Adolescent Gender and Ethnicity Differences in Physical Activity Perceptions and Behavior

Soojin Yoo, Monica A.F. Lounsbery, Tim J. Bungum, and Julie Gast

Objectives: To examine gender and ethnicity differences in adolescents’ physical activity (PA) behavior and perceptions. Methods: Surveys designed to measure PA behavior and perception were completed by 175 adolescents. Gender and ethnicity differences in PA behavior were examined using chi-square tests. A two-way between groups MANOVA was used to examine perception. Results: No significant differences were found between gender groups for PA. Caucasian students were more likely to be active and to perceive that PA makes their health better. Hispanics were more likely to perceive that PA requires more time than Caucasians. Conclusions: Findings suggest greater consideration be given to the ethnic orientation of PA behavior antecedents when promoting PA to adolescents.

Keywords: physical activity, perception, adolescents, Hispanic, Caucasian.

Because it is complex, many factors may influence youth physical activity (PA). In efforts to increase PA levels, it is important to understand correlates of PA and how they influence PA behavior. Research has shown that the environment, attitudes, values, and health status are associated with PA. Interventions, however, have demonstrated that manipulating these factors is difficult because of their multifaceted nature. In addition because PA factors and their influence on PA behavior are diverse (eg, people are exposed to more than 1 environment; different values and attitudes are espoused and reinforced in these environments), intervening on them is challenging. According to the tenets of Social Cognitive Theory (SCT), beliefs about capability, outcome expectancy, availability, accessibility, and self-control mediate behavior. Hence, despite the known complexity of factors influencing PA behavior across individuals, the presence of certain factors may be essential in successful intervention on PA behavior.

Many studies have applied the Theory of Planned Behavior (TPB) and Health Belief Model (HBM) to understanding the beliefs and behavior in PA because the TPB and the HBM asserted that the key to behavior change is highly dependent on individual’s beliefs. The TPB proposes that intention is the primary determinant of behaviors. Intentions are thought to be determined by attitudes, subjective norms, and perceived behavior control. Attitude is reflected in a positive or negative evaluation of performing the behavior and has both instrumental (eg, beneficial/harmful) and affective (eg, enjoyable/unenjoyable) components. The HBM is conceptualized as a balance between 2 elements: the value an individual places on a health goal and the belief in the efficacy of a specific personal health action to facilitate the achievement of the health goal.

The relationship between PA beliefs, affective associations and PA behavior has been examined in the literature. This research has shown that positive affective associations with PA predicted greater PA behavior. In addition, Terry reported that a positive attitude toward exercise may predict regular engagement in PA. Studies have examined the relationship between PA behavior and a multitude of cognitive-based variables including self-efficacy, outcome expectations and intention. Results from this body of work have shown that (a) child’s self-efficacy is positively associated with PA, (b) positive outcome expectations are positively correlated with PA (c) children with strong intentions engage in PA are more likely to exhibit PA behavior.

While PA behavior differences between demographical subsets of individuals has been extensively reported (eg, YRBSS, BFRSS), differences in cognitive processes about PA have been less frequently studied. Most research in this area has focused on examining beliefs about PA by gender. Additionally, most of this research has examined gender differences in beliefs about PA within the same ethnic group (eg, comparing African American men and women). Far fewer studies have compared cognitive processes about PA from individuals in different ethnic groups. Collectively, these studies have found that compared with both Hispanic and African American girls, Caucasian girls were more likely to perceive that PA has health-related benefits.
It is interesting that there has been little research examining ethnic differences in correlates of PA even though national surveillance data has consistently illuminated differences in health risk behavior and chronic disease incidence between ethnic groups. For example, according to the 2005 Youth Risk Behavior Survey, Hispanic and African American high school students participated in vigorous or moderate physical activity at very low rates. The Hispanic population has shown higher incidence of diabetes and is 1.5 times more likely to be obese than are their Caucasian counterparts. Other research reported lower PA levels among Hispanics, examining ethnic differences in correlates of PA even though national surveillance data has consistently illuminated differences in health risk behavior and chronic disease incidence between ethnic groups. For example, according to the 2005 Youth Risk Behavior Survey, Hispanic and African American high school students participated in vigorous or moderate physical activity at very low rates. The Hispanic population has shown higher incidence of diabetes and is 1.5 times more likely to be obese than are their Caucasian counterparts.

