

## ORIGINAL ARTICLE

# An intervention based on the stages of change, health profiles and physical activity levels of overweight and obese adults in Sarawak, Malaysia – a feasibility study

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## Keywords:

physical activity, Transtheoretical model of change (TTM), indigenous people, overweight and obese, feasibility study

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## Abstract

**Introduction:** Physical inactivity is the one of the leading causes of major non-communicable diseases in the world. The aim of this study is to assess the feasibility of an intervention program based on the stages of change, physical activity levels and health profiles of selected overweight and obese adults in Sarawak.

**Methods:** This intervention study was carried out using selected overweight and obese adults in Sarawak. A total of 75 participants were placed in the intervention group, and 80 respondents were placed in the control group participated. Respondent-determined weekly aerobic exercise sessions were conducted for six months. The Malay version of the long-form International Physical Activity Questionnaire (IPAQ) and Transtheoretical model of change (TTM) questionnaire were used, together with anthropometric measurements and the collection of venous fasting blood profiles. Data was entered and analyzed using SPSS Version 20.

**Results:** The intervention group had significant better stage transitions compared to the control group ( $p < 0.01$ ). They also had significantly lower total cholesterol, although both groups showed significant results (difference = 0.53,  $p < 0.01$ ; difference = 0.38,  $p = 0.01$ ). The respondent-determined intervention program was effective in improving stage transition; however, an intervention of longer duration could provide more conclusive health outcomes.

**Conclusion:** Physical activity plays a role in assisting overweight and obese adults to be more active and healthier.

## Introduction

According to the World Health Organization (WHO),<sup>1</sup> one of the factors in global mortality is physical inactivity. Physical inactivity is listed as the fourth leading risk factor related to non-communicable diseases and is said to contribute to 6% of deaths globally.<sup>1</sup> Many rapidly developing countries, including Malaysia, have a high prevalence of obesity and diet-related disease. This prevalence is linked to rapid economic growth and heavy consumption of unhealthy foods, coupled with more sedentary lives.<sup>2</sup> In addition, individuals can also become physically inactive after they become obese. Thus, obese individuals should be encouraged to perform physical activities. Although regular physical activities are beneficial, not many Malaysian adults in Sarawak are active. In the Malaysian Adults Nutrition Survey 2002 – 2003, out of 6926 respondents, approximately 10% were adults from Sarawak.<sup>3</sup> The study found that for Sarawak, 31.4% (95% CI = 26.2 – 37.1) reported they had ever exercised, and 14.0%

claimed that they had adequate exercise (95% CI = 10.7 – 18.1). In the same study, 31.1% (95% CI = 26.3–36.3) of the respondents were sedentary, 50.9% (95% CI = 45.6–56.3) were moderately active, and 18% (95% CI = 14.3–22.3) were active. A recent study suggested that inactive individuals may reap health benefits from even a small increase in activity.<sup>4</sup> The same study also suggested that avoiding all inactivity would theoretically reduce all-cause mortality more than avoiding obesity.<sup>4</sup>

However, it is not easy to change behavior. According to the Theory of Planned Behavior, in order for individuals to change, it is important to identify their intentions regarding the change.<sup>5</sup> The transtheoretical model of change (TTM) developed by Prochaska and DiClemente can be used to determine individuals' intentions regarding the change by determining their stages of change. These stages include: precontemplation (the new behavior is not considered), contemplation (the new behavior is contemplated but not acted upon), preparation (efforts are