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Evaluating Cognitive Dysfunction and Self-Care Deficits in Patients Diagnosed with Schizophrenia – Descriptive Analysis

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Abstract

Background: Schizophrenia, a debilitating mental disorder, significantly impacts cognitive functioning and self-care abilities. Cognitive impairments affect memory, attention, and decision-making, while self-care deficits hinder daily activities such as hygiene and nutrition. Despite advancements in treating psychotic symptoms, these challenges often remain under-addressed, necessitating targeted interventions.

Objectives: The main objectives were to assess the levels of cognitive dysfunction and self-care deficits in schizophrenia patients, explore correlations between these variables, and examine their associations with selected sociodemographic factors.

Materials and Methods: Conducted at the Institute of Mental Health, Chennai, the research employed a quantitative, non-experimental descriptive design with a sample of 60 schizophrenia patients selected through non-probability convenient sampling. Data were collected using validated tools, including the Addenbrooke's Cognitive Examination Scale and a Self-Care Assessment Tool, and analysed with IBM SPSS software.

Results: Revealed moderate cognitive dysfunction in 70% of participants and self-care deficits in 65%, with no participants achieving high scores in either domain. A significant positive correlation (r=0.37, p=0.01) was observed between cognitive function and self-care abilities, and variables such as marital status, family type, education, and disease duration were significantly associated with these outcomes.

Conclusion: These findings emphasise the need for integrated interventions targeting cognitive remediation and self-care training to enhance schizophrenia management and improve patient outcomes.

Keywords: Schizophrenia, Cognitive Dysfunction, Self-Care Deficits, Mental Health Nursing, Integrated Care Strategies

Introduction:

Schizophrenia, a severe psychiatric condition impacting over 1% of the worldwide population, equating to approximately 24 million individuals, presents considerable challenges for both patients and society [1]. The condition affects cognitive and emotional functioning, resulting in cognitive deficits and impairments in self-care. These difficulties obstruct daily functioning and decrease quality of life, with cognitive dysfunction impacting 75-85% of patients with schizophrenia [2]. Self-care impairments, encompassing challenges in cleanliness, nutrition, and medication compliance, impact 60-80% of patients [3]. Notwithstanding its worldwide prevalence, schizophrenia is frequently underdiagnosed and inadequately treated, leaving numerous people without essential care.

Cognitive impairment is a defining characteristic of schizophrenia, impacting areas such as memory, attention, executive function, and social cognition. Memory deficits are noted in 75-85% of patients, significantly hindering their capacity to recall everyday activities and acquire knowledge from prior experiences [4]. Attention problems, observed in roughly 70% of patients, hinder activities such as engaging in discussions and doing tasks [5]. Moreover, 80% of individuals demonstrate inadequate executive functioning, resulting in challenges in problem-solving and decision-making [6]. Impaired social cognition, which affects around 70% of patients, exacerbates isolation by diminishing their capacity to perceive social cues and participate effectively in conversations [7].

Cognitive impairments frequently manifest prior to the emergence of psychotic symptoms and serve as significant determinants of social and vocational outcomes [8]. Research indicates that cognitive deficiencies considerably restrict independence, with numerous patients incapable of handling fundamental tasks like financial planning or meal preparation [9]. Interventions aimed at cognitive remediation have demonstrated potential, enhancing cognitive function in 20-50% of patients [10].

Self-care deficits are widespread among people with schizophrenia, impairing their capacity to uphold personal hygiene, comply with therapy, and get enough nutrition. Research demonstrates that 50-60% of adults disregard personal cleanliness, whereas 40-50% experience difficulties with diet attributable to cognitive impairments and medication side effects [11]. Motivational impairments and impaired judgement worsen these challenges, obstructing ordinary self-management tasks [12].

Inadequate self-care is associated with worse physical health outcomes, including heightened risks of cardiovascular illnesses and diabetes, which are common comorbidities in schizophrenia. Individuals with schizophrenia have a two to threefold increased risk of premature mortality compared to the general population, resulting in a life expectancy reduction of 10 to 20 years [13]. Targeted interventions, including psychoeducation and skills training, have reduced self-care deficiencies by 20-40%, enhancing quality of life and treatment adherence [14].

