BARRIERS AND SOURCES OF SUPPORT FOR THE PERFORMANCE OF PHYSICAL ACTIVITY IN PEDIATRIC TYPE-1 DIABETES

Ruth Livney M.D., Wasim Said M.D., Smadar Shilo M.D., Shoshana Gal M.D., Meirav Oren M.D., Ram Weiss M.D. PhD, Nehama Zuckerman-Levin M.D., Naim Shehadeh M.D., Michal Cohen M.D.

The Pediatric Diabetes Clinic, Ruth Rappaport Children's Hospital, Rambam Health Care Campus, Haifa, Israel
The Ruth & Bruce Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel

INTRODUCTION AND OBJECTIVES

The advantages of physical activity are particularly emphasized in children with type-1-diabetes (T1D). However, reports suggest that children with T1D perform less than the recommended daily activity and are less active than their non-diabetic peers.

Study aims: 1) To identify barriers and sources of support for exercise performance in children and adolescents with T1D.

2) To identify strengths and limitations in the exercise-directed education provided by our diabetes team.

METHODS

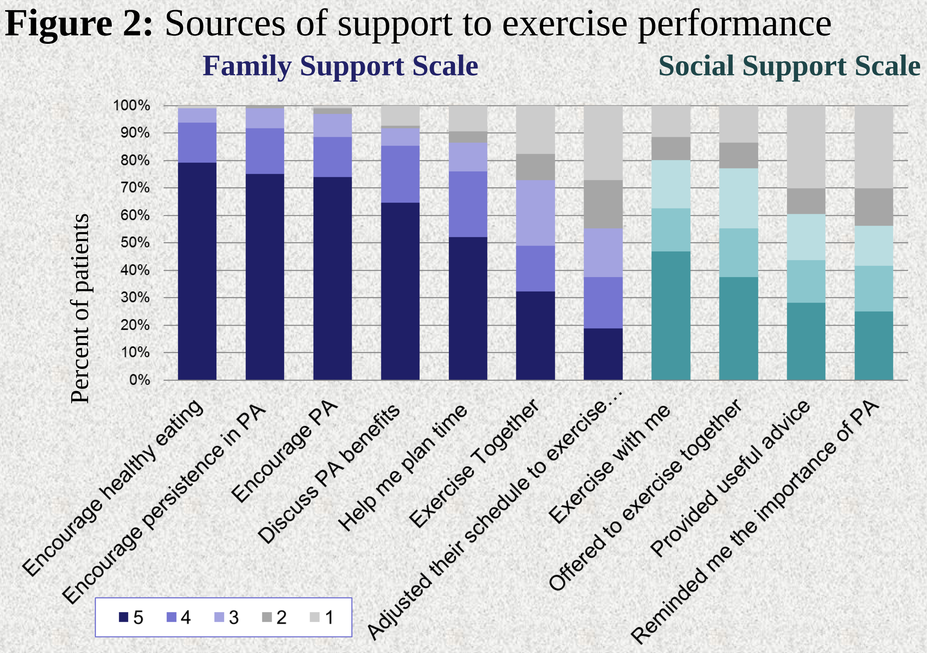
Patients with T1D 2-20 years of age, followed at our pediatric diabetes clinic were recruited. After signing consent, participants completed a set of questionnaires assessing demographic and health data, physical activity, barriers to its performance (adapted from the Barriers to Physical Activity in Diabetes PAPAD1), family and social support (1-5 scale), diabetes related exercise education and its implementation. The clinics' medical staff (physicians, nurses and dietitians) filled a questionnaire assessing the exercise education provided in the clinic.

RESULTS

Barriers: One-hundred and one patients with T1D were included in this study (Table 1). The two most prevalent perceived barriers were risk of hypoglycemia and low fitness (Fig.1). Mean BAPAD1 score correlated negatively with the mean HbA1c and positively with the weekly hours of physical activity (c=-0.309, p=0.002 and cc=0.259, p=0.006 respectively).

Sources of support: Family support scores were generally favorable, mean score 4.1±0.7. However, scores for variables reflecting active exercise-participation were in the lower half for over 50% of participants. Social support scores were the highest for exercising together and correlated with the amount of activity performed (cc=0.360,p<0.001).

