

GAIA therapeutic farm: Prospective study on multidisciplinary care efficacy

Ferme thérapeutique « GAIA » : Etude prospective de l'efficacité de la prise en charge multidisciplinaire

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ABSTRACT

Introduction: The therapeutic farm "GAIA" in Sidi Thabet is a non-profit organization created in 2009, situated in the North-Western suburbs of the capital Tunis/Tunisia. Its main aims are the day-care for and the socio-professional integration of children and young adults between age 6 and 30 with diverse types of disability through multiple activities, such as pet assisted therapy and horticulture.

Aim: to assess the potential benefits of therapeutic on-farm management.

Methods: We conducted a prospective study including 50 children and young adults aged 7 to 30 years with intellectual disabilities and/or autism spectrum disorders. Study participants were evaluated before inclusion and after 10 months of care using a self-established questionnaire collecting socio-demographic and clinical variables, an evaluation of competences, and the Child Behavior Checklist (CBCL).

Results: Mean sub scores (externalization/internalization) of CBCL decreased significantly ($p < 0.002$). Competences were significantly improved in the following domains: understanding of verbal language, gross and fine motor skills, body hygiene, spatial and temporal orientation, preschool and school learning achievements and social integration.

Conclusions: These positive initial results should encourage the further development of this initiative with support of the community.

Key words: Care farming, Animal-assisted-therapy, intellectual disability, autism spectrum disorders.

RÉSUMÉ

Introduction: La ferme thérapeutique « GAIA » à Sidi Thabet est une organisation à but non lucratif créée en 2009, située dans la banlieue nord-ouest de la capitale tunisienne. Ses objectifs principaux sont l'accueil et l'insertion socio-professionnelle d'enfants et de jeunes adultes âgés entre 6 et 30 ans en situation de handicap à travers plusieurs activités telle la médiation animale et l'horticulture.

Objectif: Évaluer les bénéfices potentiels de la gestion thérapeutique à la ferme.

Méthodes: Nous avons effectué une étude prospective sur 50 enfants et jeunes adultes âgés entre 7 et 30 ans avec trouble du développement intellectuel ou trouble du spectre de l'autisme. Les participants ont été évalués avant inclusion et après 10 mois de prise en charge en utilisant un questionnaire auto-établi colligeant les données socio-démographiques, les variables cliniques, une évaluation des compétences, et la liste de comportements pour les enfants (Child Behavior Checklist : CBCL).

Résultats: Les moyennes des sous-catégories (externalisation/internalisation) de la CBCL ont diminué significativement ($p < 0.002$). Les compétences ont significativement augmenté dans les domaines suivants : la compréhension du langage verbal, la motricité globale et fine, hygiène corporelle, orientation temporo-spatiale, les résultats d'apprentissage préscolaire et scolaire et l'insertion sociale.

Conclusions: Ces résultats initiaux positifs doivent encourager le support et le développement de cette initiative.

Mots clés: Agriculture sociale, médiation animale, trouble du développement intellectuel, trouble du spectre de l'autisme.

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INTRODUCTION

Farms and gardens have existed in hospitals for centuries. Agricultural work, animal breeding, and food production provide patients with meaningful occupations involving physical work, help with the rehabilitation process, socializing in the community and hobbies(1). This general approach has since given birth to structured treatment programs for people with mental disorders and special needs (2,3) , especially for individuals with intellectual disabilities (4).

Activities in therapeutic farms are referred to as: "green care", "social and therapeutic horticulture, "animal assisted intervention", "care farming", "facilitated green exercise as treatment", "ecotherapy", and "wilderness therapy or nature therapy" (1). Care farming is defined as the use of farms or agricultural landscapes for therapeutic means and rehabilitation, and can promote physical and mental health (5).

Participating in care farming programs has shown to diminish anxiety and depressive symptoms (2,6,7), to improve self-esteem (5), social interactions(2), and psychological wellbeing (8).

Literature has demonstrated that the therapeutic benefits stem from the agricultural activities themselves, but also from the contact with animals. Indeed, pet-assisted therapy (PAT), is considered an important means to help children with psychiatric disorders and intellectual disability (9,10) : it promotes socialization, decreases inhibition in socially withdrawn individuals, imparts pleasure, responds to the need to feed and be fed, helps to keep reality testing intact by sensory stimulation and increased social interactions, and decreases the need for prescription of psychiatric medication (11,12). Moreover, studies show that the relationship with animals was associated with increased feelings of security, and increased probability of regular exercise (13). Animal-assisted-therapy has been shown to have a certain benefit in different populations of children(14) .

