



Assessing the Effectiveness of Video-Assisted Teaching on Caregivers' Management of Extrapyrimal Symptoms in Schizophrenia Patients

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ABSTRACT:

Background: Schizophrenia affects about 1% of the global population, causing significant impairments in cognitive and social functioning. Antipsychotic medications, although effective, often induce extrapyramidal symptoms (EPS), which adversely impact patient quality of life and medication adherence. Caregivers play a crucial role in managing these symptoms, yet many lack the necessary knowledge and skills. This study evaluates the effectiveness of a video-assisted teaching program in improving caregivers' management of EPS.

Objective: To assess the impact of a video-assisted teaching program on caregivers' knowledge and practices regarding EPS prevention and management, and to evaluate its effect on reducing caregiver burden and enhancing patient outcomes.

Methods: A quasi-experimental design with pre-test and post-test evaluations was employed. Sixty caregivers of schizophrenia patients from Trichy Athma Hospital participated. The intervention comprised four weekly video modules on schizophrenia, antipsychotic medications, EPS management, and practical caregiving skills. Pre- and post-intervention assessments were conducted using a structured questionnaire and practical assessment checklist.

Results: The mean pre-test knowledge score was 7.68 (38% of the total possible score), which significantly improved to 16.73 (84%) post-intervention ($t=30.35$, $P<0.001$). The mean practice score increased from 6.28 (42%) to 13.41 (89%) ($t=24.547$, $P<0.001$). No significant associations were found between demographic variables and pre-test scores, indicating uniform baseline knowledge and practice levels across the study population.

Discussion: The significant improvements in both knowledge and practical skills underscore the effectiveness of the video-assisted teaching program. This intervention addresses critical educational gaps, empowering caregivers with the necessary competencies to manage EPS effectively.

Conclusion: Video-assisted teaching is a practical and efficient method to enhance caregiver education, leading to better management of EPS, improved patient adherence to medication, and overall enhanced patient and caregiver outcomes. Broad implementation of such educational programs is recommended to support caregivers universally.

1. Introduction

Schizophrenia is a severe mental disorder that affects approximately 1% of the global population, leading to significant impairments in thought processes, emotional

regulation, and social functioning.[1] Characterized by symptoms such as hallucinations, delusions, disorganized speech, and cognitive deficits, schizophrenia poses substantial challenges for both patients and their caregivers. Effective management of



schizophrenia often involves the use of antipsychotic medications, which, while alleviating psychotic symptoms, frequently lead to the development of extrapyramidal symptoms (EPS).[2,3] EPS are a group of drug-induced movement disorders that include acute symptoms like dystonia and akathisia, as well as chronic conditions such as tardive dyskinesia and parkinsonism.[4]

The prevalence of EPS among schizophrenia patients undergoing antipsychotic treatment is notably high. Studies have reported that approximately 50% to 75% of patients treated with first-generation antipsychotics (FGAs) experience EPS due to their potent dopaminergic antagonism.[5] Although second-generation antipsychotics (SGAs) are associated with a lower risk of EPS, up to 30% of patients on these newer medications still develop these symptoms.[6] The presence of EPS significantly impacts patients' quality of life, contributing to physical discomfort, social stigma, and reduced adherence to medication regimens. Poor adherence due to EPS can lead to increased relapse rates, hospitalizations, and overall healthcare costs, highlighting the need for effective management strategies.[7]

Caregivers of individuals with schizophrenia are integral to the management of the disorder, providing essential support in medication administration and monitoring for adverse effects such as EPS.[8] However, many caregivers lack the necessary knowledge and skills to effectively manage these symptoms, resulting in increased caregiver burden and suboptimal patient outcomes.[9] Educational interventions, particularly video-assisted teaching programs, have emerged as valuable tools to enhance caregivers' knowledge and practical skills. These programs leverage visual and auditory learning methods to improve comprehension and retention of complex medical information, thus empowering caregivers to better manage EPS and support patients.[10]

