Sport Participation of Hong Kong Chinese Children With Disabilities in Special Schools

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The purpose was to examine sport participation (excluding physical education classes) of school-aged Chinese children with disabilities attending special schools in Hong Kong. A sample of 237 children, ages 9 to 19, attending 10 special schools in Hong Kong, responded to a sport participation questionnaire in individual interviews. Data were analyzed by gender, two school levels, and five disability types. Results relating to participation frequency and extent indicated that girls were significantly less active than boys. Children with physical disability, visual impairment, and mental disability were less active than children with hearing impairment and maladjustment. Children with different types of disabilities varied in their participation patterns and choices of physical activities as well as their motives for sport participation, nonparticipation, and withdrawal. We concluded that disability type is more related to children’s participation behaviors in sport and physical activities than to gender and school level.

Sport participation theory, posited by Sherrill (1999) as one of four clusters that comprise the rapidly growing disability sport knowledge base, focuses on who participates in sport and why (i.e., demographics, motives, affordances, barriers) as well as the benefits of sport participation to individuals and society. An understanding of variables that affect children’s participation in sport is important to professionals who are responsible for planning after school and weekend sport activities and who hope to attract children to healthy, active life styles that lead to wellness and fitness throughout their lifetimes. Although the role and scope of adapted physical activity varies by culture, there is common agreement that this profession should serve an advocacy role in helping all persons become less sedentary, thereby minimizing health risks and maximizing opportunities for

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empowerment (Hutzler & Sherrill, 1999; Pensgaard & Sorensen, 2002). One way to do this is to study the physical activity interests, motives, and practices of children and to adapt planning so as to better meet their needs and thus encourage long-term engagement.

Research reveals that children with disabilities tend to be sedentary and that demographic factors such as gender, age, ethnic group, and type of disability may affect children’s participation in physical activity (Noreau, Murphy, Tremblay, & Cantin, 1995; Longmuir & Bar-Or, 1994, 2000; Vute, 1994). In the most comprehensive study thus far of factors influencing physical activity levels of youths with physical and sensory disabilities, Longmuir and Bar-Or (2000) reported that type of disability was the most consistent indicator of physical activity for youths, ages 6 to 20 years. They concluded that “gender and age influences on activity levels are not consistent and may be limited by the influence of the specific condition” (p. 51). Specifically, youths with cerebral palsy, muscular dystrophy, and visual impairment had the most sedentary life styles. Age and gender effects were not found among these youths, “presumably because of their initially low levels of activity” (p. 47). When all participants (N = 987) were analyzed as a group, gender and age were not indicators of physical activity. When analyzed by disability groups, activity declined with increasing age for youth with physical disabilities (except cerebral palsy) and chronic medical conditions but not for youth with visual and hearing impairments. No comparable research can be found for children with mental disabilities, but the world wide trend toward inclusion, as well as opportunities afforded by Special Olympics, may be steadily raising the activity level of this group.

The need for more research on participation is great. Without facts, adapted physical activity professionals cannot effectively advocate for improved practices. The findings of Longmuir and Bar-Or (2000) that gender and age do not influence physical activity requires further study in that most research, to date, on children with and without disabilities indicate that boys participate in more physical activity than girls and that participation frequency, duration, and intensity decrease as children move into adolescence and adulthood (Canada Fitness Survey, 1983; Coakley, 2001; De Knop, 1998).

Findings on children in North America and Europe cannot be generalized to children with disabilities in other regions of the world because of differences in cultural ideologies and practices. In particular, research is needed in Asian countries, especially those that serve children with disabilities primarily in special schools and clubs rather than in the general education settings popularized in the West. We hope our study of children with disabilities in Hong Kong will address this need. The dominant cultural ideology in Hong Kong is that children with disabilities should live at home with their families and attend schools specially designed for their particular disabilities. Following is the context in which our research was conducted.

