

Waist Circumference as a Tool for Pediatric Obesity Screening

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A DNP project in conjunction with Maryville University, St. Louis, Missouri, USA

INTRODUCTION

The focus of this project was the early identification of childhood obesity.

The approach was upon exploring the utilization of waist circumference measurements as a tool (in addition to height, weight, and BMI) for the early detection of pediatric obesity.

The project did occur in a rural health clinic in the Midwest United States, based upon data obtained during the first quarter of 2014.

MATERIALS & METHODOLOGY

The overarching research design for this project was a quantitative correlational study.

The theoretical framework selected for this study was *Pender's Health Promotion Model*.

- The process of waist circumference measurement was introduced to the clinical staff within the practice over the summer of 2013.
- Waist circumference was added as a clinical indicator to the McKesson Practice Partners version 9 electronic health record system, to allow for structured data collection.
- A QA project was conducted in the last quarter of 2013 to ensure compliance among staff in the collection of the appropriate variables of age, gender, height, weight, BMI, and waist circumference.
- A registry feature was utilized to collect variable data as well as ICD-9 diagnostic codes of V85.xx and 278.xx (overweight/ obese codes).
- The actual project entailed retrospective data analysis from the first quarter of 2014. No subject manipulation occurred as a part of this project.
- ICD-9 data analysis was conducted utilizing PDS Cortex & McKesson Practice Partners version 9 (version 11 was implemented at the completion of the study).
- All data extraction and analysis was completed utilizing MS Excel version 2013 with the advanced statistical analysis add on.

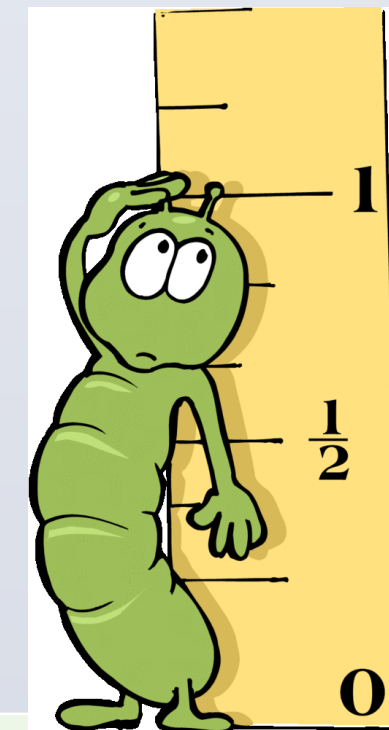
OBJECTIVES

PICO Question

For pediatric patients (ages 3-18) in a rural health clinic (P), how often did the BMI and waist circumference measurements obtained during routine visits (I) result in the identification of overweight/obesity (C), between January 1, 2014 and March 31, 2014 (T)?

Specific Aims

- Identify how often the BMI and waist circumference measurements obtained during routine visits result in the identification of an overweight/ obesity diagnosis.
- Identify if the patient's age and/or gender have any relationship to the BMI and waist circumference measurements.



Waist circumference by age

Age Range	Range - All	Range - Male	Range - Female	Mean - All	Mean - Male	Mean - Female
Age 3-6	17.5-25.0	18.0-22.2	17.5-25.0	20.88	20.28 (0.476875995)	21.41 (0.970172442)
Age 7-10	20.0-39.0	20.0-39.0	21.0-26.5	24.71	27.07 (2.950844454)	22.36 (0.784631288)
Age 11-14	26.0-45.0	28.0-45.0	26.0-27.5	29.22	30.87 (4.309558175)	26.75 (0.322748612)
Age 15-18	25.0-41.0	32.0-41.0	25.0-34.0	31.25	36.5 (6.363961031)	30.38 (1.427708749)