Evidence suggests that video-assisted teaching programs are highly effective in improving caregivers' understanding and management of EPS. A study conducted at Trichy Athma Hospital assessed the impact of such a program on caregivers of schizophrenia patients. The study revealed significant improvements in caregivers' knowledge and practices related to EPS

prevention and management following participation in the program.[11] Pre- and post-intervention assessments demonstrated substantial gains in knowledge, indicating that video-assisted teaching is a practical and efficient approach to caregiver education. This enhanced understanding not only reduces the incidence and severity of EPS but also improves the overall caregiving experience, leading to better patient outcomes and greater caregiver satisfaction.[12] In summary, integrating educational programs into the routine care of schizophrenia patients is crucial for mitigating the adverse effects of antipsychotic medications and enhancing both patient and caregiver outcomes. Video-assisted teaching programs, in particular, offer a promising solution to bridge the knowledge gap and empower caregivers, ultimately improving the management of schizophrenia and patient quality of life.[13]

2. Objective of the Study

The objective of this study is to evaluate the effectiveness of a video-assisted teaching program in improving caregivers' knowledge and practices regarding the prevention and management of extrapyramidal symptoms (EPS) among schizophrenia patients. It also aims to assess the program's impact on reducing caregiver burden and enhancing patient outcomes in terms of medication adherence and clinical improvement.

3. Methodology

Study Design

This study employs a quasi-experimental design with pre-test and post-test evaluations to assess the effectiveness of a video-assisted teaching program on caregivers of schizophrenia patients. The design includes both quantitative and qualitative components to comprehensively evaluate the intervention's impact. By comparing the caregivers' knowledge and practices before and after the intervention, the study aims to determine the program's efficacy in a real-world clinical setting.

Study Setting

The study is conducted in the outpatient department at Trichy Athma Hospital, a specialized mental health care facility known for its comprehensive treatment and care



for schizophrenia patients. This setting provides an appropriate and controlled environment to implement the educational intervention and monitor its outcomes closely.

Study Duration

The study was conducted over a period of six months, encompassing all phases from recruitment and intervention delivery to data collection and analysis. This timeline allowed for a thorough implementation and assessment of the video-assisted teaching program, ensuring that caregivers had ample time to absorb the educational content and apply the learned practices in real-world scenarios. The structured schedule included initial baseline assessments, a four-week intervention period with weekly sessions, followed by post-intervention evaluations to measure the effectiveness of the program.

Participants

Participants are selected based on specific inclusion and exclusion criteria to ensure the relevance and accuracy of the study results. Inclusion Criteria includes Caregivers of schizophrenia patients who provide regular care and are willing to participate in the study. Exclusion Criteria includes Professional caregivers, caregivers who have participated in similar educational programs in the past year, and those who cannot provide informed consent. A total of 60 caregivers are targeted for the study, determined by power analysis to ensure statistically significant results.

Intervention

The video-assisted teaching program is designed to enhance caregivers' understanding and management of extrapyramidal symptoms (EPS) among schizophrenia patients through four comprehensive modules. The first module, "Understanding Schizophrenia," offers an overview of the disorder, its symptoms, and the challenges faced by patients and caregivers.[14] The second module, "Antipsychotic Medications," provides detailed information on various antipsychotic drugs, their mechanisms of action, and potential side effects, with a specific focus on EPS.[15] The third module, "Identification and Management of EPS," presents strategies for recognizing and managing EPS, incorporating practical tips and techniques applicable in real-world scenarios. The fourth module, "Practical

Skills for Caregiving," focuses on hands-on approaches for daily caregiving and symptom monitoring. Each module is delivered through a 30-minute video presentation followed by a 15-minute question-and-answer session to reinforce learning and address any queries. This structured format ensures that caregivers gain both theoretical knowledge and practical skills, thereby improving their ability to support patients effectively. The program is implemented over a four-week period, with one module covered each week, allowing caregivers ample time to absorb and practice the material.

Data Collection

Data collection is conducted at two critical points: prior to and following the intervention. Initially, a pre-test is administered to evaluate the caregivers' baseline knowledge and practices using a structured questionnaire alongside a practical assessment checklist. The video-assisted teaching program is then delivered over a four-week period, consisting of weekly sessions. Upon completion of the program, a post-test is conducted, employing the same structured questionnaire and practical assessment checklist used in the pre-test. This comparative analysis of pre- and post-intervention data is essential for evaluating the effectiveness of the educational intervention in enhancing caregivers' knowledge and practices regarding the management of extrapyramidal symptoms.