Hong Kong is a unique cosmopolitan city with a mixture of Chinese and Western cultures. From 1841 until June 30, 1997, it was a British colony, and it is now a Special Administrative Region (SAR) within China. It is expected that the influence of the Chinese traditional culture in the new millennium will become more prominent (Hong Kong Year Book, 1997). Since Hong Kong is a well-developed city and one of the important financial centers in the world, emphasis on the use of English and meritocracy is obvious and inevitable for international
compilation. Latest statistics indicate that over 95% of the Hong Kong population is ethnic Chinese (Census & Statistics Department, 2001). As most of the parents of Hong Kong children are early Chinese immigrants and have been working hard in the hope of securing better futures for their families, they want their children to be well-educated and highly qualified. Traditional Chinese culture is strong, and the “emphasis on academic success and upward mobility dominates the ethos of the Chinese community” (Fu, 1994, p. 78). As perceived by most of the parents, participation in physical activity means a waste of time and hinders academic achievement (Ho, 1998). Sport culture and physical activity in Hong Kong are therefore not strong, and participation in sport is mainly considered as a recreational activity (Fu, 1993). It should be noted that our observations in this regard are not congruent with the recent essay on disability, sport, and the body in mainland China (Stone, 2001). Stone does not address perceptions of families but instead focuses on the changing philosophy of the government and the new “disability sport propaganda” (p. 60).

The extent of physical activity involvement of Hong Kong children is generally lower than that of western children (Lindner, 1999); likewise, their levels of habitual activity are low (Adab & Macfarlane, 1998; Macfarlane, 1997; McManus & Armstrong, 1996a). Fu (1996) reported that participants with disabilities in Hong Kong aged 7 to 66 were mostly sedentary. Problems such as social prejudice, discrimination, stigmatization, and stereotyping are commonly encountered by individuals with disabilities (Pensgaard & Sorensen, 2002; Sherrill, 1998). With reference to the Hong Kong context, MacPherson and Sequeira (1996) believe that there are individual problems confronting individuals with disabilities of physical (e.g., coordination difficulty), economic (e.g., little economic support from family), psychological (e.g., little or no self-confidence), and social (e.g., presence of disregard and prejudice in society, overprotection by parents, lack of professional coaches) origins. There are also external barriers to sport participation, such as lack of special facilities and equipment, inadequate sport activities, and poor sport promotion by the Hong Kong Media. We, therefore, agree with DePauw (1997) that “sport, as a place where physicality is admired, has presented a challenge for individuals with disabilities and their active participation in sport appears as somewhat of a contradiction” (p. 423).

Special schools, rather than integrated or mainstream schools, are the tradition in Hong Kong and most of Asia. Special schools in Hong Kong serve only Chinese children. Non-Chinese speaking children with physical disability, visual, hearing, or speech impairment are placed in special education classes of the English School Foundation (Hong Kong Education Department, 2001b). These children were not surveyed in our study.

In Hong Kong, five types of special schools operate: 7 for physical disability ($N = 780$), 2 for visual impairment ($N = 225$), 4 for hearing impairment ($N = 630$), 41 for mental disability ($N = 5,730$), and 7 for maladjustment ($N = 945$). Of the 41 schools for mental disability, 10 schools serve only children with mild conditions ($N = 2,000$). To include special schools for mild condition and the other four types of special schools, there is a total number of 30 special schools ($N = 4,580$), where students are 4-19 years old.

Some children, with special residential needs, live at their schools. This includes about 21% of the children with physical disability, 78% of the children with visual impairment, 10% of the children with hearing impairment, and 61% of the
children with maladjustment. No children with mild mental disabilities live at their schools.

Definitions used for these disabilities are similar to those used in North America and Europe. The first four conditions are defined by the Hong Kong Rehabilitation Division of Health and Welfare Branch (1996), whereas the term maladjustment is defined by the Board of Education (1996). A four-tier classification system in Hong Kong divides the degree of mental disability into mild, moderate, severe, and profound grades. Individuals with a mild mental disability have a range of IQs from 50-55 to about 70 and are educable (Rehabilitation Division of Health & Welfare Branch, 1995, pp. 156-157). Children with emotional or behavioral problems, or underprivileged children who are lacking adequate family support, are considered as maladjusted (Board of Education, 1996). Recently the term maladjustment has been replaced by need for “social development” (Hong Kong Education Department, 2001a). According to the Board of Education (1996), “All special schools in Hong Kong are run by sponsors which are nonprofit making organisations and receive subvention from the ED (Education Department) under the Code of Aid for Special Schools” (p. 36).

