Cultural Diversity in Neuropsychological Assessment
Developing Understanding through Global Case Studies
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Approach to Neuropsychological Assessment of Moroccan Patients in the Netherlands

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Section I: Background Information

Terminology and Perspective

People from Morocco in the Netherlands are generally referred to as Moroccans or Moroccan Dutch etc. However, people from Morocco may prefer to be referred to in other ways. For instance, people from the Berber* minority may choose to be referred to as Amazigh or Moroccan Berber. Throughout the chapter, we will use Moroccan to refer to people originating from Morocco's geographical area and only make ethnic distinctions when relevant.

We are clinical neuropsychologists mainly affiliated with public hospitals in two major cities in the Netherlands, where many immigrants live. We have worked with diverse groups in clinical and research studies. Currently, Özgül Uysal-Bozkir (ÖUB) focuses on the work at the university as a researcher and teacher. Sanne Franzen (SF) and Miriam Goudsmit (MG) are both clinicians and researchers. It is essential to notice none of us have a Moroccan background. ÖUB is a Turkish Dutch citizen, and SF and MG belong to the ethnic Dutch majority. We base our knowledge primarily on our experiences working with the Moroccan community.

We will start the chapter by providing some general knowledge of the country of origin to outline a person's possible background present in clinical practice. However, it is essential not to make premature assumptions. Overgeneralization may lead to incorrect assumptions or unfortunate moments, such as in the example below:

I (ÖUB) was born in the Netherlands, but I spent a lot of time in Turkey, my parents' country of origin. As a 2nd generation Turkish Dutch, I come across prejudice quite often. An example is when the entire team received a bottle of wine as a Christmas gift, and my colleagues subsequently asked me if I wanted to exchange my bottle of wine for something else. They assume that, as a Turkish, and therefore (probably) Muslim, I don't consume alcohol – which is not the case.

Geography

The Kingdom of Morocco is a country located in the Maghreb region of Northern Africa along the Atlantic Ocean and the Mediterranean Sea. Algeria and Western Sahara border it. It also still shares borders with two enclaves considered a part of Spain—Ceuta and Melilla. Morocco’s

*The word “Berber” may have a negative connotation to some, but in this publication, we use it neutrally and alternated with “Amazigh” for stylistic reasons.

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topography varies as its northern coast and interior regions are mountainous, while its coast features fertile plains where much of the country’s agriculture takes place. Morocco has a population of approximately 35.5 million people. The capital is Rabat, and the largest city is Casablanca. From the Netherlands you can travel to Morocco by car and ferry, which takes about 2 to 3 days. By plane, the journey takes 3 to 4 hours.

**History**

Morocco has a long history that has been shaped by its geographic location on both the Atlantic Ocean and the Mediterranean Sea. Its history records a struggle for ascendancy, and from the 18th century, influenced by European powers. Here we briefly outline significant events: From 1667 onward, the Alaouites dynasty has been the ruling dynasty of the Moroccan royal family. From the 15th century, there were influences from Europe, such as the Portuguese. At the end of the 19th century, Morocco declared bankruptcy, which was also indirectly the result of repeated attempts to colonize the area. In the Treaty of Fes (1912), Morocco agreed to Spanish and French protection. Morocco gained its independence back from France (1956). From the 1990s, the regime evolved toward more democracy and political reforms. In 1996, Morocco was given a new constitution, and in 1999 Mohammed VI became king. He saw the need to establish closer ties with the West and increase foreign investment in Morocco. The Kingdom of Morocco is a semi-constitutional monarchy with an elected parliament.

**Immigration and Relocation**

People move from their homeland searching for better personal, social, financial, or political conditions. Common reasons for Moroccan people migrating include economic opportunity and family reunification.1 After the Second World War, the Dutch industry needed low-skilled labor workers, and many of these first-generation “guest workers” who came to the Netherlands in the 1960s and 1970s were recruited from Morocco. They hoped to earn money in a short time to provide a better future for their family back home. However, most of them did not return because their home countries’ economic and political situation remained low, so they stayed in Europe permanently.