Instruments

Two primary instruments are utilized for data collection to ensure a comprehensive assessment of both theoretical knowledge and practical skills. The first instrument is a structured questionnaire, which is a validated tool designed to measure caregivers' knowledge of extrapyramidal symptoms (EPS). This questionnaire covers various aspects of EPS, including their causes, symptoms, and effective management strategies. The second instrument is a practical assessment checklist, which evaluates caregivers' skills in identifying and managing EPS through simulated scenarios. This checklist ensures that caregivers can apply their theoretical knowledge in real-world situations, thereby providing a thorough evaluation of their practical abilities. Together, these tools facilitate a detailed and holistic assessment of the caregivers' competencies, both



before and after the intervention, enabling an accurate measurement of the program's effectiveness.

Outcome Measures

The study focuses on both primary and secondary outcomes. The primary outcome is the improvement in caregivers' knowledge and practices regarding the management of extrapyramidal symptoms (EPS). Secondary outcomes include a reduction in caregiver burden, assessed using the Zarit Burden Interview, and improvements in patient outcomes, which are measured through adherence to medication and clinical assessments. Collectively, these outcomes provide a holistic view of the intervention's impact, illustrating its effectiveness in enhancing caregiver capabilities and patient health.

Statistical Analysis

To ensure robust results, both quantitative and qualitative data analysis methods are employed. Quantitative data analysis involves using paired t-tests to compare pre- and post-test scores, determining the effectiveness of the intervention. Chi-square tests are applied to analyze categorical data. For qualitative data, feedback from caregivers is analyzed thematically to gain insights into their experiences and perceptions of the intervention. This mixed-method approach provides a comprehensive evaluation of the program, capturing both statistical changes and qualitative insights.

Ethical Considerations

The study strictly adheres to ethical guidelines to ensure the integrity and welfare of the participants. Ethical approval was obtained from the Sresakthimayeil Institute of Nursing and Research's ethical committee, with the clearance number JKKNSINAR/BC/FEB24. Informed consent was secured from all caregivers participating in the study, ensuring they were fully aware of the study's objectives, procedures, potential risks, and benefits. Participants were assured of the confidentiality and anonymity of their data, which was maintained throughout the study. They were informed that their participation was voluntary and that they could withdraw from the study at any point without any negative consequences. Additionally, the study ensured that the intervention posed no harm to the participants and that any findings would be used to enhance the care and support for schizophrenia patients and their caregivers.

All data collected were securely stored and only accessible to the research team to ensure privacy and compliance with ethical standards.

Results

Demographic Data

The study included 60 caregivers of schizophrenia patients, whose demographic characteristics were systematically recorded and analyzed to understand the population better. The age distribution revealed that the majority of caregivers were aged between 25-35 years, accounting for 37 participants (61.7%). This was followed by the age groups 36-45 years and 46-55 years, each comprising 11 participants (18.3%). Only one caregiver (1.7%) was above the age of 55, indicating that the caregiver population skewed towards younger adults.

Demographic Category	Subcategory	Frequency	Percentage
Age Group	25-35 years	37	61.7%
	36-45 years	11	18.3%
	46-55 years	11	18.3%
	Above 55 years	1	1.7%
Gender	Male	28	46.7%
	Female	32	53.3%
Religion	Hindu	48	80%
	Christian	3	5%
	Muslim	9	15%
Residence	Urban	39	65%
	Rural	21	35%

Table 1: Characteristics of Caregivers

Gender distribution showed a slightly higher representation of females, with 32 caregivers (53.3%), compared to 28 males (46.7%). This gender distribution suggests a nearly equal involvement of both genders in caregiving roles, with a slight predominance of female caregivers. In terms of religious affiliation, the majority of caregivers were Hindu, comprising 48 participants (80%). This was followed by 9 caregivers (15%) identifying as Muslim, and a smaller proportion of 3 caregivers (5%) identifying as Christian. This distribution reflects the predominant religious demographics of the region. The residential status indicated that a significant proportion of caregivers resided in urban areas, with 39 participants (65%), while 21 caregivers (35%) were from rural areas. This urban



predominance could be due to better access to healthcare facilities and mental health services in urban settings.

Knowledge and Practice Improvement

The primary aim of this study was to evaluate the effectiveness of a video-assisted teaching program in enhancing caregivers' knowledge and practices regarding the management of extrapyramidal symptoms (EPS). Caregivers' knowledge and practice levels were assessed both before and after the intervention using a structured questionnaire and a practical assessment checklist.