In people with autism spectrum disorders, equine- and other animal-assisted activities led to an improvement of symptoms(15–17).

The therapeutic farm "GAIA" in Sidi Thabet is a non-profit organization created in 2009, situated in the North-Western suburbs of the capital Tunis/Tunisia. Its main aims are day-care for and socio-professional integration of children and young adults between age 6 and 30 with diverse types of disability. Preferentially included are beneficiaries from low-income families. It is the first farm of its kind in Tunisia and North Africa. Treatment is multidisciplinary, comprising specialized education, professional training, (cuniculture, cheese production, horticulture, and product promotion from the region), psychotherapy and speech therapy, art therapy, and animal therapies, amongst these equine-assisted therapies.

The aim of the present study was to evaluate the efficacy of the multidisciplinary care approach provided by the therapeutic farm Sidi Thabet in children and young adults with disabilities.

METHODS

Study design and participants

We conducted a prospective cohort study over 10 months at the therapeutic farm "GAIA". The initial evaluation (T0) was conducted at study entry, at the beginning of the school year, and the second evaluation (T1) was conducted at the end of the school year. All study participants received as intervention 10 months of regular multidisciplinary care as provided for all beneficiaries of the therapeutic farm.

We included all children and young adults with an isolated intellectual disability or with an intellectual disability associated with autism spectrum disorder according to DSM-5 who attended the care farm regularly and whose parents or legal guardians gave oral informed consent for their participation in the study.

We excluded study participants who had more than 20% of absent days or who dropped out of the study.

Assessments and measures

Study participants were evaluated using a self-established questionnaire collecting socio-demographic and clinical variables, an evaluation of competences, and the Child Behavior Checklist (CBCL). All assessments were conducted by one single researcher, F.C., psychologist and co-author of the study.

Questionnaire for socio-demographic and clinical data

We collected the following socio-demographic data: marital status of parents, educational level of parents, number of children in care, medical and psychiatric family history. The socio-economic status of the family was evaluated as follows: low (=monthly revenue less than twice the guaranteed minimum wage, middle = monthly revenue between two to four times the guaranteed minimum wage, and high= monthly revenue above). Health status of parents was considered as "good" if the parent did not need any medical follow up, as "medium" if the parent was followed for a chronic condition requiring regular healthcare, and "bad" if the condition had an impact on the daily functioning of the parent.

Clinical data included: personal medical and psychiatric history, diagnosis according to DSM-5, medication, domain of handicap (physical or intellectual) and its severity according to the disability certificate delivered by the Ministry of Social Affairs. The disability certificate has three levels of severity, based on international classifications (ICD 10) (language, independence, social functioning) and in addition, to social needs(18).

The implication of parents in the treatment process was evaluated according to their willingness to follow psychoeducation and guidance provided by the psychologist of the therapeutic farm.

Assessment of competences

The following domains were evaluated:

Ability to execute or carry out skilled movements and

gestures (praxia), language, food and dressing autonomy, hygiene, orientation in space and time, academic competence, and social functioning. Each domain contained at least two items scored: "0" (not attained) "1" (emerging), and "2" (fully achieved). Verbal and nonverbal expressive language score included word usage, phrase/sentence usage, and use of appropriate social gestures. Understanding of verbal language was comprised of the understanding of simple and complex orders. Gross motor skills included the following items: running without falling, jumping with both feet, throwing a ball. Fine motor skills included the items: holding a pen, cutting with scissors, and lacing shoes. Body hygiene considered hair and teeth brushing as well as hand and face washing. Autonomy consisted of the capacity to eat independently, sphincter control, and ability to dress independently. Expression of pain comprised of verbal expression and gestures. Spatial and temporal orientation consisted of the capacity to understand the body schema, the distinction between left/right, high/low, moments of the day, seasons, time references (before/now/after, and yesterday/today/tomorrow). Preschool and school achievements included recognition and naming of colors, recognition, naming and tracing of geometric forms, recognition, naming and writing of numbers, distinction between big/small, long/short, large/thin. Social capacity evaluated observation of group rules, group games, capacity to wait one's turn.

