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Use of a Performance-Based Occupational Therapy Assessment of Executive Function with the Homeless Population: A Case Report

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Use of a Performance-Based Occupational Therapy Assessment of Executive Function with the Homeless Population: A Case Report

Abstract

Background: An estimated 25% of the homeless population has a mental illness, which means that many experience cognitive problems that adversely impact basic and instrumental activities of daily living and goal attainment. This case report focused on the experience of an individual living in transitional housing who was evaluated with a performance-based occupational therapy assessment in the context of community-based interdisciplinary psychosocial care provided by a robust occupational therapy fieldwork program.

Method: This case report generally followed the CARE Case Report Guidelines and highlights the use of a standardized performance-based assessment and follow-up care suggested by test outcomes.

Results: This assessment confirmed that the client did not have executive function problems, rather his performance was impeded by social anxiety and agoraphobia. It also identified his occupational strengths, including a passion for art and his desire to reconnect with his family and take steps toward more independent housing.

Conclusion: The standardized performance-based occupational therapy assessment of executive function carried out in a natural group setting confirmed its value in a psychosocial rehabilitative transitional housing program.

Comments

The authors declare that they have no competing financial, professional, or personal interest that might have influenced the performance or presentation of the work described in this manuscript.

Keywords

homelessness, executive function assessment, community-based psychosocial rehabilitation

Cover Page Footnote

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Credentials Display

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This case report aims to demonstrate the value of using an occupational therapy (OT) performance-based standardized assessment for the homeless population receiving mental health services in the community. The case report focuses on a client's experience living in a transitional housing program over a 2-year period where OT services were provided by a robust fieldwork (FW) program. There is research evidence that OT is making a significant and distinct contribution to psychosocial rehabilitation for the homeless population, including using evidence-based standardized assessments (Synovec et al., 2020). The benefits of using performance-based assessments of executive function delivered by OT FW students in the community will be outlined in the article through a case presentation that follows the CARE Case Reports Guidelines. These guidelines were developed to bring uniformity to the process of reporting on cases in order to highlight and disseminate knowledge more efficiently to improve clinical outcomes (Riley et al., 2017).

The case report format is intended to assist occupational therapists to better understand the assessment process that takes place in community-based psychosocial services for the homeless population. Even though this social service agency did not have the budget to pay the salary of an occupational therapist, its residents benefitted from the assessments and interventions provided by the OT student FW program. The OT FW students focused on the remediation of basic activities of daily living (ADLs) and instrumental activities of daily living (IADLs), functional cognition, and meaningful occupations. The case report allows the authors to explain this particular client's successful transition from more supervised to more independent housing and ways to reconnect clients with their meaningful occupations and their families. This particular client was selected for this case report because his goal was to move into supportive housing, and the treatment team had questions about his functional cognition. Also, he was selected because his lived experience displays the benefits of OT assessment and intervention services for the homeless population. In this case report, the client will be referred to by a pseudonym, Mateo.

Background

This non-traditional mental health FW program is located in a transitional housing residence in a large urban center in the northeastern United States. The site is part of a not-for-profit, voluntary organization begun in 1964 that operates various residential programs, including transitional and supportive housing that include psychosocial rehabilitative services. Although there are many types of residences, the one in which Mateo lived provided temporary furnished rooms for 40 adults, some with private baths, with shared kitchenette facilities on each floor. There was 24-hour on-site staff and a meal plan available. One of the agency's goals is to encourage client independence and the movement to more independent living from rooms to apartments.

Both FWI and FWII students provided OT services. FWI students came in pairs either for 1 week in the fall or for 12 full days in the spring. FWII students, who sometimes came in pairs or were solo, were full time at the site for 3 months in the spring and/or summer; they received 8 hr of supervision from an off-site, experienced occupational therapist whose supervisory services were paid for by the OT program at the university who sent the students. A licensed social worker, who is one of the authors of this article, provided on-site supervision for the FWI and FWII students. The students came from several local universities that had been providing mental health OT services at this site for more than 10 years. During the COVID pandemic, when Mateo lived at the facility, there were no OT students or services for 1 year in 2020. The OT students returned to the facility in the spring of 2021 and continued to provide services during and following the writing of this case report.

The following providers were members of the interdisciplinary team who brought wrap-around services to Mateo: the program director, a licensed social worker and team leader with whom he met as needed; FWI and FWII students, with whom he met daily; the on-site case manager, with whom he met once a week. He met recurrently with the following off-site providers: a psychiatrist, a counselor, an intensive case manager, and a peer advocate. For his medical care, Mateo met with his primary care physician and an endocrinologist.

