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ORIGINAL ARTICLE

# Contextual factors influencing leisure physical activity of urbanized indigenous adolescents



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## KEYWORDS

adolescents;  
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**Background/Purpose:** Indigenous populations suffer from disparities in socioeconomic resources and health status. One approach to addressing these disparities is by targeting modifiable risk factors such as leisure physical activity (LPA). This study investigated and compared factors related to LPA among urbanized indigenous and nonindigenous adolescent students.

**Methods:** This cross-sectional survey comprised fifth to ninth grade indigenous and nonindigenous students ( $n = 733$ ). The nonindigenous students were matched with indigenous students on sex and academic achievement and used as a reference group. Data were collected through telephone interviews using structured questionnaires. Major items included: demographic characteristics; average time spent watching television per bout; participation in LPA; and stress and depression experiences.

**Results:** With the exception of the duration of television watching per bout, Chi-square and independent  $t$  tests demonstrated that there were no significant differences between indigenous and nonindigenous adolescents in the selected LPA-related factors. Multiple logistic

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regression analysis including terms investigating interaction between ethnicity and the contextual factors included in this study indicated that the following factors were correlated with LPA participation: age [odds ratio (OR) = 0.82, 95% confidence interval (CI) = 0.71–0.94], male sex (OR = 1.77, 95%CI = 1.19–2.61), total hours spent watching television in the past 2 weeks (OR = 0.79, 95%CI = 0.63–0.99), life satisfaction (OR = 2.25, 95%CI = 1.04–4.90), and exercise enjoyment (OR = 3.40, 95%CI = 1.71–6.74). However, neither indigenous status (OR = 1.03, 95%CI = 0.19–5.79) nor any of the interaction terms reached the significant level. *Conclusion:* No significant ethnic differences were found in LPA participation. LPA was significantly correlated with age, male sex, total time spent watching television, life satisfaction, and enjoyment of exercise.

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## Introduction

After reviewing the literature regarding the association between physical activity (PA) and health, the US Surgeon General's report concluded that a regular regimen of 30–45 minutes of daily moderate PA can improve quality of life and substantially reduce the risk of coronary heart disease, stroke, colon cancer, diabetes, and high blood pressure.<sup>1</sup> These findings ushered forth a wave of worldwide initiatives to encourage increased PA.<sup>2</sup> In response to the global recognition of the importance of PA for better health and well-being, the government of Taiwan has also introduced a series of health promotion campaigns along similar lines seeking to promote PA among the Taiwanese population.

Indigenous peoples comprise 2% of the population in Taiwan with ethnic Han Taiwanese making up the 98% majority. This minority group is not ethnically or linguistically related to Han Taiwanese, but is rather regarded as the point of origination of the Malayo-Polynesians and Austronesians of Southeast Asia and the Southern Pacific.<sup>3–6</sup>

Indigenous populations experience disparities in health worldwide, and Taiwan is no exception, where wide rifts continue to exist in mortality rates and other health outcomes between its ethnic groups.<sup>7–11</sup> This is particularly the case with many diseases arising from metabolic disturbances whose risk is effectively reduced through PA.<sup>12–16</sup>

In addition to promoting PA, there is also a global movement to address disparities in health between indigenous and general populations.<sup>17</sup> One modifiable risk factor that can be targeted and addressed rather inexpensively is participation in leisure time PA (LPA). Interventions aimed at increasing LPA among youth and adolescents are most effective in the long term, as the behavioral patterns established during these developmental periods have been shown to determine both current health status as well as risk for developing chronic diseases later in life.<sup>18</sup>

In recent years, a number of studies have been published regarding adolescent LPA, which can be referenced by public health professionals designing campaigns to encourage LPA among this age group. However, few researchers have investigated LPA among the indigenous adolescent demographic.<sup>19–23</sup> On account of cultural background factors, and the growing trend of urbanization among Taiwanese indigenous peoples which may be accompanied by some degree of acculturation, indigenous

groups may be very likely to have a different and dynamic conceptualization of LPA. Thus, indigenous adolescents may experience different barriers that will need to be considered by public health professionals designing and implementing campaigns to close gaps in health between indigenous and general populations. To explore this phenomenon better, this study set out to investigate the contextual factors related to LPA participation among urbanized indigenous adolescents and urbanized adolescents in the general population in Taipei City, Taiwan.

## Methods

### Participants

This study utilized a cross-sectional survey design. Data were collected through telephone interviews using structured questionnaires. The preliminary study was a City-wide Indigenous Adolescents Survey (CIAS) on LPA patterns and sports injuries, which was conducted in the summer of 2002.<sup>24</sup> This is a census self-administered questionnaire survey of indigenous adolescent students in the fifth to ninth grades that also includes nonindigenous classmates matched on sex and academic achievement to be used as a control group ( $n = 1046$ ).<sup>24</sup> An indigenous person is defined as a descendant of an indigenous inhabitant of Taiwan, i.e., Austronesian tribal peoples. Six months following the previous study, a telephone survey was performed to analyze the key characteristics related to LPA among urban adolescents. The detailed sampling methodology has been described elsewhere.<sup>24</sup> A total of 733 participants were recruited into this cross-sectional follow-up survey, which yielded a response rate of 70% as shown in Fig. 1.

### Measurements

The major items of the current telephone survey are described as follows. (1) *Demographic information:* Participants' background information included age, sex, and ethnicity. (2) *Selected characteristics:* Participants' selected characteristics included height, weight, average hours spent watching television (TV) per bout, and participation in LPA during the 2 weeks preceding administration of the questionnaire. (3) *Mental Health Status:*

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