Introduction

As obesity rates surge globally, non-communicable diseases (NCDs) follow suit with Pacific Island nations being some of the most obese nations in the world, due to rapid market integration and their accompanying health transitions. The Republic of Vanuatu, an archipelago in the South Pacific, has a population of over 300,000, inhabiting 63 islands, with our primary focus on the health transitions of its southmost island, Aneityum. Urban residents rely on Western-style supermarkets, while rural residents live on a diet of traditional, garden grown foods. Ni-Vanuatu may face increased disease risk due to different genetic histories in the Pacific alongside the “double-burden” health transition occurring.

Participants & Methods

- Field surveys conducted in July and August 2023.
- Participants recruited from previous surveys with help from the local medical personnel.
- Questionnaires including health and dietary habits and Anthropometric measurements taken by the team.
- Anthropometric measurements includes height, weight, waist circumference, bioelectric impedance analysis (BIA), body mass index (BMI), and body fat percentage (BF%).
- T-testing was used to analyze significance difference between measurements of males and females.
- Two-proportion z-testing used to determine the differences between inferred obesity and central obesity.
- Z-testing was used to compare rates of central obesity from 2023 surveys to data from surveys in the past.
- Discussions arise on whether to use WHO or Asia-Pacific BMI cutoffs for Ni-Vanuatu, as data suggests East-Asian BMI markers may be appropriate.

Results

- Women exhibit significantly higher means in BMI, BF%, and WC
- Women exhibit significantly higher rates of obesity according to both the WHO and Asian-Pacific obesity standards as measured by the 3 metrics
- Males and females are catching up in obesity rates to 2011 Efate

Discussion

Our results showed women had a greater propensity for obesity and chronic disease risk as opposed to men. Males may exhibit a lesser increase in obesity due to kava consumption (a psychoactive drink, more potent on an empty stomach and leads to reduced nighttime eating). In our sample, 76.9% of men drank kava weekly while 33.9% of women did (P < .05). Among only those that drank, males drank 4.56 times per week, while females drank 3.98 times per week (insignificant P-value).

Despite Aneityum’s less developed infrastructure, women there caught up with their counterparts in Efate regarding BMI, indicating behavioral factors’ impact on body composition as rising obesity rates in Vanuatu were linked to increased consumption of processed foods and sedentary lifestyles.

94% of the people in Vanuatu are Melanesians, whose closest genetic descendants outside of the Pacific are Asians, thus this research applied WHO Asian-Pacific (A-P) scale cutoff points for overweight and obesity for Ni-Vanuatu which are 22-25 kg/m² as compared to ≥25 kg/m². A clear trend emerged in Aneityum as obesity rates surged after only a few instances in 2007. It is imperative that the Ni-Vanuatu understand how their behaviors and dietary changes in their swiftly modernizing society affect their health as rapid modernization and increased consumption of processed foods have increased the BMI of the people in Vanuatu, specifically those in Efate and Aneityum.

References

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Acknowledgement

Figure 1: Comparison of mean BMI of males and females on Aneityum and Efate over time with overweight and obese BMI defined by the WHO.

Figure 2: Comparison of mean BMI of males and females on Aneityum and Efate over time with the obese cut-off point defined by WHO.

Figure 3: Comparison of mean male BMI on Aneityum and Efate over time with overweight and obese BMI as defined by the WHO.

Figure 4: Comparison of mean female BMI on Aneityum and Efate over time with overweight and obese BMI as defined by the WHO.

Figure 5: Comparisons of mean male BF% on Aneityum and Efate over time with the obese cut-off point defined by the WHO.

Figure 6: Comparison of mean female body fat percentage on Aneityum and Efate over time with the obese cut-off point defined by the WHO.