SOCIAL FUNCTIONING OUTCOME MEASURES IN SCHIZOPHRENIA WITH A FOCUS ON SUITABILITY FOR INTERVENTION RESEARCH : A SYSTEMATIC REVIEW

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Abstract

Introduction: The field and social functioning measurement have altered. Cognitive deficits and unpleasant symptoms predict social functioning, driving the creation and evaluation of remedies. Research shows that these traits may affect social functioning differently across domains. Multiple reviews have explored social functioning measurement. The most complete showed that many schizophrenia measures were unvalidated, interventional research reliability and validity standards were unknown, and many were too demanding for research and clinical practice.

The aim: This article showed social functioning outcome measures in schizophrenia with a focus on suitability for intervention research.

Methods: By comparing itself to the standards set by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, this study was able to show that it met all of the requirements. So, the experts were able to make sure that the study was as up-to-date as it was possible to be. For this search approach, publications that came out between 2013 and 2023 were taken into account. Several different online reference sources, like Pubmed and SagePub, were used to do this. It was decided not to take into account review pieces, works that had already been published, or works that were only half done.

Result: In the PubMed database, the results of our search brought up 125 articles, whereas the results of our search on SagePub brought up 113 articles. The results of the search conducted for the last year of 2013 yielded a total 67 articles for PubMed and 42 articles for SagePub. In the end, we compiled a total of 24 papers, 16 of which came from PubMed and 8 of which came from SagePub. We included seven research that met the criteria.

Conclusion: Numerous social functioning assessments have been validated in schizophrenic populations, but evidence on their strengths and weaknesses is scarce. We described practical aspects, content and coverage, quality, and frequency of application of regularly used measurements.

Keyword: *Schizophrenia; Social functioning; Suitability; Intervention research*

INTRODUCTION

Schizophrenia-spectrum disorders have some of the poorest outcomes across mental disorders and deficits in social functioning are one of the main drivers of the global burden of the disorder. Psychotic disorders like schizophrenia include thought distortions, feeling controlled by outside forces, strange delusions, perceptual disturbances, abnormal affect integrated with real or actual situations, and autism. Clear consciousness and intellectual abilities are frequently unaffected.[1] The prevalence of schizophrenia is approximately 0.6-1.9% of the US population and the annual prevalence of schizophrenia diagnosed in the US is 5.1 per 1,000 people.[2]

The condition appears to be equally prevalent in men and women, but men develop symptoms earlier. Men frequently develop schizophrenia in their early 20s, whereas women in their late 20s or early 30s.[2] Schizophrenics have unexpected prognoses. Only 20% of patients report satisfactory treatment outcomes. The remaining patients experienced several psychotic episodes, persistent symptoms, and poor antipsychotic response.[3] Moderate quality evidence suggests that the overall remission rate is around 36% in people with schizophrenia. In patients with first episode psychosis, the rate is approximately 58% at 5.5 years.[4]

Interventions for people with these conditions should focus on improving their social functioning. Even though it is important, social functioning is hard to define, and there is little agreement on its parts or how to measure it.[5,6] There are a lot of different measures used, which makes it hard to understand, compare, and combine the results of treatment studies in systematic reviews and meta-analyses.[7] For example, a meta-analysis of clinical trials of antipsychotic drugs was unable to draw conclusions about the effects on social functioning due to heterogeneity in measurement. This is despite functioning being recognized as a necessary outcome criterion for treatment success.[8]

The measuring of social functioning has changed alongside the field. Cognition and negative symptoms are key predictors of social functioning, prompting the development and evaluation of interventions targeting these impairments. Research demonstrates that these characteristics may affect social functioning differently across domains.[9] Negative symptoms have been linked to social outcomes and relationships, while short-term memory and linguistic learning may be linked to employment. Positive symptoms are not always linked to functioning. Virtual, computer-based methodologies have also made controlled measurement of real-world social functioning less resource-intensive. These 'performance-based measures' of 'functional capacity' are meant to replace or supplement traditional scales.[10]

