSS negative and general psychopathology scales. Meanwhile, verbal paired association1 & visual paired asociation1 were significantly negatively correlated to PANSS negative subscale. WCST (all subscales except conceptual level response) were significantly negatively correlated to PANSS negative and general psychopathology scales. All cognitive subscales were significantly correlated to SUMD except verbal and visual paired associations, as well as failure to maintain set.**

**Keywords**

**Schizophrenia symptoms; cognitive impairment; insight; PANSS**

**Specifications Table**

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| **Subject** | **psychology]** |
| **Specific subject area** | **Cognitive psychiatry** |
| **Type of data** | **Table**  **Figure** |
| **How data were acquired** | **Newly admitted patients with schizophrenia were randomly recruited.**  **Instruments: clinical interview, neuropsychological test battery; the Wechsler Adult Intelligence Scale (WAIS), the Wisconsin Card Sorting Test (WCST), and the Wechsler Memory Scale (WMS)** |
| **Data format** | **Raw**  **Analyzed** |
| **Parameters for data collection** | **[Agreement for this study was obtained from the authority of Ain Shams University Ethical and Research Committee; and an informed oral and written consent were obtained from all patients enrolled in the study after a very clear explanation, providing information about the purpose of the study.** |
| **Description of data collection** | A **total of 109 newly admitted patients with schizophrenia were recruited from the Institute of Psychiatry, Ain Shams University Hospitals. Subsequently, participants had a series of clinical and neuropsychological tests in a fixed order. Male and female patients with schizophrenia, with age ranged 18-65 were included in our study after giving informed consent. While, patients with IQ score below 90, co-existing neuropsychiatric disorders, having any disorder that clearly interferes with cognition, such as central nervous system lesions, severe hepatic or renal impairment, and patients received electroconvulsive therapy sessions before performing the cognitive function tests were excluded**. |
| **Data source location** | **Institution: Ain shams university hospital**  **City/Town/Region: Cairo**  **Country: Egypt** |
| **Data accessibility** | **With the article** |
| **Related research article** | **No associated research article.** |

**Value of the Data**

* Why are these data useful? Because it points to important targets associated with cognitive dysfunction.
* Who can benefit from these data? Finding treatment strategies minimizing negative symptoms and poor insight would improve cognitive impairment
* How can these data be used for further insights and development of experiments? By creating a paradigm for future studies of the link between cognitive dysfunction and schizophrenia, with both etiologic and prognostic perspective.
* What is the additional value of these data? Clinical application on patients with schizophrenia with cognitive dysfunction

**Data**

**Socio-demographic characteristics of Participants:**

**All participants were aged between 16-59 years with a Mean ± SD of (32.2 ±9.0) years, there were 77 men (70.6%) and 32 women (29.4%) & the majority of patients were single (68.8%), while 24.8% were married and (6.4%) were divorced. The majority of patients received school education (67.5%) (Primary, preparatory, secondary and technical schools), and 32.5% were university graduates. Approximately 57% (62/109) of the patients were unemployed, while about 43% (47/109) were employed. Regarding residency, most of the patients (82.6%) were living in urban areas while only (17.4%) were living in a rural area (Table 1).**

**Clinical characteristics of the sample:**

**The severity of symptoms of the studied sample was assessed using PANSS, it revealed that the mean total scores of PANSS was 86.0±10.7, the mean positive subscales was 32.7 ± 6.8, the mean negative subscales was 24.9 ± 6.82 and the general psychopathology subscale was 28.4 ± 3.3 (Table 2).**

**Insight was assessed through SUMD; the total score of SUMD was 1.2294±.42236 (Table 2).**

**Cognitive battery for patients included; WAIS (Verbal IQ, performance IQ and Total IQ), WMS (verbal paired association 1,2, visual paired association 1, 2, visual memory span, digit span and orientation information), and WCST (total correct, total errors, perseverative response, conceptual level response and failure to maintain set, categories completed, trial to complete first category, and trials administered (Table 2).**