From 1975 to 2020, the Moroccan population in the Netherlands grew from 30,481 to 411,000. About two-thirds of the Moroccans in the Netherlands come from the Rif mountain region along the north coast, the south in Agadir (Souss) and Ouarzazate. In the Netherlands, most Moroccans mainly live in the four largest cities: Amsterdam, Rotterdam, The Hague, and Utrecht.

When gathering history, attention should be paid to migration history and acculturation experiences, which can be affected by age at the time of migration, educational backgrounds, world-views, cultural identity changes, and socio-economic status changes after migration. The decision to relocate to a different country and culture, leaving behind family and friends, is an important and life-changing event. Our experience is that a gracious and sincere interest in this aspect of their lives helps patients feel more comfortable in an unaccustomed situation. Many patients will be pleasantly surprised to find out that the neuropsychologist knows something about their hometown.

**Language**

In Morocco, a wide variety of languages are spoken. Besides different forms of Arabic (Modern Standard Arabic (MSA) and Moroccan Arabic), French, and Spanish, three Berber languages
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are spoken. Moroccans learn MSA at school and it is used in administrative offices and schools. Moroccan Arabic is the spoken native vernacular, spoken by about 85% of the population. The rest speak one of the Tamazight (Berber) languages. Moroccan Arabic, along with Berber, is one of two languages spoken in homes and on Morocco’s streets. These languages are not used in writing.

The first generation of Moroccan migrants living in the Netherlands are mostly not educated. About 70–80% of Moroccans originate from the Berber-speaking Rif mountains. Although there may be overlap between dialects, knowledge of one language or dialect does not imply competence in another. This is important to keep in mind when working with interpreters and translators. Accurate gathering of language history in each spoken and written language is critical.

In general Moroccan elderly have limited proficiency in the Dutch language; they rate their command of the Dutch language as bad to mediocre. Second- and third-generation Moroccans master the Dutch language.

MG: When introducing myself, pronouncing my first name (Miriam) rather than the harder-to-pronounce family name (Goudsmit) will often elicit a response of recognition from Moroccan people, since Miriam (or Maryem/Maryam) is a widespread name in Morocco.

Communication

In the Moroccan culture, respect for seniority and age are highly valued. Also, educated persons like medical doctors are authority figures, and it is considered impolite to contradict them. It is essential to acknowledge that a more indirect or “low context” communication style is more common. Older people will not openly disagree with or ask questions about the advice doctors give but may not always follow the advice.

Some communication patterns are tied with religious habits, especially for first-generation Moroccans in the Netherlands. For example, it is not common for women to have contact, or a conversation, with a man who is not part of the family. Shaking hands with somebody from the opposite gender is uncommon.

Education

Until 1963, efforts were concentrated on universalizing education and combating the country’s 96% illiteracy rate. The authorities then took concrete measures such as building new schools. Primary education (age 6–12) was made compulsory and free for Moroccan children.

Currently, Morocco’s secondary education system is divided into two three-year stages: lower and upper secondary school and a tertiary (higher) education system. Although more than 95% of school-aged children in Morocco are now enrolled in primary school, the education system still faces significant challenges. Drop-out rates are still high, and teacher absenteeism and a multilingual environment at school contribute to Morocco’s low literacy rates. The new law (2019) aims to increase the quality and accessibility of the education system: primary education will be made available from age four. The first stage of secondary education, lower secondary, is currently compulsory.

Not only quantity but also the quality of education should be considered when interpreting neuropsychological test results. Has someone been educated in a small village school or at a private school in the city? There may be large differences between the two. Also, low educational attainment is often based on accessibility or opportunity rather than ability.
Literacy

Illiteracy is relatively widespread among older generations. In rural areas, where most first-generation Moroccan migrants originate, the only educational opportunities were at the primary-school level. Most first-generation Moroccan men do not finish more than primary school or “Quran school”, while most Moroccan women have even less schooling or are illiterate. Experience with holding a pen is limited. While neuropsychological testing relies on skills like reading, writing, mental calculation, and drawing, the use of measures with better ecological relevance is necessary.