Healthy People 2010 identified the Hispanic population as a target of further study and intervention in the nation’s health promotion and disease prevention initiatives. Given the documented ethnic differences found in PA behavior and chronic disease incidence, examining differences in correlates of PA is an important undertaking. Therefore, the purpose of this study was to examine gender and ethnic differences in secondary school students’ perception of PA and self-report PA behavior.

### Methods

#### Participants and Setting

Data were taken from the formative research phase of Planned Approach to Healthier Schools (PATHS), a school-based health intervention that was designed to increase PA and improve dietary behavior. As a part of that study, institutional review board approval, school district and school approval, informed consent, and youth assent were obtained. In the past study, participants were 2530 students who attended a public junior high and high school in northern Utah. Only 87 participants identified themselves as being Hispanic and Caucasian participants were 2443. The function for the selection of random cases of the Statistical Package for the Social Sciences 15.0 (SPSS, Inc., Chicago, IL) was used to select a similar number of Caucasians. An approximate sample size of 4% of all cases was selected to yield a similar sample sized of 88 Caucasians. Table 1 shows demographic characteristics of the sample yielded. The total participants for the present analysis included 175 adolescents (96 boys and 79 girls), age of participants ranged from 13 to 17 years old.

#### Instrumentation

To assess PA behavior the Centers for Disease Control’s Youth Risk Behavior Surveillance System questions that assess vigorous PA were used. Vigorous PA was assessed by the item: On how many of the past 7 days did you participate in physical activity for at least 20 minutes that made you sweat or breathe hard, such as fast walking, slow bicycling, skating, pushing a lawn mower, or mopping floors? Recently released national PA guidelines call for 60 minutes of PA most days, with 20 of those minutes spent in vigorous activity at least 3 times per week. While the YRBSS PA questions used in this study were limited in the ability to assess individual attainment of current guidelines, they do provide an opportunity to distinguish PA based on previous guidelines. Therefore, for the purpose of this study, participant responses to questions concerning vigorous and moderate physical activity were recoded as dichotomous variables that placed individual responses into one of 2 categories of active and insufficiently active. For vigorous PA, individuals who reported 2 or fewer days were coded as insufficiently active, and those who reported 3 to 7 days were coded as Active. For moderate PA, individuals reporting 0 to 4 days were coded as insufficiently active and individuals reporting moderate PA on 5 days to 7 days were coded as active.

To assess students’ perception of PA, items from the revised Children’s Attitude Toward Physical Activity (CATPA) were used. The items from this inventory were selected because they characterize perceptions about PA from a multidimensional sociopsychological perspective. The revised CATPA had 7 subdomains. These 7 subdomains include social growth, social continuation, health and fitness, pursuit of vertigo, aesthetic experience, catharsis, and ascetic experience. Table 2 provides an overview of the dimensions and the corresponding items used to measure the dimensions. The revised CATPA inventory has shown internal consistencies ranging from .80 to .89 and test-retest reliabilities (6-week time interval) of approximately .60. The inventory has been shown to possess high internal consistency, strong construct validity and has been evaluated in its use with children ranging from grades 3 to 11. The revised CATPA used a composite score. However, because this study focused...
on examining differences in PA perceptions, a composite score was not used. Instead, each item was independently assessed to determine differences between students’ perceptions along these 7 different subdomains. Participants’ responses were measured using a 5-point Likert scale ranging from strongly agree to strongly disagree.

**Data Analysis**

Chi-Square Tests were used to examine differences between gender and ethnicity groups in students’ self-reported physical activity behavior (eg, active vs. insufficiently active for moderate and vigorous PA).

