

# Be Healthy: Know Your Numbers

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## Abstract

Among the adult population in St. Vincent and the Grenadines (SVG), there is a marked prevalence of diabetes and hypertension; diseases that pose significant public health, and socio-economic challenges. This awareness raised concerns about the prevalence of the diseases among the youth population, and motivated the SVG Retired Nurses Association (SVGRNA) to collaborate with the Mustique Charitable Trust (MCT) to conduct the “*Be Healthy: Know Your Numbers*” research project among college-age students. The tri-fold purpose of the project was to determine the prevalence of high blood pressure and blood sugar levels among the college-aged population in Savageries, the awareness of the youths about the causal factors of the diseases, and encourage healthy lifestyle among the demographic. For this mixed-method research project, both quantitative and qualitative data were gathered from a sample of 851 students; 306 were males and 545 were females. The results revealed that a significantly high number of students were diabetic and hypertensive, or were at high risk of getting the diseases on account of their poor dietary and lifestyle practices. The highest readings for both diseases were seen among the males. At the onset of the research, the students were largely apathetic toward the diseases. However, there was noticeable attitudinal change, and demonstrable willingness to make the needed lifestyle changes. The study concluded that mitigating the risks of hypertension and diabetes within the youth community in St. Vincent and the Grenadines will be achieved through education about the causal factors and implications of the diseases, as well as through targeted interventions delivered by a wide cross-section of stakeholders.

## Keywords

Hyperglycemia, Hypertension, College-Age Demographic, St. Vincent and the Grenadines

## 1. Introduction

There is a high prevalence of diabetes (hyperglycemia) and hypertension in the

island nation of Saint Vincent and the Grenadines, an Eastern Caribbean island nation. Report from international health watchdogs have indicated that “Saint Vincent and the Grenadines has shown limited progress towards achieving the diet-related non-communicable disease (NCD) targets” [1]. As a response to the high incidence of hypertension and diabetes as well as the given data, the Saint Vincent and the Grenadines Retired Nurses Association (SVGRNA) turned its attention to the youth population, and collaborated with the Mustique Charitable Trust (MCT) to conduct the *Be Healthy: Know Your Numbers* mixed-method research project. The purpose of the research was to determine the prevalence of high blood pressure and blood sugar levels among the college-aged population (18 - 25 years of age) in SVG, raise the awareness of the youths about the causal factors of the diseases, and encourage healthy lifestyle among the demographic.

The primary research question “How prevalent is the incidence of high blood pressure and diabetes among college students in SVG?” underpinned the quantitative survey component of the project. The primary research question was supported by three secondary questions which underpinned the qualitative component of the research. The secondary research questions were: 1) how aware are college students in SVG about diabetes and hypertension? 2) What are the primary factors that account for high readings in blood pressure and blood sugar among college students in SVG? 3) How responsive are college students in SVG to interventions to reduce their blood pressure and blood sugar readings?

## 2. Methods

This mixed-method research project was located on the two campuses of the community college which serves the needs of the nation’s youths for tertiary-level education. Permission to conduct the project among the college students was sought and granted by way of written correspondence that was signed by the principal. The students were informed of the project, and their willingness to participate was secured by way of an informed consent form that they were required to sign. Of the approximately 2500 students enrolled at the college, 851 expressed willingness to participate. Of the total number of participants, 306 were males (36%) and 545 were females (64%). The data collection process was aided by the staging of three health fairs on the college campuses.

All 851 participants consented to undergo clinical screenings. Those who consented to be screened for diabetes numbered 529, and those who consented to be screened for blood pressure numbered 631. Clinical screenings for diabetes and hypertension which were conducted by members of the SVGRNA, provided data that informed the quantitative survey. The post-screening intervention provided data for the qualitative component of the project.

The parameters used for the blood sugar screening were those used by the American Diabetes Association (ADA). The students were asked whether they had a history of high blood sugar. They were unable to tell, indicating the lack of

attention that they had given to their health with respect to the two diseases being investigated. Each student's finger of choice was cleansed with an alcohol swab, and a sterilized lancet was used to secure the sample which was placed on a disposable test strip. A blood sugar meter was used to measure the amount of sugar in the small sample of blood. The results of the test and the student's demographic were then recorded. Post-prandial measures were not considered since the students were not asked if they had eaten prior to the screening process.