**Correlation of cognitive functions to schizophrenia symptoms (PANSS):**

**Correlation between WAIS scores and PANSS scores**

**WAIS (all subscales) are significantly negatively correlated to PANSS (all subscales). Total IQ has the strongest negative correlation to negative symptoms (-0.387) with P value= 0.000. Performance IQ has the weakest negative correlation to positive symptoms (-0.195) with P value =0.042 (Table 3) (Figure 1).**

**Correlation between WMS scores and PANSS scores**

**There was a significant negative correlation between Information & orientation, digit span and visual memory span and PANSS negative and general psychopathology subscales. Meanwhile, verbal paired association1 & visual paired asociation1 were significantly negatively correlated to PANSS negative subscale. Visual memory span has the strongest negative correlation to negative symptoms (-0.409) with P value= 0.000. Visual paired association 1 has the weakest negative correlation to negative symptoms (-0.166) with P value= 0.84 (Table 3) (Figure 2).**

**Correlation between WCST scores and PANSS scores**

**WCST (total correct and categories completed) were significantly negatively correlated to PANSS (negative and general psychopathology domains), while total error and perseverative responses were significantly positively correlated to PANSS (negative and general psychopathology domains). Categories completed had the strongest negative correlation to PANSS negative domain (-0.331) with P value=0.000. Categories completed had the weakest negative correlation to general psychopathology domain (-0.177) with P value= 0.066. Perseverative responses had the strongest positive correlation to PANSS negative domain (0.360) with P value =0.000. Total error had the weakest positive correlation to general psychopathology domain (0.191) with P value =0.047 (Table 3) (Figure 3).**

**Correlation of cognitive and executive functions to insight:**

**All cognitive and executive subscales were significantly correlated to SUMD except verbal and visual paired associations, as well as failure to maintain set. Only total errors, perseverative responses, trials administered and trials to complete first category were significantly negatively correlated to SUMD (Table 4).**

**Experimental Design, Materials, and Methods**

**Participants and procedure**

**A total of 109 newly admitted patients with schizophrenia were recruited from the Institute of Psychiatry, Ain Shams University Hospitals (ASAP). The sample size was calculated by reviewing the existing literature of similar studies, using (Epi Info) program assuming that prevalence of schizophrenia is 1% (Warner & De Girolamo, 1995) and percentage of compliance is 50-60% (Lacro, Dunn, Dolder, Leckband, & Jeste, 2002). Considering the dropout, the recruitment continued until 137patients with schizophrenia were enrolled. Out of 137 patients, 28 of them (20.4% drop out rate) were dropped out of the study; one patient died and 27 patients did not fulfill the inclusion criteria.**

**The diagnosis of schizophrenia was made according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM- IV) (American Psychiatric Association, 1994). Subsequently, participants had a series of clinical and neuropsychological tests in a fixed order.**

**Male and female patients with schizophrenia, with age ranged 18-65 were included in our study after giving informed consent. While, patients with intelligence quotient (IQ) score below 90, co-existing neuropsychiatric disorders, having any disorder that clearly interferes with cognition, such as central nervous system lesions, severe hepatic or renal impairment, significant uncontrolled chronic medical conditions, and patients received electroconvulsive therapy sessions before performing the cognitive function tests were excluded.**

**Patients were receiving their prescribed antipsychotic medications whether typical or atypical with a dose range of 642.3 +501.7 mg/day chlorpromazine equivalent. Dose of anti-parkinson drugs was 2.4 + 2.4 mg/day bipredin equivalent. Eighty-five patients had been prescribed the same antipsychotic regimen. Meanwhile, twenty-four patients had changes in their antipsychotic regimen.**

**Neuropsychological assessment**

**Clinical assessment:**

**Patients were interviewed and demographic characteristics were collected. Then, the neuropsychological test battery was conducted by an experienced clinical psychologist after the second week of patient admission to the ASUIP hospital, as this will allow more stabilization of the patients.**

**Structured Clinical Interview for DSM-IV Axis I diagnosis (SCID-I) (First et al., 1995):**

**Structured Clinical Interview for DSM-IV Axis I diagnosis is a semi-structured diagnostic interview to confirm the diagnosis of schizophrenia and to exclude any comorbid neuropsychiatric disorder. The instrument is administered by an experienced trained researcher and was used in the Arabic version (El Missiry A, Sorour A, Sadek A, Fahy T, Abdel Mawgoud M, 2004).**