Autonomy for the different activities was assessed before and after the training with the help of a Likert scale. The evaluated activities were greenhouse horticulture, cuniculture, and cheesemaking.

The Child Behavior Checklist (CBCL)

This is a scale for the global assessment of emotional and behavioral disorders, as well as social and academic competences, which is scored by the parents and provides a standardized description of these disorders. Elevated scores on the scale show that externalized and internalized behaviors are not age appropriate. The CBCL is dedicated to children between the ages of 6 to 18 (19,20). However, we used this scale in our entire study population, meaning also in study participants above the age of 18. We chose this instrument given the psychomotor developmental delays in our population and to obtain an independent assessment from both care team and parents.

The scale's questions were translated to parents during assessment. We calculated the total score, the score of internalized behaviors (anxiety/depression, withdrawal/depression, and somatic complaints) and externalized behaviors (sum score of non-compliance with rules and aggressive behavior).

Description of the intervention: multidisciplinary care

Children and young adults attended daily from Monday to Friday. They were integrated according to their profile of competence into one of two groups, each having a generic timetable. In addition, each pupil received individualized treatment according to their personal need; either in (i) the special needs education group or in

(ii) the professional training group. Both groups received speech therapy, occupational therapy (goal directed training, handwriting task practice and family centered care); computer training, and art workshops (music and dance, drawing and painting, theater). In addition, pottery workshops, zootherapy with small animals (rabbits) and equine therapy were part of the weekly program.

The special needs education group received integrated care including all activities cited in the previous paragraph. These activities were individual or group activities according to the individual's needs.

The professional (vocational) training group received a specific vocational training each morning, totalling 18 hours/week. In addition, during the afternoons, they participated in the other care activities and workshops as mentioned above.

Statistical analysis

We used frequencies to describe qualitative variables, and means, standard deviations and extremes to describe quantitative variables. To study the progression of competences and the evolution of symptoms, we used two types of statistical tests:

(i) The comparisons of means for each sample, where we compared mean CBCL scores and competences before the intervention (T0) and after 10 months (T1).

(ii) We also calculated Delta change scores at T0 and T1. In case of favorable outcome, CBCL change score is negative, and competences change scores is positive.

Ethical considerations

The study was approved by the ethics committee of Razi Hospital. All parents or legal guardians of the study participants gave oral informed consent.

RESULTS

We included 50 study participants at T0, of whom four participants were excluded.

Three study participants had been absent for more than 20% of time, and one participant died.

The final study population consisted of 46 children and young adults aged between 7 and 30 years with intellectual disability and/or autism spectrum disorder.

Sociodemographic data

Our population consisted of 29 males and 17 females. Mean age was 17.7 years. The majority of study participants had a low socio-economic level. Sociodemographic characteristics are summarized in Table 1.

Clinical characteristics

Clinical diagnoses of study participants are presented in table 2:

Pharmacotherapy was prescribed to 43.48% of the study participants: 13% received antiepileptic drugs, 10.9% antipsychotics, and 6.5% an association of both.

Table 1. Summary of sociodemographic and family characteristics

Characteristic	Distribution
Severity of disability according to disability card: N (%)	Mild: 4 (8.7) Medium: 8 (17.4) Severe : 34 (73.9)
Intellectual Disability according to DSM	Mild: 12 (26.1) Medium: 34 (73.9)
Associated sensory disability	8 (17.4)
Residential environment	urban: 32 (69.6) suburban: 9 (19.6) Rural : 4 (8.7)
Educational level of father N (%)	illiterate: 5 (10.9) primary: 21 (45.7) secondary: 13 (28.3) university: 7 (15.2)
Educational level of mother N (%)	illiterate: 12 (26.1) primary: 20 (43.5) secondary: 10 (21.7) university: 4 (8.7)
Socio-economic status N (%)	low: 12 (26.1) middle: 28 (60.9) high: 6 (13.0)
Health status of father N (%)	good: 27 (58.7) fair: 15 (32.6) poor: 3 (6.5)
Health status of mother N (%)	good: 18 (39.1) intermediate: 23 (50.0) bad: 2 (4.3)
Siblings Mean, (extremes) SD	2.41 [0-5] SD: 1.326 8 participants (16.4%) had one sibling with disability
Parental involvement N (%)	insufficient: 14 (30.4) (including 6 cases with history of maltreatment) satisfying: 16 (34.8) excellent: 16 (34.8)

