

higher risk of developing obesity than those with wild type alleles. But nevertheless, vigorous physical activity lowered the risk. The active adult carriers of variants had about 30% lower risk of obesity than the inactive carriers of the variants. Thus, our finding is in support of the idea that says certain genetic effects may be operating most strongly on groups in a particular environmental condition, and strongly acts on physically inactive subgroups to the pre-adult life stages.

The results also hinted that the studied variant (rs6265) modulate the association of adiposity with physical activity as revealed by the genotype/activity association shown in figure 1 above. Despite the fact that the relationship between increasing physical activity and decreasing obesity was ambiguous as reported by [29], high physical activity seemed to play important role in attaining a negative energy balance by speeding up energy expenditure. [30] This could be a good way of getting rid of excess calories, thereby suppressing the effect of variants involved in early onset of obesity, enhanced by obesogenic environment.

5. Conclusion

This study is the first of its kind to reveal the associations of rs6265 variant with BMI, BF%, and risk of obesity development in heterogeneous Malaysian adolescents' population comprising Malay, Chinese and Indian ethnic groups respectively. It is important to unveil the impact of genetic susceptibility by investigating the association of genetic variants on obesity candidate genes and adiposity in adolescents. Childhood obesity has higher likelihood of translating to adult obesity in contribution of obesogenic environment. In this study we genotyped rs6265 variant and found that the genotypic and allelic frequencies of the study variants are slightly similar to that of some Asian and European population respectively. We also found out that rs6265 variant is associated with obesity development at early stage of life. It has also come to our knowledge that physical activity attenuates the effect of this variant in the study population by observing significant higher mean BMI and BF% in the inactive subjects who are carriers of minor allele of the variant. Having clear understanding of the genetic contributions to obesity development especially interactions of genes with environment would provide better understanding of the pathways that lead to adiposity and obesity eventually. This could perhaps give rise to promising strategies by which the morbidity will be prevented and treated well after the onset.

6. Future Study

Future research will focus on the association of this variant with morbid obesity in Malaysian adults of different ethnic background to ascertain the general findings of this study.

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