

## Background

- A multidisciplinary approach including Applied Behavioral Analysis (ABA), speech, psychomotor and occupational therapies is the most effective treatment for children with autism.
- These therapies aid children in improving their verbal and non-verbal skills enhancing their integration into society and are most effective when applied from an early age.
- Most studies conducted looked at IQ only as a measure of improvement which cannot be assessed before the age of 6 years.
- In the Eastern Mediterranean Region generally, and in Lebanon specifically, studies that assess the efficacy of early behavioral interventions for other interventions or children with autism are non-existent.
- In Lebanon:
  - ✓ No insurance covers treatment costs
  - ✓ National prevalence of Autism Spectrum Disorder (ASD) is 1.48% with 95% CI [0.84, 2.12]

## Objectives

1. To assess the efficacy of ABA therapy in skill improvement for children with ASD in the only academic autism referral hospital in Lebanon, specifically by comparing 3 categories of children with ASD: those receiving ABA therapy alone, those receiving ABA and a combination of early speech, occupational and psychomotor therapies, and those not receiving therapies.
2. To check whether improvement in skills varies with the intensity of therapy and kinds of therapy (measured by number of weekly hours of therapy provided).

## Methods

### Design:

A retrospective cohort study design was used. Study participants were children diagnosed with ASD at the American University of Beirut Medical Center- Special Kids Clinic (ASKC).

### Setting-ASKC:

- 34% of all children with ASD in Lebanon are treated at ASKC
- Most children receive more than just ABA intervention (a combination of ABA and other early interventions).
- Behavioral therapy is offered in Arabic, English or French depending on the language the child is most comfortable with.
- The majority receive 6 hours of ABA treatment per week.

- All patients undergo an initial assessment of skills using the Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP). Those receiving regular therapy at ASKC have a VB-MAPP skills assessment follow-up every six months.

### Two Groups of Participants:

- Therapy at ASKC exposed group: those who received at least one year of therapy at ASKC and those who were receiving therapy at the start of data collection (January 2017) and had completed at least 6 months of therapy.
- Therapy at ASKC unexposed group: children diagnosed with ASD who received initial VB-MAPP assessment as of January 2016.

### Measures:

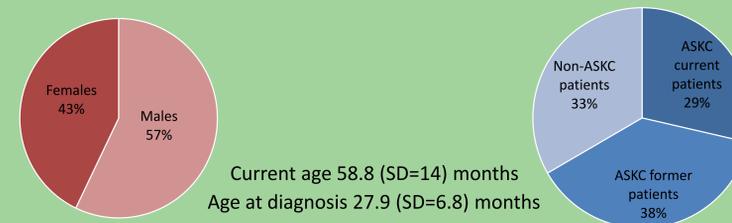
- 5 components of the VB-MAPP (Mand, Tact, Listener, Visual Perceptual skills and Matching-To-Sample (VP/MTS) and Play) graded on a 0-15 scale.
- Questionnaire and Data from Medical records : age at diagnosis, age at first word and current parental age and education, none/or consanguineous marriage of parents, child attending nursery or school, normal/special education, complications during pregnancy or delivery, therapy at or outside ASKC in terms of intensity, type of therapy and parental involvement in therapy.

### Analysis:

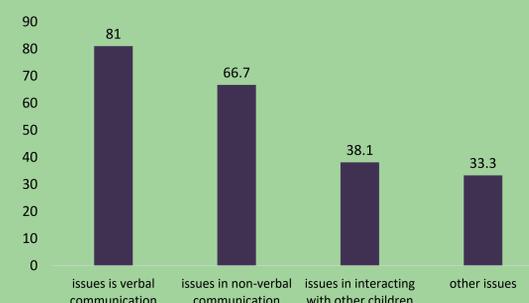
Non-parametric tests were used: Mann-Whitney U test (independent samples), Wilcoxon signed-rank tests (dependent samples), Spearman correlation and Fisher exact test. Significance level set at 0.05.

## Results

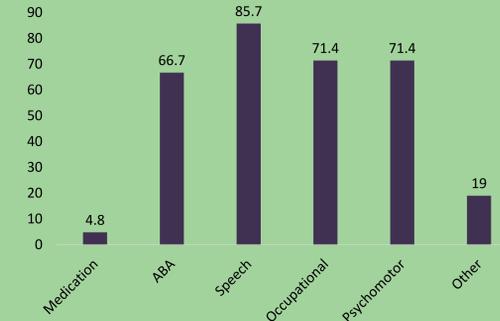
### I. Description of the study population (N=21):



### Main signs and symptoms that led to suspecting ASD (%)



### Type of therapy during the first therapy year (%):



- ✓ Weekly hours of ABA and other therapies in the first year 6.1 SD=3.3
- ✓ >95% received at least 2 types of therapies

➤ All those at ASKC received ABA and none of those outside ASKC received ABA

### II. Differences in VB-MAPP scores:

- All patients had improvement in VB-MAPP scores after one year of therapy (VB-MAPP initial 14.4 SD=9.8, VB-MAPP follow-up 42.5 SD=14.6; p-value<0.001\*).
- **Improvement** of VB-MAPP scores were not different between those receiving therapies at ASKC (ABA with other therapies) or outside ASKC (other therapies without ABA) (p-value=0.093) :
  - ✓ **Initial** VB-MAPP score were not different between those at ASKC versus those outside ASKC (p-value=0.262)
  - ✓ **Follow-up** VB-MAPP scores for those at ASKC were greater than follow-up VB-MAPP scores for those outside ASKC (p-value<0.001\*).
- Those receiving therapies at ASKC (ABA with other therapies) were more likely to have more than 15 points improvement on their VB-MAPP scores as compared to those receiving therapies outside ASKC (other therapies without ABA) (p-value=0.026\*).
- Hours of therapy, gender, age at first word and parental involvement did not have any effect on VB-MAPP scores improvement.
- Those receiving speech therapy had better VB-MAPP improvement than those not receiving speech (p-value=0.035\*).

## Conclusion and Future Goals

- All patients had skills improvement which highlights the importance of early interventions for the treatment of autism.
- Patients who received ABA at ASKC had better than 15 points improvement as compared to those who did not receive ABA (not treated at ASKC).
- Patients who received speech therapy had better skills improvement than those who did not, highlighting the importance of Speech therapy.
- Studies with bigger samples and of a prospective design are needed to determine further skills gains in terms of intensity and combination of therapy. (FUNDING PROVIDED BY THE MPP-URB FUND and OpenMinds)

References:

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