In spite ofthe profound impact of cognitive dysfunction and self-care deficits on patients' quality of life and societal burden, this study aims to assess their levels and correlations in schizophrenia patients. The study also seeks to identify sociodemographic factors influencing these impairments. By addressing these gaps, personalised interventions can be developed to improve outcomes and reduce the economic burden of the disorder.

Materials and methods:

A quantitative, non-experimental descriptive design was used to assess the levels of cognitive dysfunction and self-care deficits among patients diagnosed with schizophrenia. Conducted at the Institute of Mental Health (IMH), Kilpauk, Chennai, over four weeks. The study population comprised those who met the inclusion criteria, including patients diagnosed with schizophrenia per ICD-10 classification, male and female patients, and those whose guardians provided consent. Patients who were critically ill, with substance abuse issues, or with neurological disorders were excluded.A total of 60 schizophrenia patients were included in the study. Participants were selected using a non-probability convenient sampling technique to ensure feasibility and timely data collection.

Sample Size Calculation

The sample size was determined using a previous study by Chinju et al. (2018), which reported a 65.17% incidence of moderate cognitive dysfunction [15]. With a 95% confidence limit and 20% relative precision, the sample size was calculated as 60 participants using the following formula:

$$N=\frac{Z^2\times(1-p)}{p\times e^2}$$

where Z = 1.96, P = 0.6517, and e = 0.2.

The Addenbrooke's Cognitive Examination (ACE) Scale assessed cognitive domains like memory, attention, and visuospatial abilities. The Self-Care Assessment Tool evaluated patients' ability to perform daily living activities, with scoring ranges reflecting low to excellent self-care practices.Trained researchers ensured accuracy, while anonymity and ethical compliance were rigorously maintained throughout the process.Collected data were anonymised and entered into an MS Excel spreadsheet.

Statistical Analysis

Data were processed via IBM SPSS version 22. Categorical variables were summarised as frequencies (n) and percentages (%), whereas continuous variables were expressed as mean ± standard deviation (SD). The Chi-square test was utilised to evaluate correlations among categorical variables. The Pearson correlation coefficient was employed to assess the association between cognitive impairment and self-care deficit scores. The threshold for statistical significance was established at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee, Madras Medical College (No. IEC-MMC/Approval/7042024) and permission was granted by the Director of IMH, Chennai. Informed consent was obtained from all participants, and the rights and confidentiality of participants were safeguarded.

Results:

Sociodemographic characteristics:

The mean age of the participants was 26.3 ± 7.67 years and slightly more women (51.67%) than men. Half were unmarried and Hindus constituting the largest religious group at 55%. Most participants had only primary or middle school education and lived in nuclear families (68.33%). The majority worked for wages (59.32%), and their mental illness durations were generally under three years (93.33%). Treatment delays were common, with 63.33% waiting 5-8 weeks. Follow-up treatments were often irregular (45%).

Level of Cognitive function and self-care deficit:

Table 1 showed the distribution of cognitive examination scores among patients, indicating their needs. Thirty per cent of patients had low scores, while the majority, 70%, scored moderately. No patients achieved high scores, highlighting a need for interventions to enhance cognitive performance or address underlying issues potentially.

Table 1: Level of Cognitive Examination Score

Level of score	**No. of patients**	**%**
Low	18	30.00%
Moderate	42	70.00%
High	0	0.00%

Table 2 showed the levels of self-care assessment scores among patients, indicating their needs. Thirty-five percent of patients scored low, while the majority, 65%, scored moderately. No patients achieved high scores, highlighting a need for enhanced support and interventions to improve self-care practices among the group.

