Cultural Diversity in Neuropsychological Assessment
Developing Understanding through Global Case Studies
Farzin Irani, Desiree Byrd

Neuropsychology and Rehabilitation in the Portuguese Context

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Section I: Background Information

Terminology and Perspective

Persons who live in Portugal are called Portuguese. Our perspective is that of Portuguese neuropsychologists, trained mainly in the North of Portugal and who collaborate with colleagues throughout the country and from various foreign institutions. Additionally, we have links to the Higher Education system in (neuro)psychology, both as Professors with advanced specialization in neuropsychology by the Ordem dos Psicólogos Portugueses (OPP; T.N.: Portuguese Psychologists Association) and as PhD students. We share a common interest in research and clinical practice. Thus, our experience of working together reveals our effort to integrate theory (traditionally associated with the academic environment) and practice (traditionally associated with clinical contexts) as crucial to the development and implementation of neuropsychology for high-quality practice in Portugal.

Geography

Portugal is a country in Southern Europe, with a total area of 92,212 km². It is part of the Iberian Peninsula, along with its only neighboring country, Spain. It is located on the extreme southern point of Europe, with a privileged location for import and export. It comprises more than 4 million km² of sea area and is the biggest coastal state of the European Union. Portugal is composed of the continent and two archipelagos, Madeira and Azores. It is organized in 18 districts in the continent and 2 autonomous regions corresponding to the archipelagos.

History and Government

Portugal was founded in 1143 with the celebration of the Zamora Treaty, which recognized the legal status of Portugal as an independent kingdom. Portugal was a monarchy until October 5, 1910, when the first Portuguese Republic was established. Thus, Portugal is one of the oldest nations in Europe, with eight centuries of history. After World War I, a dictatorship settled in the country until April 25, 1974. On this day, a major coup overthrew the dictatorship, and a democracy was established and has been maintained. Portugal was integrated into the European Economic Community (later named European Union) in 1986 and has since then been integrating and actively contributing to the European Union.

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People

Most Portuguese have typical Mediterranean features like brown hair, brown eyes, and a height of less than 6 feet. Characteristics and traces of the Moorish period can be seen in southern Portugal, in both the physical type and the way of life, and characteristics of Germanic tribes can still be seen in the north of the country, such as some persons being taller, light-haired, and light-eyed. In the course of millennia this mingling between people, combined with the country’s isolation from Spain and the rest of Europe, gave rise to a population structure that was homogeneous and distinctively Portuguese, both ethnically and culturally. The Portuguese can be described as easy-going, welcoming, and friendly, who highly value their family and friends with whom they love to celebrate life with around amazing Portuguese food and wine. They are most welcoming to tourists and immigrants, which is one of the main reasons for a mix of cultures and traditions found in Portugal. Traditionally conservative, the younger generations have assumed a much more liberal stance. The attitudes in the northern part of the country are more formal and conservative, while those in the south are generally more casual and relaxed. It is an aging population, due to the decrease in birth rate and to emigration of younger generations. Currently, 10,259,909 persons live in Portugal, of which approximately 14% are younger than 14, approximately 64% are between the ages of 15 and 64, and approximately 21% are older than 65. The period between 2001 and 2019 observed a reduction of the total number of residents in the country under the age of 64, while residents over the age of 65 grew, with a current aging index of 136.2 elderly per 100 young people. This has an impact on late-life brain disorders relevant for neuropsychologists.

Immigration and Relocation

The number of emigrants has been decreasing since 2014 after reaching the maximum value of this century with a peak of more than 130,000 persons exiting Portugal. This is 134,624 in 2014 compared with 77,040 in 2019. In recent years, the Portuguese have emigrated mainly to countries like the United Kingdom, Spain, Switzerland, France, and Germany. Outside Europe, the main destination countries for Portuguese emigration are part of the Community of Portuguese Speaking Countries (CPLP): Angola, Mozambique, and Brazil. There has also been a recent Portuguese emigration tendency to Eastern Europe, with the most common destination being Holland, Luxembourg. France has traditionally been the country in the world with the greatest number of Portuguese emigrants, due to the great wave of emigration in the 1960s/1970s. Countries with strong Portuguese permanence are also Switzerland, the United States, Canada, the United Kingdom, Brazil, and Germany. Several countries have registered a decrease in the last year, such as the United Kingdom, Angola, Brazil, Switzerland, Germany, and France, while an increase was seen in countries like the United States or Belgium.

Language

The official language spoken by residents in Portugal is Portuguese. Portuguese derives from Latin, which was spoken in ancient Rome, and brought to Portugal by Romans. Portuguese is the fifth most spoken language in the world, with around 280 million speakers. Nowadays there are eight countries with Portuguese as their official language (e.g., Angola, Brazil, Cape Verde, Mozambique, São Tomé and Príncipe, East Timor). There are also derivations according to the regions of the country where it is spoken. This is an important aspect for international neuropsychologists to be aware of if they are working with interpreters.