Several reviews have examined social functioning measurement. The most comprehensive found that many schizophrenia measures had not been validated, there was little information on interventional research reliability and validity criteria, and many were too burdensome for research and clinical practice. The Global Assessment of Functioning (GAF) and its predecessor (Global Assessment Scale) are the most common schizophrenia research measures. However, their form as single-item clinician-rated measures makes it impossible to evaluate specific components of functioning and inextricably linked to functioning evaluation.[7,11]

The review endorsed The Personal and Social Performance Scale for its reliability and validity in antipsychotic drug trials, however it was not extensively used. Another review discovered only one social media activity measure in social functioning measures. Performance-based metrics, which are becoming more popular, were removed from the evaluation due to a lack of reliability and validity data. Previous reviews found few measures of motivation and activity desire.[11,12] The present investigation demonstrated social functioning outcome measures in schizophrenia with a focus on suitability for intervention research.

METHODS

In accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 criteria, the researcher of this study made steps to ensure strict compliance with these criteria. This approach is intended to guarantee the accuracy of the investigation's findings. This review's primary objective was to demonstrate social functioning outcome measures in schizophrenia, with a particular emphasis on their suitability for intervention research. The primary purpose of this paper is to emphasize the significance of the issues discussed in the text.

To be eligible for participation in the study, researchers had to satisfy the following requirements: the article had to be written in English and its focus had to be on social functioning outcome measures in schizophrenia with an emphasis on intervention research suitability. The paper must satisfy both of these requirements in order to be published. Several of the articles under consideration were published between 2013 and the predetermined timeframe deemed pertinent for the purpose of this systematic review. Editorials, submissions lacking a Digital Object Identifier (DOI), previously published review articles, and submissions that are essentially duplicates of previously published journal articles are prohibited.

We used "social functioning"; "schizophrenia"; and "intervention research" as keywords.The search for studies to be included in the systematic review was carried out from August, 19th 2023 using the PubMed and SagePub databases by inputting the words: (("social interaction"[MeSH Terms] OR ("social"[All Fields] AND "interaction"[All Fields]) OR "social interaction"[All Fields] OR ("social"[All Fields] AND "functioning"[All Fields]) OR "social functioning"[All Fields]) AND ("schizophrenia"[MeSH Terms] OR "schizophrenia"[All Fields] OR "schizophrenias"[All Fields] OR "schizophrenia s"[All Fields]) AND ("intervention s"[All Fields] OR "interventions"[All Fields] OR "interventive"[All