Literature Review

There is ample research evidence for the benefits of the use of standardized performance-based assessments with this population and for including OT in community-based interdisciplinary mental health care for the homeless population (American Occupational Therapy Association [AOTA], 2017; Gutman, 2021; Merryman & Synovec, 2020; Raphael-Greenfield & Grajo, 2021). Because many social service agencies do not have the budgets to pay the salaries of occupational therapists, several agencies in the United States have formed affiliations with colleges and universities and made use of FWI and FWII students to bring OT clinical services to their clients, with good effect (AOTA, 2017; Fanelli & Nadeau, 2021; Zylstra & Doyle, 2020). In this case report, the OT program evaluated functional cognition using a performance-based, constructive assessment, The Dream Home Assessment (DHA). The program also used evidence-based interventions for the homeless population that enhanced the agency's Housing First approach and provided trauma-informed care.

OT and the Homeless Population

The OT profession has a history of caring for vulnerable populations and has the skill set and knowledge to make a significant contribution to the provision of primary mental health, medical, and other types of services to the homeless population (AOTA, 2017; Gutman, 2021). In a systematic review of OT interventions addressing the transition from homelessness (Marshall, Boland et al., 2021), the majority of the OT programs addressed life skills. In another survey, 35 OT researchers working with the homeless population identified 93 competencies needed by clinicians. The most often cited competency included an understanding of occupational engagement followed by skills development, especially when it has a functional focus (Marshall, Cooke et al., 2021). Rider et al. (2021) found that people who are homeless reported that their daily functioning was severely impacted by both physical and psychological conditions. Their most pressing concerns involved emotional well-being, participation, community mobility, and domestic responsibilities.

Using the Canadian Occupational Performance Measure (COPM), individuals who were homeless and receiving behavioral and physical rehabilitation OT services in the community demonstrated improvement in reaching personal functional goals, most often related to improving IADLs (Synovec et al., 2020). A qualitative study of four residents of a supported housing residence interviewed about their lived experience of homelessness identified a number of issues that could be addressed by the presence of OT on the housing team. These included abstinence through establishing healthy routines, facilitating participation in productive volunteer roles, managing post-traumatic stress disorder (PTSD) symptoms to facilitate social engagement in the community, and focusing on productive aging (Raphael-Greenfield & Gutman, 2015).

OT and Performance-Based Executive Function Assessments

Executive functions, according to Lezak (2012), lie at the heart of all social, meaningful, constructive, practical, and creative activities. They consist of four components: the ability to set goals, plan actions, carry out plans, and do these things successfully. Occupational therapists have contributed

to the understanding of executive function deficits in the homeless population (Helfrich et al., 2011; Raphael-Greenfield, 2012). Twelve providers were interviewed about the value of OT services for homeless adults at a Federal Qualified Health Center (FQHC). With these complex patients, OT was viewed as providing critically valuable information to the team, especially about functional cognition (Merryman & Synovec, 2020).

A conservative estimate of the prevalence of serious mental illness in the homeless population is 25% (U.S. Department of Housing and Urban Development, 2015). In addition to the presence of executive function problems caused by psychiatric disorders, neurocognitive dysfunction caused by traumatic head injuries is common among this population (Raphael-Greenfield, 2012). Cognitive assessments revealed severe cognitive impairment among a group of individuals who were homeless and attending an FQHC. These individuals tended to perform worse on functional assessments, while the office-based cognitive assessments were not sensitive enough to predict functional performance, especially for those with mild cognitive impairment. A varied range of functional abilities exists among individuals experiencing homelessness (Synovec, 2019). In a descriptive and correlational study involving 60 individuals living in a supported housing program, measurable levels of cognitive and task impairment were detected using the Executive Function Performance Test (EFPT). Those who were employed, met regularly with their case managers, pursued hobbies, and had longer periods of abstinence from substance use performed better on the EFPT, a functional assessment of cognition (Raphael-Greenfield, 2012).

The DHA

The DHA is a functional performance-based OT assessment that evaluates executive function skills through the construction of one's "model dream home." Because it can be administered within a group, clients often experience less test anxiety, and therapists view it as time-saving (Raphael-Greenfield & Grajo, 2021). The DHA was developed by two occupational therapists, one of whom is the primary author of this article, and a social worker, who is also a co-author and the director of the residence where Mateo was living. The DHA was created to efficiently evaluate executive function skills in the mental health population in a way that feels less threatening than other assessments (Raphael-Greenfield et al., 2018). It measures executive functions in a non-routine, novel, constructive activity that does not require literacy skills, which is unusual for many standardized executive function assessments (Raphael-Greenfield et al., 2018). This test was meant to address the lack of ecological validity characteristic of many existing tests of executive function that do not accurately predict actual difficulties in everyday living where one must often navigate the unexpected (Raphael-Greenfield et al., 2018). The open-ended, after-task questions are intended to reveal the client's self-monitoring skills, defined as the recognition of performance deficits and a self-assessment of strengths and problem areas (Toglia, 2015).

Housing First Models

Studies have found that housing outcomes in the US and Canada improve when the Housing First Model is adopted, which is the approach used by the transitional housing program discussed in this case report (National Alliance to End Homelessness, 2016). The Housing First model is an evidence-based policy approach that makes permanent housing a priority for the homeless population rather than requiring people to obtain employment, acquire budgeting skills, or maintain abstinence before becoming housed (National Alliance to End Homelessness, 2016). Findings also include a reduction in the use of inpatient and emergency room services for this population and improved rates of housing retention (Tsai, 2020).