At the beginning of one of the author’s professional activity, when taking part in a national team validating children’s intelligence tests, the author was confronted with the impact of differences
in accents and regionalisms. There was confusion among words such as “abelha” and “a velha” (“bee” with “the old woman”) or certain objects that have different designations according to the region (e.g., hoe in Portuguese could be enxada, sacho, sachola). This required careful attention with developing, validating, and scoring neuropsychological tests.

**Communication**

In the past, many health care professionals were trained according to the biomedical model in Portugal. This model prevailed for decades and viewed medical professionals as the main authority responsible for diagnosis and intervention. Today, according to the biopsychosocial model, the importance of a therapeutic relationship, and a patient’s active role in their treatment is recognized. Training in verbal and non-verbal communication patterns is carefully attended to when training Portuguese health care professionals to help with therapeutic adherence, patient satisfaction, experience of care, and other biological and functional health outcomes. There are communication particularities that should be taken into account when in consult with Portuguese citizens. For example, people in rural areas usually treat health professionals with more reverence, but they tend to be more informal and friendly than in large cities. Men of older generations usually prefer to be treated by their surnames. It is also common to greet with a handshake. Nowadays it is most appropriate to ask by what name they prefer to be treated.

**Education and Literacy**

The education system in Portugal integrates preschool education (from 3 to 6 years old), basic (from 6 to 14 years old), secondary (from 15 to 18 years old), and university (above 18 years old) education. The state, in particular the Ministry of Education and the Ministry of Science, Technology, and Higher Education, is responsible for regulating the system. Currently, compulsory education covers grades 1 to 12. University education is not compulsory or free to Portuguese citizens at the present time. Recently, partly due to the establishment of a higher level of compulsory education, residents in Portugal have obtained higher education levels, with concurrent reduction in school dropout rates and improved mathematical, reading, and sciences competences. Nevertheless, while these improvements have been beneficial for younger generations, adults and older adults who come for neuropsychological assessments may not always have basic or secondary education completed. In 2019, there was a total of 559,800 Portuguese people aged 15 or older without any education, and 1,904,300 had completed up to a fourth-grade education.

In Portugal, the rate of early school dropouts has fallen steadily and is very close to the European target established for 2020 (maximum 10% of young people leaving the education and training system without obtaining a secondary level qualification). This was 10.6% in 2019, compared to 43.6% in 2000. More and more young people are pursuing higher education. In 2019 the figure was 36.2%, which has tripled since 2001. However, the abandonment rate when pursuing a degree is also high at 29%. In regards to literacy, formal reading and writing in Portuguese language are taught throughout school. The compulsory education is of 12 years. It starts when the student is 6 and ends at age 18. The obligation to learn English in the third year of the first cycle (students who are 8 years old) started officially in the academic year 2015/2016, extending to the fourth year in 2016/2017. The most recent data are from 2011, when 499,936 (340,231 female) Portuguese residents were considered illiterate. This is worth considering when designing a neurocognitive assessment protocol since it can limit the use of some well-established neuropsychological tests (e.g., Trail Making Test, when the education level is under the fourth grade). In the past, we have seen the use
of objects available in a clinical office, such as staplers, or graphic representations of objects (e.g., 4 inverted to represent a chair) to test object recognition. In these unstandardized situations, it is important to keep in mind that failed responses could reflect clients’ education level and not necessarily cognitive impairment. Also, when there are lower formal schooling levels, it can be difficult to use information and communication technologies and even virtual environments since they might require the use of computers, tablets, or mobile phones that are likely to be out of reach for many.21,22

Values and Customs

Portugal is a country that is very rich in traditions and customs. Some of them are exclusive to Portugal. This includes music (e.g., fado), dance (e.g., Pauliteiros de Miranda), gastronomy (e.g., conventual sweets), customs and rituals (e.g., “Caretos de Podence”), and wine (e.g., Port wine). There are several traditions that had fallen out of favor but have been proudly recovered in recent years, even by the younger generations (e.g., certain costumes, fashion props, decorative objects, music, dances). These traditions coexist peacefully with new habits and customs developed from immigration, emigration, and tourism.

Gender

Portugal has a long tradition as a sexist and patriarchal country that has made it difficult for women to access a variety of roles that have typically been considered male responsibilities. Due to the extraordinary impact of the patriarchal and conservative authoritarian regime (from 1933 to 1974), during many years Portugal lagged behind other Western European countries in terms of indicators and policies on gender equality.23 Despite its young democracy, the country has come a long way and current legislation enshrines values such as equality, freedom, and human dignity, including in relation to gender equality and sexual and reproductive rights. Yet, the process of transposing law into practice has not been always easy or fast. Social change in terms of gender equality and family life started to become evident during the 1980s.23 Despite machismo being marked in Portugal in the past, this tendency has been attenuated during recent years. Nevertheless, it is worth noting that it is still possible that psychologists have to work with persons who have this norm rooted, especially with older persons.

