

SCIENCE SPEAKS: AUTISM REALITIES AND MYTHS

Dr. Lirio Sobrevinas-Covey, Ph.D.

AUTISM UPDATES FROM SCIENCE AND CLINICAL PRACTICE

AAAP & STEPPING STONES SEMINAR

OCTOBER 5, 2019

MAKATI, METRO MANILA



TOPICS

- ▶ WHAT IS AUTISM?
- ▶ A RECENT PHENOMENON?
 - ▶ AN EPIDEMIC?
- ▶ WHAT CAUSES AUTISM?
 - ▶ INTERVENTIONS

What is Autism?

► AUTISM IS A COMPLEX, MULTIDIMENSIONAL HUMAN CONDITION

- Social dimension - communication, reciprocity, eye contact, body language, gestures, facial expression, mood dysregulation, difficulty maintaining relationship.
- Behavioral dimension - perseveration, persistence, repetitiveness, fixation of interests, hypo- or hyperactivity.

WHAT IS AUTISM?

- ▶ **NEUROLOGICAL - BRAIN BASED, BEHAVIORALLY EXPERIENCED AND OBSERVED**
- ▶ **AFFECTS OTHER ORGAN SYSTEMS**
- ▶ **MANIFESTED EARLY AND LIFE-LONG**
- ▶ **OFTEN ACCOMPANIED BY, BUT ARE DISTINCT FROM, VARIOUS MEDICAL OR PSYCHIATRIC DISORDERS (EPILEPSY, GASTROINTESTINAL DISORDERS, INTELLECTUAL DISABILITY, ADHD, DEPRESSION, ANXIETY, AND OTHERS).**

EPIDEMIOLOGY OF ASD:

How is it distributed across populations?

- ▶ 1-2% AVERAGE PREVALENCE WORLDWIDE, WITH VARIATIONS BY COUNTRY.
- ▶ 3:1 (4:1) MALE TO FEMALE RATIO
 - ▶ MAY BE UNDERREPORTING OF ASD IN FEMALES - “CAMOUFLAGE”
 - ▶ MAY BE PROTECTIVE HORMONES IN FEMALES
- ▶ REPORTED PREVALENCE INCREASING SINCE 1980S.

IT'S NOT A NEW PHENOMENON

- ▶ 1908 - ENCOUNTERED BY THE SWISS PSYCHIATRIST EUGENE BLEULER WHO SAW SOME OVERLAP WITH SCHIZOPHRENIA, BUT ALSO SAW DIFFERENCES - USED THE TERM “AUTISTIC PSYCHOPATHY”.
- ▶ 1943 - LEO KANNER, AUSTRIAN PSYCHIATRIST WHO MOVED TO THE US - THE FIRST TO LABEL (DIAGNOSE) A PATIENT TO BE AN AUTISTIC PERSON.
- ▶ SINCE THE 1980s, AWARENESS HAS GROWN, BECAUSE OF, OR RESULTING IN, INCREASED PREVALENCE OF AUTISM.
 - ▶ EXPLOSION OF SCIENTIFIC RESEARCH

DOUGLAS TRIPLETT, FIRST PERSON LABELLED “AUTISTIC” IN 1943 BY LEO KANNER

ASSOCIATION FOR ADULTS
WITH AUTISM, PHILIPPINES

HISTORY OF THE AUTISM DIAGNOSIS

- ▶ 1908 - CHILDHOOD SCHIZOPHRENIA (EUGENE BLEULER)
- ▶ 1943 - EARLY INFANTILE AUTISM (LEO KANNER)
- ▶ 1952 - DSM I - A FORM OF CHILDHOOD SCHIZOPHRENIA
- ▶ 1968 - DSM II - A FORM OF CHILDHOOD SCHIZOPHRENIA
- ▶ 1980 - DSM III - INFANTILE AUTISM
- ▶ 1987 - DSM IV - PERVASIVE DEVELOPMENTAL DISORDER. INCLUDED AUTISM. Autistic Disorder, Asperger's Disorder, Rett's Disorder, Childhood Disintegrative Disorder, PDD-Not specified.
- 2013 - DSM V AUTISM SPECTRUM DISORDER
 - ▶ (ELIMINATING ASPERGER'S, PDD-NOS, RETT SYNDROME)

RESEARCH SHOWS RISING PREVALENCE IN THE U.S.