Fields] OR "methods"[MeSH Terms] OR "methods"[All Fields] OR "intervention"[All Fields] OR "interventional"[All Fields]) AND ("research personnel"[MeSH Terms] OR ("research"[All Fields] AND "personnel"[All Fields]) OR "research personnel"[All Fields] OR "researcher"[All Fields] OR "researchers"[All Fields] OR "research"[MeSH Terms] OR "research"[All Fields] OR "research s"[All Fields] OR "researchable"[All Fields] OR "researche"[All Fields] OR "researched"[All Fields] OR "researcher s"[All Fields] OR "researches"[All Fields] OR "researching"[All Fields] OR "researchs"[All Fields]) AND ((y_10[Filter]) AND (clinicaltrial[Filter])) used in searching the literature.
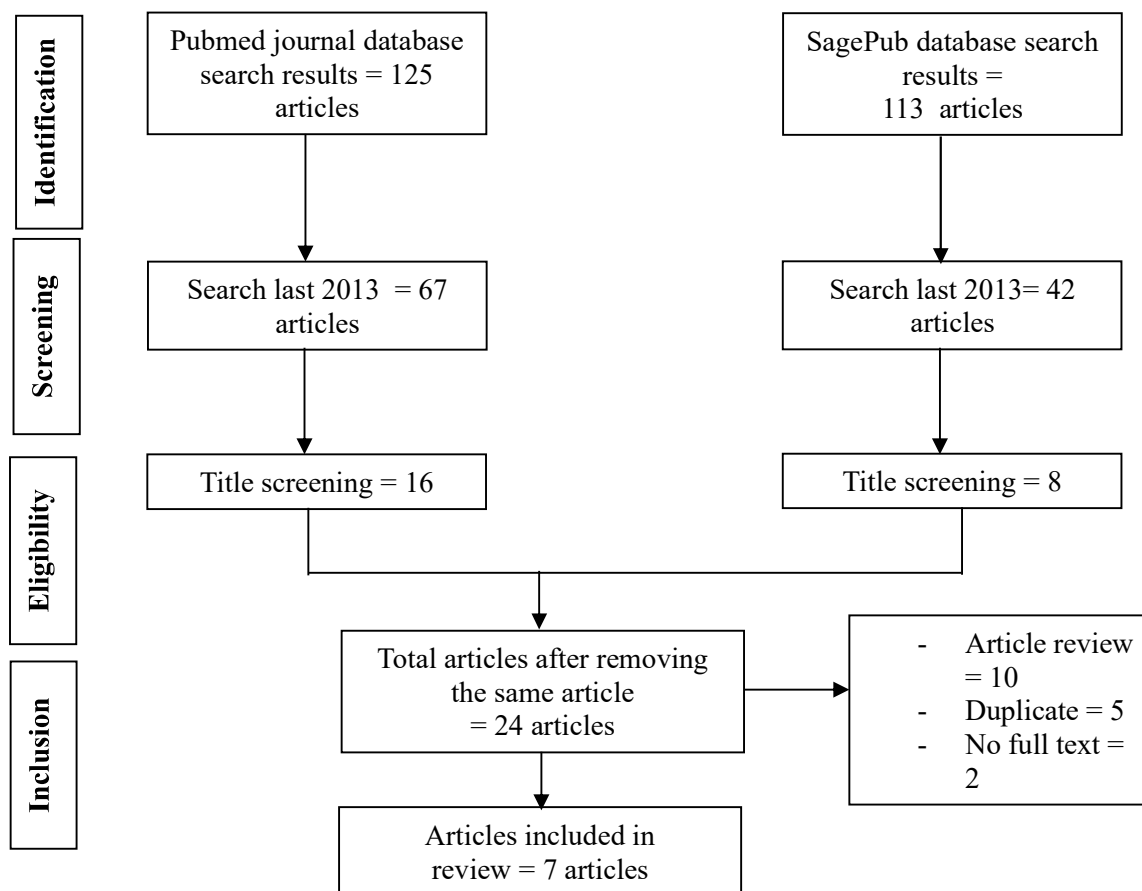
Figure 1. Article search flowchart

The authors evaluated the abstract and title of each study to determine whether or not it met the inclusion criteria. The authors then determined which previous studies would serve as sources for the article and chose those studies. To reach this conclusion, numerous studies that appeared to indicate the same trend were analyzed. Before submission, all works must be written in English and unpublished. The systematic review only considered publications meeting all inclusion criteria. This narrows the search results to only those that are pertinent to your search. We disregard the results of any study that does not meet our criteria. The research findings will then be analyzed in depth.

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RESULT
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Table 1. The litelature include in this study

Author	Origin	Method	Sample Size	Result
Zhao, 2019[13]	China	Cross sectional study	210 patients with schizophrenia	The self-rating functional scale (SRFS) is a reliable and legitimate instrument for evaluating the personal and social functioning of schizophrenia patients.
Mallet, 2018[14]	France	Cross sectional study	443 French patients with clinical remission	These findings indicate that a four-item version of the FROGS scale may be useful for assessing essential aspects of functional remission that are tightly correlated with the duration of clinical remission.
Smith, 2017[15]	United Kingdom	Cross sectional study	12,910 patients with ICD10 diagnoses F20 to F29	Existing literature models could not suit our data. New four-component answer found through factor analysis. Published literature indicated clinical importance for these parameters. The bifactor model showed that the Health of the Nation Outcomes Scale (HoNOS) unidimensionality does not lose information. This structure should be studied in larger and other samples. A bifactor method may affect HoNOS application in practice, as there is controversy over aggregating item scores for interpretation.
Velligan, 2016[16]	United State of America	Prospective cohort study	50 individuals with schizophrenia	This study offers preliminary support for the reliability and validity of the Daily Activity Report (DAR) when administered by interviewer. The next step is to develop a patient-reported variant of the DAR using smart phone technology and automatic scoring.
Joseph, 2015[17]	United State of America	Pre- and post test	78 individuals with schizophrenia	Future research on the functional outcomes of schizophrenia may find the Assessment of Lifespan Functioning Attainment (ALFA) scale beneficial.
Pinna, 2015[18]	Italy	Prospective cohort study	74 outpatients affected by schizophrenia or schizoaffective disorders	Mini-ICF-APP (Mini-ICF Rating for Limitations of Activities and Participation in Psychological Disorders) in its Italian translation is a valid instrument for assessing the functioning of chronic patients with schizophrenia and related disorders.
Hodgeniks, 2015[19]	United Kingdom	Cross sectional	Individuals with at-risk mental states (N = 199), individuals with first-episode psychosis (N = 878), and individuals with delayed social recovery following the remission of psychotic symptoms (N = 77).	All three clinical groups spent significantly fewer hours per week in structured activity than non-clinical. Before psychosis, at-risk mental health patients had lower activity levels. Activity decreased more in the first-episode psychosis and delayed recovery groups than in the at-risk mental state group. Time spent in structured activities helps assess social disability and recovery throughout psychosis spectrums.

