

The Occupational Therapy Intervention in the Cognitive Functions of People with Schizophrenia

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Abstract

Introduction: Schizophrenia affects the individual on a cognitive, behavioral and emotional level. Cognitive deficits are a key feature of schizophrenia and have a serious impact on the quality of life, well-being, and productivity of individuals. Occupational therapy uses meaningful activity, in order to improve the autonomy, daily activities, quality of life and personal well-being of the person with severe mental disorder.

Aim: The aim of the study was to investigate the recent literature regarding the contribution of occupational therapy intervention to the cognitive functions of people with schizophrenia.

Methodology: The review of relevant English literature articles, which were written in the last decade and are located in databases like Medline, PubMed and Google Scholar.

Results: Current literature demonstrates the effectiveness of occupational therapy intervention in improving the cognitive functions of individuals with schizophrenia. In particular, expressive arts activities, cognitive enhancement, entertaining and communication groups, result in the significant improvement in the memory, executive functions, speed of information processing, verbal communication and fluency of people with schizophrenia.

Conclusion: Among the wide variety of interventions used, occupational therapy is an important therapeutic intervention for the cognitive enhancement and functional improvement of people with schizophrenia. However, further investigation is required as far as the types of interventions are concerned, as there is a limited number of identified studies and methodological limitations.

Keywords: Occupational therapy, cognitive functions, schizophrenia

JEL classifications: I00, I10, I12

Introduction

Schizophrenia is a chronic psychiatric disorder which, according to epidemiological data, affects 1% of the world's population regardless of gender (Halperin&Falk-Kessler, 2020). It is considered to be the most severe psychiatric disorder as it is associated with significant disability in various aspects of a person's daily life (self-care, self-management, education, work, interpersonal relationships, social life, leisure) (Wykes et al., 2007). It usually appears between the age of 16 and 35 and tends to persist throughout a person's life. Although the cause of the disease remains unknown, empirical evidence has made clear the presence of organic, biological, neurochemical and neuroanatomical factors (Andreasen & Pierson, 2008; Javitt, 2010).

Schizophrenia, at an active stage, has a variety of symptoms which can be divided into positive and negative. Various symptoms that are seen in patients diagnosed with schizophrenia are hallucinations, delusions, disorganized speech and behavior, lack of interest and motivation, blunted affect, alogia, avolition (reduced goal-directed activity due to decreased motivation), asociality, and anhedonia and cognitive deficits affecting memory, attention and concentration, information processing speed, learning, and executive functions (APA, 2013; Javitt, 2010; Lieberman et al., 2008). Cognitive deficits are important for a person's intellectual and functional ability, for understanding the environment they live in, for daily functions such as self-care, independent living, social/interpersonal relationships and the ability to work (Bowie & Harvey, 2006).

There are various therapeutic approaches for schizophrenia which depend on the intensity of the symptoms as well as the characteristics of the individual. The literature on the treatment of schizophrenia contains several guidelines and protocols, which focus on the development of a supportive and therapeutic relationship between patients and their caregivers, the individualized needs of the patient, family and caregivers, adequate provision of information for diagnosis and case management and holistic assessment by the mental health professionals who comprise the multidisciplinary team (Patel et al., 2014).

Pharmacotherapy is the most common and effective therapy, followed by psychosocial rehabilitation and support programs that allow individuals to regain their autonomy through learning social skills and reducing social isolation in order to address problems that arise on a day-to-day level (Nuechterlein et al., 2014). Psychotherapeutic interventions are also important, as depending on the approach of each method, they focus on different characteristics of the disorder and resolve many difficulties that affect the person. Furthermore, they aim to reduce cognitive dysfunction while encouraging adaptive behaviors (Haddock & Lewis, 2005). An equally important therapeutic approach is occupational therapy, which in combination with the other approaches, greatly promotes the individual's functions by allowing unhindered participation in meaningful occupations and the adoption of a quality lifestyle (Rocamora-Montenegro et al., 2021). Studies demonstrate the positive effect of occupational therapy intervention on improving cognitive functions in people with severe mental disorders (Kaizerman-Dinerman, Roe, Josman, 2018; Mehta, 2021; Shimada et al., 2016; Wykes et al., 2007).

Occupational Therapy Perspective

Occupational therapy as a science focuses on the promotion of health, well-being and quality of life through the involvement of people in everyday life occupations. By participating in meaningful occupations, individuals regain hope, cope with healthy roles and routines and can gradually integrate into the community and become functional and independent (Swarbrick & Noyes, 2018). In addition to the above, they can manage their disorder, exercise control, find social support, empower themselves, and act against stigma and discrimination. However, for people with severe psychiatric disorders, the engagement in occupations can be affected by a variety of personal, environmental and work-related factors, resulting in individuals experiencing a limitation in their participation in various areas of daily life such as self-care, work and education. (Krupa et al. 2009). It is well established that patients with chronic psychiatric disorders have successfully received occupational therapy interventions in the form of psychosocial therapy. It is also remarkable that in most psychiatric departments and day centers, the predominant psychosocial therapy is occupational therapy in which expressive arts, crafts and entertaining activities are the therapeutic means through which individuals build their self-esteem and productivity (Foruzandeh & Parvin, 2013).