National Health Statistics Reports ■ Number 87 ■ November 13, 2015

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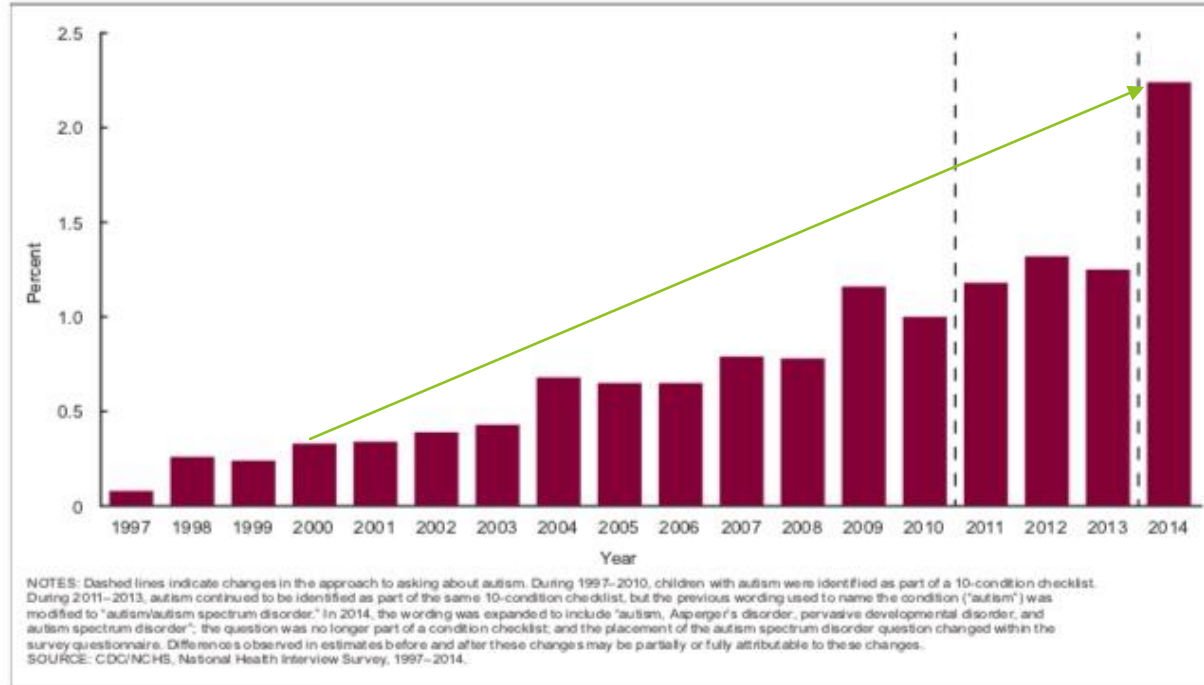
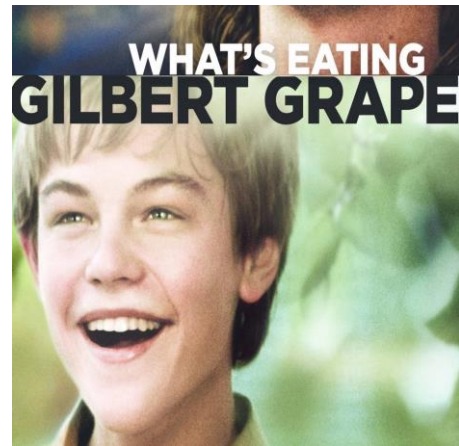


Figure 3. Estimated lifetime prevalence of children aged 3–17 years with parent-reported diagnosis of autism spectrum disorder, by survey year: United States, 1997–2014

WHY THE INCREASE IN PREVALENCE ? IS IT EPIDEMIC?