Table 2. Diagnosis of study participants according to DSM-5

Disorder classification	N	%
Intellectual disability due to epilepsy	6	16.6
Intellectual disability due to trisomy 21	2	5.5
Intellectual disability due to cerebral palsy	5	13.8
Intellectual disability of unknown etiology	15	41.6
Intellectual disability associated to autism spectrum disorder	8	22.2

Outcome

Mean sub scores (externalization/internalization) of CBCL decreased significantly ($p < 0.002$) between the beginning and the end of the study period. (Table 3). Competences were significantly improved in the following domains: understanding of verbal language, gross and fine motor skills, body hygiene, spatial and temporal orientation, preschool and school learning achievements and social integration (Table 4).

Table 3. Evolution of CBCL scores

Scores at CBCL	T	Mean	N	p	Delta change score Mean	SD
CBCL Internalizing Behavior	T0	55.15	46	0.000	-6.196	5.136
	T1	48.96	46			
CBCL Externalizing Behavior	T0	51.70	46	0.000	-5.869	8.315
	T1	45.83	46			
CBCL Total	T0	55.63	46	0.000	-6.478	3.554
	T1	49.15	46			

Table 4. Progression of competences

Criteria for competence evaluation	T	Mean Score	N	p	Delta change score	
					Mean	SD
Total score	T0	55.348	46	0.000	10.000	3.747
	T1	65.348	46			
Verbal and non verbal language	T0	1.978	46	0.168	0.109	0.526
	T1	2.087	46			
Understanding of verbal language	T0	2.522	46	0.008	0.348	0.848
	T1	2.87	46			
Gross motor skills	T0	5.217	46	0.01	0.174	0.437
	T1	5.391	46			
Fine motor skills	T0	4.130	46	0.01	0.652	0.736
	T1	4.783	46			
Body hygiene	T0	7.196	46	0.022	0.283	0.807
	T1	7.478	46			
Autonomy (food, toileting, dressing)	T0	9.609	46	0.860	0.021	0.829
	T1	9.630	46			
Expression of pain	T0	1.87	46	0.058	0.174	0.607
	T1	2.044	46			
Temporal and spatial orientation	T0	9.913	46	0.000	1.413	1.690
	T1	11.326	46			
Preschool and school learning achievements	T0	12.913	46	0.001	1.196	2.257
	T1	14.109	46			
Social integration	T0	4.130	46	0.000	1.500	2.210
	T1	5.630	46			

DISCUSSION

Although results were mixed, as indicated by relatively large standard deviations, our study showed significant improvement in behaviors and competences of the participants after 10 months of intervention at the therapeutic farm.

To our knowledge, this is the first study prospectively assessing the integrated care of children and young adults with intellectual disability of different origins on a therapeutic farm in North Africa. Our results show a significant improvement of the total CBCL score and its sub—scores of externalizing and internalizing disorders, as well as an improvement in motor, cognitive and social competence in our study population.

Indeed, externalizing disorders, which refer to symptoms such as agitation, impulsivity, aggressiveness, as well as internalizing disorders such as shyness, inhibition, social withdrawal, depression and anxiety disorders, decreased significantly.

Concerning externalizing disorders, some participants, who usually exhibit violent behaviors, must adjust their behavior and control their emotions during animal therapy, such as equine therapy. Our results are in line with several other studies exploring communication and behavior in groups of children with autism, and which showed improvements in emotion expression and relational behavior, as well as verbal and nonverbal communication(21–23) . Equine therapy has also been shown to enhance externalized behavior among at risk children with deficits in attention and behavioral anomalies(24). Another study suggested that externalized behavior can also be mediated by horticulture, which

was shown to decrease impulsivity and improve social integration(4) .

Participants with excessive shyness and/or anxiety and depressive symptoms were capable of taking initiatives within their group. Indeed, mediation by animals encourages risk taking(25), facilitates the construction of individual personhood, and develops independence and initiative-taking(26). In addition, the elevated position when sitting on the horseback is a valorizing factor. The concept of a couple: horse and horse rider seem to diminish the perception of disability and improves self-esteem. Finally, animal mediation was shown to lead to an improvement in cognitive functioning and in communication skills, and decreases behavioral disorders and anxiety (1,25).