In the pre-test phase, the mean knowledge score among caregivers was 7.68 out of a higher possible score, representing 38% of the total possible score. This indicated a relatively low baseline level of knowledge regarding EPS, suggesting a need for educational interventions. The post-intervention results showed a significant improvement in the knowledge scores, with the mean score rising to 16.73, or 84% of the total possible score. The standard deviation of knowledge scores decreased from 2.17 to 1.56, indicating a reduction in the variability of knowledge levels among participants and suggesting more uniform knowledge acquisition. The statistical analysis confirmed that this improvement was highly significant, with a t-value of 30.35 ($P < 0.001$).

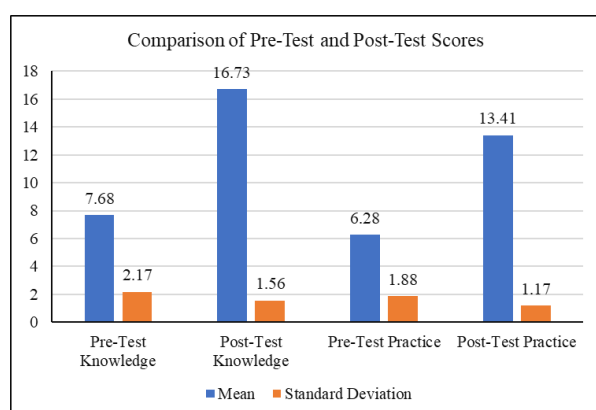


Figure 1: Pre-Test and Post-Test Knowledge and Practice Scores

Similarly, the practice scores, which evaluated caregivers' practical skills in identifying and managing EPS, showed a marked improvement post-intervention. The mean pre-test practice score was 6.28, equivalent to 42% of the total possible score. Following the intervention, the mean practice score significantly increased to 13.41, or 89% of the total possible score.

The standard deviation for practice scores decreased from 1.88 to 1.17, indicating more consistent practice abilities among caregivers after the intervention. This improvement was also statistically significant, with a t-value of 24.547 ($P < 0.001$).

These results suggest that the video-assisted teaching program was highly effective in improving both the knowledge and practical skills of caregivers regarding EPS management. The significant increase in scores post-intervention underscores the program's potential as a valuable educational tool in clinical settings.

Association with Demographic Variables

An analysis was conducted to determine if there were any significant associations between the caregivers' demographic characteristics and their pre-test knowledge and practice levels. The variables considered included age, gender, religion, residence, income, type of family, education level, occupation, previous exposure to knowledge about EPS, and the source of information.

The analysis revealed no significant associations between these demographic variables and the pre-test knowledge scores. For instance, age ($P = 0.069$), gender ($P = 0.577$), religion ($P = 0.754$), income ($P = 0.631$), type of family ($P = 0.395$), education level ($P = 0.625$), occupation ($P = 0.377$), previous knowledge exposure ($P = 0.601$), and source of information ($P = 1$) were all not significantly associated with the baseline knowledge scores. This indicates that the initial knowledge level about EPS among caregivers was not influenced by these demographic factors.

Similarly, no significant associations were found between the demographic variables and the pre-test practice scores. Specifically, age ($P = 0.227$), gender ($P = 0.221$), religion ($P = 0.807$), residence ($P = 0.681$), income ($P = 0.141$), type of family ($P = 0.359$), education ($P = 0.428$), occupation ($P = 0.365$), previous knowledge exposure ($P = 0.778$), and source of information ($P = 1$) showed no significant correlation with the baseline practice scores. This suggests that the caregivers' practical skills in managing EPS were uniformly low across different demographic groups before the intervention.

The lack of significant associations between demographic variables and pre-test scores implies that the educational needs regarding EPS management are



universal among caregivers, regardless of their background. This further supports the necessity and potential effectiveness of widespread implementation of educational programs like the video-assisted teaching intervention evaluated in this study.

4. Discussion

The present study aimed to assess the effectiveness of a video-assisted teaching program on caregivers' knowledge and practice regarding the prevention and management of extrapyramidal symptoms (EPS) among schizophrenia patients. The results demonstrated significant improvements in both knowledge and practical skills of caregivers, indicating the effectiveness of the intervention.