Spirituality and Religion

Portugal is a secular state. The Catholic religion is the most practiced despite progressive decline since the fall of the fascist regime. The latest major study on religion in Portugal revealed that the number of Portuguese Catholics has decreased in recent years, along with an increase in other religions and non-religious Portuguese.24 While mainly a Catholic country, it is also pluralistic, with several examples of initiatives that bring together efforts of several religious and non-religious institutions (e.g., Portuguese Refugee Support Platform).

Health System

In 1971 a Decree-Law (nr. 413/71 of September 27)25 declared the lawful right of all citizens to health services and created the Ministério da Saúde e da Assistência [Health and Assistance Ministry] responsible for regulating the role of the state for development and regulation of health politics.26 In 1979, by the Decree-Law nr. 56/79 of September 15,27 the National Health Service
was established, with main goals of making access to health services universal, general, and free. Currently, this service is a coexistence of public and private entities and is organized in five health regions, namely North, Center, Lisbon, Vale do Tejo, Alentejo, and Algarve, and 18 health sub-regions, corresponding to the districts of Portugal. This service is constantly improving, adapted in accordance with the state, institutional, and population’s needs. The career of psychologists in the National Health Services has been included in the Superior Health Technicians category since 1994, by the decree-law nr. 241/94. Nonetheless, neuropsychological services are still scarce in the National Public Health System, and mainly under the umbrella of Neurology Services.

Acquired brain injuries (ABIs) are an important public health issue in Portugal since they are one of the main causes of death and disability. Cerebrovascular diseases such as strokes caused 11,235 deaths in 2018 and are one of the main causes of disabilities in the country, along with cancer. Higher stroke prevalence rates and high levels of comorbidity have a significant impact on the affected person, their social support network, and the Portuguese society in general. In addition, approximately 275,000 Portuguese suffered a severe traumatic brain injury (TBI) in the past 25 years, mostly related to road traffic accidents, workplace accidents, and falls. Yet, there has been a reduction in TBIs in Portugal over time, with 137 cases per 100,000 residents in 1997 to 65 cases per 100,000 residents in 2014, which is mainly attributed to the preventive measures for workplace and road traffic accidents implemented in Portugal. This was also observed in the mortality rates, with higher mortality rates in older adults and higher incidence, hospitalizations, and mortality in males. Finally, brain tumors are also associated with significant consequences to the person itself and their social support networks and represent 2.1% of all cancers in Portugal, with 1,225 new cases every year.

Rehabilitation System

The rehabilitation system in Portugal is strong and aims to provide those with acquired and developmental disabilities with greater participation in social and economic life to maximize autonomy. In the last decades, Portugal has made significant progress in policies and practices for people with disabilities. The road to providing better health and social support care to persons with disabilities started in 1979 with the creation of a rehabilitation and employment service for people with disabilities. This Employment and Vocational Training Institute focused on their professional and social integration. The translation of the International Classification of Impairments, Disabilities and Handicaps for Portuguese, in 1989, provided a conceptual definition of these phenomena and helped both professionals and members of the government to better understand and frame it. From there on, a series of decree-laws has focused on improving the quality of life of persons with disabilities, ensuring their rights both at professional, healthcare, and psychosocial levels. The last one was a resolution of the Council of Ministers, in 2010, that defined a National Disability Strategy where the Portuguese State committed to promote, protect, and guarantee decent living conditions for people with disabilities with implications for economic, social, and cultural rights. Despite the progress, it is still possible to identify areas of weakness and optimize the use of resources, including a view to adapting services to citizens, and to increase the number of available interventions and their efficacy, effectiveness, and efficiency.

Neuropsychological Approach

Neuropsychology emerged in Portugal as a clinical discipline toward the end of the seventies/early eighties. Prior to this period, research was focused on diagnosis and treatment of behavioral changes as a result of stroke, with particular focus on language changes. The hiring of
professionals from Clinical Psychology to hospitals occurred after 1974 during a period that marked the beginning of democratic life in Portugal. This contributed to the emergence of multidisciplinary models, which were considered to be technically and scientifically autonomous, among which clinical neuropsychology was born. In the mid-1980s, Neuropsychology Hospital Units emerged and had varying degrees of administrative autonomy, depending on statutes of the Health Units and Hospital Centers; however, neuropsychology’s coverage at the national level was reduced. At universities, there was a great investment in neuropsychology in the nineties, with the inclusion of several curricular units in neuroscience and research that contributed to increases in masters and PhDs being awarded.