Socio-Economic Status

Over the past decades, substantial development has stimulated the economy and provides opportunities for rural areas. Nonetheless, the difference between rural life and city life remains. Moroccans in the Netherlands generally have a low income and low socio-economic status, with 85% of older Moroccans rating their income as too little to live from. Medical insurance is covered for all citizens in the Netherlands, which significantly facilitates access to care. However, not all care facilities are equally accessible to (older) migrants who might experience language and cultural barriers and have difficulty finding their way in the different care institutions.

Values and Customs

Generally, in traditional Moroccan families, family-centrism, inter-dependence and collectivism, religiosity, respect, and hospitality are essential. The role of the family is important, and medical decisions are generally taken together with family members. Older patients expect their children to care for them, leading to tension between second- and third-generation descendants, who have children, jobs, and parents to take care of.

Spirituality and Religion

Historically, in the period preceding Islam, North Africa came under the influence of both Judaism and Christianity. Morocco has oscillated between periods of religious tolerance and intolerance. Following independence in 1956, Morocco established a constitution that re-established Islam as a state religion. Officially, 99% of the population is Muslim. Paying attention to religion’s critical role or spirituality for a Moroccan can help acknowledge worldviews and develop recommendations consistent with those views. Religious and spiritual issues may play a positive role in maintaining health and recovering from illness; for example, when patients experience their disease as a spiritual ordeal, which can generate hope and resilience. On the other hand, diseases might be experienced as a punishment from God, leading to feelings of guilt and despair.

Health Status

In Morocco, the life expectancy at birth rose by seven years between 1990 and 2012 (from 64 to 71 years). Morocco is witnessing a significant shift in its epidemiologic profile with an increasing burden of non-communicable diseases, which currently account for approximately 75% of all deaths in Morocco (cancer, metabolic diseases, including diabetes and cardiovascular disease, account for 40% of the leading causes of death).

Comparable findings are also reported among Moroccans living in the Netherlands. Although literature is scarce, we know that general health problems are higher among (older) migrants.
and lower wellbeing: experiencing feelings of loneliness and depression. Moroccans are at an increased risk of medical conditions associated with cognitive impairment, such as stroke, diabetes mellitus, and dementia.

**Mental Health Views**

Due to language barriers, limited knowledge on existing (neuro-)psychological services, and cultural differences, many Moroccans in the Netherlands do not seek help for mental health problems. Older Moroccans generally visit their general physician regularly, but they will not be inclined to bring up mental health complaints. Shame or stigma around mental health problems is common. Also, many Moroccan patients fear gossip in their community, which sometimes leads them to refuse an interpreter's help from their community. Clinicians should be aware of differences in idioms of distress, as patients may express stress and other psychological symptoms differently, such as by emphasizing bodily symptoms like headaches.

**Approach to Neuropsychological Evaluations**

Neuropsychology is a relatively new field of study in Morocco itself. For a long time, professionals wanting to work in neuropsychology could only receive such training abroad (e.g., in France). In 2009 a formal Master's degree program was initiated in Morocco itself, followed by doctorate level training (2012). Neuropsychologists in Morocco often use tests developed in French, but recently, some of these tests have been adapted for Moroccan-Arabic speakers. Administering these tests in French or Arabic allowed for the assessment of higher educated Moroccan patients. Still, patients who are illiterate or are not fluent in these languages remain hard to assess.

In our clinical work in Europe, we mainly see Moroccan patients in a memory clinic setting. Several hospitals in the Netherlands provide dedicated services for patients with a minority background (multicultural memory clinics). In general, the staff are from a majority background, who do not speak the language(s) of their patients. Several multicultural memory clinics therefore provide interpreter services to their patients. Also, since many older patients with a Moroccan migration background have had little education, professionals in these memory clinics are more aware of the importance of ecologically valid data about their daily functioning rather than solely relying on neuropsychological test results. To quantify daily living activities, sometimes an occupational therapist is asked to assess relevant activities of everyday life, such as preparing (Moroccan) tea.

In the SYMBOL study (2010–2013), the Cross-Cultural Dementia (CCD) screening test was validated, with specific norms for Moroccan people. The current TULIPA study (2017–2021) aims to adapt and validate international neuropsychological tests and develop several new instruments to provide tools for an in-depth neuropsychological assessment in memory clinic patients with a culturally, educationally, and linguistically diverse background (See Appendix for a list of applicable tests).