The Government is committed to the welfare of individuals with disabilities. The enactment of the Disability Discrimination Ordinance (DDO) in 1995 aims at “protecting individuals with disabilities against discrimination, harassment, and vilification in the areas of employment; education; access to, disposal, and management of premises; provision of goods, services, and facilities; practising as barristers; and clubs and sporting activities” (Equal Opportunities Commission, 1998, p. 4). Some improvements in the accessibility of public transport such as buses, taxi, the Mass Transit Railway, and the Kowloon Canton Railway have been noted for individuals with disabilities.

Additionally, a variety of sport organizations in the public sector help promote and develop sport and recreation for individuals with disabilities. The Hong Kong Sports Development Board (SDB), which was established in 1990, provides sport funds for outstanding athletes with disabilities. The Hong Kong Sports Institute (HKSI), which was amalgamated with the SDB in 1994, is the training center for local elite athletes with disabilities. The Leisure and Cultural Services Department (LCSD), which was set up under the Provision of Municipal Services (Reorganization) Ordinance in early 2000, and three National Sports Associations, i.e., the Hong Kong Sports Association for the Physically Disabled (HKSAP), the Hong Kong Sports Association for the Mentally Disabled (HKSAM), and the Hong Kong Sports Association for the Deaf, provide sport and recreation services for individuals with disabilities at all levels in the community.

Given that each child with a disability is unique and that regular participation in sport has positive values for the development of the individual’s well-being (Blinde & McClung, 1997; DePauw & Gavron, 1995; Hutzler & Sherrill, 1999; Sherrill & Williams, 1995), we conducted this survey study to obtain background information on children with disabilities that would provide a basis for future sport program planning and promotion. We studied sport rather than the broader category of physical activity because we wanted specific information to guide professionals in determining policy and advocacy needs in regard to recruiting children with disabilities into sport. We defined sport as physical activity for health, recreation, or competition that is perceived by children as fun, healthy, and goal-oriented.
Purpose of the Study

The purpose was to examine sport participation (excluding physical education classes) of school-aged Chinese children with disabilities attending special schools in Hong Kong. Specifically, we investigated differences between genders, school levels, and disability types to provide a full picture of Hong Kong Chinese children with disabilities. The following research questions guided the study:

1. How frequently do children with disabilities engage in sport?
2. Are children with disabilities members of sport clubs? If so, what kind of sport clubs?
3. What are the particulars of sport participation patterns (i.e., number of sports, extent of participation, location of participation)?
4. What are the 10 most popular sports and which are the most and least desired?
5. What are the sport participation, nonparticipation, and withdrawal motives?

Method

Participants

Chinese children with physical disability, visual impairment, hearing impairment, mild mental disability, or maladjustment, ages 9 to 19 years \((M = 13.50, SD = 1.99)\), were participants in this study. The sampling design was random with 10 schools drawn from the 30 special schools in Hong Kong. We then selected 5 to 6 students from one class at the primary and at the secondary level at each school. The number of schools representing each disability was proportional to those in the population. Primary was defined as Grades 5 to 6, ages 9 to 16 years \((M = 12.03, SD = 1.62)\). Secondary was defined as Grades 7 to 9, ages 11 to 19 \((M = 14.42, SD = 1.62)\). This selection of children was done collaboratively by teachers and the primary investigator, based mainly on convenience.

Of the 10 schools randomly drawn, two served physical disability, one served visual impairment, two served hearing impairment, three served mild mental disability, and two served maladjustment. The sample size was 237 children. Broken down according to independent variables, there were (a) for gender, 143 males and 94 females; (b) for school level, 129 primary and 108 secondary; and (c) for type of disability, 61 with physical disability, 27 with visual impairment, 41 with hearing impairment, 78 with mild mental disability, and 30 with maladjustment.