Currently, OPP, a professional public association representing professionals in psychology, created by Law No. 57/2008, recognizes neuropsychology as an advanced specialty in clinical and health psychology. Among the different contexts, Portuguese neuropsychologists focus on health, education, and justice, with roles that extend to different clinical contexts, schools, educational centers, early intervention centers, private institutions for social solidarity, nongovernmental organizations, projects or programs for continuous care, National Institute of Legal Medicine and Forensic Sciences, insurance companies, rehabilitation centers, or courts.

From a training perspective, psychologists who specialize in neuropsychology must, among others, present competencies in assessment and neuropsychological rehabilitation, namely psychometry through the use of clinical interview techniques and standardized instruments, knowledge of psychopathology, and the neurobiological correlates of cognitive and affective phenomena, among others. The advanced specialty in neuropsychology is attributed by the OPP, through a process where the curriculum of each psychologist is evaluated by the specialty board through the following criteria: hours of professional practice, training (congresses, workshops, conferences, and seminars, among others), and other elements (supervision and intervision sessions, research projects, internship supervision, among others). Additionally, candidates should present a written report, or a paper published presenting a case study, the assessment of an intervention, or the report of a project that is also assessed by the specialty board. The Portuguese Society of Neuropsychology [Sociedade Portuguesa de Neuropsicologia (SPNPsy)] was founded in 2017 and aimed to promote Portuguese neuropsychology and its members’ professional and scientific training, and within its legal scope, promote the conditions of good practices in the exercise of the profession. Most of the instruments used in neuropsychological assessment in Portugal were translated and culturally adapted from English language tests, but Portuguese normative data, mainly organized by age and sex groups, are available. Nevertheless, some tests are developed in Portugal.

Section II: Case Study — “I Exist beyond My Diagnosis; Diagnosis Does Not Define Me”

Note: Possible identifying information and several aspects of history and presentation have been changed to protect the patient identity and privacy.

Presenting Concerns

Miguel (fictitious name), male, aged 26 years old, was admitted to CRPG—Centro de Reabilitação Profissional de Gaia [T.N. CRPG—Gaia Vocational Rehabilitation Centre], on October 11, 2019. He came accompanied by his parents, who were both in their 50s and employed full-time. Miguel’s father led the interview and explained that his son had been at home since being discharged from
the hospital after brain tumor (low-grade glioma in the fronto-temporo-insular region) removal surgery on February 27, 2019.

Miguel initially had two epileptic seizures, and although he did not show focal neurological signs, he showed marked changes in behavior prior to tumor identification. He had disinhibition and high anxiety and was having difficulty performing tasks in the professional context with frequent forgetfulness of requests. After the tumor was identified, he was immediately taken for surgery, but the entire tumor could not be resected. He underwent right pterional craniotomy for partial removal of an astrocytoma. He subsequently showed behavioral frontal lobe dysfunction (impulsivity, irritability, high levels of anxiety, vivid dreams, greater appetite for sweets) and had slightly affected cognitive dysfunction in attention, short-term memory, and executive functions.

Miguel and his family came to CRPG after being referred by a neuropsychologist in a Portuguese Hospital, for support in the rehabilitation process, with a request to emphasize emotional and behavioral cognitive rehabilitation. Specifically, both Miguel and his family reported good physical-functional recovery, without motor sequelae, but had other concerns about his functioning. Post-traumatic epilepsy was still in the medication adjustment phase, so they were concerned about possible crises and Miguel's need to be accompanied. They were also concerned about Miguel's professional work. He was on medical leave without clinical authorization to resume his duties as a cook's assistant, since his work was very demanding, with long schedules and high pressure and stress. As a result, the family was eager to receive professional rehabilitation support and guidance.

**Daily Functioning**

Miguel's parents noticed that post-surgically, their son had become more irritable, aggressive, and impulsive. They mentioned some unusual behaviors such as gnawing on the cuticles of his hands, shaking his leg, walking from side to side inside the house, greater exaltation, active dreaming, and the emergence of an eating disorder with a greater appetite for sweets. At the cognitive level, they reported difficulties in naming, language comprehension, and attention. Since the surgery, Miguel also did not want to be alone due to fear of epileptic seizures. He went with his father to the studio/atelier where he works (family business) or stayed at home with his maternal grandmother. He did not have any structured daily activities, had stopped driving, and was less autonomous even in personal activities of daily living.