**The Positive and Negative Syndrome Scale (PANSS)(Kay, Fiszbein, & Opler, 1987)**

**This scale is a semi-structured clinical interview, which is well defined and standardized for clinical assessment of schizophrenic symptoms. The PANSS is carried out by a clinician because considerable clinical judgment is required. The PANSS is a reliable and valid tool for estimating the severity of schizophrenia symptoms. It incorporates 30 items covering three symptom domains: positive symptoms (e.g., delusions and hallucinations) (7 items), negative symptoms (e.g. social withdrawal, ﬂat affect, lack of motivation) (7 items) and general psychopathology (e.g., anxiety, depression) (16 items). The test has high inter-rater reliability (0.80). The split-half reliability of the general psychopathology subscale is 0.80. The scale also demonstrates excellent criterion-related validity and constructs validity**

**Insight: Scale to Assess Unawareness of Medical Disorder (SUMD)(Amador et al., 1993):**

**The SUMD is viewed as the most commonly used scale for surveying the awareness of the disorder in schizophrenia. The SUMD is a standardized scale that necessitates direct patient interview and consequently, ratings are made on this basis. The SUMD constitutes general items (six) and subscales (four) from which 10 summary scores can be determined. All scores extend from 1 to 5, with higher scores demonstrating poorer awareness or attribution. These items cover 3 aspects of insight (global awareness of the mental disorder, awareness of the desired medication effects, and awareness of the impact of mental disorder on the social life). The test has good intra-class reliability coefficients between investigators ranged from 0.55 to 0.97 for the general items to assess awareness of mental disorder and 0.56 to 0.98 for the symptoms items.**

**Assessment of cognitive functions:**

**The clinical psychologist didn't have difficulties while applying the neuropsychological test batteries because, the significant level of education of patients seemed to enhance their understanding and performance of these tests, also, the delay in applying these tests after 2 weeks of admission until patients are stabilized.**

**Wechsler Adult Intelligence Scale (WAIS) (Wechsler, 1981):**

**The WAIS is considered a common test used for the assessment of general intelligence and broad cognitive function measurement for adult individuals. It is administered for individuals with age range from 16 years to 89 years. It is a valid and reliable measure of general intelligence, measuring human intelligence in 2 domains; verbal and performance abilities. In the current study we used the Arabic version by Louis Kamel Melika (1996). This test is considered a valid and reliable measure of general intelligence. The reliability coefficient is 0.93 for the performance IQ, 0.97 for the verbal IQ, and 0.97 for the whole scale.**

**Wechsler Memory Scale (WMS)(Wechsler, 1987):**

**The** **Wechsler Memory Scale-****Revised (WMS-R)** **was announced in 1987 and is viewed as a standout amongst the most widely used tools to evaluate** **memory functions in adults as it provides normative information from ages ranging from 16 to 74. It incorporates data and orientation questions, eight short term memory tasks and four delayed recall trials, all of which take around 45 minutes to 1 hour to complete. In our study we used the following subtests of the WMS: Information and orientation, digit span backwards, digit span forwards, visual memory span backwards, visual memory span forwards, visual paired association I and visual paired association II, verbal paired association I and verbal paired association II to cover the different aspects of memory (immediate and delayed recall, visual and auditory, attention and concentration).**

**Wisconsin Card Sorting Test (WCST) the computerized version(Heaton, 2003):**

**The WCST is developed as a tool to measure executive function that requires planning strategies, searching in an organized manner, the ability to shift cognitive sets, goal-targeted behavior, and the ability to modulate the response to impulsive stimuli. It gives information on a wide exhibit of items of problem-solving behavior beyond basic indices of task success or failure, for example, the quantity of perseverative errors, the failure to maintain set, and the number of categories accomplished.**

**Statistical analysis: Data were analyzed using Statistical Program for Social Science (SPSS) version 17.0. Data were expressed as the mean ± standard deviation (SD). Independent two-sample t-test was used for comparison between means of the different groups of patients. Pearson correlation coefficient was used to assess the existing correlations.P-value was used to indicate the level of significance where P≤0.05 is considered significant, P≤0.01 is highly significant, P≤0.001 is very highly significant**

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