Zhao, et al (2019)[13] showed Cronbach's α was 0.83, stable between 0.80 and 0.82, reflecting the scale's internal consistency. Spearman's correlation coefficient between split-half sections was 0.68 (P<0.01), indicating moderate to strong dependability. The standardized regression coefficients were 0.48–0.79, showing moderate concept validity. A moderate validity exists for SRFS, PSP, World Health Organization Disability Assessment Schedule II, and Positive and Negative Syndrome Scale, with Spearman's correlation coefficients of 0.59, 0.65, and 0.47 (all P<0.01).

Mallet, et al (2018)[14] showed four domains were kept because they showed the most symptomatic remission. These were (1) travel and contact, (2) illness and treatment management, (3) self-esteem and feeling of independence, and (4) respecting biological rhythms. First, the mini- Functional Remission Of General Schizophrenia (FROGS) was tested on 443 French patients who were in clinical remission and 22 who were not. Twelve to eighteen months later, 140 patients who were still in clinical remission and 23 who had relapsed were tested again. In Europe, the mini-FROGS and other scores for functional remission were used to test 295 people with schizophrenia so that they could be compared.

Smith, et al (2017)[15] conducted a study with 12,910 patients with ICD10 diagnoses F20 to F29 at a UK National Health Service Mental Health Trust. Exploratory and confirmatory factor analyses led to the discovery of a four-factor solution that better fits the data than existing models. After accounting for a general factor, the corresponding bifactor factor solution identified three robust factors and one weak factor. Compared to a unidimensional factor solution, the factor loadings on the general factor were not significantly different, indicating the existence of a common trait.

Velligan, et al (2016)[16] showed total score and scores in 3 domains; instrumental activities, social and work or school related activities are generated for the DAR. Inter-item consistency was high 0.89–0.94 for each domain and 0.88 overall. Test–retest reliability across 1 month for the total DAR score was 0.67 (p <0.01). The total DAR score as well as scores for social activity and nondomestic work/school differed significantly between control and patient participants (p <0.01). DAR domain scores were associated with negative symptoms and functional outcomes, but the primary score related to these measures was the work/school dimension of the DAR. DAR scores were only weakly and nonsignificantly related to positive symptoms.

Joseph, et al (2015)[17] showed pre-to post-psychosis functional decline was observed for all domains, with paid employment having the greatest decline (d = 2.68) and living independently having the least decline (d = 0.59). Our exploratory factor analysis suggests that a single factor accounted for the most variance in Pre-Psychosis Functioning in ALFA domains. Two factors explain the majority of variance in Post-Psychosis Functioning and Pre-to-Post Psychosis Decline: a sociability factor (close friendships and recreational engagement with others) and an independence factor (paid employment, living independently, romantic relationships). To our knowledge, this is the first study to report on a self-reported quantitative assessment of adult lifespan functioning in schizophrenia.