**Educational and Vocational History**

Miguel was a high-achieving student during basic education up to ninth grade. In high school, he chose a science and technology course of study. After completing high school, Miguel entered a public University in Civil Engineering. He tried for two years to be successful with his academics, but since it was a very rigorous program (especially in mathematics and physics), he gave up. In 2016 he decided to join a professional cooking course. After graduating, he worked in several restaurants as a cook. He had an opportunity to work in England but returned home a few months later due to behavioral changes, high anxiety, and difficulties remembering instructions. At the time, these signs were interpreted as difficulties adapting to the new cultural context in England. After returning to Portugal, he started to work in a restaurant where he had previously worked until his diagnosis.

**Language Proficiency**

Miguel had good language skills, both oral and written, in Portuguese. He spoke English fluently, mainly as a result of his stay in England. As his native language is Portuguese, he was evaluated in this language.
Cultural History

Miguel is original and resident in the North of Portugal. Originally from a working family, his mother works as a secretary and his father is a goldsmith, belonging to average socio-economic status. As an only child he regrets the absence of a sibling in his life.

He presented with strong family ties to his grandparents, uncles, and cousins. His family has been his main social support network through his rehabilitation since social integration at school had been difficult for him, and he had limited social relationships outside his family.

Emotional Functioning

Miguel’s adolescence was marked by depression, deep feelings of worthlessness, difficulty in accepting his image, and suicidal ideation. He had panic attacks at school which led to avoidant behaviors, isolation, and rejection by his peers.

At the time of his evaluation, and at the beginning of his rehabilitation program, his most visible traits were high anxiety and impulsivity. He also had fast and repetitive speech, impatience, intolerance to noise, restlessness, and emotional deregulation (intensity and adequacy), for which he had little awareness. These aspects of his personality changes were difficult for him and his family to manage.

Test, Norm Selection, and Results

Miguel arrived at CRPG in October 2019 with a neuropsychological assessment carried out in September of the same year in an inpatient hospitalization context.

The assessment was conducted in European Portuguese, with the European Portuguese version for all tests and Portuguese validation norms. From this previous assessment, we came to know that Miguel was comfortable with the assessment procedures, was cooperative, and exhibited a satisfactory engagement in all the assessment tasks with no signs of malingering. According to this previous assessment, deficits were found in attention (mainly for visual information), in naming by auditory description, in visuoconstruction abilities with significant difficulties in planning and precision in the copy of Rey’s Complex Figure, in visual memory, and in some of the assessed executive functions (reasoning, cognitive flexibility, and perseverative errors in graphomotor sequences). Additionally, a preserved performance was found in tasks that involved visuospatial performance, language (including in verbal fluency tests), learning, verbal memory, and decision-making.

On a self-report scale, high anxiety symptoms were reported, and on a neuropsychiatric inventory, completed by Miguel’s parents, mild to moderate symptoms of psychomotor agitation, aggressive behavior, anxiety, disinhibition, aberrant motor behavior (biting nails and cuticles until they bleed), and eating disorder were identified. Cognitive, emotional, and behavioral difficulties were considered significant enough for his integration into a holistic neuropsychological rehabilitation program.

Considering these results, we performed an additional assessment prior to the integration of Miguel on the holistic neuropsychological rehabilitation program provided by CRPG. All the applied tests were in European Portuguese, and the norms used to interpret the scores resulted from Portuguese validations of those tests (for sex, age, and educational level), except for the Wisconsin Card Sorting Test in which the American norms were used. As in Miguel’s assessment in the hospital context, in the complementary assessment Miguel exhibited a cooperative and engaged posture in all the assessment tasks, revealing a good comprehension level of the instructions given and no signs of malingering. The results are presented in Table 24.1.
Table 24.1  Neuropsychological assessment results