To prepare patients for their visit to the memory clinic, we provide an illustrated information booklet developed for first-generation immigrant patients in large, clear, colored images, accompanied by concise and easy-to-understand sentences. Furthermore, patients and their families seem to find it helpful to receive a call a week in advance of their appointment so that they can ask questions about the purpose and practicalities of their visit. These initial phone calls also allow the introduction and planning of an interpreter. Sometimes, children prefer to serve as interpreters for their parents. After explaining that the interpreter is merely present as an additional set of
ears and eyes for the neuropsychologist—e.g., helping them look for subtle language changes—most agree with the interpreter’s presence.

I (SF) remember one elderly lady who was unwilling to discuss her previous experiences of physical abuse by her former husband in the presence of their daughter. Once she could speak freely without her daughter present, it turned out she was worried she had acquired brain damage from the physical abuse. We explained that the MRI scan indicated no damage to her brain and conveyed to her how worries, sadness, and anxiety may lead to cognitive symptoms. She agreed to being treated by a psychiatrist to work through some of her past experiences.

The neuropsychological evaluation typically consists of a two- to three-hour session as part of a comprehensive diagnostic work-up. Patients are referred after an initial evaluation by a neurologist or geriatrist in the outpatient clinic. At the neuropsychological assessment, we spend a lot of additional time getting acquainted and building rapport. We know that patients and families might be afraid that a Western-born neuropsychologist will not fully understand their experiences or serve their interests because of negative experiences in society toward foreign-born people or Muslims. We take our time to explain that we will try to understand the patient and their loved ones in their cultural context. In the initial interview, we often rely on questions from the Dutch version of the Cultural Interview17 to familiarize ourselves with our patients’ cultural perspectives, language preferences, and immigration history. Subsequently, we take our time to explain the procedure and possible neuropsychological assessment outcomes to the patient. At first glance, it may be hard for some patients to relate the tests to their complaints about activities in daily life. They may indicate that the tests are childish or decline further testing, stating that they are “not crazy.” Therefore, I (SF) explain to my patients that some tests are easier, and others are harder for a reason. I often use the metaphor of getting a car checkup every year. Even though your car may still be running—although with some minor issues—occasionally, you want to check out all of its parts, even if the pieces appear to be in good condition.

Section II: Case Study — “I Know All Prayers by Heart, If Only I Wouldn’t Get So Distracted”

Note: Possible identifying information have been changed to protect patient identity and privacy.

Background

In this part of the chapter, we follow one of our typical patients in a multicultural memory clinic.

Behavioral Observations

Mr. Boulahrouz, age 71, was referred to the multicultural memory clinic by his general practitioner. He came with his wife, daughter, and son. Mr. Boulahrouz was neatly dressed and wore a traditional knitted cap called a *kufi*. The present interpreter was a bilingual (Tarifit-Dutch) student of medicine, trained in interpreting during neuropsychological assessments and familiar with the instruments used. Mr. Boulahrouz made an effort to answer in Dutch wherever he could but eased into speaking his mother tongue with the interpreter. Mr. Boulahrouz presented most of his complaints by himself, but his daughter sometimes clarified or corrected his story, often in Dutch, so her father would not understand and she would not unduly embarrass him. It seemed that Mr. Boulahrouz was aware of his cognitive difficulties but sometimes lacked insight.
Although he seemed concerned about his mental problems, he was generally in a good mood. We explained that the neuropsychological assessment consisted of an interview and tests and subsequently asked Mr. Boulahrouz whether he experienced any cognitive complaints.

**Presenting Concerns**

For a year, Mr. Boulahrouz has been experiencing some memory problems. He sometimes forgets appointments or buying certain items at the grocery store. He needs to write everything down so he will not forget. His daughter is concerned about her father's memory problems, which seem to progress over time. She is afraid Mr. Boulahrouz has dementia, as several of his relatives developed dementia-like symptoms later in life. Mr. Boulahrouz sometimes forgets about major celebrations and seems disoriented in time. He might be surprised at the mosque crowds, not realizing that it is Friday, the most important day of prayer for Muslims. I (SF) then indicated that I know a little about prayer rituals and asked Mr. Boulahrouz whether he has any cognitive difficulties when praying. Although he knows all prayers by heart, he finds that he quickly gets distracted, such as by noises in another room. Sometimes, he loses track of the number of prayer cycles he still has to complete. He does not experience any complaints in other cognitive domains. He can do most of the activities in his daily life by himself. He reports that he can still fix his car when necessary (although his family reports he has not carried out any repairs over the last two years).