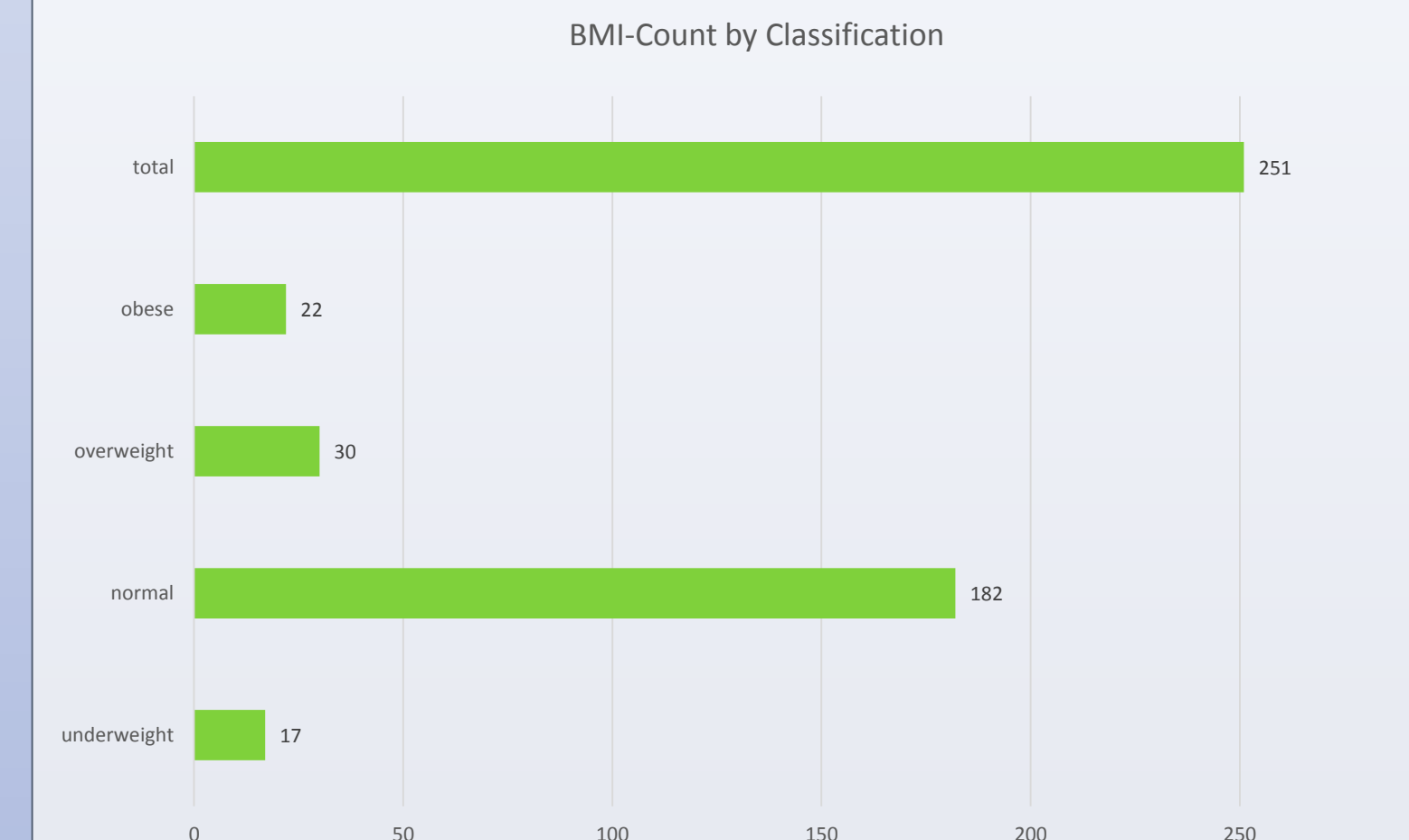
RESULTS

Ages ranged from 3-18. The total number of patients for which data was extracted totaled 255, including 142 males, and 113 females. Of these individuals, only a portion had both required variables of BMI and WC simultaneously. This included 53 total participants, of which 21 were male, and 32 female. The sixteen separate ages were separated into groupings of four, including ages 3-6, 7-10, 11-14, and 15-18.

Based upon these results, it may be concluded that BMI and/or waist circumferences obtained during a routine office visit led to the identification of an overweight/ obesity diagnosis 14% of the time (29 ICD-9 diagnoses of 201 eligible patients).