The slate of activities that embodied the post-screening intervention included, individual counselling sessions, group health discussions about healthy lifestyles, nutritional advice and demonstrations, and a panel discussion about the importance of a balanced diet and physical exercise. The activities were facilitated by members of the SVGRNA as well as local service providers from various disciplines. The students who had clinical readings that were outside the normal range of both diseases were engaged in individual counselling sessions surrounding their screening results, and their dietary and lifestyle practices. The counselling sessions were guided by semi-structured questions. The students were also allowed to ask pertinent questions throughout the counselling sessions. Considering that the high screening results necessitated medical intervention, the students were encouraged, but not mandated, to seek medical attention.

The post-screening activities were delivered concurrently to allow the students freedom of choice, and the opportunity to participate in the range of activities. The group discussions were participatory in nature, and were aided by a slate of guided questions. The panel discussion session was aided by clinicians who made presentations on healthy lifestyle practices. The students' responses to the meal preparation and physical demonstrations were also noted and documented.

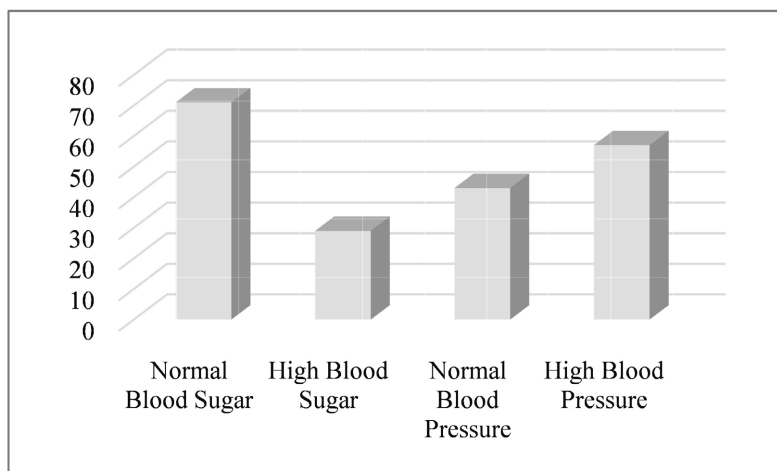
The students' responses in the question-and-answer segments of these sessions were collated and later subjected to a thematic analysis process. The common themes that ran throughout the post-screening intervention included a lack of awareness about the diseases; ignorance of the importance of failure to monitor blood pressure and blood sugar levels; lack of engagement in physical exercise; poor diet; time and financial constraints.

To ensure the fidelity of the processes, the project manager was careful to appropriately discard the instruments that were used for the clinical screenings following the medical health guidelines. All the data that were collected were appropriately managed by the project manager who also ensured that strictest confidentiality was observed and upheld. Generally, the research activities were guided by, and grounded in, the Declaration of Helsinki, the basic principles of which include respect for individuals, the right to make informed decisions, and proper treatment of human material [2].

### 3. Results

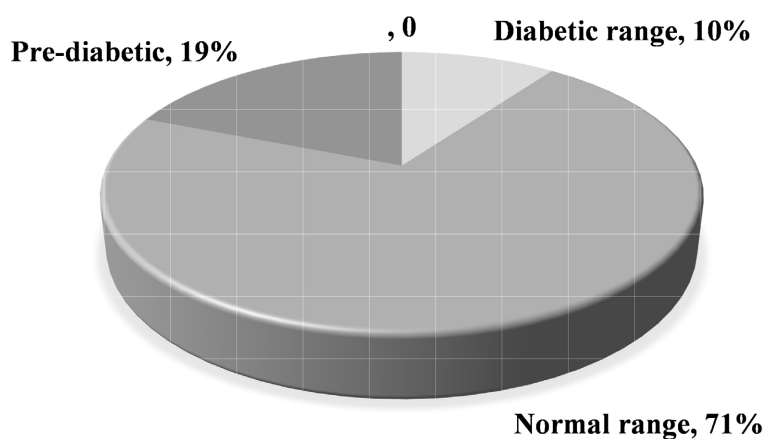
Research question 1 asked, "How prevalent is the incidence of high blood pressure and diabetes among college-age students in SVG?" As **Figure 1** depicts, the

results were that, 71% of the students tested within normal limits for blood sugar levels, while 29% tested within the pre-diabetic and diabetic ranges. For those who were screened for high blood pressure, 57 were tested within the hypertensive ranges, with only 43% testing within normal limits.



**Figure 1.** Normal vs. High Readings for both diseases (% for both male and female).

**Figure 2** gives the more detailed results of the clinical screenings for diabetes. Of the 529 students who were screened for this disease, 19% tested within the pre-diabetic range, 10% within the diabetic range, and 71% within the normal range.

