

Exploring the Correlation of COVID's Impact Upon the Prevalence of Prediabetes Within the Population of College Students

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Introduction

In the United States, approximately 1 in 3 American adults have prediabetes.¹ Prediabetes generally precedes type 2 diabetes without proper screening and early intervention.² Primary health care providers play a critical role in screening, detecting, and educating patients regarding prediabetes and its associated risk factors. Diabetes awareness campaigns provide crucial information on prediabetes, type 2 diabetes prevention, and diabetes management to empower people to safeguard and improve their health.³



Background and Significance

Prediabetes is the state in which blood sugar levels are higher than normal but not high enough to meet diagnostic criteria for type 2 diabetes.⁴ The ADA diagnostic criteria for prediabetes are: impaired glucose tolerance test of 140-199mg/dL and/or an impaired fasting glucose test of 100-125mg/dL, and HbA1c of 5.7-6.4 percent. The criteria for risk factors include: 1) BMI of ≥ 25 ; and BMI ≥ 23 for Asian Americans and 2) at least one of the following additional risk factors: Age 45 or older; belong to a high-risk ethnic group: Black, Hispanic/Latino, American Indian, Asian American or Pacific Islander; have a first-degree relative(s) (mother, father, brother or sister) with type 2 diabetes; are physically inactive; have high blood pressure ($\geq 130/80$) or taking antihypertensive medication; have low HDL cholesterol (<35 mg/dL) and/or high triglycerides (>250 mg/dL); had gestational diabetes; and/or has been diagnosed with polycystic ovarian syndrome.⁵

Clinical Question

What is the prevalence of college students who utilized the student health services in a large university in New Jersey in 2019 that have prediabetes and/or its associated risk factors according to the American Diabetes Association (ADA) guidelines? How does it compare to 2020 in the setting of COVID?



Methods

Conducted a retrospective chart review using EMR of college students who utilized the student health centers during 01-12/2019 and 01-12/2020.

- Inclusion criteria: students ages 18 and older.
- Exclusion criteria: students who visited solely for psychiatric/mental health, behavioral health or counseling services and patients with an already existing diagnosis of diabetes mellitus type 1 and 2.

Reviewed a total of 204 charts:

- 2019 – 101 charts
- 2020 – 103 charts



Results

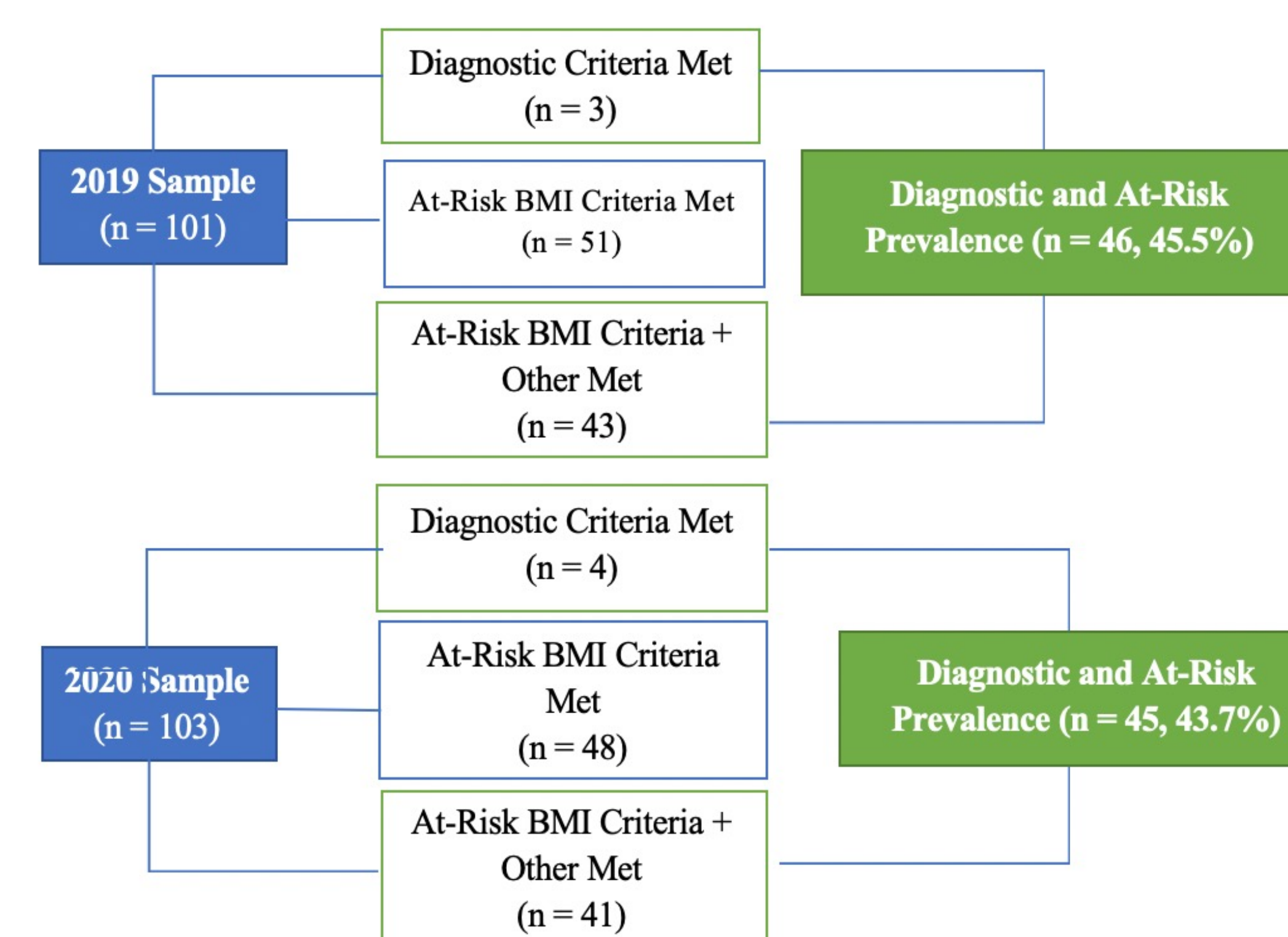
To address the clinical questions, A Fisher's exact test was conducted and showed no statistically significant change from the 2019 ($n = 46$, 45.5%) for 2020 ($n = 45$, 43.7%), $p = .888$ The mean age was 22.87 for the 2019 students and 23.47 for the 2020 students. In 2019, the majority were female ($n = 32$, 69.6%) and this also occurred in the 2020 group ($n = 30$, 66.7%). Asian American was the most often reported ethnicity for participants meeting diagnostic or at-risk criteria in 2019 ($n = 21$, 45.7%) and 2020 ($n = 29$, 64.4%) (see table 1).

Table 1
+Descriptive Data for Participants that met Diagnostic or At-Risk Criteria

Variable	2019 ($n = 46$)	2020 ($n = 45$)
Age, Mean (SD)	22.87 (3.67)	23.47 (5.33)
Gender, n (%)		
Male	14 (30.4)	15 (33.3)
Female	32 (69.6)	30 (66.7)
Ethnicity, n (%)		
African American	9 (19.6)	8 (17.8)
Hispanic	6 (13.0)	5 (11.1)
Asian American	21 (45.7)	29 (64.4)
Caucasian	7 (15.2)	3 (6.7)
More than two races	3 (6.5)	0 (0.0)

Figure 1

Flow-chart for the diagnosis and at-risk and prevalence of prediabetes for participants



Discussion

Although we did not find a statistically significant change in 2020 in the setting of COVID, we did find that the prevalence of prediabetes affected greater than 2 out of 5 (see figure 1) students on both years, which suggests a more widespread problem concerning prediabetes, beyond the impacts of COVID. Further research examining long term impacts of COVID may yield different results.

Intervention

Wellness campaign tailored to at risk groups and populations to promote lifestyle changes and healthy habits to reduce the risk for prediabetes and type 2 diabetes. The Wellness campaign involved, "Wellness Wednesdays" and tips for wellness and electronic educational handouts with tips to encourage healthy habits, proper diet and exercise.