Our results support those of a study by Pedersen (27), showing that contact with farm animals and work with farm products, as done in professional training, decreases anxiety and depression.

Occupational therapy focused on objectives has shown its efficacy in competence development in people with intellectual disability (28).

In a recent prospective study, horticulture, due to its necessity to plan ahead, plant, and maintain the plants and flowers, has significantly improved manual functions including grip strength, pinch force, and dexterity (4).

The main limit of our study was the absence of a control group, and the small sample size.

CONCLUSION

These initial positive results show that therapeutic farm activity could be a supportive intervention useful to improve behavioral, motor, cognitive and social skills in people with disability. Future studies should use methods enabling the evaluation of the effect size of these interventions not only for care receivers but also in parents implicated in treatment considering intellectual disabilities are pervasive conditions with long-term effects and substantial implications on one's social environment (29).

Abbreviations' list:

CBCL : The Child Behavior Checklist.

DSM-5 : The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.

T0 : Before the intervention .

T1 : 10 months after the intervention.

REFERENCES

- Sempik J. Green care and mental health: gardening and farming as health and social care. *Ment Health Soc Incl*. 2010 Jan 1;14(3):15–22.
- Iancu SC, Zweekhorst MBM, Veltman DJ, van Balkom AJLM, Bunders JFG. Mental health recovery on care farms and day centres: a qualitative comparative study of users' perspectives. *Disabil Rehabil*. 2014 Apr 1;36(7):573–83.
- Iancu SC, Hoogendoorn AW, Zweekhorst MBM, Veltman DJ, Bunders JFG, van Balkom AJLM. Farm-based interventions for people with mental disorders: a systematic review of literature. *Disabil Rehabil*. 2015 Feb 27;37(5):379–88.
- Joy YS, Lee AY, Park SA. A Horticultural Therapy Program Focused on Succulent Cultivation for the Vocational Rehabilitation Training of Individuals with Intellectual Disabilities. *Int J Environ Res Public Health*. 2020 Feb;17(4):1303.
- Hine R, Peacock J, Pretty J. Care farming in the UK: Contexts, benefits and links with therapeutic communities. *Ther Communities*. 2008 Sep 1;29(3):245–60.
- Hinic K, Kowalski MO, Holtzman K, Mobus K. The Effect of a Pet Therapy and Comparison Intervention on Anxiety in Hospitalized Children. *J Pediatr Nurs*. 2019;46:55–61.
- Leck C, Upton D, Evans N. Growing well-beings: The positive experience of care farms. *Br J Health Psychol*. 2015 Mar 1;20.
- Ellingsen-Dalskau LH, Morken M, Berget B, Pedersen I. Autonomy support and need satisfaction in prevocational programs on care farms: The self-determination theory perspective. *Work*. 2016 Jan 1;53(1):73–85.
- Chandramouleeswaran S, Russell PSS. Complementary psychosocial interventions in child and adolescent psychiatry: pet assisted therapy. *Indian J Psychol Med*. 2014 Jan;36(1):4–8.
- Maber-Aleksandrowicz S, Avent C, Hassiotis A. A Systematic Review of Animal-Assisted Therapy on Psychosocial Outcomes in People with Intellectual Disability. *Res Dev Disabil*. 2016;49–50:322–38.
- DeCoursey M, Russell AC, Keister KJ. Animal-assisted therapy: evaluation and implementation of a complementary therapy to improve the psychological and physiological health of critically ill patients. *Dimens Crit Care Nurs*. 2010 Sep 1;29(5):211–4.
- Savishinsky JS. Intimacy, domesticity and pet therapy with the elderly: Expectation and experience among nursing home volunteers. *Soc Sci Med*. 1992 Jun 1;34(12):1325–34.
- Lindström Nilsson M, Funkquist EL, Edner A, Engvall G. Children report positive experiences of animal-assisted therapy in paediatric hospital care. *Acta Paediatr Oslo Nor* 1992. 2020 May;109(5):1049–56.
- Charry-Sánchez JD, Pradilla I, Talero-Gutiérrez C. Effectiveness of Animal-Assisted Therapy in the Pediatric Population: Systematic Review and Meta-Analysis of Controlled Studies. *J Dev Behav Pediatr JDBP*. 2018 Sep;39(7):580–90.
- Kern JK, Fletcher CL, Garver CR, Mehta JA, Grannemann BD, Knox KR, et al. Prospective trial of equine-assisted activities in autism spectrum disorder. *Altern Ther Health Med*. 2011;17(3):14–20.
- O'Haire ME. Animal-assisted intervention for autism spectrum disorder: a systematic literature review. *J Autism Dev Disord*. 2013 Jul;43(7):1606–22.
- London MD, Mackenzie L, Lovarini M, Dickson C, Alvarez-Campos A. Animal Assisted Therapy for Children and Adolescents with Autism Spectrum Disorder: Parent perspectives. *J Autism Dev Disord*. 2020 Dec;50(12):4492–503.
- World Health Organization. International Statistical Classification of Diseases and Related Health Problems [Internet]. 10th ed. Vol. 2. Available from: https://icd.who.int/browse10/Content/statichtml/ICD10Volume2_en_2010.pdf
- Achenbach TM, Rescorla L. Manual for the ASEBA school-age forms & profiles: an integrated system of multi-informant assessment. Burlington, VT: ASEBA; 2001. 238 p.
- Achenbach TM, Howell CT, Quay HC, Conners CK. National survey of problems and competencies among four- to sixteen-year-olds: parents' reports for normative and clinical samples. *Monogr Soc Res Child Dev*. 1991;56(3):1–131.
- Hameury L, Delavous P, Teste B, Leroy C, Gaboriau JC, Berthier A. Équithérapie et autisme. *Ann Méd-Psychol Rev Psychiatr*. 2010 Nov 1;168(9):655–9.
- Lorin de Reure A. Enfants autistes en thérapie avec le poney : échelles d'évaluation et approches clinique et éthologique concernant les domaines relationnels, émotionnels et la communication. *Neuropsychiatr Enfance Adolesc*. 2009 Jun 1;57(4):275–86.
- Srinivasan SM, Cavagnino DT, Bhat AN. Effects of Equine Therapy on Individuals with Autism Spectrum Disorder: A Systematic Review. *Rev J Autism Dev Disord*. 2018 Jun;5(2):156–75.
- Norwood MF, Lakhani A, Maujean A, Downes M, Fullagar S, Barber BL, et al. The Horse as a Therapist: Effects of an Equine Program

