METABOLIC CONTROL AND HEALTH-RELATED QUALITY OF LIFE IN CHILDREN WITH DIABETES MELLITUS DURING THE COVID-19 PANDEMIC: RESULTS FROM A PROSPECTIVE SWISS COHORT STUDY

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INTRODUCTION

The COVID-19 pandemic led to regional lockdowns and restrictions associated with changes in lifestyle and quality of life (QoL) thus potentially burdening metabolic control in Diabetes Mellitus (DM). **We examined the impact of pandemic restrictions on QoL and metabolic control in children with DM.**

METHOD

Monocentric prospective longitudinal cohort study including children attending outpatient diabetes clinic at tertiary children's hospital between April 2020 to April 2021.
In addition to the repeated assessment of SARS-CoV-2 antibodies and symptoms, screen time and physical activity (reported elsewhere) health-related QoL (HrQoL) through Kidscreen-10, BMI-SDS, HbA1c, mean interstitial glucose (MG), variability (%CV) and Time in Range (TIR) were assessed at 2-3-monthly scheduled visits.
Parameters were assigned to the pandemic phases as shown in table 2. For statistical analysis, we applied mixed-model-analysis between different phases and Pearson double-sided correlations.

CONCLUSIONS

Children with DM participating in the study showed a stable metabolic control through different phases of the pandemic, despite impaired HrQoL during phases with higher restrictions. In adolescents, metabolic control was improved with start of the restrictions. Consistent with other studies, children with DM can activate sufficient resources for their diabetes management even during the COVID-19 pandemic if they have a regular (school) routine and medical care. In the interest of child health, school closures in the current pandemic should only be implemented when there are no other alternatives.

REFERENCE

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RESULTS

Tbl. 1: Baseline characteristics at Phase 1

variable	median or n	range
n=	56	
male	53.4%	
age	12 y	(1 - 19 y)
Type	54 Type 1DM, 2 MODY	
HbA1c	7.5%	(6.2 - 11%)
MG	9.1mmol/l	(5.6 – 13.7)
%CV	44.2	(22.1 – 70.2)
TIR	52.2%	(28 – 94.6)
BMI-SDS	0.375	(-1.86 – 2.79)

Tbl. 2: Phases of COVID-19 Pandemic in Switzerland

0	4 months to 16.03.21	Pre covid	no influences due to pandemic
1	16.03.20 – 10.05.20	first Lockdown	closed schools, shops, restaurants and social activities
2	11.05.20 – 18.10.20	normal	no restrictions
3	19.10.20 – 21.12.20	Slowdown	with assembly restrictions and business closing hours
4	22.12.20 – 28.02.21	second Lockdown	closed shops, restaurants and activities, but open schools

Fig. 1: Scatterplot for HbA1c in Phase 0 and Age

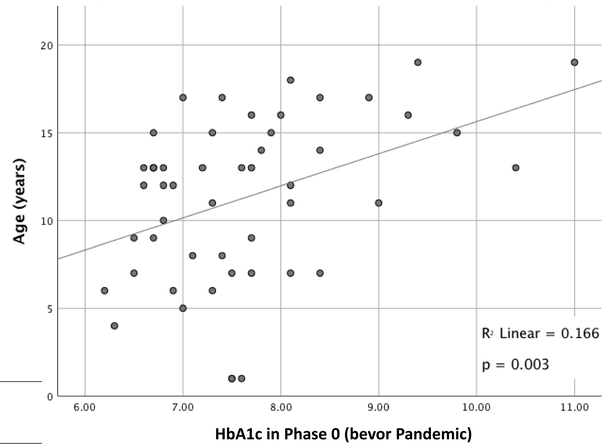


Fig. 2: HrQoL changes during COVID-19 Pandemic

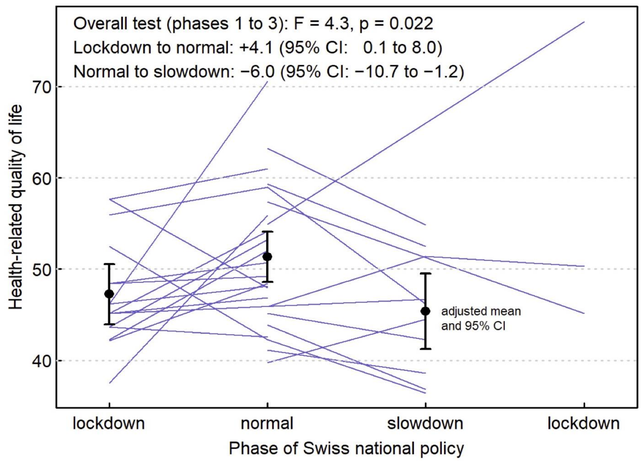
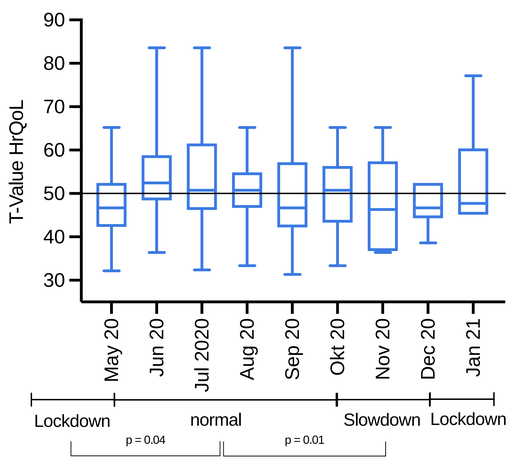


Fig. 3: Mean HrQoL during COVID-19 Pandemic



BMI-SDS, HbA1c, mean interstitial glucose (MG), Coefficient of Variation (%CV) and Time in Range (TIR) did not significantly change during all phases (Table 1: baseline data).
Before Pandemic (Phase 0) HbA1c (p=0.003; Fig. 1) and %CV (p=0.05) were significantly correlated with increasing age. The HbA1c decrease from phase 0 to 1 was greater the older the patients were (p=0.029).
HrQoL scores >50 represent a better, <50 a poorer QoL than the Swiss healthy reference population before the pandemic. The HrQoL showed a significant increase from phase 1 to 2, and decrease from phase 2 to 3 (Fig. 2), and decreased HrQoL mean scores in phases with high restrictions (1: 46.7 (32.2 - 65.2), 3-4: 46.7 (36.4 - 77.1)) or after back to school in Phase 2 (46.7 (31.3 - 83.5)), but normal T-scores during the rest phase 2 (50.7, 32.4 - 83.6) (Fig. 3),.