Pinna, et al (2015)[18] showed total score and 12 of the 13 Mini-ICF-APP items were significantly correlated with the total score on the Personal and Social Performance scale (PSP); the Mini-ICF-App total score was also significantly correlated with the total scores on the Clinical Global Impression-Schizophrenia scale (CGI-SCH), Positive and Negative Syndrome scale (PANSS), Mini Mental State Examination test (MMSE), and several Brief Assessment of Cognition in Schizophrenia scale (BACS) items. Remitted and recovered patients obtained Mini-ICF-APP scores that were significantly higher than other patients. No significant correlations were identified between Mini-ICF-APP and SWN scale scores.

Hodgekins, et al (2015)[19] showed individuals in the non-clinical group engaged in structured activities for a significantly greater number of hours per week compared to all three clinical groups. A decline in activity levels was noted prior to the manifestation of psychosis in persons exhibiting mental states that put them at risk. The study findings revealed that both the first-episode psychosis group and the delayed recovery group had further decreases in activity, in comparison to the at-risk mental state group. Evaluating the duration of engagement in organized activities is a valuable method for assessing social impairment and rehabilitation over the range of psychotic disorders.

DISCUSSION
This review illustrates the complexity surrounding the assessment of social functioning, as seen by the growing number of measures that encompass a wide range of domains. A total of seven outcome measures pertaining to social functioning, specifically designed for or validated in individuals diagnosed with schizophrenia, were identified subsequent to the year 2013. The employed measures encompass the utilization of structured questionnaires, semi-structured interviews, and evaluation of performance on designated tasks, encompassing eight comprehensive domains of social functioning.[11]

Many assessment measures primarily focus on activities of daily living (ADLs), interpersonal connections, and work status. However, there is a relative scarcity of measures that specifically examine domains that may be of significant relevance, such as sexual functioning, antisocial behavior, and utilization of the internet and social media. The evaluation of various interventions and their impact on social functioning is crucial for service users, necessitating the use of dependable metrics. When developing intervention research, researchers should carefully choose a measure that aligns with the specific areas of functioning that are most pertinent to their study.[20]

Additionally, they should take into account the quality of available measures, as well as their practical aspects and previous utilization in research studies. Numerous measures have been established to cater to distinct populations and specific objectives; however, they are often employed in contexts beyond their original intended scope, thus undermining their validity and reliability. In addition, there is a scarcity of psychometric assessment pertaining to the occurrence of floor and ceiling effects, as well as the ability to detect response to change.[20]

The ecological validity of certain metrics is called into question due to their outdated nature, as well as the absence of measurements that adequately capture the phenomenon of social media usage and other important areas. There is a lack of clear differentiation between capacity and motivation, despite the fact that both schizophrenia and antipsychotic drug treatment can potentially impair motivation. Enhanced discrimination has the potential to enhance the sensitivity of measurements, allowing for the detection of subtle improvements that may hold significance for patients, although may not be readily recognized by physicians or assessors.[20]

Different measures in this review have benefits and limitations. Quality scores were narrow, although the PSP scored highest, consistent with a previous evaluation. The PSP is the only measure that shows responsiveness (detecting changes over time), but only seven measures (22%), which is important for intervention research design and interpretation.[13] The PSP is the only measure with a minimally clinically relevant effect, but other study questions its reliability. The FROGS and HONOS cover the most social functioning aspects. Intervention research has mostly employed the SFS and PSP since 1990.[14,15]

Performance-based measures have a more limited scope since they prioritize particular facets of social functioning that can be readily evaluated within a controlled environment. Intervention research has not yet witnessed widespread utilization of these methods. The VFCAT and the USPA-brief exhibit superior overall quality, with the USPA-brief being the prevailing choice among users. Many measures lack administrative and psychometric details. According to statistics, the DAR, GMAP, SRCS, and ICF scales require a lot of data collecting or administration, making them unsuitable for big trials. Training requirements were few, and when stated, they did not always achieve acceptable dependability, as with non-clinicians delivering the PSP.[13,16,20]

CONCLUSION
Numerous social functioning assessments have been validated in schizophrenic populations, but evidence on their strengths and weaknesses is scarce. We described practical aspects, content and coverage, quality, and frequency of application of regularly used measurements.

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