Trauma-Informed Care

Trauma can cause long-term physical health problems and adversely affect participation in work, ADLs, leisure, community engagement, and social participation in the homeless population (Torchalla et al., 2019). Van Der Kolk (2014) has explored the long-term physical, emotional, and behavioral effects of adverse childhood events (ACE) and trauma. Housing First programs value the OT profession's holistic training and its ability to assess and deliver interventions that address both the physical and emotional sequelae of developmental trauma (AOTA, 2018; Merryman & Synovec, 2020). Occupational therapists are contributing to the sensorimotor, psychoeducation, and coping skills literature associated with trauma-informed care, including stress management, exercise, and weight loss programs (AOTA, 2018; Helfrich et al., 2011; Reingold, 2013; Swarbrick & Noyes, 2018; Torchalla et al., 2019).

Through a case report, this article aims to convey the utility of the DHA by analyzing how its use impacted and contributed to the progress made by a client living in transitional housing.

Method

Client Information

Mateo is a 32-year-old, single, heterosexual male of Puerto Rican descent. His primary language is Spanish. He graduated from high school and has completed approximately three years of college. He is currently unemployed and receives monthly disability payments. He presents with a complicated set of psychiatric, medical, and occupational conditions and symptoms, which are summarized in Table 1.

Table 1

Client Primary Concerns and Symptoms

Primary Mental Health Diagnoses:	schizoaffective disorder-bipolar type, agoraphobia, social anxiety disorder, and depression
***Symptoms*:**	• Experiences delusions of impending doom around him (the world is coming to an end, imminent death) • Racing thoughts and difficulty regulating emotions (increased anxiety, irritability, sadness) • Agoraphobia, social anxiety, and depressive symptoms • Social anxiety has led to a fear of failure, perfectionism, and procrastination, which has left him unable to complete assignments and projects • Depressive symptoms include oversleeping and over-eating; experiences high levels of stress on a daily basis
Primary Medical Conditions:	shoulder pain and limited mobility with his arm, thoracic outlet syndrome nerve root and plexus disorder, hypertensive heart disease, bilateral edema, high blood pressure, swelling and itchiness of his legs, obesity, hypothyroidism, and lethargy
***Symptoms*:**	• Reports shoulder pain and limited mobility with his arm • Concerned about his many medical diagnoses; expresses stress about how serious they are and how to manage his numerous medical appointments
Primary Occupations Deficits:	problems with ADLs, IADLs, health management, rest and sleep, education, work, leisure, social participation

***Symptoms*:**	• **Personal hygiene**: does not follow a consistent hygiene routine
	• **Community mobility**: agoraphobia impacts his community mobility, especially interfering with his using the subway
	• **Financial Management**:
	  ◦ mentioned that he needed assistance with budgeting and saving money, although he always pays his rent on time,
	  ◦ makes detrimental financial decisions despite awareness of potential negative consequences
	• **Home establishment and management**:
	  ◦ room is disorganized and unkempt
	  ◦ requires reminders to do his laundry regularly
	  ◦ stated that he was never expected by his family to take care of his living space but is now willing to learn these skills
	• **Meal preparation and cleanup**: aware that he should learn to shop for and prepare healthier meals to address his problems with obesity
	• **Shopping**: ordered on-line clothing rather than shopping locally, an activity he found uncomfortable because of agoraphobia
	• **Health Management**:
	  ◦ has several medical conditions, which require making and keeping many medical appointments and managing various medications where he would like to be more independent
	  ◦ when a doctor provides recommendations that he understands, he will follow them but if he finds them confusing tends to catastrophize and become avoidant
	• **Social and emotional health promotion and maintenance**
	  ◦ social anxiety and perfectionism often lead to his panicking when something unexpected happens
	  ◦ generally procrastinates with tasks
	• **Rest and sleep**
	  ◦ expresses difficulty with sleep management
	  ◦ often ruminates at night and believes that his sleep problems manifest after either an overly busy day or after over-sleeping depressive symptoms which ebb and flow and affect his ability to sleep
	• **Education**
	  ◦ would like to finish the 15 credits needed to get a college diploma
	  ◦ has large outstanding student loans

- **Employment interests and pursuits**: during the pandemic participated in a virtual training program for peer-support workers where he had difficulty keeping up with assignments
- **Leisure exploration and participation**: interested but not always available for walks with other residents.
- **Community, family, intimate partner relationships**:
  - recently begun to participate in therapeutic activities and groups at his transitional residence
  - close to one of his cousins but has not had much contact with the rest of his family

The inclusion of OT on the treatment team brought many benefits to Mateo. Because of the presence of FWI and FWII students, Mateo participated in evidenced-based OT interventions and improved his ADLs, IADLs, occupational engagement, and social participation, which are outlined in Table 2. The holistic orientation of OT and the students' knowledge of both physical and mental structures and functions helped the client and treatment team more effectively understand his stress and the need to employ trauma-informed care to address his many psychiatric, medical, and occupational issues.