- ▶ NOT REALLY.
- ▶ IMPROVED ARTICULATION IN MEDICAL AND PSYCHIATRIC NOMENCLATURE OF AUTISM SIGNS, RESULTING IN INCREASED RECOGNITION BY
 - ▶ FAMILIES
 - ▶ SCHOOLS
 - ▶ CLINICIANS - DEVELOPMENTAL PEDIATRICIANS AND CHILD PSYCHIATRISTS AND PSYCHOLOGISTS
 - ▶ AUTISTIC PERSONS THEMSELVES GROWING UP.
- ▶ OTHER REASONS MAY BE EXERTING EFFECT BUT NEED TO BE IDENTIFIED.

INCREASED PREVALENCE = INCREASED AWARENESS AND ATTENTION. HERE'S CAPTURE IN ENTERTAINMENT MEDIA



REALITY-BASED AUTISM BROUGHT TO THE FORE Dr. Temple Grandin, Ph.D.



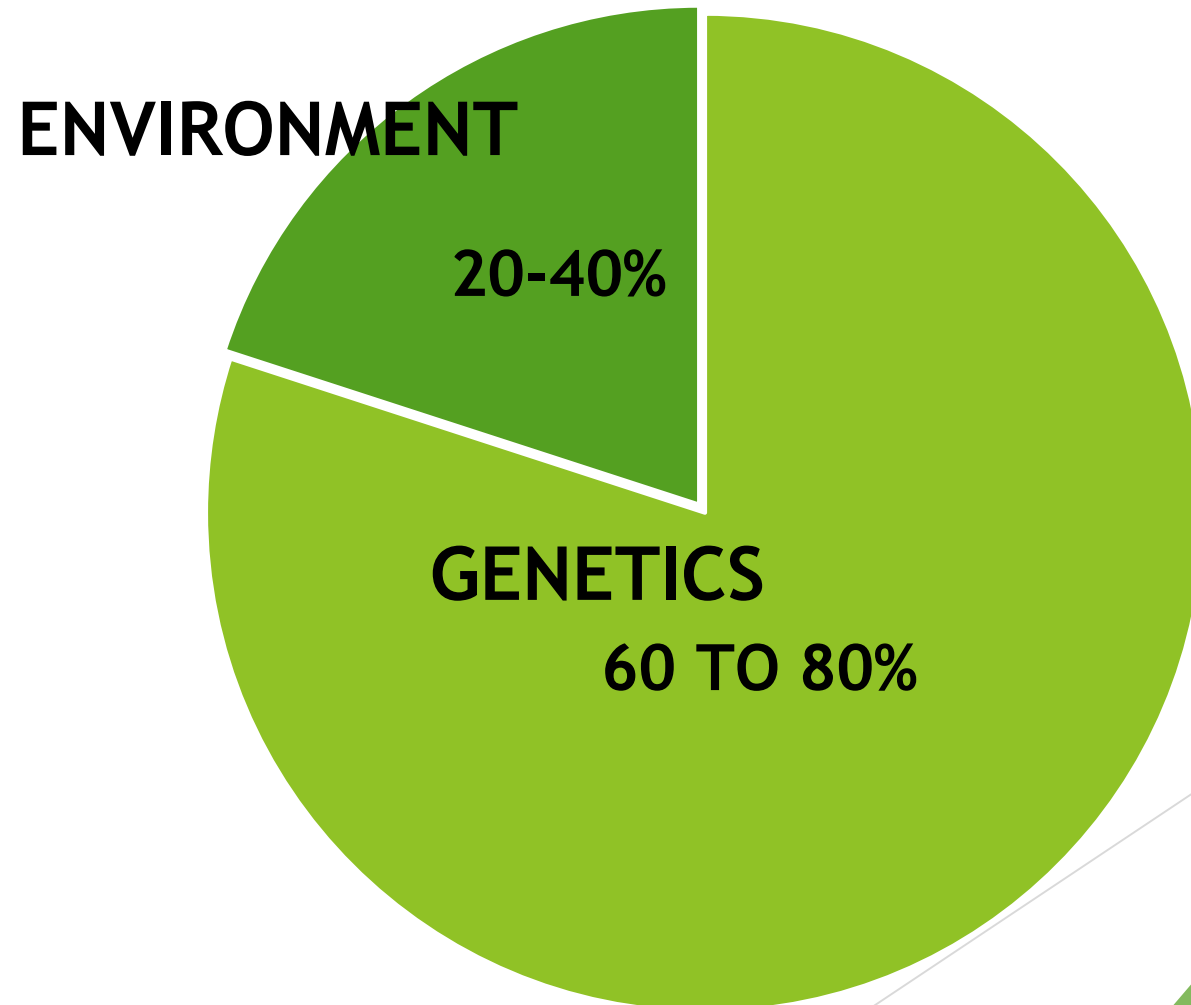
REALITY-BASED AUTISM
RECENTLY BROUGHT TO THE FORE
Greta Thunberg
16 year old Climate Activist



