COVID-19 is the most recent infectious disease originating from the SARS family coronavirus and is responsible for the 2020 pandemic. Over 32 million cases have been reported in the U.S alone, with over 500,000 deaths recorded. Transmission of the virus is mainly through airborne exposure to respiratory droplets and direct contact with infected individuals. Much of disease health impact is related directly to the effect of the virus on multiple body systems, but also noted is the indirect Psychosocial impact. The state of New Jersey implemented a mandatory lockdown period from April 2020 until June 2020 to curb the spread of the virus.

Our research set out to illustrate the implications of the lockdown on the hemoglobin A1C, as well as other high-risk comorbidities such as BMI and blood pressure. There was an increase in the Hemoglobin A1C, Blood pressures, and BMI's in the post compared to the pre-lockdown period.

In the current study, there were no significant differences between pre and post COVID-19 A1c, BP and BMI values. Supplemental analyses suggest gender, and time between visits did not influence results. However, age correlated with Post-DBP (r=-.267, p=.039). Of the 365 patients seen in the pre-COVID period, only 65 followed up to be seen in the post COVID period. There was significant variability in the length of time between pre- and post- COVID visits (range 2 to 12 months), which may have affected the current study findings. Future researchers should replicate the study with a larger sample size and with controls for length of time between visits (e.g., monitoring physiological health regularly).

The Covid-19 lockdown did not result in a statistically significant change in hemoglobin A1c, BMI and BP, as such we couldn’t refute our null hypothesis.

Our data was obtained from the Mountainside Family Practice electronic medical records. We used a retrospective study design to analyze Records of 325 patients with diabetes and prediabetes seen between the periods of November 2019 and November 2020 were analyzed. 65 patients whose hemoglobin A1c checked in both the pre-covid and post-covid time periods were selected. The BMI and blood pressures of the 65 patients were also analyzed.


The Effect of the Covid 19 Lockdown Period on Diabetes Management

Donald Fru MD, Angella Makaha MD, Daniel Cruz PHD, Preethi George MD

Hackensack Meridian Mountainside Medical Center

**Background**

- COVID-19 is the most recent infectious disease originating from the SARS family coronavirus and is responsible for the 2020 pandemic.
- Over 32 million cases have been reported in the U.S alone, with over 500,000 deaths recorded.
- Transmission of the virus is mainly through airborne exposure to respiratory droplets and direct contact with infected individuals.
- Much of disease health impact is related directly to the effect of the virus on multiple body systems, but also noted is the indirect Psychosocial impact.
- The state of New Jersey implemented a mandatory lockdown period from April 2020 until June 2020 to curb the spread of the virus.

**Purpose**

- Our research set out to illustrate the implications of the lockdown on the hemoglobin A1C, as well as other high-risk comorbidities such as BMI and blood pressure.
- There was an increase in the Hemoglobin A1C, Blood pressures, and BMI's in the post compared to the pre-lockdown period.

**Hypothesis**

- Our data was obtained from the Mountainside Family Practice electronic medical records.
- We used a retrospective study design to analyze Records of 325 patients with diabetes and prediabetes seen between the periods of November 2019 and November 2020 were analyzed.
- 65 patients whose hemoglobin A1c checked in both the pre-covid and post-covid time periods were selected. The BMI and blood pressures of the 65 patients were also analyzed.

**Methods**

- In the current study, there were no significant differences between pre and post COVID-19 A1c, BP and BMI values.
- Supplemental analyses suggest gender, and time between visits did not influence results. However, age correlated with Post-DBP (r=-.267, p=.039).
- Of the 365 patients seen in the pre-COVID period, only 65 followed up to be seen in the post COVID period.
- There was significant variability in the length of time between pre- and post- COVID visits (range 2 to 12 months), which may have affected the current study findings.
- Future researchers should replicate the study with a larger sample size and with controls for length of time between visits (e.g., monitoring physiological health regularly).

**Conclusion**

- The Covid-19 lockdown did not result in a statistically significant change in hemoglobin A1c, BMI and BP, as such we couldn’t refute our null hypothesis.

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**Results**

*Figure 1. Mean Average ± SE*

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table 1. Paired Samples t-Test*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP</td>
<td>1.717</td>
<td>17.446</td>
<td>0.762</td>
<td>0.449</td>
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<tr>
<td>DBP</td>
<td>-0.7</td>
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<td>-0.752</td>
<td>0.455</td>
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<tr>
<td>BMI</td>
<td>-0.06949</td>
<td>1.88163</td>
<td>-0.284</td>
<td>0.778</td>
</tr>
</tbody>
</table>

*Figure 2. A1C Median Statistics, Z = -1.917, p = 0.055*

<table>
<thead>
<tr>
<th></th>
<th>Pre A1C</th>
<th>Post A1C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Value</td>
<td>5.4</td>
<td>5</td>
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<tr>
<td>First Quartile</td>
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<td>6.1</td>
</tr>
<tr>
<td>Median Value</td>
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<td>13.5</td>
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<tr>
<td>Third Quartile</td>
<td>20</td>
<td>15</td>
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</tbody>
</table>

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**References**