Table 2

Conditions and Interventions

Medical/Psychiatric/Occupational Problems	Past Interventions and Outcomes
Primary Mental Health Diagnoses: schizoaffective disorder-bipolar type, agoraphobia, social anxiety disorder, and depression	• Benefitted from a psychoeducation approach to better understand his mental health issues • Aware of his mental health diagnoses, the names of his medications, their purposes, and dosages • Able to identify his symptoms and triggers related to his agoraphobia and able to identify coping strategies to ease his anxiety • Uses a self-soothing approach to cope with anxiety by keeping an object in his pocket and rubbing it when feeling anxious • Uses exercise to manage anxiety and obesity, including yoga, walking, jump roping outside, and jogging once a week • Uses his cognitive strengths to adopt a new internal narrative with reinforcement by program director and OT students • When faced with unexpected events has begun to transition from panic and catastrophizing to accepting this as a part of normal life
Primary Medical Conditions: shoulder pain and limited mobility with his arm, thoracic outlet syndrome nerve root and plexus disorder, hypertensive heart disease, bilateral edema, and high blood pressure, swelling and itchiness of his legs, obesity, hypothyroidism, and lethargy	• Underwent surgery on his left arm to relieve numbness and tingling and takes medication for nerve pain management • Obtained better footwear, takes medication, and is attempting to lose weight

Primary Occupations Deficits: Problems with ADLs, IADLs, health management, rest and sleep, education, work, leisure, social participation	• **Personal hygiene**: Developed and follows a daily personal hygiene routine but still requires occasional reminders
	• **Community Mobility**: Able to ride the subway after engaging in desensitization activities with decreasing support from OT students
	• **Financial Management**: Improved budgeting skills by recording his transactions on budget sheets, working on saving money to establish a checking account at a local bank
	• **Home establishment and management**: Ordered shelves to further organize belongings and is following weekly cleaning routine for his room and laundry
	• **Meal preparation and cleanup**: Developed shopping lists focused on buying healthy foods and nutritionally balanced meals
	• **Shopping**: Buying clothes in person
	• **Health Management**:
	  • Makes all of his medical appointments independently and keeps track of them
	  • Meets with case manager once a month to prepack all his medications, which he takes independently
	  • Bought an alarm clock so that he takes his medications more regularly
	  • Always honest when he has missed his doses and accepts the idea that he needs help with these problems
	• **Social and emotional health promotion and maintenance**:
	  • Improved in the area of advocating for himself with health providers
	  • Improved stress management skills, including participating in regular physical exercise, breathing, mindfulness routines, and visualization techniques
	• **Rest and Sleep**: Follows a healthy sleep routine and has implemented journaling before going to sleep
	• **Education**:
	  • With assistance from OT students, enrolled in a college loan forgiveness program
	  • Prohibited from taking any courses for 2 years but plans to enroll in the future
	• **Employment interests and pursuits**: Identified his employment goal, which is to complete his college degree and then obtain a job in the field of art
	• **Leisure exploration and participation**: Began to take walks more regularly with other members of the residence and create art objects
	• **Community, family, intimate partner relationships**: Expressed interest in visiting his family and forming peer relationships Participates in weekly peer-support-led virtual therapy groups

After a year and a half in the program, Mateo participated in a group assessment led by a FWII student who administered a performance-based, standardized OT assessment of executive function, the DHA, which pinpointed his strengths and identified barriers that were interfering with his functioning. These results and follow-up care facilitated his recovery by prioritizing art as an occupation that motivated him and allowed him to make mistakes and diminished his need for perfectionism. The assessment results also highlighted his connection to his family and prompted more follow-up in this area by Mateo and his team. The client was also energized by the assessment process to take more steps toward achieving his housing goal.

Medical, Family, and Psycho-Social History

Medical History

There is a family history of clinical depression and heart disease.

Family History

Mateo grew up with his mother in Arizona; his father has not been active in his life except for a brief stay after Mateo became homeless. His relationship with his mother was difficult because of her history of clinical depression and her need to work continuously to support her family. He spent most of his time with his grandmother, who was loving and supportive. His grandfather was physically and verbally abusive to his grandmother and mother. Although he never experienced abuse directed toward him, Mateo may have been traumatized by these episodes.

Psychosocial History

Mateo has no history of hallucinations (auditory, visual) or homicidal ideation, cognitive impairment, thought disorder, and only one serious episode of aggressive behavior. He has no history of suicidal attempts or behavior or active suicidal thoughts, although he has experienced passive suicidal ideation. He has not been a victim of domestic violence but has witnessed violence directed toward his grandmother and mother.

Education and Work History

Mateo completed 45 college credits at a private college but did not complete his degree. He has worked in several retail stores, stocking and bagging items.

