Thank you for visiting the website of SJSM Science. SJSM Science seeks to promote scientific research among SJSM students and faculty by publishing their work online and sharing their research experiences with you.
planning, implementing, and evaluating the efforts in the prevention and the control of the diseases - as outlined in the poster:

Yvette Mbangowah and Faith Nwokorie
ABSTRACT

This study was performed to determine the prevalence of hypertension (HTN) and pre-hypertension (Pre-HTN) in Bonaire, and to investigate body mass index (BMI), percent body fat (%BF), waist (WC) and hip circumference (HC) as risk factors for HTN.

Demographic information, blood pressure, WC, HC, BMI, and %BF data for 232 residents of Bonaire aged between 4 and 96, who participated in the health fair were used. T-tests and linear regression analysis were performed to determine the relationship between BP, WC, HC, BMI, %BF, and %BF. The prevalence of HTN and pre-HTN in Bonaire was 27% and 43% respectively. WC, HC, BMI and %BF were significantly correlated with blood pressure, but when the population was divided into subgroups by sex and age the results were not uniform.

RESULTS

**Basic Demographics**

Out of the 231 participants, 52% were males and 48% were females. The sample indicated that Bonaire constituted of an aging population.

**Participants by Age groups**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>All Participants</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-49</td>
<td>68</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>50-59</td>
<td>66</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>60-79</td>
<td>23</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

**Females by age groups**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>All Participants</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-49</td>
<td>31</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>50-59</td>
<td>32</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>60-79</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Males by age groups**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>All Participants</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-49</td>
<td>37</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>50-59</td>
<td>34</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>60-79</td>
<td>13</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

**MAP average and SEM**

![Graph showing MAP average and SEM](image)

**Mean % body fat and SEM**

![Graph showing Mean % body fat and SEM](image)

**Prevalence raised blood pressure**

Prevalence of HTN in all participants using SBP

- 27% 20%
- 23% 3%
- 43% 44%
- 16% 18%
- 10% 28%
- 1% 0%

Risk factors for hypertension

Linear regression analysis of:

- MAP vs WC
- MAP vs HC
- MAP vs BMI
- MAP vs %BF
- MAP vs %BF

The shaded boxes indicate the regression analysis with p-values < 0.05 indicating significance.

DISCUSSION

There was 27% prevalence of a SBP > 140 mmHg, which is lower than reported in 2009 (28.6%) [10]. There was a 43% prevalence of pre-hypertension, which is significantly higher than the reported values for the Caribbean [10], which were 35% (CL 33-38).

The elderly showed a higher prevalence of HTN but similar prevalence of pre-hypertension to the entire population, but when compared to other the entire Caribbean, the elderly people of Bonaire have a higher prevalence of HTN [11,12]. This is explained by the fact that age is a major risk factor for HTN and many other chronic diseases [13].

Men had significantly higher MAPs, compared to women while women had significantly higher %BF compared to men, which is expected as it has been shown in previous studies [14,15]. However, there was no significant difference between the WC, HC, and BMI.

Regression analysis showed that different parameters should be used to screen for HTN in the different age and sex groups in the population. Determined by linear regression analysis with p-values < 0.05.

**Screening test to be used by groups**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>All Participants</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Ages</td>
<td>WC, HC, BMI, %BF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-49</td>
<td>BMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-79</td>
<td>WC, HC, BMI, %BF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

The prevalence of HTN in Bonaire shows a declining trend, however it is still higher than other Caribbean Islands. Bonaire has a higher rate of HTN in its older age group but a similar rate of pre-hypertension when compared to other Caribbean Islands.

The population of Bonaire is mostly elderly people who with their age already have a higher risk for HTN.

Population groups should be monitored using different parameters (WC, HC, BMI, %BF) to monitor their risk for development of HTN, leading to CVD.

The groups should be monitored based on the risk factors that show significant correlation to MAP for their respective groups.

FUTURE WORK

More focused studies should be done to reduce prevalence of CVD risks and address the high rate of HTN on the Island. The primary emphasis should be focused on the elderly, who are at increased risk of CVD.

ACKNOWLEDGEMENTS

We would like to thank Dr. T. Aiyoubi, Dr. S. Sharma, and Dr. R. Sarma for their assistance.

REFERENCES