A two-way between groups multivariate analysis of variance (MANOVA) was performed to investigate ethnicity and gender differences in physical activity perception along each of the 7 dimensions of the CATPA. Descriptive statistics were performed for all analyses. Alpha was set at .05 for all statistical tests.

**Results**

Descriptive statistics are provided in Tables 3 and 4. Chi square tests indicated that no significant differences were found between gender groups for vigorous- or

**Table 2** The Matched Dimensions of Physical Activity in the Revised CATPA

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Dimension description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social growth</td>
<td>Activities whose primary purpose is to provide a medium for social interaction</td>
<td>I think taking part in PA gives me a chance to meet new people</td>
</tr>
<tr>
<td>Social continuation</td>
<td>To perpetuate existing relationship</td>
<td>I think taking part in PA gives me a chance to be with friends</td>
</tr>
<tr>
<td>Health and fitness</td>
<td>Activities characterized primarily by their contribution to improvement of one’s health and physical fitness</td>
<td>I think taking part in PA makes my health better</td>
</tr>
<tr>
<td>Pursuit of vertigo</td>
<td>Physical experiences providing, at some risk to the participant, an element of thrill through the medium of speed, acceleration, sudden change of direction, or exposure to dangerous situations</td>
<td>I think taking part in PA could be dangerous because I move very fast and must change direction quickly</td>
</tr>
<tr>
<td>Aesthetic experience</td>
<td>Activities perceived as possessing beauty or graceful movement</td>
<td>I do not enjoy taking part in PA</td>
</tr>
<tr>
<td>Catharsis</td>
<td>Activities that provide a release of frustration-precipitating tension through some vicarious means</td>
<td>I think taking part in PA reduces stress</td>
</tr>
<tr>
<td>Ascetic experience</td>
<td>Activities that require long, strenuous, and often painful training and involve stiff competition demanding a deferment of many gratifications</td>
<td>I think taking part in PA requires a lot of time</td>
</tr>
</tbody>
</table>

**Table 3** Group Mean for PA Guideline and Score on the CATPA for Each of the 7 Attitude Dimensions

| Differences by each group | Hispanic | | | Caucasian | | |
|---------------------------|----------|----------|----------|------------|----------|
|                           | Girls    | Boys     | Girls    | Boys       |           |
|                           | N    | Mean (SD) | N    | Mean (SD) | N    | Mean (SD) | N    | Mean (SD) |
| 1. I think taking part in PA gives me a chance to meet new people | 33  | 2.24 (0.71) | 54  | 2.22 (1.13) | 46  | 2.07 (0.90) | 40  | 2.45 (1.01) |
| 2. I think taking part in PA gives me a chance to be with friends | 32  | 2.22 (0.94) | 53  | 2.09 (1.08) | 45  | 1.91 (1.02) | 42  | 2.10 (1.01) |
| 3. I think taking part in PA makes my health better | 33  | 1.79 (0.65) | 53  | 1.81 (1.16) | 46  | 1.37 (0.61) | 42  | 1.50 (0.89) |
| 4. I think taking part in PA reduces stress | 32  | 2.09 (1.12) | 54  | 2.22 (1.08) | 46  | 2.22 (1.03) | 42  | 2.07 (1.07) |
| 5. I think taking part in PA requires a lot of time | 33  | 2.73 (1.13) | 54  | 2.85 (1.09) | 46  | 2.15 (0.87) | 42  | 2.21 (1.07) |
| 6. I do not enjoy taking part in PA | 33  | 3.52 (1.09) | 51  | 3.88 (1.11) | 46  | 3.93 (1.04) | 41  | 4.10 (1.18) |
| 7. I think taking part in PA could be dangerous because I move very fast and must change direction quickly | 33  | 3.45 (1.12) | 51  | 3.82 (1.11) | 46  | 3.76 (0.92) | 42  | 3.17 (1.21) |
moderate-intensity PA. Significant differences were, however, found between Caucasian and Hispanic students’ moderate PA \( \chi^2 (1, n = 175) = 14.781, P = .005 \) with Caucasian students more likely to be active.