<table>
<thead>
<tr>
<th>Domain assessed</th>
<th>Test</th>
<th>Results (M; SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Assessment of Mental Status</td>
<td>Montreal Cognitive Assessment (MoCA)&lt;sup&gt;49&lt;/sup&gt;</td>
<td>27/30 (M = 27.39; SD = 1.86)</td>
</tr>
<tr>
<td>Premorbid intelligence</td>
<td>TelPI: Teste de Leitura de Palavras Irregulares&lt;sup&gt;50&lt;/sup&gt;</td>
<td>Full-scale IQ: 115 (M = 100; SD = 10) Verbal IQ: 116 Performance IQ: 111</td>
</tr>
<tr>
<td>Attention and concentration</td>
<td>D2 Test of Attention&lt;sup&gt;51&lt;/sup&gt;</td>
<td>Information processing speed: 484 Accuracy: 188 (M = 421.86; SD = 77.61) Overall Performance: 471 (M = 154.09; SD = 37.45) Concentration: 187 (M = 394.09; SD = 74.74) Performance stability: 7 (M = 15.46; SD = 5.53) Precision: 2.7 (M = 6.68; SD = 6.77)</td>
</tr>
<tr>
<td>Executive functions</td>
<td>INECO Frontal Screening&lt;sup&gt;52&lt;/sup&gt;</td>
<td>20.5/30 (M = 24.6; SD = 2.8)</td>
</tr>
<tr>
<td></td>
<td>The Stroop Color and Word Test&lt;sup&gt;53&lt;/sup&gt;</td>
<td>Word reading: 82 (M = 91.1; SD = 28.1) Color reading: 74 (M = 68.3; SD = 21.6) Color-word reading: 49 (M = 42.3; SD = 15.4) Interference: 10 (M = 2.3; SD = 12.6)</td>
</tr>
<tr>
<td></td>
<td>Wisconsin Card Sorting Test&lt;sup&gt;54&lt;/sup&gt;</td>
<td>Number of categories completed: 0 (%ile ≤ 1) Perseverative errors: 30 (%ile = 3)</td>
</tr>
<tr>
<td></td>
<td>Trail Making Test (TMT)&lt;sup&gt;55&lt;/sup&gt;</td>
<td>TMT—A: 22 s (M = 52; SD = 37) TMT—B: 45 s (M = 113; SD = 71) B – A: 23 s (M = 66; SD = 51) B/A: 2 (M = 2.5; SD = 1.0) B – A/A: 1 (M = 1.5; SD = 1.0) A + B: 67 (M = 160; SD = 96) A × B/100: 9.9 (M = 69; SD = 95)</td>
</tr>
<tr>
<td>Memory</td>
<td>Weschler Memory Scale—III; task Faces&lt;sup&gt;56&lt;/sup&gt;</td>
<td>Faces I: 4 (M = 10; SD = 1.5) Faces II: 4 (M = 10; SD = 1.5) Retention: 100%</td>
</tr>
<tr>
<td></td>
<td>Weschler Memory Scale—III; task Verbal Paired Associates&lt;sup&gt;56&lt;/sup&gt;</td>
<td>Memory Acquisition: 13 (M = 10; SD = 1.5) Delayed recall: 7 (M = 10; SD = 1.5) Recognition: 100%</td>
</tr>
<tr>
<td>Working memory</td>
<td>Weschler Memory Scale—III&lt;sup&gt;56&lt;/sup&gt;</td>
<td>WM index: 90 (M = 100; SD = 15) Copy: 19.5 (M = 31.17; SD = 3.62) Reproduction: 13 (M = 18.9; SD = 5.41) Type of drawing: III</td>
</tr>
<tr>
<td>Perception and visual memory</td>
<td>Rey's Complex Figure&lt;sup&gt;57&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Verbal comprehension</td>
<td>Token Test&lt;sup&gt;58&lt;/sup&gt;</td>
<td>22/22 (M = 21.7; SD = 0.3)</td>
</tr>
<tr>
<td>Mood stability</td>
<td>Hospital Anxiety and Depression Scale&lt;sup&gt;59&lt;/sup&gt;</td>
<td>Anxiety: 10 (mild symptomatology) Depression: 1 (no symptomatology)</td>
</tr>
<tr>
<td>Quality of life</td>
<td>Quality of Life after Brain Injury (QOLIBRI)&lt;sup&gt;60&lt;/sup&gt;</td>
<td>Cognitive: 54 (M = 60.6; SD = 20.7) Self: 83 (M = 58.5; SD = 17.4) ADL: 68 (M = 56.3; SD = 20.0) Social: 83 (M = 59.6; SD = 17.9) Emotional: 40 (M = 61.6; SD = 26.1) Physical: 70 (M = 58.7; SD = 14.6) Total: 68 (M = 59.1; SD = 14.6)</td>
</tr>
<tr>
<td>Functionality</td>
<td>Glasgow Outcome Scale—Extended (GOS-E)&lt;sup&gt;60&lt;/sup&gt;</td>
<td>6—Upper Moderate Disability</td>
</tr>
</tbody>
</table>
Preliminary Formulation

No signs of malingering were identified both on the hospital assessment and on the additional assessment performed in CRPG. Although no stand-alone performance validity test was applied due to the inexistence of signs, the recognition score of the WMS-III Verbal Paired Associates (100%) suggests that Miguel applied is full-effort during the assessment procedures.

Overall, formal testing showed frontal lobe and executive dysfunction. The assessment showed significant evidence of attention and memory difficulties in the work context, especially in situations of stress and pressure.

