Do Increased Parental Presence, Reduced Outdoor Sports Activities, and School Attendance Affect the Incidence of Pediatric Trauma Requiring an Operative Intervention? A Matched Cohort Study Before and During the First and Second COVID-19 Lockdown Periods in the UK

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Purpose: In the UK, during the first wave of the COVID-19 pandemic, a national lockdown (FLD) was initiated necessitating people to stay at home with limited outdoor sporting activities and schools were closed for children. During the second wave, a second lockdown (SLD) was initiated, necessitating people to stay at home with limited outdoor sporting activities; however, schools remained open for all children. Our aim was to evaluate if increased parental presence, reduced outdoor sports activities, and school attendance affect the incidence of pediatric trauma requiring an operative intervention in the UK.

Methods: This was a retrospective single center study that evaluated all pediatric patients (age <16 years) who had injuries requiring an operative intervention during the FLD and SLD. The FLD period in this study was between March 22, 2020 and June 22, 2020. The SLD period was between Novermber 5, 2020 and December 2, 2020. To establish the effect of a national lockdown on the incidence, and accommodate this into our investigation, pediatric patients who had injuries requiring an operative intervention pre-COVID-19 between March 22, 2019 and June 22, 2019 were also analyzed. Demographic data, the type of injury sustained, and the operative intervention performed were collected and analyzed. The absolute percentage of each was then used to make the comparisons.

Results: During the FLD, 47 operations were performed on 46 patients with an average age of 9 years. Manipulation under anesthetic (MUA) was performed in 32% of the cases, Kirschner-wire (K-wire) fixation in 26%, open reduction and internal fixation (ORIF) in 13%, and 23% had washouts for exposed wounds. 28% had a distal radius fracture (DRF), 13% had a supracondylar humeral fracture (SCHF), 17% had hand injuries with exposed wounds (HIW), and 15% had lower limb fractures (LLFs). During the SLD, 15 operations were performed on 14 patients with an average age of 10 years. MUA and K-wire fixation was performed in 20%, ORIF and washouts in 7% of the cases. 20% had a DRF, none had an SCHF, 7% had HIW, and 7% had LLFs. During the pre-COVID-19 pandemic period, 110 operations were performed on 110 patients with an average age of 9 years. MUA and K-wire fixation was performed in 33% and 11% of the cases, respectively. 19% had an ORIF and 13% had washouts. 34% had a DRF, 5% had a SCHF, 5% had HIW, and 4% had LLFs.

Conclusion: The COVID-19 national lockdown has reduced the overall incidence of pediatric trauma requiring an operative intervention in the UK. Comparison between the FLD and pre-COVID-19 has shown reduced incidence of DRF and LLF that required an operative intervention. Comparison between the FLD and SLD, investigating the effect of school attendance, has shown an overall reduction in the operative interventions performed for pediatric trauma in all the different categories. From our study, we conclude that increased parental presence, reduced outdoor sports activities, and school attendance reduces the overall incidence of pediatric trauma requiring an operative intervention.