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Original research

Examining the role of acculturation in the leisure-time physical activity of South Asians living in Canada

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ABSTRACT

Objectives: The purpose of this study was to examine the leisure-time physical activity of South Asians living in Canada using a four-mode, bidimensional acculturation framework.

Design: Cross-sectional, descriptive study.

Methods: A random sample ($N = 204$) of South Asian adults living in Calgary, Canada completed a telephone interview that assessed their leisure-time physical activity and acculturation. Interviews were conducted in either English or Punjabi, depending on participant preference.

Results: Cluster analysis identified four acculturation clusters: Low-Separated and High-Separated (with separation signifying different preference levels for maintaining one's heritage culture while distancing oneself from the mainstream culture); and Integrated-Heritage and Integrated-Mainstream (with integration indicating a preference for maintaining one's heritage culture and being involved in the mainstream culture—albeit with the former cluster emphasizing heritage more whereas the latter cluster emphasized the mainstream more). A MANOVA performed on light, moderate, and vigorous leisure-time physical activity using the four clusters was significant ($p < .05$). Moderate leisure-time physical activity was greater for the two separated clusters than the two integrated clusters ($p < .05$), with the Separated-Low cluster being greater than both the Integrated-Mainstream ($p < .05$) and the Integrated-Heritage ($p < .01$) clusters. Vigorous leisure-time physical activity was greater for the two integrated clusters than the two separated clusters ($p < .01$), with the Integrated-Mainstream cluster being greater than both the Separated-Low ($p < .05$) and Separated-High ($p < .01$) clusters.

Conclusions: An integrative, four-mode bidimensional approach should be employed when developing messages and designing programs to promote and encourage leisure-time physical activity in South Asian communities.

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1. Introduction

In 2011, Canada's minority population was 19%; nearly four times the 5% reported in 1981 but less than two-thirds that projected for 2031, when 31% of the country will be composed of minority group members.^{1,2} Although South Asians have lived in Canada since the early 1900s,³ they have only recently become, and are projected to remain, the country's largest minority group.²

This trend, an outcome of immigration criteria becoming less racial- and more skill- and education-based,³ is not unique to Canada, but is also happening in the United States,⁴ United Kingdom,⁵ and Australia.⁶ Statistics Canada defines South Asian as any person who reports an ethnicity associated with the southern part of Asia or who self-identifies as South Asian. This definition encompasses people from a diverse number of ethnic backgrounds and ancestry, with Punjabi being the largest group in Canada.³

Epidemiological data have revealed that South Asians are at higher risk of CVD, diabetes, obesity and associated risk factors such as increased visceral adiposity, triglycerides, blood insulin levels and insulin resistance compared to other ethnic groups.^{7,8} South Asians also report lower levels of physical activity participation despite its ability to prevent and manage CVD,

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diabetes, and associated risk factors.⁹ Unique contributing factors (e.g., cultural traditions, religious customs, migration processes) closely associated with acculturation have been reported as barriers to PA and preventive health behaviors.¹⁰ Given this population's growing numbers and higher risk of certain diseases, the purpose of this study was to examine the leisure-time physical activity of South Asians living in Canada, and to do so using a four-mode, bidimensional acculturation framework.

Acculturation refers to the changes a person or cultural group experiences as a result of contact with another cultural group.¹¹ Researchers once held that acculturation was *unidimensional*; that is, arranged along a single continuum from exclusively heritage culture to exclusively mainstream culture with biculturalism in-between.¹² Acculturation is now commonly construed as being *bidimensional*; that is, viewed along two continuums with heritage and mainstream cultures being orthogonal.¹² Based on the latter approach, the dominant acculturation research paradigm¹³ holds that four distinct modes exist: (a) *assimilation*, where an individual prefers to become absorbed into the mainstream culture and so sheds her/his heritage culture; (b) *separation*, where an individual prefers to hold on to her/his heritage culture and tries to keep the mainstream culture largely at bay; (c) *integration* (or what is also called bicultural), where an individual prefers to maintain her/his heritage culture and to be involved in mainstream culture; and (d) *marginalization*, where an individual is not only unable or unwilling to maintain her/his heritage culture but also unable or unwilling to be involved in the mainstream culture.¹⁴

To date, no studies have examined the LTPA of South Asian immigrants or ethnic group members using Berry's¹³ four-mode framework. There is, however, support for doing so, with a review⁹ calling for more theory-based research to better understand the social and cultural factors underlying South Asians' low PA levels. Another review¹⁵ of immigrant and ethnic population members found that acculturation was positively associated with higher PA in 57% of cases. Although this percentage may seem low, Gerber and associates¹⁵ held this was still compelling given these studies' diversity (e.g., seven employed a bidimensional measure of acculturation, nine utilized a unidimensional measure, and numerous others used various proxies such as language usage/proficiency). Because unidimensionality is now seldom employed,¹² and proxies can be overly simplistic,¹⁶ Gerber et al.¹⁵ recommended future PA studies examine acculturation bidimensionally.

