Case Study

CDC Analysis of Extensive Data Sets and Insight into Obesity Trends and Related Health Issues

Background

The Centers for Disease Control and Prevention (CDC) aims to be at the forefront of public health research and disease prevention in the United States. In its efforts to combat the rising epidemic of obesity, the CDC partnered with IQVIA to generate real-world evidence at scale. This partnership aimed to leverage IQVIA's Analytics Research Accelerator Obesity cohort to rapidly analyze extensive data sets of more than 90 million individuals and gain insights into obesity trends and related health issues.

Objectives

The primary objectives of the partnership were to:

- Analyze obesity trends across various demographics
- Understand the relationship between early-life body mass index (BMI) and subsequent obesity
- Assess the impact of the COVID-19 pandemic on weight gain and obesity rates
- Evaluate the prevalence of prediabetes and diabetes testing among overweight or obese pediatric and adult populations
- Estimate the medical expenditures associated with BMI in privately insured individuals

Key research outcomes

The collaboration resulted in several significant publications, which include:

- **The Relation of Adiposity Rebound to Subsequent BMI[1]:** This study examined the age at which BMI begins to increase after infancy (adiposity rebound) and its correlation with later BMI levels.
- **Weight Gain Among Adults During the COVID-19 Pandemic[2]:** Research examined the pandemic-related weight increase associated with the pandemic through May 2021.
- **Tracking of Obesity Among 2- to 9-Year-Olds[3]:** An analysis of obesity tracking in young children using electronic health record data from 2006 to 2018.
- **The Longitudinal Relation of Childhood Height to Subsequent Obesity[4]:** This study investigated how childhood height correlates with obesity later in life.
- **Longitudinal Trends in BMI Before and During the COVID-19 Pandemic[5]:** A comprehensive study among a cohort of 432,302 persons aged 2–19 years, tracking (BMI) increase during the pandemic compared to a pre-pandemic period.
- **Children's Rates of BMI Change Pre-pandemic and During Two COVID-19 Pandemic Periods[6]:** The study focused on BMI changes among children before and during different periods of the COVID-19 pandemic.

- **Examination of Prediabetes and Diabetes Testing Among U.S. Pediatric Patients[7]:** This manuscript discussed the frequency of diabetes testing and elevated test results among youth aged 10–19 years with at least one BMI measurement in an EHR from 2019 to 2021.
- **Prevalence of Testing for Diabetes Among U.S. Adults with Overweight or Obesity[8]:** The study estimated the proportion of adults aged 40 to 70 years with overweight or obesity who received blood glucose testing within three years from 2016.
- **Body Mass Index and Associated Medical Expenditures[9]:** This research estimated BMI-associated medical expenditures among U.S. patients with private insurance aged 2 to 19 years.

Impact and implications

The findings from these studies have provided valuable insights into the obesity epidemic, influencing public health strategies and interventions. The research has underscored the importance of early detection and lifestyle interventions to prevent obesity and its associated health risks. Additionally, the economic analysis of medical expenditures related to BMI has highlighted the financial burden of obesity on healthcare systems.

Conclusion

The CDC and IQVIA partnership has successfully utilized large data analytics to advance the understanding of obesity-related trends and health outcomes. The collaborative efforts have contributed to the body of knowledge necessary for developing targeted public health policies and preventive measures to address the obesity crisis. The partnership serves as a model for future collaborations between public health agencies and private sector analytics firms.

1. David S. Freedman, Alyson B. Goodman, Raymond J. King, Lyudmyla Kompaniyets, and Carrie Daymont. The Relation of Adiposity Rebound to Subsequent BMI in a Large Electronic Health Record Database. Childhood Obesity 2021 17:1, 51-57.
2. Freedman DS, Kompaniyets L, Daymont C, Zhao L, Blanck HM. Weight gain among US adults during the COVID-19 pandemic through May 2021. Obesity (Silver Spring). 2022; 30(10): 2064-2070. DOI.
3. Freedman DS, Goodman AB, King RJ, Blanck HM. Tracking of obesity among 2- to 9-year-olds in an electronic heath record database from 2006 to 2018. Obes Sci Pract. 2020 Feb 8;6(3):300-306. doi: 10.1002/osp4.407. PMID: 32523719; PMCID: PMC7278904.
4. Freedman, D.S., Goodman, A.B., King, R.J. and Daymont, C. (2020), The Longitudinal Relation of Childhood Height to Subsequent Obesity in a Large Electronic Health Record Database. Obesity, 28: 1742-1749.
5. Lange SJ, Kompaniyets L, Freedman DS, et al. Longitudinal Trends in Body Mass Index Before and During the COVID-19 Pandemic Among Persons Aged 2–19 Years — United States, 2018–2020. MMWR Morb Mortal Wkly Rep 2021;70:1278–1283. DOI.
6. Pierce SL, Kompaniyets L, Freedman DS, Goodman AB, Blanck HM. Children's rates of BMI change during pre-pandemic and two COVID-19 pandemic periods, IQVIA Ambulatory Electronic Medical Record, January 2018 Through November 2021. Obesity (Silver Spring). 2023 Mar;31(3):693-698. doi: 10.1002/oby.23643. Epub 2023 Feb 1. PMID: 36350181; PMCID: PMC9877959.
7. Belay B, Kraus EM, Porter R, Pierce SL, Kompaniyets L, Lundeen EA, Imperatore G, Blanck HM, Goodman AB. Examination of Prediabetes and Diabetes Testing Among US Pediatric Patients With Overweight or Obesity Using an Electronic Health Record. Child Obes. 2024 Mar;20(2):96-106. doi: 10.1089/chi.2022.0209. Epub 2023 Mar 17. PMID: 36930745; PMCID: PMC10505239.
8. Chen Y, Lundeen EA, Koyama AK, Kompaniyets L, Andes LJ, Benoit SR, et al. Prevalence of Testing for Diabetes Among US Adults With Overweight or Obesity, 2016–2019. Prev Chronic Dis 2024;20:230173. DOI.
9. Kumar A, Kompaniyets L, Belay B, Pierce SL, Grosse SD, Goodman AB. Body Mass Index and Associated Medical Expenditures in the US Among Privately Insured Individuals Aged 2 to 19 Years in 2018. JAMA Pediatr. 2023 Aug 1;177(8):827-836. doi: 10.1001/jamapediatrics.2023.2012. Erratum in: JAMA Pediatr. 2023 Oct 1;177(10):1111. doi: 10.1001/jamapediatrics.2023.3449. PMID: 37399028; PMCID: PMC10318546.

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