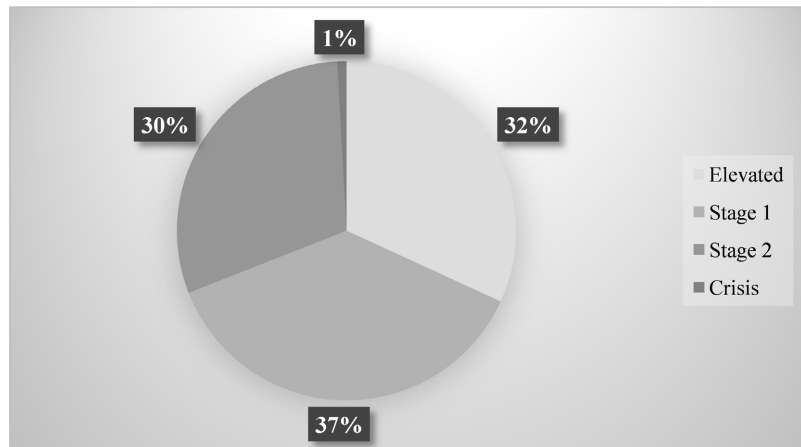


**Figure 2.** Screening for diabetes: male and female.

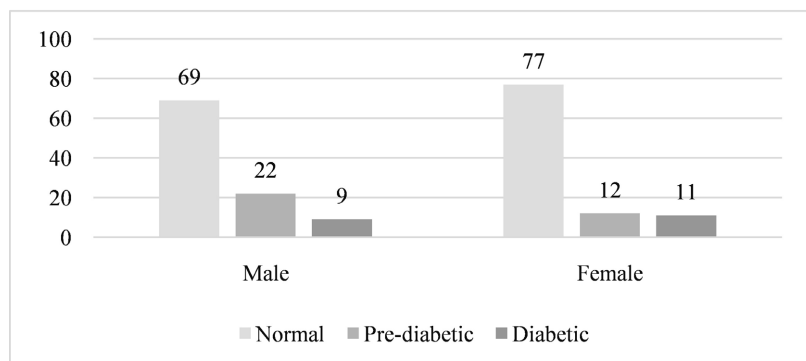
**Figure 3** provides detailed results of the clinical screenings for high blood pressure. Of the 631 students who were tested for this disease, 18% had results that were elevated, 21% tested within stage 1 hypertension, 17% tested within stage 2 hypertension, and 0.5% tested in hypertensive crisis.

The results of the clinical screenings were gender disaggregated. Of the 529 students who were tested for high blood sugar, 211 were male students, and 318

were females. Of the male students 22% tested as pre-diabetic, 9% as diabetic, and 69% within the normal range. Of the female students, 12% tested as pre-diabetic, 11% as diabetic, and 77% within the normal range. The data highlighted that 31% of the males tested were in pre-diabetic and diabetic stages compared to 23% of the females. **Figure 4** refers.



**Figure 3.** Screening for hypertension (%).



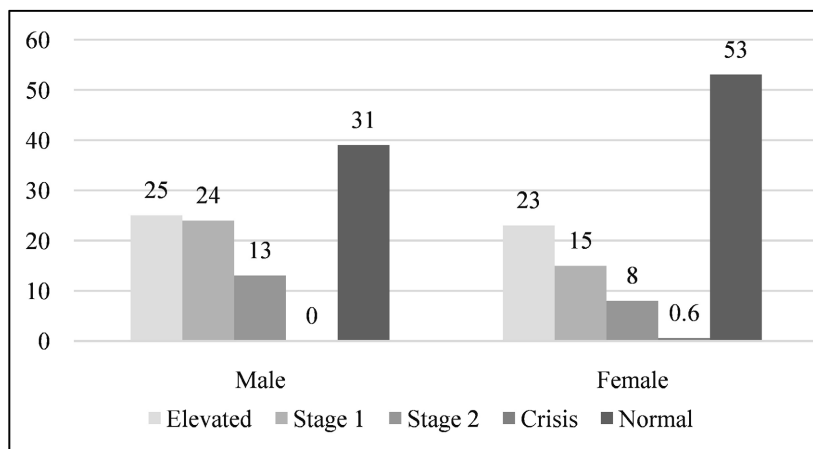
**Figure 4.** Diabetic reading for males and females (%)

Of the 631 students who were tested for high blood pressure, 195 were male students. The results showed that 38% tested within the normal range, 25% tested elevated, 24% tested stage 1 hypertension, 13% tested as Stage 2 hypertension, and 0% in hypertensive crisis. Of the 436 female students, 53% tested within normal range, 23% tested elevated, 15% Stage 1, 8% stage 2, and 1% in crisis. **Figure 5** graphically represents these results of the clinical testing for high blood pressure.