Table:2 Level of self-care assessment score

Level of score	**No. of patients**	**%**
Low	21	35.00%
Moderate	39	65.00%
High	0	0.00%

Correlation between mean Cognitive examination and Self-care assessment score

The analysis showed a significant, positive, fair correlation (r=0.37, p=0.01) between cognitive function scores and self-care assessment scores. This means that as self-care assessment scores

increased, cognitive examination scores tended to increase fairly. The mean cognitive function score was 58.63 with a standard deviation of 5.04, and the mean self-care assessment score was 66.50 with a standard deviation of 9.03, highlighting a moderate relationship between the improvement in self-care and cognitive abilities.

Association between cognitive dysfunction and self-care assessment score with Demographic variables:

The findings showed a significant association of self-care scores with marital status and family type, with unmarried patients scoring moderately (p=0.01) and those from nuclear families scoring better than those from joint families (p=0.05). Cognitive scores were linked to education level and disease duration; lower education correlated with lower cognitive performance (p=0.05), and shorter disease duration was associated with better cognitive outcomes (p=0.05). Other demographic factors showed no significant impact on these scores.

Discussion:

The present study explored the cognitive dysfunction and self-care deficits among patients with schizophrenia while associating these parameters with sociodemographic variables.

Cognitive Dysfunction and Self-Care Deficits

This study identified moderate cognitive dysfunction in 70% of patients, with no individuals achieving high scores. These results align with PD Harvey et al. (2022) findings, where 25% of their cohort had significant cognitive impairments [4]. However, the slightly higher prevalence in the current study could stem from variations in the assessment tools or demographic characteristics.

Similarly, self-care deficits were prevalent, with 65% scoring at a moderate level and 35% at a low level, paralleling findings by Sutria E(2020). While their study reported a higher prevalence of significant self-care deficits (40%), the variance likely reflects differences in disease severity and illness duration across the cohorts [16].These findings warrant further exploration into targeted interventions to address cognitive deficits and enhance daily self-management.

Correlation Between Cognitive Dysfunction and Self-Care

The study observed a significant, positive, fair correlation ($r = 0.37$, $p = 0.01$) between cognitive dysfunction and self-care deficits. These findings align with Montvidas Jet al. (2023), who reported a similar correlation ($r = 0.32$) [17]. The consistency in results emphasised that cognitive impairments hinder essential daily self-care tasks, supporting the potential benefits of cognitive rehabilitation in fostering independence.

Sociodemographic Associations

The study highlighted significant associations between self-care scores and marital status, family type, and education level. Unmarried patients predominantly scored at moderate levels, consistent with findings by Garcia et al. (2020), who attributed better self-care in married individuals to emotional and practical support from a spouse [18]. Patients from nuclear families exhibited better self-care scores than those from joint families, corroborating Hu M et al. (2024), who reported improved self-care outcomes

in nuclear family setups due to focused care and reduced family dynamics complexity [19].Lower education levels were linked to poorer cognitive outcomes, emphasising the role of education in fostering resilience and functional outcomes in schizophrenia. Similarly, a shorter disease duration was associated with better mental performance, highlighting the potential for early intervention to mitigate cognitive decline.

Implications and recommendations

The findings underscore the need for comprehensive treatment strategies incorporating cognitive rehabilitation and tailored interventions addressing sociodemographic factors. Early diagnosis and timely intervention can improve cognitive functioning and self-care capabilities, enhancing quality of life. Future studies should explore the longitudinal impacts of tailored interventions and integrate multidimensional strategies that combine pharmacological, psychosocial, and cognitive-behavioural therapies.

Conclusion:

Cognitive dysfunction and self-care deficits pose significant challenges in patients with schizophrenia, emphasising their impact on daily functioning and quality of life. The findings underscore the need for comprehensive, multidimensional treatment strategies, including cognitive rehabilitation and tailored interventions addressing individual needs. Early diagnosis and timely, targeted approaches can enhance patient independence, improve outcomes, and reduce the societal burden of schizophrenia.

Conflict of Interest – None

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Authors' Contributions

SK – Study design and data collection, **SSR** – Study design, concepts, data collection, **SK** and **SSR** – All authors contributed to writing the manuscript, thoroughly reviewed and verified all aspects, and approved the final version.

SK – Senthil Kumar, **SSR** – Shankar Shanmugam Rajendran

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