Noteworthy here is that only one of the 44 PA studies Gerber et al.¹⁵ reviewed involved South Asians; and it¹⁷ not only utilized a proxy measure for acculturation but the subsequent analysis was conducted after merging the study's eight ethnic groups into a single superordinate category. Conversely, whereas a review⁹ of 38 studies examining South Asian women's PA did not investigate acculturation, another review¹⁸ of 11 quantitative studies examining South Asian immigrants' PA identified five studies that utilized proxies and one study that used both a proxy and a unidimensional acculturation measure.¹⁹ Jonnalagadda and Diwan's¹⁹ non-random study found that both length of residence and self-identified bicultural or more American ethnic identity were associated with greater PA frequency. Two of the latter review's¹⁸ authors subsequently conducted a non-random study²⁰ of English- and/or Hindi-speaking South Asian immigrants to America using a bidimensional approach. Participants who were more acculturated to the mainstream culture reported spending more time in moderate/vigorous LTPA. Reinterpreting these findings in terms of our study's four-mode, bidimensional acculturation framework,¹³ we hypothesize that LTPA will be significantly higher for integrated and assimilated South Asians living in Canada compared with their separated and marginalized counterparts.

Table 1
Demographic characteristics.

Variable	N=204, %
Gender	
Male	50.5%
Female	49.5%
Age	
18–34 years	33.3%
35–54 years	44.6%
54+ years	22.1%
Marital status	
Married/common law	87.3%
Single	12.7%
Education	
Secondary	37.8%
Post-secondary	44.1%
Graduate	18.1%
Pre-tax household income (CAD)	
Less than \$40,000	26%
\$40,000–90,000	55.6%
More than \$90,000	18.4%
Citizenship	
Canadian citizen	66.7%
Permanent resident	31.4%
Other	1.9%
Country of origin	
India	72.1%
Pakistan	3.4%
Nepal	0.5%
Punjab unspecified	18.1%
Canada	5.9%
Years since migration to Canada	
Less than 10 years	37.8%
10–19 years	33.8%
20+ years	28.4%
Self-identified ethnicity	
Punjabi Canadian	61.3%
South Asian Canadian	15.2%
Indian	20.1%

2. Methods

This study employed a cross-sectional random design. Participant eligibility was based on: (a) age 18 or above; (b) country/region of birth (Canada, India, Pakistan, Punjabi unspecified); (c) self-identified ethnic/cultural group (Indian, East Indian, Indo-Canadian, Pakistani, Punjabi-Canadian); and (d) one participant/household. Computer-assisted telephone interviewing was conducted in May and June 2011. Interviewers spoke English and/or Punjabi, and participants could select either language. A sample frame of telephone numbers ($N=6058$) was generated composed of South Asian first names ($N=397$) and surnames ($N=1632$). Nine hundred and ten Calgary (Canada) telephone numbers were randomly selected by a software program and subsequently called (ineligible/answering machine/etc., $n=538$; completes, $n=204$; refusal, $n=160$; incomplete/language problem/other, $n=8$). Table 1 reports the sample's demographic characteristics.

The questionnaire consisted of qualitative (not reported further here) and socio-demographic sections, as well as a section assessing LTPA using the Godin-LTPA Questionnaire.²¹ Light, moderate, and strenuous activity was measured in terms of both frequency (more than 15 min per average week) and duration (in minutes each time on average). Participants' LTPA was determined by multiplying the number of times per week they engaged in LTPA by the average duration of engagement for light, moderate, and vigorous activity. The Godin-LTPA provides a valid and reliable measure of LTPA,^{21,22} however, it has not been employed previously with South Asians nor in a Punjabi-language format.

Also included in the questionnaire was a section assessing acculturation using the Vancouver Index of Acculturation (VIA),^{13,19} with six items measuring (1 = strongly disagree to 5 = strongly agree)

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