The pre-test results showed that caregivers had a relatively low baseline knowledge and practice regarding EPS, with mean scores of 7.68 (38%) and 6.28 (42%) respectively. This finding aligns with previous research indicating that caregivers often lack sufficient knowledge about the side effects of antipsychotic medications and their management. According to Chaudhury et al., caregivers frequently face challenges due to a lack of adequate information and support regarding the adverse effects of medications used in schizophrenia treatment.[9] Post-intervention, the mean knowledge score significantly increased to 16.73 (84%), and the mean practice score rose to 13.41 (89%). These substantial improvements, confirmed by paired t-tests (knowledge: $t=30.35$, $P<0.001$; practice: $t=24.547$, $P<0.001$), highlight the efficacy of the video-assisted teaching program in enhancing caregivers' competencies.

The analysis of demographic variables showed no significant associations between caregivers' age, gender, religion, residence, income, type of family, education level, occupation, previous exposure to knowledge about EPS, and their pre-test knowledge and practice scores. This suggests that the low baseline knowledge and practice levels were consistent across various demographic groups, reinforcing the need for universal educational interventions irrespective of caregivers' backgrounds. This finding is crucial as it indicates that the educational needs regarding EPS management are not confined to any particular demographic group and thus supports the implementation of widespread educational programs.[17]

The significant improvement in caregivers' knowledge and practices post-intervention underscores the importance of incorporating structured educational programs into routine caregiver support systems. According to McCleery et al., integrating cognitive remediation therapies and structured educational programs into standard care practices can substantially enhance caregivers' skills and confidence.[18] Nursing practice can benefit from these findings by integrating video-assisted teaching modules into caregiver training protocols, thus ensuring that caregivers are well-equipped to manage EPS effectively. This approach not only enhances the quality of care provided to patients but also alleviates the burden on caregivers by empowering them with the necessary knowledge and skills. Such improvements in caregivers' abilities are likely to translate into better patient outcomes, including reduced incidence of EPS, better adherence to medication, and overall improved patient health.

The study's findings have important implications for both caregivers and patients. Improved caregiver knowledge and practices can lead to better patient outcomes, including reduced incidence of EPS, better adherence to medication, and overall improved patient health. For caregivers, gaining confidence in managing EPS can reduce anxiety and stress, leading to improved well-being and a more supportive caregiving environment. According to Zarit et al., reducing caregiver burden through effective educational interventions is crucial for maintaining caregiver health and the quality of care they provide.[12] These outcomes are critical, given the substantial role that caregivers play in the day-to-day management of schizophrenia and the associated side effects of its treatment.

Given the positive outcomes of this study, future research should focus on replicating the findings with larger, more diverse populations to enhance the generalizability of the results. Additionally, studies could explore the long-term impact of video-assisted teaching programs on caregiver and patient outcomes, as well as compare the effectiveness of this method with other educational strategies such as interactive workshops or printed materials. Such research would provide a deeper understanding of the most effective ways to support caregivers in managing EPS and improve the overall care for schizophrenia patients. As suggested by Ascher-Svanum et al., ongoing research is essential to refine



educational interventions and optimize support strategies for caregivers.[11]

5. Conclusion

The present study demonstrates the significant efficacy of a video-assisted teaching program in enhancing caregivers' knowledge and practices concerning the prevention and management of extrapyramidal symptoms (EPS) in schizophrenia patients. The marked improvement in post-intervention scores underscores the program's ability to address critical educational gaps, equipping caregivers with the necessary skills to manage EPS more effectively.

These findings highlight the essential role of structured educational interventions in routine caregiver support systems. By improving caregivers' competencies, such programs can lead to better patient outcomes, including enhanced adherence to medication regimens and a reduction in the incidence of EPS. The program's effectiveness across various demographic groups underscores its potential for broad implementation in diverse caregiving environments.

The lack of significant associations between demographic variables and baseline knowledge and practice levels further supports the need for universally accessible educational programs. This study advocates for the integration of video-assisted teaching modules into standard caregiver training protocols. Such integration can alleviate caregiver burden and enhance the quality of care provided to patients with schizophrenia. The video-assisted teaching program is a highly effective and practical tool for improving caregiver knowledge and practices, thereby benefiting both caregivers and patients. Future research should investigate the long-term effects of such interventions and compare their efficacy with other educational strategies to optimize caregiver support and patient care in schizophrenia.