Results from the two-way MANOVA examining gender and ethnicity differences on the 7 dimensions of PA perceptions identified a significant interaction between gender and race for the vertigo dimension (I think taking part in PA is dangerous because I move very fast and must change direction quickly; \( F(7, 154) = 2.429, P = .022 \), Wilks’ Lambda = .901; partial \( \eta^2 = .099 \)) and a significant main effect for ethnicity \( [F(7, 154) = 3.669, P = .001 \), Wilks’ Lambda = .857; partial \( \eta^2 = .143 \)). Inspection of means was used to interpret simple effects. Results showed that Caucasian boys (M = 3.17) and girls (M = 3.76) and Hispanic boys (M = 3.82) and Caucasian boys (M = 3.17) were significantly different [\( F(1, 86) = 6.79, P = .011 \) and \( F(1, 91) = 7.46, P = .008 \), respectively] in their views about the dangers of PA, with Caucasian boys more likely to perceive that PA is dangerous. The results showed that Hispanic and Caucasian students differed in the domains of fitness and health (I think taking part in PA makes my health better; \( F(1, 160) = 8.260, P = .005 \), partial \( \eta^2 = .049 \)) and ascetic (I think taking part in PA requires a lot of time than were Caucasian students. While no significant differences were found for vigorous PA between ethnic groups, significant differences between ethnic groups were found for moderate PA, with Caucasian students more likely to be active than Hispanics. These results paralleled findings from the 2005 YRBSS, which showed that when compared with Hispanic adolescents, a higher percentage of Caucasian adolescents were moderately active.

While no gender differences for any of the 7 perceptual dimensions of PA were found, significant differences were found between ethnic groups for health and fitness (I think taking part in PA makes my health better) and ascetic experience (I think taking part in PA requires a lot of time; \( P < .01 \)). In light of documented chronic disease disparity among Hispanics, it is interesting that Caucasian students were more likely to perceive PA as having health related benefits than were Hispanic students, and that Hispanic students were more likely to perceive that PA requires a lot of time than were Caucasian students. Although the effect sizes for each of these significant findings were small (eg, partial \( \eta^2 = 0.049 \); partial \( \eta^2 = 0.071 \)), the significant difference between ethnic groups may suggest the need to consider cultural differences in health promotion and health education programs and curricula.

The interaction between ethnicity and gender for the vertigo dimension (I think taking part in PA could be dangerous because I move very fast and must change direction quickly) was unexpected. Although interpretation of this result is difficult, we believe that the different perceptions of Caucasian boys that PA is dangerous may

### Table 4 Group Differences by Ethnicity for PA Behavior

<table>
<thead>
<tr>
<th>Race</th>
<th>Total</th>
<th>Insufficiently active</th>
<th>Active</th>
<th>( \chi^2 (df) )</th>
<th>Total</th>
<th>Insufficiently active</th>
<th>Active</th>
<th>( \chi^2 (df) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>87</td>
<td>70</td>
<td>17</td>
<td>14.78 (1)*</td>
<td>85</td>
<td>24</td>
<td>61</td>
<td>.19 (1)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>88</td>
<td>47</td>
<td>41</td>
<td></td>
<td>87</td>
<td>22</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td>117</td>
<td>58</td>
<td></td>
<td>172</td>
<td>46</td>
<td>126</td>
<td></td>
</tr>
</tbody>
</table>

* Moderate PA coded as Active (5 or more days per week) and as Insufficiently Active (fewer than 5 days per week).

\( ^{a} \) Statistically significant at \( P < .0001 \).