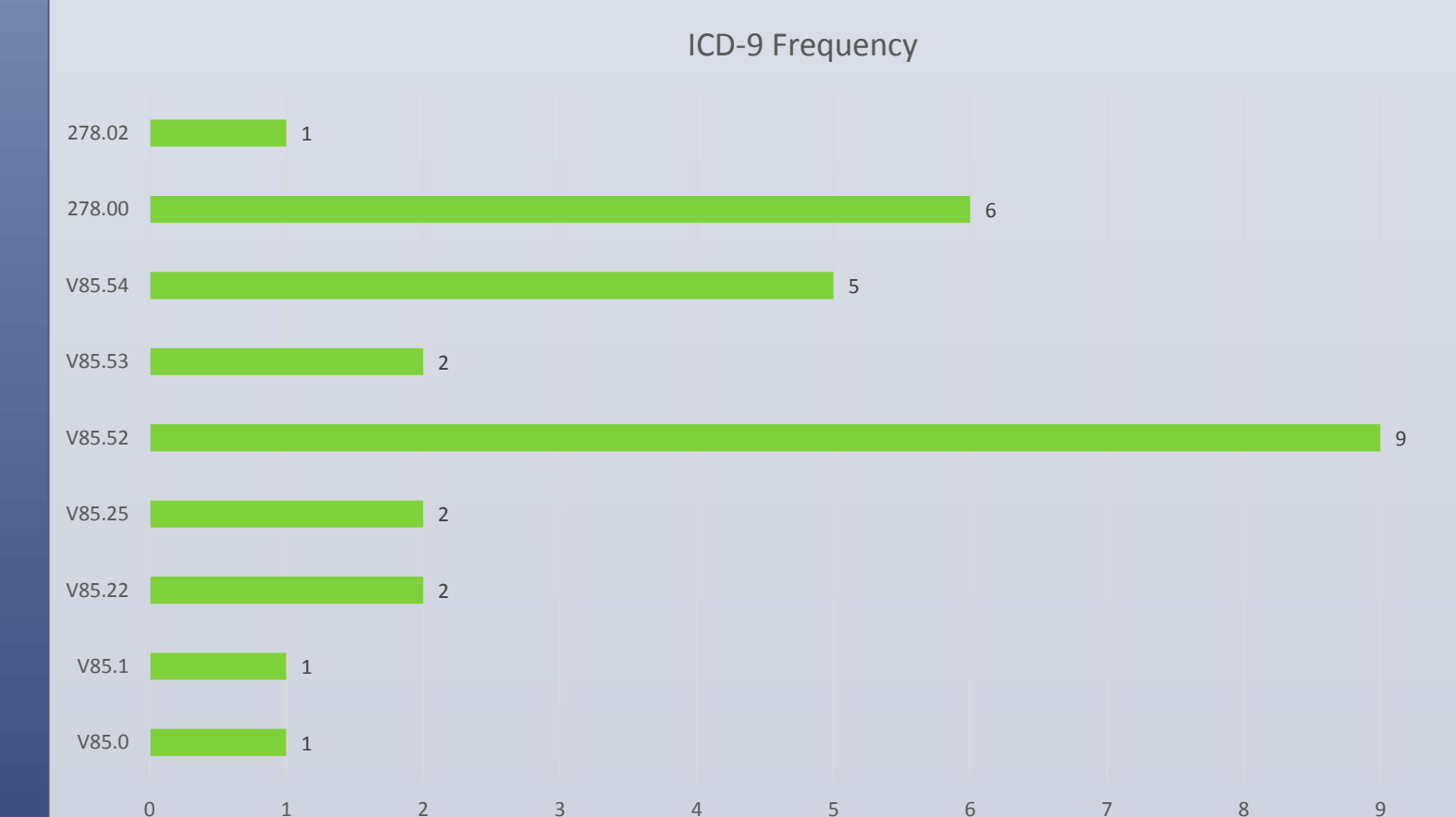


RESULTS



In addition, patient's age and/or gender did not have a significant relationship to BMI and waist circumference measurements, although it was notable through post hoc analyses that BMI and waist circumference means were higher in the older child groupings of 11-18, than in the younger child groupings of 3-10.

Additional studies with a larger survey population would be of benefit in order to further replicate and validate this data.



DISCUSSION

The overarching goal of the study was to add to the body of knowledge on the topic of pediatric obesity. Although the practice of obtaining height and weight was considered "routine" in the evaluation of pediatrics within the practice, the process of obtaining waist circumferences had only been added in the year prior to the study. Encouraging staff to obtain waist circumferences routinely did add a challenge, in addition to educating parents on why the process was being utilized. Of a total of 251 eligible patients, BMI was obtained on 201 individuals. In contrast, waist circumference was only obtained on 53 individuals.

In addition to the need to both obtain and record anthropometric measurements, clinical staff was also educated on the need to utilize appropriate ICD-9 classifications for conditions based on these measurements. Through the data extraction window period, a total of 29 ICD-9 diagnostic codes (including 278.xx and V85.xx) were issued specifically in relationship to anthropometric measurements obtained during the course of the evaluation and management encounter. This limited data set did affect the ability to make inferences based on this information.

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 Dr. LaDonna Whitten, 2nd chair
 Dr. Kathy Wright, 1st reader
 Dr. Donna Fife, 2nd reader
 Dr. Kimberly Perry, statistician
 Dr. F. Allen Moorhead Jr. MD, clinical consultant
 Dr. Wamaitha Sullivan, peer editor
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