Housing

Mateo lived in his mother's home during his 20s, but she could not manage his delusional symptoms. He lived with his father for 3 months before becoming homeless and moving into a men's shelter for 9 months. He applied for supportive housing and was admitted to transitional housing in January 2020, just before the COVID-19 pandemic.

Occupations

Since moving into the transitional housing, Mateo has participated in OT groups and worked individually with four FWII and four FWI students. These OT interventions have targeted his need for support with personal hygiene, home management, clothing management, establishing a weekly exercise routine, shopping and cooking for healthy eating, sleep management, stress management, health management, community mobility, and managing finances, including saving up for a checking and savings account. As of the completion of this case report, Mateo has been offered and accepted a supported apartment in the same housing organization and is taking concrete steps with the assistance of FWI students toward moving.

Timeline

A timeline that outlines Mateo's 2-year stay at the transitional housing program, including the episode of care presented in this case report, is provided in Table 3.

Table 3

*Historical and Current Information Organized as a Timeline**

04/2019	Entrance into shelter
07/2019	Applied for supportive housing
12/19/2019	Intake at transitional housing
01/2020 – 12/31/2020	No OT services at residence. All FWI and FWII placements were cancelled because of COVID
02/2020	Case manager administers Residential Functional Assessment
02/2021	Case manager administers Residential Functional Assessment
02/2021-05/2021	Mateo participates in individual and group OT (FWII students)
05/2021-07/2021	Mateo participates in individual and group OT (FWII student)
07/19/2021	Case Report Episode of Care: Mateo participates in DHA Group
11/2021	Mateo participates in individual and group OT (FWI students)
12/2021	Mateo plans to fly to a family visit but cancelled because of COVID
04/2022	Mateo packs up for move into supported apartment (with FWI student assistance)

Note. *Includes the period from Mateo's becoming homeless to his living in transitional housing and preparing to move into a supported apartment and the episode of care focused on in this case report, which was his participation in the DHA assessment of executive function.

Diagnostic Assessment

The DHA was originally designed as an individualized assessment, like most performance-based cognitive assessments. However, during its initial implementation phase with clients who were formerly homeless and with mental health and substance use diagnoses, many clients felt anxious and threatened by the testing process (Raphael-Greenfield et al., 2018). The program director of the transitional housing program where the DHA was initially piloted suggested that clients would enjoy building their own model homes in a group setting, would feel less tested in a social situation where they could exchange ideas and encouragement, and might reveal more about themselves and their actual day-to-day cognitive functioning in a group setting (Raphael-Greenfield & Grajo, 2021). The final part of the DHA consists of a questionnaire about the DHA experience, which the clients fill out individually, either on their own or by dictating their answers to the therapist; their responses are scored as part of the total DHA score (Raphael-Greenfield et al., 2018).

The authors of the DHA also believed that busy occupational therapists would prefer administering the DHA in a group because it was more efficient and would save time in the clinic (Raphael-Greenfield & Grajo, 2021). Other advantages of the DHA for therapists are its low cost, quick setup time, and rapid scoring system. The Rasch model of measurement was used to examine the validity and reliability of the group-based DHA and confirmed its validity and reliability (Raphael-Greenfield et al., 2019).

Content validity has been established for the DHA (CVI = .85). Preliminary inter-rater reliability has been found to be high with an ICC = .98, $p < .000$, as well as internal consistency with a Cronbach's alpha of .99, $p < .000$ (Raphael-Greenfield et al., 2018). Internal validity and test reliability have been determined for the DHA using the Rasch model of measurement to analyze goodness of fit and item reliability. Seventy percent of the items indicated good fit, and the overall tool showed minimal distortion with the Rasch model. Two to five levels of executive functioning ability were detected, as well as change over time, which provides preliminary evidence for the validity and reliability of the DHA (Raphael-Greenfield et al., 2019). The DHA has also been found to have preliminary clinical utility (Raphael-Greenfield & Grajo, 2021).

The client participated in a DHA assessment group at his transitional housing residence approximately one and a half years after entering the residence. He joined a group of four other clients, the residence director (the primary author of this article), and two FWII students (one of whom administered the DHA).

The program director and the OT students wanted to evaluate Mateo's cognitive functioning and to better understand the internal and external barriers that were interfering with his occupational performance and attainment of his housing goal. Mateo was also selected for this assessment because he valued making things with his hands, had set housing goals for himself when he planned to move out of this residence into more independent living, and liked attending OT groups where he could keep busy and socialize with other clients. To increase his motivation for participation, another client with whom he was friendly and who also enjoyed art projects and had participated in the DHA 1 year previously was invited as a source of encouragement for Mateo. Three other clients who had also completed the assessment 1 year prior heard that the DHA assessment group was occurring, and they insisted on joining the group because they enjoyed the activity.