The purpose of this study was to examine gender and ethnic differences in secondary school students’ self-reported PA behavior and perception. While findings from multiple studies suggest lower levels of PA among girls compared with boys, this study did not find significant gender differences for PA. This finding is inconsistent with YRBSS trend data for the state of Utah and may be explained to some extent by the inherent limitations of self-report data. Another possible explanation may be the contextual setting of in which these data were collected. Northern Utah is a mountainous region with extraordinary outdoor activity opportunities. In addition, a majority of community members are active in the Mormon church, which strongly emphasizes quality family time. It may be that families, given the setting of northern Utah, frequently take advantage of this outdoor setting and hike, bike, walk and ski together resulting in increased activity levels for all segments of the population and insignificant differences between genders. Nonetheless, given the result from this study, it would be interesting to conduct a follow-up investigation to examine gender and physical activity in this setting using a more contextually rich and rigorous measure of physical activity such as direct observation.

While no significant differences were found for vigorous PA between ethnic groups, significant differences between ethnic groups were found for moderate PA, with Caucasian students more likely to be active than Hispanics. These results paralleled findings from the 2005 YRBSS, which showed that when compared with Hispanic adolescents, a higher percentage of Caucasian adolescents were moderately active.

While no gender differences for any of the 7 perceptual dimensions of PA were found, significant differences were found between ethnic groups for health and fitness (I think taking part in PA makes my health better) and ascetic experience (I think taking part in PA requires a lot of time; \( P < .01 \)). In light of documented chronic disease disparity among Hispanics, it is interesting that Caucasian students were more likely to perceive PA as having health related benefits than were Hispanic students, and that Hispanic students were more likely to perceive that PA requires a lot of time than were Caucasian students. Although the effect sizes for each of these significant findings were small (eg, partial \( \eta^2 = 0.049 \); partial \( \eta^2 = 0.071 \)), the significant difference between ethnic groups may suggest the need to consider cultural differences in health promotion and health education programs and curricula.

The interaction between ethnicity and gender for the vertigo dimension (I think taking part in PA could be dangerous because I move very fast and must change direction quickly) was unexpected. Although interpretation of this result is difficult, we believe that the different perceptions of Caucasian boys that PA is dangerous may
be related to the extreme sports movement (e.g., snowboarding, skateboarding, rock climbing, stunt biking, etc.). While we could not locate any empirical studies that specifically document the demographic participation of individuals participating in these activities, some authors have highlighted that Caucasian males seem to be the primary participants in extreme sports and, hence, may explain this finding.

There are several limitations in this study. First, conclusions that can be drawn from this study are limited by the instrumentation used and their psychometric properties. The nature of self-report as a primary research tool for measuring PA behavior, though commonly used, has been shown to produce response distortions. However, we do not believe that this was the case in the current study with regard to ethnic differences because results paralleled national data (e.g., YRBSS). The study is also limited by the sampling procedures. The data existed from a large school PA intervention study in a setting with limited population diversity. Finally, the measure of perception about PA from a multidimensional perspective using the individual items from the CATPA is limited given that each dimension was measured using only a single item.

Despite the limitations, this study has several strengths. First, the study used survey items from the YRBSS, which is appealing given the utility of the YRBSS in local and state departments of education and health in the development of programs and policies to improve adolescent health. Second, the study focus on examining ethnic differences in both PA behavior and perceptions about PA is particularly important given documented health disparities for Hispanics and the lack of existing research that examines ethnic differences in perception about PA.

Many theories (e.g., SCT, TPB, HBM) support the notion that beliefs about PA may mediate PA behavior and some previous studies have found positive associations therein (e.g., attitude, outcome expectations, intention). And while the purpose of this study was not to directly examine this association, theories and previous studies support the importance of examining perception and differences that may exist among subgroups. The significant differences between Hispanic and Caucasian participants for moderate PA and the perception that “PA makes health better” are concerning. Because the development of perception begins at an early age, but is not a fixed attribute, it represents an ideal intervention target, especially given its theoretical tie to behavior. Therefore, these findings suggest the need to place greater consideration on the ethnic orientation of adolescents when promoting PA. Furthermore, given existing health disparities and associated prevalence of health risk behaviors within the Hispanic population, specific education and promotional efforts should be tailored to this ethnic group. School health and physical education should emphasize the health related benefits of PA by incorporating a cultural orientation with ethnic specific contexts and models.

References