Ecological assessment was carried out through a guided interview with the client and his parents, which aimed to explore the difficulties in the activities of daily living and in the professional context. From this interview, it became clear that in the professional context Miguel was, at the time of the assessment, unable to respond to the demands of his job function: his work pace was slower, he forgot what he was asked for, and in the face of failures and difficulties he reacted in an impulsive and inappropriate way (catastrophic response). This inappropriate behavior, characterized by mood fluctuations, was reported by the parents at home and confirmed by Miguel. Miguel recognized his difficulties, but he still had difficulty managing his behavior. Associated with these cognitive difficulties were emotional and behavioral changes. The influence of these difficulties was so marked that Miguel was considered unfit to exercise his cook’s functions. Cognitive, emotional, and behavioral changes are potentially disabling in a professional context and represented difficulties for Miguel’s autonomy in daily living activities. His clinical condition had also not fully stabilized (ongoing adjustment of anti-epileptic medication), and the need for chemotherapy, radiotherapy, or new surgery was being evaluated in case his tumor grew. Our plan was to monitor Miguel's progress and provide psychological support to deal with the uncertainty inherent to his clinical and work status. We agreed that Miguel was a good candidate for our intensive day rehabilitation program.

Rehabilitation Program

Miguel participated in a holistic neuropsychological rehabilitation program from November 2019 until May 2020. Usually, the CRPG program is 23 week-long, but the lockdown due to the COVID-19 pandemic in March 2020 imposed the suspension of services.

The holistic neuropsychological rehabilitation program is an intensive day-care program of 23 weeks with 30 hours per week. The program is focused on neuropsychological and physical rehabilitation with individual and group activities. It includes several structured interventions on neuropsychological rehabilitation, psychotherapy, mindfulness meditation, communication and interpersonal skills training, information and communication technologies skills training, employability, personal and social autonomy, physical therapy, speech therapy, and occupational therapy. The program is based on a therapeutic community with groups of ten patients and a multidisciplinary team.

Miguel’s therapeutic goals were to increase emotional regulation, regulate impulsivity, and help him to develop social filter. The program also aimed to manage his attention and memory difficulties, help him develop tolerance, improve autonomy, and redefine his professional work.

Outcomes

Miguel joined the program with a very positive attitude. The context of the therapeutic community among other Portuguese brain-injured residents allowed him to establish a safe space to understand difficulties associated with his brain injury. Adherence to compensation strategies was also achieved as he became a systematic user of external aids for memory and executive functions (for example, electronic calendar, reminders, checklists). Mindfulness techniques allowed
him to better regulate his emotions and impulsive behavior. Adjusting his medication for epilepsy also facilitated stability.

Due to confinement at the end of the program, it was not possible to repeat the initial neuropsychological assessment. Notwithstanding, we had the opportunity just before this interruption to reassess his executive functioning skills through the Wisconsin Card Sorting Test (WCST). He completed all categories after 85 trials without any perseverative errors.

Most importantly, Miguel gained autonomy in daily life, which was important for his identity as the only son in a Portuguese family. For instance, he was able to use public transportation on his own and cook family meals. This post-traumatic growth reflects the positive mental shift experienced as a result of adversity. Specifically, for relationships, he learned to value friends and family more than he did in the past. For self-esteem, his challenges had given him a deeper inner wisdom, personal strength, and gratitude. The survival experience also helped him accept his vulnerabilities and limitations and change his life perspective in the direction of appreciation, new possibilities, and more flexibility. Both Miguel and his parents reported positive gains after the rehabilitation, primarily regarding his personality since he was more sociable and developed a more positive attitude about his clinical condition. This growth is mirrored in the following excerpt retrieved from a text he wrote for his final celebration during the rehabilitation program: “I exist beyond my diagnosis; the diagnosis does not define me. I learned that my best is not my maximum; I feel like I am a different person after the surgery.”

Miguel’s progress has been monitored with follow-up sessions. Miguel is currently attending a secretarial course with the goal of working in a back-office context doing professional tasks more appropriate to his current needs.

In addition to the course, Miguel joined an adapted rowing club, where he conducts daily training. He has been feeling well integrated into this group, recognizing both the physical well-being that results from his new sports activity and the emotional well-being that is related to camaraderie and team spirit.

As had happened previously with the rehabilitation program due to the pandemic, it was necessary to switch the training course to an e-learning format. His digital skills have enabled him to fully participate and engage in the course activities in this format.

Currently, the course is being conducted within a b-learning format with success. In addition to academic and professional gains, both Miguel and his parents report stable gains on an emotional level. Disinhibition behavior and changes related to high anxiety are significantly reduced (e.g., Miguel has stopped biting his nails). His participation in the adapted rowing training has also positively contributed to this result. The practice of sport, especially a team sport, has been very beneficial for his physical and mental health. It is expected that Miguel finishes his course next November and engages in a future professional activity.