Diagnostic Testing and Methods

The DHA was selected for this client because it evaluates several performance skills that are the building blocks of cognition and executive functioning and which had not been previously evaluated for this client. These performance skills include some components that other office-based executive function assessments of routine behavior do not evaluate. The skills that are assessed by most executive function evaluations, including the DHA, are the following: initiation, termination, sequencing, problem-solving, organization, following directions, logical thinking, safety, and judgment, working memory, self-monitoring, and error detection. Aspects of executive function that the DHA elicits, unlike other assessments of routine behavior, include the following: generation of ideas, abstraction, sustained attention, object use, flexibility, emotional regulation, persistence, and stamina. Because the DHA is administered in a group setting, which more closely resembles natural social situations and involves clients in a novel activity, the results of this performance-based assessment have more ecological validity than most office-based, pencil and paper tests of executive function; the DHA can more accurately predict real-life functioning (Raphael-Greenfield et al., 2019).

The DHA is not a norm-referenced evaluation where we compare results to those of other people. The DHA is meant to be an ipsative assessment because it is based on the participant's previous performance rather than against external criteria or any established normative standards (Raphael-Greenfield et al., 2018). The scoring system of the DHA collects both ordinal and qualitative data. The participants are scored on three different scales: the DHA Construction Scale, which measures problem-solving, organization, following directions, object use, and generation of ideas; the DHA Performance Scale, which measures initiation and termination, sequencing, attention, emotional regulation, safety, and judgment; and the DHA Questionnaire Scale, which measures self-monitoring, error-detection, flexibility, persistence, stamina, working memory, flow experience, and cultural sensitivity. The maximum amount of time allowed for the design and constructive portion of the activity is 60 min. Higher scores indicate less cognitive impairment (Raphael-Greenfield et al., 2018).

The DHA begins as participants, working either individually or in a small group, gather around a table that can comfortably accommodate the model-building activity. Specified tools and art materials, which are described in the DHA manual, are placed on the table. The instructions, which are read aloud, are to design their own dream home while following three rules: (a) use all types of materials and a variety

of tools appropriate to the task; (b) include at least four home functions and an outside area in the model; (c) when completed, it must be three-dimensional and free-standing. The evaluator explains all the tools and materials and provides a simple demonstration of materials and tools. Pictures of completed DHA models and home design magazines are provided, and a 5-min practice period is allowed. This is followed by a 5-min home planning visualization exercise. The instructions conclude with the opportunity to ask questions and reminders that physical and cognitive assistance may be provided if needed. The DHA Questionnaire can be completed independently by individual participants or can be adapted for those with greater literacy needs, for example, read aloud with answers dictated to the administrator (Raphael-Greenfield et al., 2018).

The assessment is available, free, and downloadable online at Columbia University, Programs in OT Faculty Innovations, https://www.vagelos.columbia.edu/education/academic-programs/programs-occupational-therapy/faculty-innovations/dream-home-assessment. There were no financial challenges to accessing this testing, and the test acknowledges cultural diversity.

Diagnostic Challenges

On the morning of the assessment, Mateo arrived 10 min late to the group, stating upon arrival that he had not slept well the night before. During the assessment, he expressed strong negative emotions, which interfered with his performance. Mateo was the only novice at this activity, except for one of the FWII student therapists, who demonstrated strong executive functioning and appropriate social skills. During the group, Mateo compared his model negatively to the others in the group several times. His model, in fact, was well constructed and demonstrated problem-solving, logical sequencing, and the ability to follow directions. Although all were supportive of his work, his tendency to compare himself negatively to others was heightened by this uncomfortable social experience. Unlike the experience of most clients who prefer taking the DHA in a group because of the absence of feeling tested, Mateo reported feeling threatened by the group setting.

Diagnosis (Including Other Diagnoses Considered)

Mateo's mental health diagnoses were not changed based on this assessment, although his problems with agoraphobia and social anxiety disorder were confirmed and will need to be addressed more fully by the team. His executive function strengths and strong occupational interests were highlighted by the experience. Both his cognitive and occupational performance abilities should enable him to address his functional ADLs and IADLs problem areas, including reconnecting with his family and taking steps to obtain more independent housing.

Informed Consent

Informed consent with written documentation was obtained from the participant as part of an expedited IRB review, Protocol Number: IRB-AAAT7085, from the Human Research Protection Office at Columbia University Medical Center. The consent form is available on request.

Results

Assessment Results and Interpretation

Mateo received a 10/11 for his Construction Score, 1/9 for his Performance Score, and an 11/13 for his Questionnaire Score, bringing his total DHA Composite Score to 22/33. His high Construction Score revealed that he has very good planning and sequencing skills when it comes to specific tasks and appropriately using materials and tools. His logical thinking, judgment and safety, and organization skills were demonstrated by his planning and executing of his model. He demonstrated the capacity for creative problem-solving while using the materials to create an original hammock. Although he became

overwhelmed by anxiety and stopped for about 15 min during the construction, he remained in the group until its completion, cogently explained his model to the other members, and verbally completed the questionnaire with a FWII student.