Instrument

Our instrument was the questionnaire used by Lindner (1998), which yielded valid and reliable data for Hong Kong Children without disabilities. The instrument was in Chinese but translated into English so that its psychometric properties could be examined by experts using one or both languages. The questionnaire was divided into three main parts. The first part was physical activities during the previous school year. It contained six questions: (a) whether the child was an active member of one or more sport clubs or other organizations for physical activity; (b) frequency of sport or physical activity participation in the past school year through a
6-point Likert scale ranging from 1 (never or hardly ever) to 6 (almost every day); (c) motives for sport participation through a 4-point Likert scale ranging from 1 (not at all a reason) to 4 (an important reason); (d) motives for sport nonparticipation through a Likert scale with the same 4 points; (e) type, frequency, time, duration, and venue of sport or physical activity in leisure time; and (f) type and motives for having discontinued a sport through the same 4-point Likert Scale. The second part of the questionnaire focused on desired and undesired sport and physical activity participation. It also inquired about the type, frequency, and venue of desired sport participation. The third part concerned personal information such as age, gender, and home location.

All data in our study were collected by personal interview. Ethical standards of the American Psychological Association were followed. The Chinese version of the instrument had been pilot tested for children without disabilities and was checked for reliability within 2 weeks by test-retest procedures with a coefficients of reliability greater than .80 in a study conducted by Lindner (1998). Because we wished to use the instrument with children with disabilities, the primary researcher pilot tested 5 participants with mental disability in a special school before actual administration. In order to make sure the statements were clearly stated and understandable, she used a one-to-one interview schedule to cope with their special needs. It was found that children with mild mental disability could understand the content and meanings of the questions in the survey. We assumed that the instrument would also yield valid data for children with other disabilities. Our reasoning was that the one-to-one interview procedure for gathering data would yield valid evidence.

Procedure

We sent formal letters and copies of the questionnaire to the principals. Individual interviews were arranged by the primary researcher with the participants through the cooperating special schools. In order to protect the interests of children with disabilities, the researchers obtained parental consent and made sure the children with disabilities felt free to take part in the interview. The primary researcher, who had formal social work training and was experienced with children with disabilities, was responsible for interviewing the whole sample and recording their answers. All questionnaires were numbered, and answers were encoded for the data entry.

Data Analysis

We used Statview (SAS Institute, 1999) as a tool for data analysis. Dependent variables were the whole-year sport frequency scores, based on the 6-point Likert scale questions and the extent of participation for which the Participation Index (PI) was used as reference. Its unit was minutes per year. Frequency (1 = 1-2 times per month to 1.5 times per month as PI, 2 = 1-2 times per week to 6 times per month as PI, and 3 = almost every day to 24 times per month as PI), duration (1 = less than 5 min to 10 min as PI, 2 = 10-30 min to 20 min as PI, 3 = 45 min to 30 to 60 min as PI, 4 = more than 60 min to 80 min as PI), and number of months (1 = 1-3 months to 2 months/year as PI, 2 = 4-6 months to 5 months/year as PI, 3 = 7-9 months to 8 months/year as PI, and 4 = 10-12 months to 11 months/year as PI) were multiplied and then summed over a maximum of five sports. The minimum
The results are divided into five sections: (a) frequency of sport participation; (b) membership in sport clubs; (c) particulars of sport participation patterns (see Table 1); (d) most popular sports; and (e) motives for participation, nonparticipation, and withdrawal (see Table 2).

**Frequency of Sport Participation**

For the whole-year sport participation frequency scores, when Likert responses were used, children with disabilities reported between 1-2 times per week and 1-2 times per month ($M = 3.31$ on 6-point scale, $SD = 1.58$). Significant $F$ ratios were obtained between genders, $F (1, 235) = 5.35, p < .05$, in that boys had higher frequency scores than girls did. Significant $F$ ratios were also obtained among types of disabilities, $F (4, 232) = 18.60, p < .0001$. Children with maladjustment and hearing impairment had higher frequency scores than children with mental disability, physical disability, and visual impairment. There were no significant differences for school levels.

**Membership in Sport Clubs**

When the children with disabilities were asked whether they were active members of sport clubs or other organizations for physical activity, 13% responded yes. A significant chi-square statistic ($\chi^2 = 13.40, p < .05$) was found among disability types in that higher percentages of the children with mental disability (62%) but lower percentages with maladjustment (3%) were active sport club members. No significant differences were found between genders or school levels for the children with disabilities.