CAUSES: RISK FACTORS FOR AUTISM

- ▶ NATURE OR NURTURE
- ▶ BIOLOGY OR ENVIRONMENT

FROM RECENT RESEARCH: CONTRIBUTION OF GENES AND ENVIRONMENT



WHAT DO WE KNOW?

- ▶ **SCIENTIFIC CONSENSUS - AUTISM BEGINS BEFORE BIRTH.**
- ▶ **GENES - 60 TO 80% CONTRIBUTION TO AUTISM CONDITION**
- ▶ **ENVIRONMENT - 20 TO 40%**
 - ▶ **PRENATAL ENVIRONMENT**
 - ▶ **PERINATAL ENVIRONMENT**
 - ▶ **POST NATAL ENVIRONMENT**
- ▶ **EPIGENETICS**

FIRST CONSIDERED WERE ENVIRONMENTAL FACTORS

COLD PARENTS - THE REFRIGERATOR MOTHER	MENTIONED BY KANNER DEVELOPED BY BRUNO BETTELHEIM DEBUNKED
PRE-NATAL CONDITIONS: MOTHER'S HEALTH - DIABETES, OBESITY PREGNANCY COMPLICATIONS- PRE-ECLAMPSIA	MODERATE EVIDENCE
BIRTH COMPLICATIONS - CEASARIAN DELIVERY, PREMATURE DELIVERY, TRAUMA	MODERATE EVIDENCE
POST-NATAL EXPOSURES - HEAVY METALS, DEFICIENCY IN FOLIC ACID, OMEGA 3, VITAMIN D	MODERATE TO WEAK EVIDENCE
MEASLES-MUMPS-RUBELLA VACCINE	DEBUNKED BUT SUPPORT CONTINUES

COLD PARENTS - THE REFRIGERATOR MOTHER

- ▶ **CONSIDERED BY LEO KANNER**
- ▶ **POPULARIZED BY THE PSYCHOLOGIST BRUNO BETTELHEIM**
- ▶ **BOTH KANNER AND BETTELHEIM HAD BEEN SEEING A RESTRICTED SAMPLE OF CHILDREN WITH AUTISM**
- ▶ **DEBUNKED**

ENVIRONMENTAL FACTORS

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THE MEASLES-MUMPS-RUBELLA VACCINE

► A SCARE THAT BEGAN WITH FLAWED SCIENCE:

1998, A BRITISH RESEARCHER, ANDREW WAKEFIELD REPORTED FROM HIS STUDY OF **12 CHILDREN** THAT THEIR AUTISM WAS CAUSED BY THE MMR VACCINE.