**Daily Functioning**

Mr. Boulahrouz lives with his wife in an apartment in a multicultural neighborhood. Mr. Boulahrouz does not engage in many regular activities. He sleeps in, goes to the mosque to pray and socialize, makes himself a cup of Moroccan tea, and enjoys a good meal at night prepared by his wife. Every once in a while, he goes to the local store to buy groceries. At times, he helps out organizing and cooking at events at his local mosque—he can help come up with a list of dishes to prepare and general planning. Although Mr. Boulahrouz opens the mail and looks at the content, he has always needed help from his children in financial administration and reading difficult letters.

**Health History**

Although healthy as a young man, the later decades of Mr. Boulahrouz's life have plagued health problems. He experiences pain in his knees from doing heavy labor for years. As a result, he is not very active, has gained weight, and suffers from type II diabetes.

**Educational History**

As a child, Mr. Boulahrouz went to a “Quranic school” where he learned to recite Quran verses by heart and was first confronted with the Arabic language (although he did not yet learn to read write in it). He spent one year in the local public primary school. However, when his father passed away, Mr. Boulahrouz had to help work so the family could make ends meet. Even though he did not receive any more formal training, he informally learned to read and write in Arabic to a lesser degree.

**Language Proficiency**

Growing up, Mr. Boulahrouz spoke Tarifit with his family members. While living in the Netherlands, he learned to speak some Dutch. Mr. Boulahrouz can read easy sentences in Dutch.
and Arabic and read a newspaper (although he does not fully understand it). After retiring from work, he spoke Dutch less and less.

**Cultural History and Acculturation**

Mr. Boulahrouz grew up in a small rural Berber village in the Rif mountains. He was the second oldest of several brothers and sisters, of which two died at a young age.

Mr. Boulahrouz met his wife through an arrangement that his mother made with his (future) wife’s parents. In 1970, one of Mr. Boulahrouz’s relatives came to the Netherlands to work. Mr. Boulahrouz became determined to follow in his footsteps and make money to sustain his family by working in Europe. Mr. Boulahrouz and his wife spent only a little time together as a married couple before he was bound for Europe. As his birth had not been formally registered, like many of his peers, he put a fictional date of birth on his official application forms to match the age requirements. In his case, the family estimated that his age as registered was approximately correct.

Mr. Boulahrouz arrived in the Netherlands with two addresses on a paper: his relative’s and a location for a guest worker “pension”. The inhabitants would work long days. Mr. Boulahrouz mainly did factory work. His peers and relative, who had been in the Netherlands, helped him navigate his way in the Netherlands regarding healthcare and finances. Mr. Boulahrouz saved money to take home with him. He had never expected to stay in the Netherlands. However, when a change in policies made it possible, Mr. Boulahrouz brought his wife over from Morocco.

Now, many years later, Mr. Boulahrouz agrees he sometimes misses his native country. Like many first-generation immigrants, Mr. Boulahrouz spends his long summers in Morocco. Mr. Boulahrouz and his family have noticed a change in recent decades in the level of tolerance toward people born outside the Netherlands. At first, Moroccans were welcomed into the country due to the high demand for labor workers. Currently, many Moroccans feel they are discriminated against based on their ethnic background or Islamic religion. 18 He sometimes struggles because his children have taken on a different lifestyle and hopes his children will honor traditional values and customs. After his death, Mr. Boulahrouz wishes to be buried in Morocco.

**Emotional Functioning**

During the conversation, Mr. Boulahrouz is in a good mood. He does not experience feelings of depression, anxiety, or loneliness. His daughter agrees that he is generally in a good mood.

**Test and Norm Selection**

The general practitioner and geriatrician have asked us, neuropsychologists, to determine whether Mr. Boulahrouz may be suffering from a mild cognitive impairment or dementia or whether his memory complaints could be explained by normal aging.