- Without 'Therapy' on the Attention and Behavior of Youth Disengaged from Traditional School. *J Altern Complement Med N Y N*. 2021 Aug;27(8):678–87.
25. All A, Loving G, Crane L. Animals, Horseback Riding, and Implications for Rehabilitation Therapy. *J Rehabil* [Internet]. 1999 Jul 1 [cited 2022 Dec 13]; Available from: <https://www.semanticscholar.org/paper/Animals%2C-Horseback-Riding%2C-and-Implications-for-All-Loving/b7b5aac31c417c5c430f82b8840622d8fa395ab3>
26. Young C, Horton J. Canine and Equine Therapy for Mental Health: A Review of Clinical Effectiveness [Internet]. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health; 2019 [cited 2022 Dec 13]. (CADTH Rapid Response Reports). Available from: <http://www.ncbi.nlm.nih.gov/books/NBK549209/>
27. Pedersen I, Nordaunet T, Martinsen EW, Berget B, Braastad BO. Farm Animal-Assisted Intervention: Relationship between Work and Contact with Farm Animals and Change in Depression, Anxiety, and Self-Efficacy Among Persons with Clinical Depression. *Issues Ment Health Nurs*. 2011 Jul 21;32(8):493–500.
28. Novak I, Honan I. Effectiveness of paediatric occupational therapy for children with disabilities: A systematic review. *Aust Occup Ther J*. 2019 Jun;66(3):258–73.
29. Amor AB, Halayem S, Touati M, Belhadj A, Gouider R, Mrad R, et al. etude de la satisfaction parentale de l'unité d'évaluation de l'autisme infantile Parental satisfaction of an assessment unit for autistic spectrum disorders. *Tunis Med*. 2016;94.