Figure 2: Sources of support to exercise performance



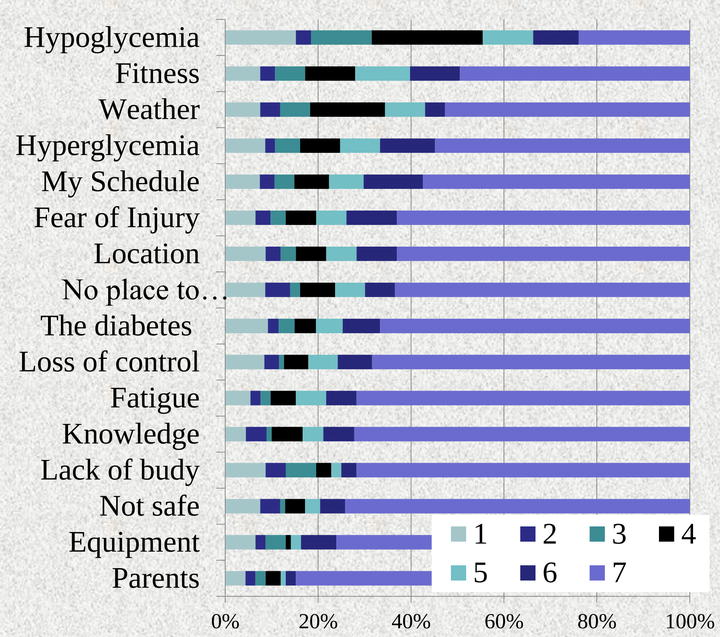
*1- not supportive, 5- very supportive.
PA=Physical activity

Table 1: Baseline patient characteristics (n=101)

Age (years)		13.2 ± 4.2
Female gender		53 (53%)
BMI z-score		0.1 (-0.3, 1.1)
Diabetes Duration (years)		4.6 ± 3.6
Insulin pump treatment		65 (64%)
CGM Usage		48 (48%)
Mean HgA1c		8.6 ± 1.7
Performs regular PA		83 (82%)
Exercise type	Aerobic	20/83 (24%)
	Anaerobic	0
	Mixed activity	30/83 (36%)
	A combination	33/83 (40%)
Median weekly activity (hrs)		3.5 (1.2,7.2)

PA=Physical activity; Results are presented as mean±SD, median (interquartile range) or number (%)

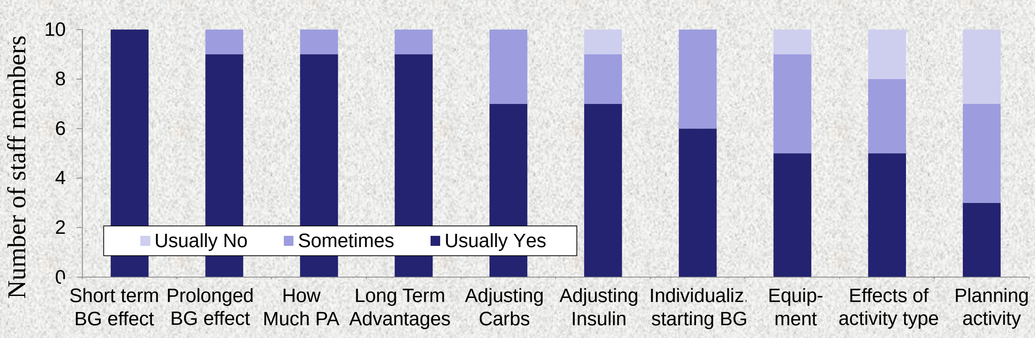
Figure 1: Barriers to Physical Activity in Diabetes questionnaire results



*1- extremely likely, 7-extremely unlikely

Exercise-directed education: The majority of patients (97%) reported that guidance for physical activity was provided in the clinic, to their satisfaction. Yet, only 78% reported adjusting food, insulin or activity in order to control glucose during exercise, and less than 40% responded correctly to questions regarding the glucose lowering effects of exercise. All staff members reported conducting routine exercise-directed teaching, with variations in timing and frequency. The effects of different types of exercise, as well as guidance regarding planning exercise were less consistently included in teaching.

Figure 3: Topics discussed during exercise-directed teaching as reported by staff members



CONCLUSIONS

- **Fear of hypoglycemia and low fitness were the two main barriers to physical activity**
- **Family and friends were perceived as sources of support**
- **Active peer support is a potential means for increasing physical activity in T1D**
- **Exercise-directed education varied between staff members while knowledge and implementation among patients were suboptimal**
- **We believe that Standardization of the education provided by diabetes team members could lead to improved exercise management in children with T1D**

References

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