- SMALL SAMPLE SIZE
- NO COMPARISON GROUP
- FALSIFIED DATA
- ETHICALLY CHALLENGED BY SUPPORT OF DRUG COMPANY
- THE JOURNAL, “LANCET”, AND CO-AUTHORS RETRACTED THE FINDINGS IN 2010, 12 YRS LATER.

❖ THE MEASLES-MUMPS-RUBELLA VACCINE: SUBSTANTIAL SCIENTIFIC EVIDENCE FINDS NO EFFECT ON AUTISM

- ❖ IN 1998 - SAME YEAR OF DEBUNKED WAKEFIELD PAPER, A LONGITUDINAL, 14 YEAR STUDY WAS PUBLISHED THAT FOUND NO EFFECT OF THE MMR VACCINE ON AUTISM.
- ❖ SEVERAL RESEARCH STUDIES FOLLOWED -
 - LARGE SAMPLES AND LONGITUDINAL DATA
 - FOUND NO EFFECT OF THE MMR VACCINE ON AUTISM INCIDENCE
 - NO PROGRESSION TO AUTISM WITH OLDER AGE.
 - NO EFFECT OF THIMEROSOL AND MERCURY, ELEMENTS IN THE EARLY FORMULATIONS OF MMR ON AUTISM INCIDENCE.
- ❖ DESPITE REMOVAL OF THIMEROSOL AND MERCURY, INCREASE IN AUTISM PREVALENCE CONTINUED.

A RECENT META-ANALYSIS

- ▶ Vaccines are not associated with autism: an evidence-based meta-analysis of case-control and cohort studies. [Vaccine. 2014 Jun 17;32\(29\):3623-9. doi: 10.1016/j.vaccine.2014.04.085. Epub 2014 May 9. Taylor LE, Swerdfeger AL, Eslick GD](#)
- ▶ Five cohort studies involving **1,256,407** children, and five case-control studies involving **9,920** children were included in this analysis.
TOTAL SAMPLE = 1,266, 327 CHILDREN
- ▶ The cohort data (longitudinal, from birth) revealed no relationship between vaccination and autism or ASD nor between autism and or thimerosal nor mercury.
- ▶ The case-control data (vaccinated vs. unvaccinated persons) found no evidence for increased risk of developing autism or ASD following MMR, Hg, or thimerosal exposure.

A RECENT SINGLE STUDY OF MMR EFFECTS ON AUTISM

- ▶ Measles, Mumps, Rubella Vaccination and Autism:
A Nationwide Cohort Study. [Ann Intern Med.](#) 2019 Apr 16;
170(8):513-520. doi: 10.7326/M18-2101. Epub 2019 Mar 5.
[Hviid A](#), [Hansen JV](#), [Frisch M](#), [Melbye M](#).
- Setting: Denmark.
- ▶ Participants: **657,461** children born in Denmark from 1999 through 31 December 2010, with follow-up from 1 year of age and through 31 August 2013.
- ▶ Conclusion: The study strongly supports that MMR vaccine:
 - ▶ does not increase the risk for autism,
 - ▶ does not trigger autism in susceptible (at risk) children,

GENETIC FACTORS IN AUTISM

❖ INHERITED GENES	
TWIN STUDIES	
MONOZYGOTIC (IDENTICAL) TWINS	❖ 60% CONCORDANCE
DYZYGOTIC (FRATERNAL) TWINS	❖ NO OR LOW CONCORDANCE
❖ RANDOM GENE MUTATION	
POST -ZYGOTIC (DE NOVO DURING CELL DISTRIBUTION OF FETUS)	❖ THESE MUTATIONS COULD CAUSE 10% OF ASD CASES
❖ MANY GENETIC VARIANTS ARE IMPLICATED, WITH DIFFERING COMBINATIONS AND ACTIONS SUSPECTED.	❖ NO SPECIFIC GENES OR COMBINATIONS HAVE BEEN IDENTIFIED
❖ ABOUT 20% OF CANDIDATE GENES ARE SUSCEPTIBLE TO ENVIRONMENTAL FACTORS (EPIGENETICS).	❖ RESULTING IN HUGE DIFFERENCES (HETEROGENEITY) OF ASD MANIFESTATION