The various kinds of sport clubs or organizations that offer physical activities in Hong Kong are grouped into six main categories: Leisure and Cultural Services Department (LCSD), National Sport Associations (NSAs), nongovernment organizations (NGOs) such as the YMCA, private or commercial organizations, national team, and other sports organizations such as the Hong Kong Police Club.
The separate Hong Kong Sports Associations for the physically disabled, the mentally disabled, and the deaf are in the NSA category. Of the participants who were members of sport clubs, most were members of NSAs, followed by NGOs, LCSD, and national team. However, none of the children with disabilities held membership in private/commercial organizations or other clubs. No significant chi-squares were found for the percentages of holding membership in six types of sport clubs between genders, school levels, or disability types.

**Particulars of Sport Participation**

The variables were the number of sports, the extent of participation, participation location, and the 10 most popular sports. Table 1 contains the percentages of number of sports, extent of participation, and participation location by the participants with disabilities.

**Number of Sports.** Table 1 reveals that 83% of the children participated in at least one sport during free time, 66% in at least two sports, 46% in at least three sports, and 33% in three or more sports. While there were no significant differences between genders or school levels, a significant chi-square statistic was obtained among disability types ($\chi^2 = 47.49, p < .001$). Higher percentages of the children with hearing impairment participated in at least three sports (81%) and more than three sports (78%), but lower percentages of the children with physical disability (32%) participated in at least three sports (see Table 1).

**Extent of Participation.** No significant differences were found in the extent of participation in terms of frequency, duration, and months between genders, school levels, or disability types. However, significant differences were found in Participation Index (PI) scores between genders, $F (1, 192) = 8.13, p < .05$, and among disability types, $F (4, 189) = 13.32, p < .0001$. Boys had higher PI scores than girls, and children with maladjustment and hearing impairment had higher PI scores than children with visual impairment and mental disability.

**Location of Participation.** Over 60% of the children with disabilities were likely to have their sport participation in “other locations” such as public playgrounds or parks rather than at school, in a private club, or in lessons. School facilities was the second most popular location. There were no significant differences in the participation location between genders or school levels, but significant chi-square differences were found among disability types ($\chi^2 = 69.63, p < .0001$). School and club participation were relatively high by the children with hearing impairment (36%) and physical disability (15%), respectively. For the children with visual impairment and mental disability, both had more sport participation in the “other locations” (84% and 77%) but none in the private clubs.

**Most Popular Sports**

Basketball (38%), soccer (31%), badminton (27%), swimming (26%), and table-tennis (26%) were the five most popular sports. Soccer was the top sport in the boys’ group (46%), but not in the girls’ group (8%). There were similar sport popularity patterns such as basketball, badminton, soccer, and swimming for school level and disability groups. Hiking (17%) and lawn bowling (8%) were favored by the children with physical disability, whereas the children with maladjustment were fond of skating activities (20%).
### Table 1  Percentages of Sports, Extent, and Location of Sport Participation for Genders, School Levels, and Disability Types

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Gender</th>
<th>School Level</th>
<th>Disability Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td><strong>No. of Sports (percent)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 or more</td>
<td>82.6</td>
<td>86.9</td>
<td>77.1</td>
</tr>
<tr>
<td>1 or more</td>
<td>65.7</td>
<td>69.0</td>
<td>61.5</td>
</tr>
<tr>
<td>1 or more</td>
<td>45.9</td>
<td>51.0</td>
<td>38.5</td>
</tr>
<tr>
<td>1 or more</td>
<td>32.6</td>
<td>33.8</td>
<td>31.3</td>
</tr>
<tr>
<td><strong>Extent (M)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>1.88</td>
<td>1.95</td>
<td>1.80</td>
</tr>
<tr>
<td>Duration</td>
<td>2.57</td>
<td>2.72</td>
<td>2.38</td>
</tr>
<tr>
<td>Months</td>
<td>2.25</td>
<td>2.28</td>
<td>2.21</td>
</tr>
<tr>
<td>PI</td>
<td>6585.31</td>
<td>8435.35</td>
<td>3405.52</td>
</tr>
<tr>
<td>PI</td>
<td>3.27</td>
<td>3.39*</td>
<td>3.06*</td>
</tr>
<tr>
<td><strong>Location (percent)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>26.0</td>
<td>23.7</td>
<td>29.9</td>
</tr>
<tr>
<td>Club</td>
<td>7.8</td>
<td>7.6</td>
<td>8.1</td>
</tr>
<tr>
<td>Lessons</td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Other</td>
<td>63.4</td>
<td>65.9</td>
<td>59.3</td>
</tr>
</tbody>
</table>