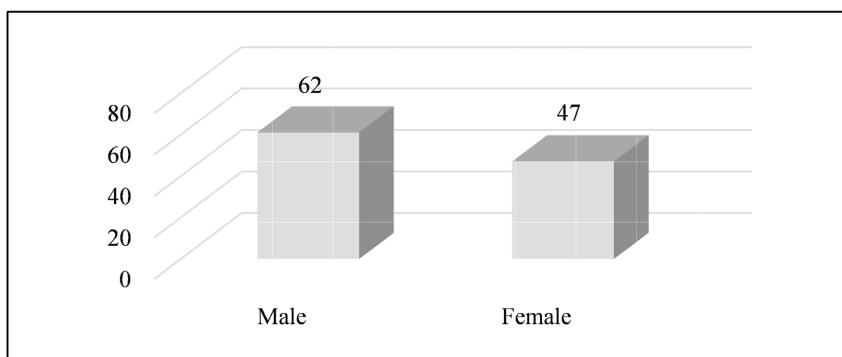
As **Figure 6** shows, 62% of the males tested as having hypertension within the varied stages, while the female students, on the other hand, tested at 47%; 16% lower than their male counterparts.

The results of the qualitative component of the research were also insightful. Regarding the secondary research question 1, "How aware are college-age students in SVG of diabetes and hypertension?" The finding was that the students

had very little, if any, knowledge about the diseases and the factors that contribute to and promote the diseases. The students had never before sought to have their blood pressure and blood sugar levels tested. They were generally surprised by their screening results.



**Figure 5.** Disaggregated Male/Female screening for hypertension (%).



**Figure 6.** Stages of hypertension disaggregated for males and females (%).

The students' experiences and realities sufficiently answered the secondary research question 2 which asked, "What are the primary factors that account for high readings in blood pressure and blood sugar among college students in SVG?" During the demonstrations and group discussions, several of the students admitted that they seldom ate balanced meals. With their busy schedules, they opted to purchase fast foods instead of preparing healthy meals.

Regarding physical exercise activities, the majority of the students admitted that they did not participate in physical exercise activities regularly. Although there were occasionally planned physical exercise activities, the students did not have a personal daily routine of their own. The students informed the researchers that, on account of their heavy academic workload, they had very little time in which to engage in physical exercise. A significant number of the students complained of being stressed and of being sleep-deprived having to complete assignments on schedule.

Concerning the secondary research question 3: “How responsive are college students in SVG to interventions to reduce their blood pressure and blood sugar readings?” It was found that the interest of the students varied across the respective activities. Students were very interested in knowing their numbers. Their interest was indicated by the willingness of 72% of the sample to be screened for hypertension, and 61% who willingly screened for Diabetes.

Regarding dietary practices, the students showed appreciation for the cooking methods that were demonstrated. Several of them expressed that they would try to prepare some of the meals. On the other hand, the students did not show appreciable interest in the physical exercises that were demonstrated: stretching; jumping jacks; muscle strengthening. Only 25% of the sample participated in these exercises.

#### **4. Discussion**

In this research project, the poor dietary and lifestyle practices of the students were borne out in the high numbers of the clinical screenings. By the admission of the students, very little attention is given to physical exercise, adequate rest, and eating balanced meal. The reality is that modern sedentary lifestyles, coupled with dietary habits, play a significant role in the emergence of diabetes and hypertension [3].

It is agreed that the demands of college life could result in a sedentary lifestyle [4]. Students are faced with having to meet deadlines for course assignments, and having to put in long hours of study for examinations. In this scenario, diminished attention is given to physical exercise and matters of health. The students are likely to ignore physical exercise, even if these were to be organized on the college campuses.

The complex realities of college life include the fact that the students may have very little financial resources at their disposal. With their limited financial resources, essential fees will naturally be prioritized over food items. Therefore, it is not surprising that “...a significant portion of students have unhealthy diets” [5]. The culture, and realities of campus life, is compounded by the limited knowledge that the students have about the causes and consequences of diabetes and hypertension.

The students’ lack of awareness about the diseases could be attributed to their prioritized focus on their studies. Very little attention, if any, would be given to matters of health, especially if they are unaware that they may have a health concern. Screening for the diseases to help the students become aware of their health status, and to reveal whether students are at risk of contracting the diseases is a worthwhile practice particularly since this will lead to early detection, or treatment, if needed [6]. Health education may not necessarily be included in the taught curriculum. However, students should be taught about healthy eating while at university [5]. In a more practical way, “...the onus should be on the school to provide healthy, and affordable, food options for all students” [5].