His poor showing on the Performance Score pinpointed how his social anxiety and agoraphobia derailed his performance; he received negative scores for the following components: attends, expresses positive emotion, sequences, and inquires. The client constantly compared himself and his abilities to others, which held him back from reaching his potential. He was worried about being judged and jealous of other people's success. He judged himself harshly, spoke negatively about himself, and had trouble completing his model. During the group, when others complimented him on his outdoor design, he had trouble accepting this praise. He froze when trying to design his interior spaces in his home, which may suggest the additional impact of agoraphobia on his functioning. In social situations where he must try something new, he gets overwhelmed by anxiety, making him inflexible and hesitant to ask for help. As he tried to make everything "perfect," he began to put in low effort and gave up when he felt he could not reach perfection.

His 11/13 Questionnaire Score captured several strengths when he revealed his insight, ability to reflect on his performance, and strong self-monitoring skills. He was self-aware and able to reflect on and identify his errors and the emotions he was feeling throughout the assessment. He was insightful and open, especially when speaking about the influence of his past and the positive steps he can take in the future. He was open to feedback, responded well to reassurance and advice, and was motivated to improve. He also demonstrated flexibility when he acknowledged he had left out some important home functions, which he would include if he were to do it over again. His responses to the questionnaire allowed him to open up about his positive associations and culturally sensitive memories about his family (grandmother, aunt, uncle, and cousins) and his future aspirations to visit family and live with a partner, which was new information for his team.

Client Perspective on the DHA

As part of the DHA assessment questionnaire, Mateo's perspective on the assessment experience was gathered. He was asked two prompts about the assessment experience. First, he was prompted with, Tell me about one positive feeling you experienced while doing the DHA and one negative feeling you experienced while doing the DHA. He said, "I felt happy, accomplished, and motivated from completing the hammock. I felt jealous of how other people's homes turned out." He was then asked, How satisfied are you with your results? "6/10. I like my backyard, but I would like to add more rooms, more decorations, and make it more colorful."

Follow-up and Outcomes

The FWII and FWI students, the program director, and his on-site case manager have worked to incorporate intervention recommendations based on the results of the DHA that focused on Mateo's cognitive and occupational strengths; social anxiety deficits; and his desire to do art, visit his family, and move into more independent housing. Two weeks after the administration of the DHA, the FWII student completed her fieldwork. Mateo reacted strongly to her departure by not participating in any individual sessions or OT groups. On her last day, the program director and student met with Mateo to put up shelving in his room, and he had the opportunity to process his strong feelings about termination.

Since then, the program director, case manager, and FWI students have used these intervention suggestions as helpful guidelines. Mateo has been taking his medications more regularly, keeping his room tidier, and accepting offers from other residents to take walks; in addition, his attitude is less pessimistic.

He planned a trip to see his family in Arizona, including booking his own airline tickets, renting a car, and making a hotel reservation; however, the trip was canceled because of COVID. When he was recently accepted for a supported apartment in the same housing organization, he wanted to be sure he could continue obtaining OT services. According to the program director, Mateo is less anxious and is "putting the pieces of his life back together."

Discussion

Strengths of Approach to This Case

One of the strengths was that the formal standardized assessment of executive function confirmed the clinical impressions of the treatment team about Mateo's strong executive functioning. It also confirmed his strong occupational interests and his capacity to achieve greater independence in many different IADL/occupational performance areas, including home establishment and management; health management; social and emotional health promotion and maintenance; rest and sleep; education; leisure exploration and participation; and community, family, and intimate partner relationships. Consideration will be given to the completion of his college degree through a supported education program once his college loans have been forgiven.

Another strength was that the assessment reminded the client and his treatment team of his passion for art and model-building. This suggested to the team that evidence-based art interventions could aid him in recognizing and managing his perfectionism and give him space to make mistakes. An additional asset to the approach used in this case report was that the questions posed at the end of the assessment reminded the client of positive childhood family experiences that had not been shared with his supported housing team before and that were germane to his current goal setting activities, including planning a family visit.

The assessment process unexpectedly highlighted the different types of anxiety Mateo experiences, including social anxiety and agoraphobia. Before the DHA group, Mateo's unusually high levels of perfectionism and acute sensitivity to the criticism of others had not been targeted. The assessment group was uncomfortable but also a therapeutic moment that was instructive for Mateo and his team.

Administering an assessment more than halfway through treatment allowed the treatment team to establish some familiarity with the client's general functioning, his trust in the evaluation process, and to pinpoint occupational areas that required more intensive evaluation.

Limitations of Approach to Case Report

One of the limitations was also the timing of the assessment, which came at the end of the OT student's FWII. This timing coincided with the challenging termination process for Mateo and made it more difficult to implement the recommended interventions. A further limitation was that Mateo, a novice with the assessment, participated in a group with other clients and staff who had previously participated in the assessment, which intensified his negative reaction to the experience. It would be interesting to re-administer the DHA in the future to observe if the occurrence of Mateo's performance errors decreased, e.g., if his internalized perfectionism continued to be a barrier for him.