Occupational therapy interventions are focused on the areas of education, work, skills training, health and well-being, as well as cognitive rehabilitation and adaptation. The area of occupational therapy interventions in mental health is extensive and the practices that can be included in the occupational therapy intervention plan for patients with severe psychiatric disorders include rehabilitation programs at home, social cognitive enhancement programs, occupational therapy programs focused on work rehabilitation, recording of a cooperation diary, as well as a computer program to enhance cognitive skills. Additionally, there are the emotion regulation program, group program for balancing Activities of Daily Living, individual occupational therapy sessions, dance therapy, purchasing and money management skills training, post-diagnostic therapy, community reintegration programs, creative expression programs and early occupational therapy intervention. All of the aforementioned interventions can be implemented in both inpatient and community mental health facilities (Rocamora-Montenegro et al., 2021).

Literature Review

According to the literature review, understanding the functionality and the clinical outcome of the disease is the main focus of research studies. The management of both positive and negative symptoms is a key goal of therapeutic clinical practice for people with schizophrenia (Lesh et al., 2011). At the same time, according to research data, the cognitive function of people with schizophrenia is affected at a rate of 70%-80%. Cognitive deficits often occur before the onset of psychotic symptomatology and cause significant effects on the person's performance of daily activities, health-related quality of life, occupational and social functions, as well as problems with treatment compliance. They are mainly associated with memory, attentional focus, problem solving, learning, processing speed, visuomotor speed, executive function and social cognition. The core of cognitive dysfunction symptoms are deficits in attention maintenance and executive function (Green & Harvey, 2014).

Executive function includes higher cognitive abilities such as volition, planning and self-observation of behavior that contribute to

the individual's independence and self-efficacy. Other cognitive deficits associated with schizophrenia include attention, sensorimotor, speed and processing ability, problem solving, conceptualization skills, abstract thinking, learning and memory, especially working memory and semantic memory (Lipskaya et al., 2011). Occupational therapy aims to develop occupation through purposeful activity, affecting areas such as autonomy, daily activities, quality of life and the well-being of the person with severe mental disorders. International literature studies demonstrate the effectiveness of occupational therapy intervention in improving the cognitive functions of people with schizophrenia (Hadas-Lidor, 2001; Kaizerman-Dinerman, Roe, Josman, 2018; Mehta, 2021; Shimada et al., 2016).

In particular, a study carried out in Israel by Hadas-Lidor et al (2001) showed significant differences in cognitive tests between people with schizophrenia (experimental, n=29) who followed a specific occupational therapy program for cognitive rehabilitation and people who followed a program with traditional occupational therapy methods (control group). The participants who were randomly selected, were evaluated before and right after the intervention, as well as six months later. The program lasted for one year and took place in a day centre.

Another study in Taiwan, Chen et al, (2016), examined the effects of an aerobic program on the cognitive functions of people with schizophrenia. Aerobic activity was used as the means to achieve the goals within an occupational therapy program run by experienced occupational therapists. The experimental group (n=17) participated in a 60-minute aerobic group three times a week for 3 months. The control group (n=19) participated in coloring and handwriting activities. Cognitive functions were measured before and after the interventions for both groups. The intervention group demonstrated significant improvement in information processing speed, memory and executive functions, while there were no significant changes in the control group.

People with schizophrenia have metacognitive limitations in areas such as abstract thinking, mental flexibility, planning and monitoring. They also experience difficulties in solving problems in new situations, thus affecting their daily functions and levels of participation in life domains such as self-care, social functioning, education, work and leisure (Pillet et al., 2019).

A study by Kaizerman-Dinerman, Roe and Josman (2018) developed an intervention group based on Togliola's (2005) dynamic interaction model that aims to promote daily activities and participation by focusing on metacognitive skills. Eighty-four (84) participants with schizophrenia (41 in the control group and 43 in the intervention group) were assessed before and after the intervention and the intervention lasted 12 weeks. The intervention program was delivered by three qualified occupational therapists with experience in cognitive interventions. It focused on processing strategies and self-monitoring skills, executive functions, performance and participation. Monitoring of the intervention group improved significantly compared to the control group.

