

# THE LOCKDOWN'S EFFECT ON A PEDIATRIC OBESE POPULATION IN THE COVID-19 ERA

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## INTRODUCTION

The social consequences of COVID-19 pandemic are universally known. In particular, the pediatric population paid the biggest price. For overweight or obese children, the impact of home confinement has been greater than for others. Time spent in physical activity dropped dramatically and recent studies suggest that the consumption of chips, red meat, and sugary drink increased significantly during the lock-down<sup>1</sup>.

## AIM

Our study had the purpose to analyse the effects of lockdown on the behaviour changes in an obese pediatric population and the correlation between the new lifestyle and the level of parents' instruction.

## METHOD

We analysed 40 obese and overweight pediatric patients of our Clinic in Messina (Italy). We evaluated weight, height, BMI, total cholesterol, HDL, LDL, triglyceride, transaminases, glycemia and insulinemia. After the lockdown, we contacted all patients in order to get some information about diet, physical activity and sedentary lifestyle changes in correlation to the level of their parents' instruction (primary school diploma, middle school diploma, high school diploma/degree). We also evaluated 20 children twice from a clinical and laboratory perspective after the lockdown.

## RESULTS

The study showed an increase of daily meals during COVID-19 lockdown ( $3.2 \pm 0.4$  vs  $5 \pm 1$ ,  $P < 0.001$ ). In addition, 95% of patients did low physical activity during the lockdown and the 97.5% spent more time in sedentary activity such as watching television and playing videogame. We also classified these patients according to the level of their parents' instruction in 3 groups. The descriptive analysis didn't show any statistically significant difference as regards the number of daily meals between the three groups before the lockdown. On the contrary, we noticed an increased mean number of meals after the lockdown [Graphic 1]. In particular, the group of parents with primary school diploma had a significantly higher mean number of meals than those with high school diploma/degree ( $6 \pm 0.7$  vs  $4.4 \pm 1.3$ ,  $p$ -value=0.019), as shown by other studies<sup>2</sup>. BMI's values showed significant differences between before and after the lockdown. ( $p$ -value= 0.0339). We didn't find any correlation between biochemical parameters before and after the lockdown [Table 1].

Graphic 1. Daily meals before and after lockdown according to the grade of parents' instruction