Section III: Lessons Learned

- As Portugal is a democracy, every citizen should be treated as equal, and their personal values, customs, and beliefs should be respected within the process of neuropsychological assessment and rehabilitation.
- Being a small country, Portugal does not have significant cultural differences between regions, although some of them have different traditions. Nevertheless, some differences in communication styles and in the language (e.g., accents and regionalisms) should be considered when communicating with persons from different regions and when developing, validating, and scoring neuropsychological tests that involve language abilities.
- Most Portuguese citizens have formal education. The educational level of Portuguese people has been growing in the direct way of the establishment of higher levels of compulsory...
education. Nevertheless, there are still Portuguese persons who have not completed any formal education (i.e., 12.6% (9.7% female)) nor have completed at least four years of formal education. This should be taken into account when designing both neurocognitive assessment and rehabilitation protocols.

- The model that currently prevails in healthcare services in Portugal is the biopsychosocial model, in which the importance of the therapeutic relationship and the patient’s active role in their rehabilitation process is recognized.

- It is important to note that the European Portuguese language differs significantly from other versions of the Portuguese language, spoken in Brazil or in other Portuguese-speaking countries such as Angola, Mozambique, Guinea-Bissau, Timor-Leste, Equatorial Guinea, Macau, Cape Verde, and São Tomé and Príncipe. Thus, the instruments are only valid for the country in which they were adapted and validated.

- Changes in emotional and behavioral aspects can be highly disabling due to their repercussions in terms of cognitive functions. In a situation of great anxiety, the person is less able to recruit cognitive functions and often goes into survival mode with a fight-flight or freezing response. It is essential that neuropsychological rehabilitation programs take this issue into account and that they are effective in creating a safe and trusting environment. This includes the development of a therapeutic alliance focused on understanding, acceptance, and support. Understanding these mechanisms of automatic responses facilitates the development of emotional regulation strategies. Throughout the development of our program, we have included mindfulness and self-compassion strategies with good results both in attentional capacity, in emotional regulation, and in acceptance.

- We always learn from our clients, but this time we learn something beyond what we could have imagined: two weeks from completion of the rehabilitation process when we were surprised by the COVID-19 pandemic. We had to restructure our whole life from one day to the next and adapt to this new situation: accepting constraints to keep ourselves safe, managing resources, and taking care of ourselves and of those who need our support. Since then, the clinical team has grown even closer to their clients. Closer by the joint experience of this abrupt and unexpected change to which we are still adapting. Probably some clients have already overcome greater challenges than these and have already been in far more complex and threatening arenas! We learned with their resilience in the face of adversity, we lived with them the limitations of confinement. The expression never seemed so right before: we were all in the same boat.

“If you want to go fast, go alone. If you want to go far, go together” – African Saying

Unpredictability

I had surgery for the removal of a brain tumor on February 27, 2019. After two weeks, I was discharged. A few months later, I underwent a neuropsychological assessment and my neuropsychologist referred me to the CRPG because I needed cognitive rehabilitation.

My rehabilitation process began on November 5, 2019. I learned to deal much better with one of my main problems, which is dealing with the unforeseen.

Some examples of this obstacle are:

- Deal with traffic
- Deal with the unforeseen or something that gets out of my control
- Travel in a cluttered subway
- Understand that the subway might break down
- High-pitched noises
• Children crying
• Places with lots of people
• Very noisy places

All of this causes my brain to suffer too much stimulation and to have an immediate response or to be unable to control my emotions and my behavior.

So, at CRPG I learned some compensation strategies to face the unforeseen more positively, which are mainly:

• Listen to music
• Meditation (act and react)
• Breathing
• Distance:
  • To regulate my internal reaction
  • To provide a more weighted response
  • To be a fuller and kinder human

Some safety signs make me feel calmer and trust what will happen next. These are:

• Feelings of:
  • Group
  • Confidentiality
  • Belonging
  • Tranquility
  • Equality
  • To think that I am a normal person, just like the others, despite my difficulties.

Finally, I consider myself to be a different person than the one who started rehabilitation in 2019. I learned that I am not the only one to feel or think in a certain way and that others are going through the same and with whom I can count for support and attention.

I also realized that not everything deserves my attention or dedication. But above all, I accept much better who I was, who I am, and who I will be.

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Glossary

**Atelier.** Local work of an artist or craftsman that works independently (e.g., architecture atelier or sewing atelier). In some cases, it may also be designated as workshop or studio.

**Intervision.** Group sessions where smaller groups of participants (e.g., professionals, trainees, or volunteers) with similar backgrounds exchange experiences without the guidance of a
facilitator. The main aims are to learn from the experience of colleagues and peers and address work issues that need clarification or are perceived as problematic by team staff.

**Portuguese Psychologists Association (T.N.: Ordem dos Psicólogos Portugueses, OPP).** Professional association in which psychologists must be enrolled in order to exercise their professional activity.

**Portuguese Refugee Support Platform.** Portuguese platform of civil society organizations involved in refugee work in Portugal whose aim is to support the hosting of refugees in the current humanitarian crisis.

**Further Readings**


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