Abbreviations

- EPS: Extrapyramidal Symptoms
- FGAs: First-Generation Antipsychotics
- SGAs: Second-Generation Antipsychotics
- JKKNSINAR: Sresakthimayeil Institute of Nursing and Research
- AMA: American Medical Association
- Q&A: Question and Answer

References:

1. Solmi M, Seitidis G, Mavridis D, et al. Incidence, prevalence, and global burden of schizophrenia - data, with critical appraisal, from the Global Burden of Disease (GBD) 2019. *Molecular Psychiatry*. Published online July 27, 2023;1-9. doi:<https://doi.org/10.1038/s41380-023-02138-4>.
2. Ali T, Sisay M, Tariku M, Mekuria AN, Desalew A. Antipsychotic-induced extrapyramidal side effects: A systematic review and meta-analysis of observational studies. *PLoS One*. 2021;16(9):e0257129. Published 2021 Sep 10. doi:10.1371/journal.pone.0257129.
3. Oh S, Lee TY, Kim M, et al. Effectiveness of antipsychotic drugs in schizophrenia: a 10-year retrospective study in a Korean tertiary hospital. *NPJ Schizophrenia*. 2020;6(1):32. Published 2020 Nov 19. doi:10.1038/s41537-020-00122-3.
4. Lehman AF, Lieberman JA, Dixon LB, et al. Practice guideline for the treatment of patients with schizophrenia, second edition. *American Journal of Psychiatry*. 2004;161(2 Suppl):1-56.
5. Muench J, Hamer AM. Adverse effects of antipsychotic medications. *American Family Physician*. 2010;81(5):617-622.
6. Kane JM, Correll CU. Pharmacologic treatment of schizophrenia. *Dialogues in Clinical Neuroscience*. 2010;12(3):345-357.
7. Day JC, Bentall RP, Roberts C, et al. Attitudes toward antipsychotic medication: the impact of clinical variables and relationships with health professionals. *Archives of general psychiatry*. 2005;62(7):717-724.
8. Kamil SH, Velligan DI. Caregivers of individuals with schizophrenia: who are they and what are their challenges?. *Current Opinion in Psychiatry*. 2019;32(3):157-163. doi:10.1097/YCO.0000000000000492.
9. Chaudhury S, Mishra BP, Parmar A. Psychosocial interventions for caregivers of people with schizophrenia: A critical review. *Clinical Practice and Epidemiology in Mental Health*. 2019;15:31-43.
10. McCleery A, Nuechterlein KH, Ventura J, et al. Cognitive remediation therapies for schizophrenia. *Cochrane Database of Systematic Reviews*. 2015;(4)
11. Ascher-Svanum H, Nyhuis AW, Faries DE, et al. Reasons for discontinuation and continuation of antipsychotics in the treatment of schizophrenia. *Psychiatric Services*. 2006;57(4):493-497.



12. Zarit SH, Reever KE, Bach-Peterson J. Relatives of the impaired elderly: correlates of feelings of burden. *Gerontologist*. 1980;20(6):649-655.
13. Mueser KT, Glynn SM. Behavioral family therapy for psychiatric disorders. 2nd ed. Oakland, CA: New Harbinger Publications; 1999.
14. Chatterjee I. Understanding Schizophrenia: Introductory Aspect of the Mental Disorder from Various Perspectives. *Cognizance of Schizophrenia: A Profound Insight into the Psyche*. Published online 2023:1-14. doi:https://doi.org/10.1007/978-981-19-7022-1_1.
15. Spyridon Siafis, Wang H, Wang D, et al. Antipsychotic dose, dopamine D2 receptor occupancy and extrapyramidal side-effects: a systematic review and dose-response meta-analysis. *Molecular Psychiatry*. 2023;28(8):3267-3277. doi:<https://doi.org/10.1038/s41380-023-02203-y>.
16. Stroup TS, Gray N. Management of common adverse effects of antipsychotic medications. *World Psychiatry*. 2018;17(3):341-356. doi:10.1002/wps.20567.
17. Rutter S, Atkinson C. How educational psychologists use cognitive behavioural therapy interventions: a systematic literature review. *Educational Psychology in Practice*. 2023;40(1):1-25. doi:<https://doi.org/10.1080/02667363.2023.2274028>
18. McCleery A, et al. Cognitive remediation therapies for schizophrenia. *Cochrane Database of Systematic Reviews*. 2015;(4):CD006625.