Another study by Shimada et al (2016) discusses the development of an individualized occupational therapy program and its effectiveness on the symptoms and the cognitive and social functioning of recently hospitalized patients with schizophrenia. Fifty-one subjects participated in total and were divided into two groups, one with individualized group interventions (n = 30) and one with only group

interventions (n = 21). The aim of individualized occupational therapy is the active participation of the person in the treatment and generally his/her motivation, which is why it consists of a combination of psychosocial programs such as motivational interviewing, a self-monitoring program, individualized visits, handicrafts and a program with weekly action plans for post-discharge care. The results showed that individual intervention did not have a negative impact on mental health. It improved significantly verbal communication, working memory, verbal fluency, executive function, scores of complex cognitive functions and symptom reduction. However, in the first group there was a significant statistical difference in social skills scores, perhaps due to the fact that the semi-experiment took place in a hospital instead of inside a community.

A study conducted in Japan examined the effectiveness of early occupational therapy intervention in patients with acute psychosis immediately after their admission to a psychiatric hospital. The results of this study showed that the sample of the population that received early occupational therapy intervention had significant improvement in the cognitive domain; particularly an increase in expression and social interaction was observed in these patients. This result suggests that early occupational therapy intervention helps individuals in the acute phase of a psychotic episode, improve their communication skills and cognitive functions with the least amount of assistance (Tanaka et al., 2014).

A study conducted by three occupational therapists examined the effects of an occupational therapy intervention for people with schizophrenia on executive functions and major activities of daily life through a program for the improvement of food purchasing skills. Twenty patients participated, divided into two groups of 10. One group received the usual rehabilitation program, which included physical exercise and social skills and adaptation training, while the second group received the program to improve food purchasing skills. This program was organized by an occupational therapist and took place twice a week for a period of four weeks. According to the results of the study, the people who participated in the program group for the improvement of their food purchasing skills showed a remarkable improvement in cognitive and executive function, among other things. On the contrary, no significant improvement was observed in the participants who were in the usual rehabilitation program group (Kim et al., 2020).

In 2021, a study was published by Fathi Azar and colleagues, examining the effects of psychosocial occupational therapy combined with anodal transcranial direct current stimulation to the left dorsolateral prefrontal cortex of the brain on the cognitive function of patients with schizophrenia. Twenty-four (24) subjects were involved, divided into two groups. Both groups were offered the services of psychosocial occupational therapy, with one group receiving transcranial electrical stimulation and the second group receiving sham transcranial electrical stimulation. Based on the results of the study, it was concluded that psychosocial occupational therapy combined with transcranial electrical stimulation to the left dorsolateral prefrontal cortex of the brain can improve the attention, memory and learning abilities of people with schizophrenia (Fathi Azar et al., 2021).

Finally, a recent study in India (Mehta, 2021) examined the effect of occupational therapy on cognitive functions and task performance in hospitalized individuals with severe psychiatric disorders. The study involved 88 subjects (aged 18-55 years) after an assessment during their first visit to the occupational therapy department, using the

purposive sampling method. An evaluation was performed before and after the occupational therapy intervention and a significant improvement was observed in both the Mini-Mental State Examination (MMSE) and the Comprehensive OT Evaluation (COTE) scales.

Discussion

Occupational therapy through psychosocial programs, rehabilitation programs, as well as group and individual occupational therapy sessions with people with schizophrenia contributes to the improvement of symptoms and the course of the disease. Furthermore, it also contributes to the improvement of the patients' functionality, their quality of life and their psychosocial rehabilitation.

This literature review aimed to identify the contribution of occupational therapy interventions on the cognitive functioning of people with schizophrenia. In the majority of the articles in this review it appears that occupational therapy improves cognitive functions which are important for interacting with other people and the changing environment. Additionally, it enhances the decision-making abilities and performance of meaningful activities that are necessary in any human occupation. Cognitive impairment due to psychiatric disorders can have a major impact on occupational functionality. It also affects the performance of activities of daily living, i.e. personal hygiene, food preparation, childcare, use of transport, money management and, in general, a health-related quality of life, professional and social functioning, as well as problems related to compliance with treatment.

There is a small number of studies on occupational therapy interventions, which aimed at improving cognitive abilities through specific activities. A reason for the limited number of articles is that the nature of occupational therapy, as a holistic approach to addressing issues of clients' daily lives, emphasizes on functional independence, rehabilitation and environmental adaptation for the person with schizophrenia and does not focus on just one area, such as cognitive functioning.

Conclusions

The results of the study are very encouraging and indicate that among the wide variety of interventions used, occupational therapy is an important therapeutic intervention for the cognitive enhancement and functional improvement of people with schizophrenia. However, since the types of occupational therapy interventions that help improve the cognitive functions of people with schizophrenia have not been fully investigated yet, it is imperative to continue the study.

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