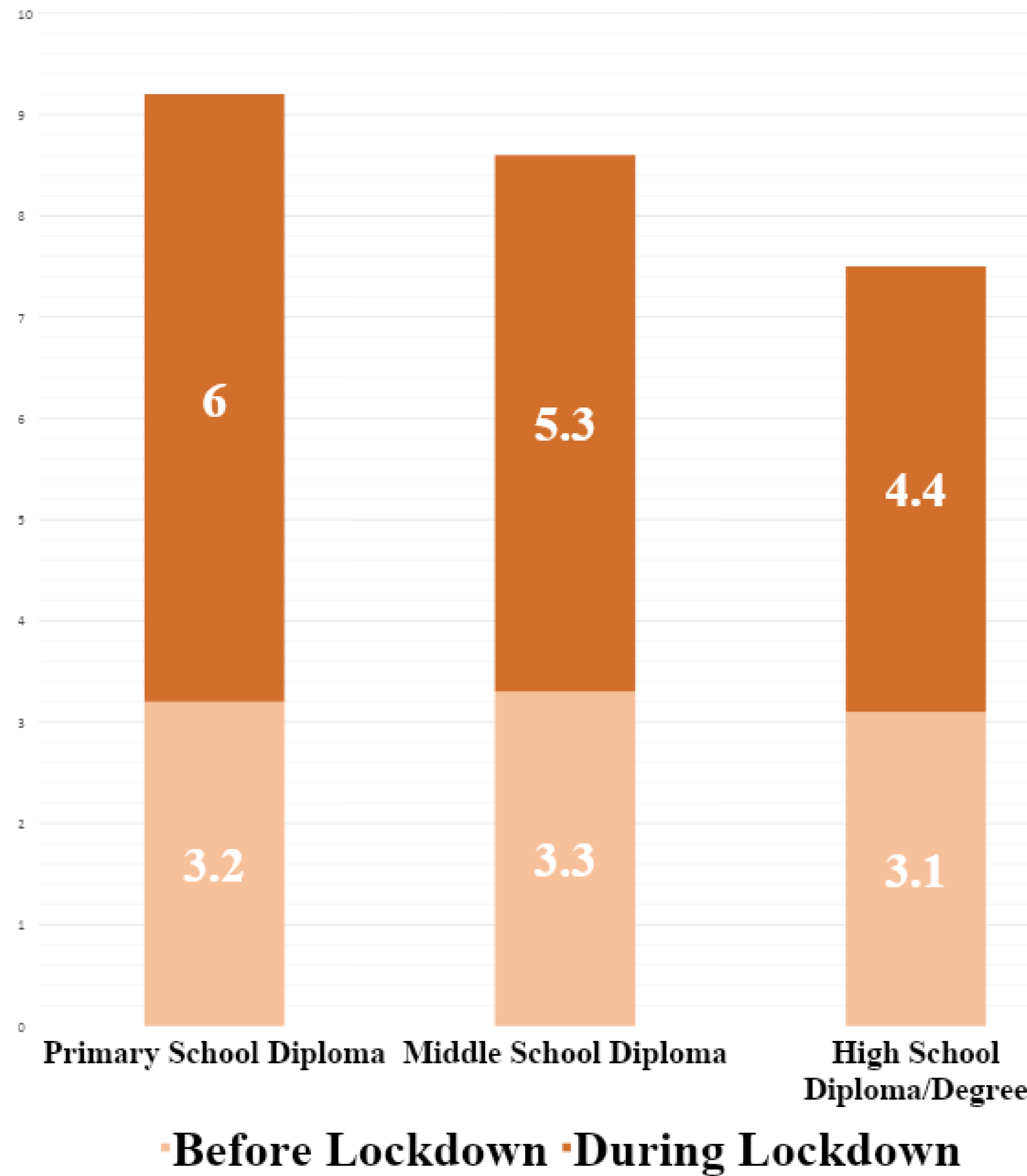


Table 1. Laboratory parameters before and after the lockdown

	Before lockdown	After lockdown	P-value
Age	11.5 ( $\pm 2.7$ )	12.4 ( $\pm 2.6$ )	0.219
BMI (kg/m <sup>2</sup> )	30.2 ( $\pm 4.0$ )	32.0 ( $\pm 5.5$ )	0.339
Insulinemia ( $\mu$ IU/dl)	25.2 ( $\pm 16.0$ )	21.4 ( $\pm 9.3$ )	0.782
Glycemia (mg/dl)	83.5 ( $\pm 13.4$ )	83.9 ( $\pm 10.9$ )	0.539
GPT (U/L)	28.4 ( $\pm 28.7$ )	24.0 ( $\pm 13.9$ )	0.954
GOT (U/L)	24.2 ( $\pm 13.9$ )	20.9 ( $\pm 8.0$ )	0.686
Total Cholesterol (mg/dl)	183.0 ( $\pm 31.3$ )	167.8 ( $\pm 22.6$ )	0.089
HDL Cholesterol (mg/dl)	50.4 ( $\pm 11.6$ )	48.3 ( $\pm 9.3$ )	0.525
LDL Cholesterol (mg/dl)	106.4 ( $\pm 27.5$ )	99.8 ( $\pm 18.5$ )	0.838
Triglyceride (mg/dl)	104.4 ( $\pm 33.7$ )	94.9 ( $\pm 26.5$ )	0.351

## CONCLUSIONS

The study described allows us to say that COVID-19 has worsened also the situation of overweight and obese pediatric population. Doing something now so as to contrast the excess of weight will be helpful in terms of reducing the complications that an obese child might have in the future<sup>3-4</sup>. In addition, the higher number of daily meals eaten by patients whose parents have elementary school diploma suggest the necessity to improve the awareness of this health problem. An important solution could be an improvement of social sensibility with awareness campaigns, teaching at school, increasing attention from pediatricians and promoting physical activity<sup>5-6</sup>.

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