**Neuropsychological Assessment 1 (2018)**

For his first neuropsychological assessment, we selected the following tests:

- Rowland Universal Dementia Assessment Scale (RUDAS)\(^19,20\)
- CCD\(^6\)
Both the RUDAS and CCD have normative data available for the Moroccan population. Besides asking Mr. Boulahrouz about his writing and reading skills and educational history, we estimate these skills through a literacy screening test. We also selected mVAT, a visual-associative memory test in which the original line drawings are replaced with photographs to make them suitable for lower-educated populations. We added a few additional tests for which normative data are available from a sample that includes Moroccans from the European Cross-Cultural Neuropsychological Test Battery (European CNTB), a battery validated in Denmark, namely animal and supermarket fluency, the RPT, and the CRT. We examined memory, executive functioning, mental speed and attention, visuospatial functioning, and (to a limited degree) language by selecting these tests.

**Test Results and Impressions**

As Tarifit is not a written language, we used the (Moroccan-)Arabic version of the literacy screening test. This test showed that Mr. Boulahrouz could point out Arabic letters and read and write letters and short sentences in Arabic. We therefore decided we could administer tests that require a minimal level of literacy. On the RUDAS, Mr. Boulahrouz scored below the cut-off. He especially had difficulties retrieving the items from a grocery list. These memory impairments also showed the delayed recall of the Objects Test (part B) of the CCD, the Recall of Pictures Test, and the mVAT. On tests measuring attention and executive functioning, his performance was variable. It ranged from average on the Sun-Moon Test (attention/mental speed/inhibition) of the CCD to marginally impaired on the Dots Test A (attention/mental speed) and impaired on Dots Test B (executive functioning). In particular, the impaired performance on the Dots Test B was likely influenced by his minimal level of formal education and limited experience with abstract testing material. There were no impairments in verbal fluency, naming, or visuospatial functioning (CRT).

On the MRI scan, white matter lesions without any hippocampal atrophy were seen, pointing in the direction of a vascular origin. The routine lab did not show any abnormalities.

Conclusion: Based on the neuropsychological profile, we concluded that Mr. Boulahrouz had an isolated memory impairment that did not lead to any immediate impairments in daily living activities. As only some executive functioning tests were impaired and memory deficits were most prominent, Mr. Boulahrouz was diagnosed with a Mild Cognitive Impairment, amnestic type (aMCI).

**Follow-Up**

On finding out about the diagnosis, Mr. Boulahrouz and his family were relieved that he did not have dementia. We then took the time to explain the prognosis for aMCI patients in clear and comprehensible words. In particular, we highlighted the differences between the effects of normal aging and vascular damage to the brain, as some patients and their families may
believe that (severe) cognitive impairment is part of “normal” aging instead of a medical condition. After these explanations, Mr. Boulahrouz and his family agreed on scheduling several future visits to follow up on his aMCI every half a year. On the first few visits, Mr. Boulahrouz was doing relatively well, although he did need more and more cues to recall specific information. Two years later, Mr. Boulahrouz explained to the geriatrician that his memory problems increasingly hindered his functioning. After being interrupted in an activity, he had difficulties restarting it. He had concentration difficulties when confronted with background noise. The geriatrician scheduled a follow-up neuropsychological assessment. Aside from repeating the tests that were administered in the first assessment to detect any cognitive decline over time (RUDAS, CCD, mVAT, RPT, CRT, category verbal fluency), several tests were added that had been newly introduced or developed. We now asked Mr. Boulahrouz several questions of the orientation subtest of the Mini-Mental State Exam (MMSE) in his native language—not including the items referring to the season, department, “province,” or state, which he probably never learned. Additionally, the following tests were used:

- Naming Assessment in Multicultural Europe (NAME)
- Corsi Block Tapping Test
- Coin-in-the-Hand test
- Stick Design Test (SDT)
- Five Digit Test (FDT)