It is recognized that, beyond individual health, the economic and societal im-

plications of untreated diabetes and hypertension are profound, manifesting in increased healthcare costs and diminished productivity [7]. It can be appreciated that while students pursue their careers, ill health could derail their dreams for a bright future. Therefore, equal attention must be given to their health.

## 5. Conclusions

An elevated blood sugar level is a precursor to diabetes, which has become increasingly prevalent worldwide, posing substantial health risks and long-term complications if unchecked [8]. Similarly, hypertension or high blood pressure, often described as being the “silent killer”, can lead to a myriad of cardiovascular diseases, making its early detection vital [6].

The risk of getting hypertension and diabetes can be mitigated through various means, and the institution of various measures which include the administration of medication [4]. Although individuals who present with high readings for either of the diseases cannot be forced to seek medical attention, they can be encouraged to do so in their best interest. Students, as well, must be encouraged to pay attention to their health, and to inform themselves accordingly. By the same token, policymakers should ensure that adequate measures are in place to promote healthy practices on campuses. Public education cannot be overemphasized. There is a valuable place for private and public sector collaboration to institute measures that facilitate healthy lifestyles on school and college campuses. It is in the national interest of any nation to ensure that its constituents are in good health along the continuum of the lifecycle. Keen attention should particularly be given to the youth population in whose hands the future of the nation resides.

## 6. Delimitations, Limitations, and Recommended Further Research

The project was confined to the college students, which is 7.5% of the youth population in SVG. Additionally, the clinical screenings were done with only 34% of the student population, since only those who expressed willingness were screened. A larger sample would have provided more conclusive findings. Care should, therefore, be taken in generalizing the results of this project across the youth population.

The dietary and lifestyle practices of college students is perceivably dissimilar to those of the general youth population, Further research should, therefore, be done to ascertain the prevalence of the diseases among the wider youth population. Research could also be done among secondary school students with a view to early detection of students who are at risk of getting the diseases. The administration of the post-screening intervention was done by a cadre of local professionals. However, there could have been a wider representation of counsellors and social workers who would have addressed matters like stress management as well as time management that emerged.

Bearing cultural practices in mind, comparative research could also be conducted in other territories within the Caribbean. Regardless of the research location, the intention would be to reduce the risk of hypertension and diabetes among the youth population through awareness, education, and targeted interventions.

### Funding

The project was funded by the Mustique Charitable Trust which is a civil society entity in Saint Vincent and the Grenadines.

### Conflicts of Interest

There is no conflict of interest associated with this research project.

### References

- [1] American Diabetes Association (2020) Standards of Medical Care in Diabetes—2020 Abridged for Primary Care Providers. *Clinical Diabetes*, **38**, 10-38. <https://doi.org/10.2337/cd20-as01>
- [2] Bottorff, J. (2023) A Student's Poor Eating Habits Can Lead to a Lifetime of Illness. <https://www.sciencedaily.com/releases/2023/05/230524182034.htm>
- [3] Chow, C.K., Teo, K.K., Rangarajan, S., *et al.* (2013) Prevalence, Awareness, Treatment, and Control of Hypertension in Rural and Urban Communities in High-, Middle-, and Low-Income Countries. *JAMA*, **310**, 959-968. <https://doi.org/10.1001/jama.2013.184182>
- [4] Declaration of Helsinki. [https://inside.tamuc.edu/research/compliance/IRB-Protection\\_of\\_Human\\_Subjects/irbDocuments/Declaration.of.Helsinki.pdf](https://inside.tamuc.edu/research/compliance/IRB-Protection_of_Human_Subjects/irbDocuments/Declaration.of.Helsinki.pdf)
- [5] (2022) Country Nutrition Profiles: Saint Vincent and the Grenadines. Global Nutrition Report. <https://globalnutritionreport.org/resources/nutrition-profiles/latin-america-and-caribbean/caribbean/saint-vincent-and-grenadines/>
- [6] RadhaKrishnan, J. (2020) Diabetes and Hypertension. Diabetes Resource Center|New York-Presbyterian.
- [7] Seuring, T., Archangelidi, O. and Suhrcke, M. (2015) The Economic Costs of Type 2 Diabetes: A Global Systematic Review. *PharmacoEconomics*, **33**, 811-831. <https://doi.org/10.1007/s40273-015-0268-9>
- [8] Whelton, P.K., Carey, R.M., Aronow, W.S., Casey, D.E., Collins, K.J., *et al.* (2018) 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Journal of the American College of Cardiology*, **71**, e127-e248. <https://doi.org/10.1016/j.jacc.2017.11.006>