Discussion of Relevant Medical Literature

Occupational therapists contribute to the evaluation and rehabilitation of functional cognition by developing and using standardized performance-based executive function assessments (Helfrich, 2011; Raphael-Greenfield, 2012; Raphael-Greenfield et al., 2019; Merryman & Synovec, 2020). In performance-based OT assessments that are carried out in natural settings that mimic the real-life

circumstances of clients, results can be unexpected but more meaningful because they are more reflective of the client's true functioning in the real world.

The program director of this transitional housing residence appreciated OT's consistent focus on functional cognition and its important contribution to the interdisciplinary treatment team in community practice. Mateo's participation in a group that used a performance-based, standardized OT assessment of executive function identified his strengths and the barriers that were interfering with his functioning (Raphael-Greenfield et al., 2019; Raphael-Greenfield & Grajo, 2021). It provided new intervention strategies for the treatment team and impetus for Mateo to take steps toward recovery and his housing and occupational performance goals. The model-building and design components of the DHA reminded Mateo and his team of his passion for art. His artistic interest and skills were evident in his astute observations about other group members' models, his choice of colors, his use of and rationale for choosing a variety of materials, and his recollection of aesthetically pleasing places he had experienced as a child. Because of his social anxiety and extreme sensitivity to criticism, the occupation of art would be a powerful therapeutic intervention for him where he could make mistakes and not suffer dire consequences and address past negative feedback. There is evidence from the literature on anxiety that perfectionism can be reduced by involvement in art occupations (Byrne et al., 2010; Chambala, 2008).

The findings of this case report support the presence of FWI and FWII student programs to augment the Housing First Approach, which prioritizes the transition of the homeless population into more permanent housing by providing intensive primary care services (National Alliance to End Homelessness, 2016). Mateo did not spend a long time in a shelter; received appropriate levels of support and rehabilitative services, including OT assistance, in the transitional residence; and has been accepted into a supported apartment in the same supportive housing organization. This result confirms Fanelli and Nadeau's (2021) research findings that OT students contribute to holistic, client-centered care in community settings that cannot afford to pay the salaries of occupational therapists.

Research has established that mental health services can be enhanced by the presence of FWI and FWII students when agencies cannot afford to hire occupational therapists (Fanelli & Nadeau, 2021). A survey of professionals at psychosocial sites in the community about the inclusion of OT FW students resulted in a positive assessment of their input to the treatment team, especially the contribution of OT to holistic, client-centered care (Fanelli & Nadeau, 2021). A case study approach was used to document the efficacy of two OT FWI students in an inpatient psychiatric unit who were assigned the "sickest patient." The students employed the concepts of emotional intelligence, cultural competence, spirituality, and therapeutic use of self as well as their understanding of iPhone technology to facilitate this patient's improvement as demonstrated through his occupational and social re-engagement (Raphael-Greenfield et al., 2017).

Mateo also benefitted from the OT FWI and FWII student program because the students were trained to view clients holistically, in terms of their physical and mental body structures and functions, and because this training enables them to provide trauma-informed care (Swarbrick & Noyes, 2018; Torchalla et al., 2019). In this case report, many of Mateo's medical and psychiatric conditions may have their origin in his traumatic childhood home, where he witnessed abuse. As an adult, he experienced high levels of stress and found helpful OT groups focused on stress management and the development of coping skills. His use of motor and sensory activities, such as regular physical exercise and the self-soothing rubbing of a small object as part of his therapy, confirm findings that OT interventions are contributing to the trauma-informed intervention literature (Torchalla et al., 2019; Van Der Kolk, 2014).

Mateo benefitted from the inclusion of an occupational therapist on the treatment team because the OT students focused on his strengths rather than his disabilities and carried out many individual and group activities that focused on life skills, social interaction skills, and occupational engagement, which have been found to effective with this population (Marshall, Cooke et al., 2021). They also worked with him in the community on in situ mobility training by helping to de-sensitize his fears of traveling by subway (Rider et al., 2021). These findings contribute to the research needed to evaluate OT interventions that target the transition from homelessness more fully (Marshall, Boland et al., 2021).

The rationale for our conclusions is based on careful documentation of the assessment process, the outcomes of the assessment experience, and follow-up with the treatment team since the assessment.

Conclusion

The value of using a standardized, performance-based OT assessment that can be carried out in a group setting, and the value of administering an assessment more than halfway through treatment, were demonstrated in this case report. This experience unexpectedly highlighted the following: the importance of art as an occupation that was motivating for Mateo; his difficulties with social anxiety, which had not been sufficiently addressed previously; his goal of re-connecting with his family; and his being able to build a model of his future home, which re-energized him toward achieving his housing goal. This case also demonstrates the value of having OT as part of the interdisciplinary mental health treatment team in the community, both in terms of providing new ways of looking at client functioning by administering performance-based standardized assessments and developing creative, evidence-based, trauma-informed interventions that address impairments by using personal strengths. OT helps both clients and staff translate abstract housing goals into practical, achievable everyday tasks and activities.

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