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❖ RANDOM GENE MUTATION	
POST -ZYGOTIC (DE NOVO DURING GENE CHANGES DURING FETAL PERIOD)	❖ THESE RANDOM MUTATIONS (GENE CHANGES NOT INHERITED) COULD CAUSE 10% OF ASD CASES

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EPIGENETICS

CONFLUENCE OF GENES AND ENVIRONMENT

- ▶ Advanced parental age and autism risk in children: a systematic review and meta-analysis. *Acta Psychiatrica*, 2017. [Wu S](#), [Wu F](#), [Ding Y](#), [Hou J](#), [Bi J](#), [Zhang Z](#).
- ▶ A meta-analysis of observational studies investigating the association between advanced parental age and risk of autism.
- ▶ A Dose-response effect:
 - increase of 10 years in maternal and paternal age = increased risk of autism in offspring by 18% and 21%.
- ▶ Mechanism is not clear. More studies are needed.

BEHAVIORAL TREATMENTS

- ▶ An explosion of behavioral interventions for autism and developmental disabilities.
- ▶ Most of these interventions have focused on autism.
- ▶ Earliest - Lovaas method in the late 1980s, behavioral conditioning.
- ▶ Modular format interventions were the majority - 20 hours/week resulted in better outcomes but usually for children with milder problems.
- ▶ However, consistent outcome has been that more impaired children have poorer outcomes.

Active parent-hands on interventions with specific coaching, not only parent education, usually fared better.

BEHAVIORAL TREATMENTS

- ▶ Early interventions produced better results, as early as 7-15 months of age.
- ▶ Parent mediated approaches achieved better results.
- ▶ A study by Fein et al found that with early behavioral intervention, the children no longer showed autism symptoms at 12-14 years of age.
- ▶ This raises the possibility that the development of ASD can be prevented or the diagnosis of ASD can be lost.
- ▶ Hard, reliable evidence for these conclusions are not yet available. More and better tests of these interventions need to be conducted.

PHARMACOLOGICAL TREATMENTS

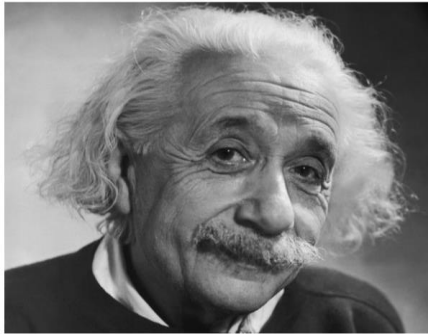
- ▶ No medication has proven effective for core ASD symptoms.
- ▶ Risperidone and aripiprazole , both antipsychotics, have been found in clinical trials with children and teens to reduce irritability, repetitiveness, and hyperactivity, but not social functioning.
- ▶ Other psychotropic medications are prescribed for specific behavioral/emotional symptoms associated with ASD - hyperactivity, impulsivity, hyperarousal, repetitive behavior, small to nil effects and risk of activating adverse side effects. Better outcomes when prescribed with behavioral therapy.

PATHOLOGY OR NEURODIVERSITY?