The SDT and FDT are particularly suitable for low-educated participants, as they rely on skills that most people will have acquired, even without formal education. The SDT is a test of visuoconstruction using matchsticks instead of graphomotor responses, and the FDT, a Stroop-like test, requires patients to count up to five. We added a newly developed naming test, the NAME, a test with culture-sensitive items to determine if there were any severe naming impairments, added the Coin-in-the-Hand test to see if Mr. Boulahrouz was sufficiently able to put in the necessary effort required for testing, and added the Corsi Block Tapping Test to examine his working memory. We supplemented these tests with several questionnaires. We administered the Moroccan-Berber version of the short Geriatric Depression Scale and the short IQ-Code, which we previously examined in a validation study in a multicultural memory clinic sample. We additionally administered the ALD scales and the Caregiver Strain Index+ (CSI+). This last was added to determine whether the caregivers experienced any severe burden. In our experience, informal carers of Moroccan descent emphasize that the care they give is a duty they consider as usual and a fact of life and that they are also proud to return care for their parents. However, in the Dutch society, where second-generation carers often both work, this might lead to a high burden of informal carers.

**Test Results and Impressions**

Several of Mr. Boulahrouz’s test scores had declined, particularly in memory and executive functioning. The short IQ-Code, now indicated that his family members noticed a substantial cognitive decline (average score of 4.3). Given the neuropsychological assessment results, combined with the increasing impairments in his activities of daily living and the findings on an MRI scan of extensive vascular damage, Mr. Boulahrouz was diagnosed with vascular dementia. We explained this to Mr. Boulahrouz and his family, which did not surprise the family or Mr. Boulahrouz. The geriatrician explained that they together needed to monitor his vascular risk factors as much as possible. As the CSI+ indicated that the family did not experience a severe burden of care at this point, telephone follow-ups were planned at low-frequent intervals to check in with the patient and his family.
Section III: Lessons Learned

• Given the influence of Berbers, Arabs, Spaniards, and French on Morocco’s history, Moroccan people may come from a very diverse linguistic and cultural background. It is essential to ensure that the neuropsychologist or interpreter and the patient speak the same dialect from the same region.

• It is important for patients with limited experience to be tested to help them prepare for the assessment. This may entail calling ahead to inform patients and caregivers about the practicalities of the visit and an interactive talk at the start of the visit to explain the assessment goals and the use of tests.

• Patients who did not receive any formal education due to a lack of opportunities, access, or financial means may develop literacy skills informally. It is important to ask patients about any informal learning opportunities and take these skills into account when considering which tests are valid and feasible.

• In patients who have long been dependent on others for support in their daily life activities, it is important to take the time to explore which activities are specifically relevant to them (such as performing the prayer rituals). Furthermore, it is crucial to ask the caregiver properly about such impairments through the well-validated short IQ-CODE.

• In our experience, a professional, friendly attitude and genuine interest in the experience of Moroccan elders’ complaints helps to establish rapport quickly. Also, it is useful to have knowledge about potentially less direct communication styles. Since many Moroccans in the Netherlands are low educated, health literacy skills are low, so psychoeducation about explanatory models for (mental) health issues is necessary, besides interest in and respect for the patient’s explanatory models.

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Glossary

Dynasty(ies). A sequence of rulers from the same family, usually in the context of a monarchical system, but sometimes also appearing in elective republics.

Family reunification. When children and spouses who were left behind at the time of migration come to join the principal migrant. Family formation is when a migrant comes to the Netherlands to live with their partner for the first time. The latter are often referred to as “marriage migrants.”

Tamazight (Berber languages). Also known as Berber or the Amazigh languages, are spoken by most Moroccans and in some other North Africa countries. In 2011, a constitutional amendment was introduced, giving Tamazight an official status, recognizing this language and culture as intrinsic components of Moroccan national identity.

Three main groups of Tamazight are distinguished:

• Riffian language, Tarifit or Rif Berber (the Northern Rif mountains);
• The Tarifit language can be further subdivided into several dialects, such as a Western (Al-Hoceima), Central (Nador), and Eastern (Berkane) dialect. These three regions are less than 200 km apart, yet pronunciation and wording may differ substantially between these regional dialects.
• The Tashelhit (in the South, Region Sous-Massa-Drâa);
• Tamazight (in the Middle-Atlas region).

Vernacular language. The speech variety used in everyday life by the general population in a geographical or social territory.
References


