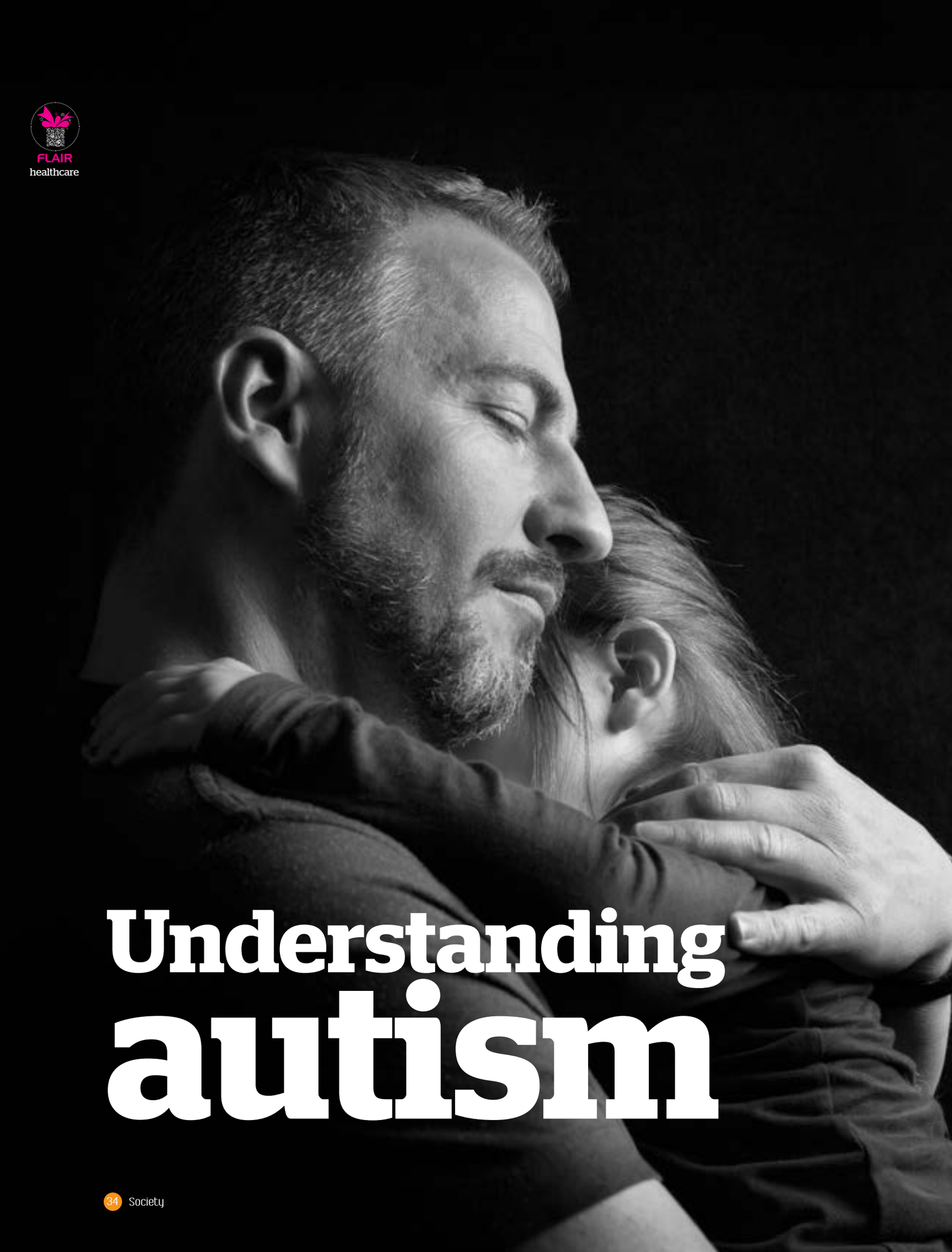

Understanding autism

While challenges remain in providing best care for autistic people, early intervention is proving to have more positive outcomes

By *Dr Fouad Alshaban*

Autism rates are rising and have seen a tenfold increase over the past 30 years. It is estimated that autism affects one in every 68 newborn children (according to Center for Disease Control, USA estimates), while World Health Organization set the prevalence rate to be one in every 100 newborn children throughout the world today. Understanding autism is more crucial than ever in raising awareness of the many factors that contribute to the development of this disorder, especially to those starting a family. While autism has no cure, early diagnosis with early intervention and intensive rehabilitation will improve the condition and offer affected children better social and communication skills. This enables the family to effectively deal with challenges faced in raising an autistic child with the care and attention they require, and deserve. Research is being done across public and private primary schools in Qatar by the Qatar Biomedical Research Institute (QBRI), part of the Hamad Bin Khalifa University, to find the prevalence rate of autism in Qatar and compare it with the global prevalence rate

Autism is a neurodevelopmental disorder that affects children before they reach their third birthday. In most cases, symptoms appear after the first year of life and are characterized by impairments in communication, social interaction, and restricted, repetitive patterns of behaviour, interests or activities. Parents of children diagnosed with autism have a 15-20% risk of having another offspring with the same disorder.

The degree to which an individual is afflicted by autism can range from "Classic Autism" to "High Functioning." This range is referred to by researchers and medical practitioners as the Autism Spectrum and the range of disorders in it are categorized as Autism Spectrum Disorders (ASD). Classic Autism is the most severe form of the disorder; where the child makes no verbal communication and does not reciprocate social interactions. On the High Functioning end of the spectrum, the end of the spectrum formerly known as Asperger Syndrome, are those with average or above average intelligence, and might not suffer from general learning challenges common to many of the ASD's. However, it is observed that they do exhibit difficulties in socializing with others.