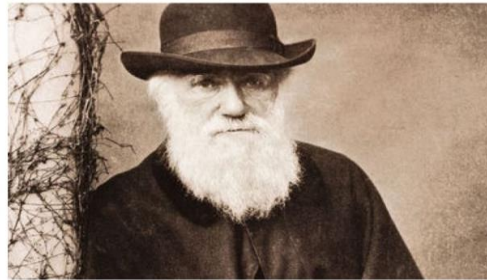
- ❖ IT IS A “DISEASE STATE”, TO BE TREATED OR CURED.
 - ▶ RESEARCH ON TREATMENTS EXIST WITH MINIMAL FINDINGS.
- ❖ IT IS A DIFFERENT WAY OF BEING HUMAN, REFLECTING A NATURALLY-OCCURRING VARIATION IN THE BRAIN.
 - ▶ ACCEPT, ADAPT, ACCOMMODATE.
 - ▶ RESEARCH ON SOCIAL ADAPTATIONS AND THEIR EFFECTS IS GROSSLY LACKING.
- ❖ NOT MUTUALLY EXCLUSIVE CONCEPTS. USING COMBINATION APPROACHES IS THE COMMON TREND.

WHERE GIFTS AND TALENTS LIE. SOME FAMOUS PEOPLE THOUGHT TO BE AUTISTIC

Albert Einstein
1879-1955



Charles Darwin
1809-1882



Daryl Hannah
1960-present



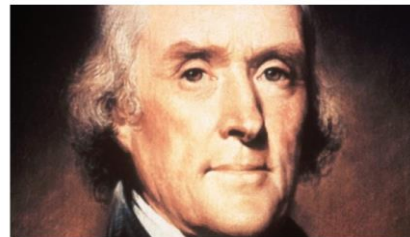
Wolfgang Amadeus Mozart
1756-1791



Bobby Fischer
1943-2008



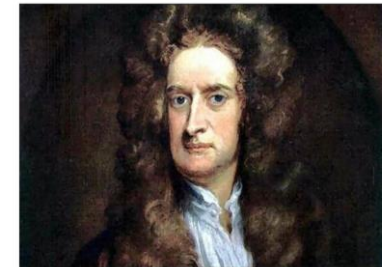
Thomas Jefferson
1743-1826



Hans Christian Andersen
1805-1875



Sir Isaac Newton
1643-1727



A SOCIETAL RESPONSE

- ▶ **AWARENESS - RECOGNIZE ASSETS AND IMPAIRMENTS**
- ▶ **ACCEPTANCE - DIFFERENCES, DESIRABLE AND NOT SO DESIRABLE**
- ▶ **ADAPTATION - MODIFY ENVIRONMENTAL STRUCTURES AS NEEDED, INCLUDING EDUCATIONAL, EMPLOYMENT, AND CLINICAL PRACTICES IN A PERSONALIZED MANNER.**

ACCOMMODATE - PROVIDE INDIVIDUALIZED APPROACHES FOR EMPLOYMENT, RECREATION, AND RESIDENT.

IT TAKES A VILLAGE!

- ▶ IN VARIOUS SETTINGS, IN US, EUROPE, CANADA, AUSTRALIA, OTHER COUNTRIES, COMMUNITIES FOR ADULTS WITH AUTISM HAVE BEEN SET UP.
- ▶ THE VISION OF AAAP.
- ▶ A MASSIVE UNDERTAKING. COMMITTED, INTENSIVE, ATTENTION AND RESOURCES ARE NEEDED.
- ▶ WE NEED SOCIETY'S HELP. GOVERNMENT, PRIVATE, AND EXISTING ORGANIZATIONS FOR AUTISTIC INDIVIDUALS.

A SPECIAL PLACE

A LIVING AND WORKING COMMUNITY FOR ADULTS WITH AUTISM



A SPECIAL PLACE



HOW TO HELP MAKE “A SPECIAL PLACE” A REALITY

- BE A MEMBER OF AAAP.***
- HELP US RAISE FUNDS TO CONSTRUCT***



DONATE ANYTIME, ANY AMOUNT TO :

ASSOCIATION FOR ADULTS WITH AUTISM PHILIPPINES

Bank of the Philippine Islands # 0401.0099.49

On line: ADULTAUTISMPHIL@WORDPRESS.COM



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SAVE THE DATE: ON JANUARY 23, 2020,
JOIN US FOR “MUSIKO AUTISMO” A CONCERT BENEFIT