Until now, no definitive cause for autism has been confirmed. The rapidly increasing prevalence of this disorder is considered to be multifactorial with genetic and environmental causes seen as the main contributing factors.

On the genetic side, scientists have identified over 500 individual human genes that can contribute to the development of autism. An individual having one of those genes will only have up-to a one percent chance of developing autism, as each gene only accounts for a single percentage. Usually, individuals with autism have different groups of gene compositions that contribute to the development of the disorder in a unique way that might mitigate some symptoms while exacerbating others and that is why autism usually has many other comorbidities. For instance, 30% suffer from epilepsy; 50-70% exhibit some degree of intellectual disability. Other comorbidities with varying degrees of severity include attention-deficit disorder, hyperactivity disorder, immune deficiencies, gastro-intestinal dysfunction, sleep disturbance, sensory sensitivities, and social anxiety amongst others.

As for environmental causes, studies have shown that exposure of pregnant women to certain chemicals, air pollution, household insecticides, certain pharmaceuticals such as Depakin, which is used to treat epilepsy, and some viral infections (i.e. German measles) might play a role in the causation of the disorder. It is important here to note that there are no established links between the MMR vaccine and the onset of autism,

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which coincides with the 18-20 month booster dose.

Parents should take the first step in initiating the autism diagnostic process with the family physician if they notice their child exhibiting certain characteristics. In social settings, for instance, causes for concern would include the child not maintaining eye-contact, never smiling, preferring to play alone, and not interested in other children in a playgroup. Communication concerns would include the child frequently not responding to their name, unable to verbalize exactly what they need, appearing unable to hear, and not engaging in common gestures like pointing or waving. Behavioral concerns with the child, like frequent tantrums, hyperactivity, inability or destructive way of playing with toys, repetitive action, movement, oversensitivity to sounds or textures, and an unusual attachment to common objects would also merit further investigation by a physician for ASD.

Once brought in for diagnosis, medical practitioners have two main diagnostic tools to determine if the child has autism and can use one, or both, methods to reach their conclusion. The first is known as the Autism Diagnostic Interview (ADIR), where the parents are asked 93 questions on the development of their child and answers are recorded. Results of the ADIR are then tabulated using an algorithm, and those above the cut-off are diagnosed with autism. The second tool is the Autism Diagnostic Observation Schedule (ADOSE), where a medical professional interacts with the child and observes how they respond across a variety of settings and situations. Based on how the child reacts to the schedule of activities, a diagnosis is given to the parents.

After diagnosis, while there is no cure, the available treatment options that can provide relief from the symptoms of the disorder can be grouped into the following categories; behavior/communication approaches, dietary approaches, medication, and complementary/alternative medicine.

The behavior and communication approach includes the following types of treatments. One is occupational therapy, where children are taught dressing, eating, bathing, and relating to other people. Another is sensory integration therapy; here children are taught how to cope with sensory sensitivities involving sights, sounds, smells, and touch. Speech therapy involves improving the communication skills for those children with the ability to verbalize. For children unable to talk, the Picture Exchange Communication System treatment teaches communication using symbols and gestures.

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Some dietary treatment approaches have been developed by reliable therapists. Dietary treatments are based on the idea that food allergies, or lack of vitamins and minerals, cause the flaring of symptoms. Many parents feel that dietary changes make a difference in how their child acts or feels. But many of these treatments do not have the scientific support needed for widespread recommendation. An unproven dietary regimen might help one child but not another. The Gluten-free/Casein-free diet is the most popular choice among parents with autistic children. Such changes include removing certain types of foods from a child's diet and using vitamin or mineral supplements instead.

Although not scientifically proven to alleviate symptoms of autism, some parents claim complementary and alternative medicine like hyperbaric oxygen, Melatonin supplements for sleep disorders, Omega 3, and other nutritional supplements have given them positive results.

Medication based treatment for autism symptoms should only be done in close consultation with a medical professional. It can include psychoactive or anti-psychotic medications. These medications can decrease hyperactivity, reduce stereotyped behaviors, and minimize withdrawal or aggression. Stimulants have also been found to increase focus and decrease hyperactivity in some. Anti-anxiety and anti-convulsants can help reduce panic attacks and treat those suffering from seizures.

Those seeking treatment for their loved ones affected by ASD have the following main options in Qatar. They can choose to avail the facilities and services at the Rumailah Hospital of the Hamad Medical Corporation or the Shafallah Center for Children with Disabilities, or Renad Academy in Education City or other private centers such as the Child Development Center and Tamakun school, which are specialized in offering intervention services for children with autism and other special needs.

In Qatar, QBRI's Neurodegenerative Disease Research Center (NDRC) is leading an ambitious research project in collaboration with the Cleveland Clinic and the Oregon Health & Science University, funded by a Qatar National Research Fund, which has the goal of finding the actual prevalence rate of autism in the country. A screening tool, called the Social Communication Questionnaire (SCQ), is being administered in public and private schools in Qatar to children between the ages of five to twelve. The SCQ is a series of 40 yes or no questions, the students who score above the cut-off point are then called in for a follow-up where they are put through ADIR or ADOSE tests to confirm or reject a positive diagnosis for ASD.

Also, NDRC is pioneering a cutting-edge research program to validate a new technique in diagnosing ASD through the use of an eye tracking system which will enable healthcare givers to diagnose ASD as early as six months of age. Meanwhile, NDRC geneticists are working on the identification of novel genetic causes for autism aiming at the discovery of new genes causing this disorder among the Qatari population. Initial efforts will involve whole genome sequencing of selected families in order to identify causative genetic changes