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**p <.0001  **p <.001  *p <.05**

1 Frequency: 1 = 1 - 2 times a month; 2 = 1 - 2 times a week; 3 = almost every day
2 Duration: 1 = less than 10 min; 2 = 10 - 30 min; 3 = 30 - 60 min; 4 = more than 60 min
3 Number of months: 1 = 1 - 3 months; 2 = 4 - 6 months; 3 = 7 - 9 months; 4 = 10 - 12 months
4 PI (Participation Index) = Frequency x Duration x Number of Months; Summed over maximum 5 sports: minimum = 15 min/year, maximum = 105,600 min/year
5 Logarithmic transformation of PI scores
When the participants with disabilities were asked to list the sports they would most and least like to engage in, they cited the same five sports as most desired ones as they had actually participated in, but with a different rank order: basketball (18%), swimming (13%), soccer (13%), badminton (11%), and table-tennis (5%). Basketball, soccer, badminton, and swimming were the preferred sports for gender, school level, and different disability groups.

As for the undesired physical activities, aerobic dance (16%), dancing (11%), soccer (8%), athletics (4%), and wrestling (4%) were frequently cited by the children with disabilities. Specifically, rhythmic activities (e.g., aerobic dance, dancing, and gymnastics) and combative sports such as boxing, wrestling, karate, taekwon do, and judo were the unfavored sports for gender, school level, and disability groups. While boys cited soccer among their sport preferences, girls ranked it as the most undesired sport. Children with maladjustment chose the more trendy activities such as billiards and tenpin bowling, if given a free choice.

Motives for Participation, Nonparticipation, and Withdrawal

Table 2 shows the ranks, means, and standard deviations, main effects (genders, school levels, and disability types), and interaction effects by gender and school level for sport participation, nonparticipation, and withdrawal motives. For sport participation motives, fun, fitness, and achievement were the three most important reasons. ANOVA showed significant main effects of gender in the motive of praise, $F (1, 122) = 6.64, p < .05$ (female more than male) and of school level in the motive of fitness, $F (1, 122) = 4.11, p < .05$ (secondary more than primary). The gender by school level interaction effect was not significant. For disability types, significant F-test differences were obtained in the motives of fun, $F (4, 124) = 4.89, p < .05$ (mental disability more than maladjustment); praise, $F (4, 124) = 10.08, p < .0001$ (hearing impairment and mental disability more than maladjustment and physical disability); achievement, $F (4, 124) = 3.80, p < .05$ (hearing impairment more than physical disability and maladjustment); and competence, $F (4, 124) = 2.72, p < .05$ (mental disability more than maladjustment).

For sport nonparticipation motives, wanting to do one’s own thing, followed by other leisure and other achievements, were rated as the most important sport nonparticipation motives. No main effects for genders and no significant interaction effects by genders and school levels were noted. However, there was one significant main effect of school level in the motive of other achievements, $F (1, 98) = 4.11, p < .05$ (secondary more than primary). For disability types, two significant differences were found in the motives of lack skills, $F (4, 105) = 3.02, p < .05$ (physical disability and visual impairment more than hearing impairment and mental disability); and let down, $F (4, 105) = 5.03, p < .05$ (maladjustment more than physical disability, hearing impairment, and mental disability).

For sport withdrawal motives, children with disabilities ranked the sport withdrawal motives of other fun things and studying first, followed by friends, opportunity, not competitive, cooperate, injured, others drop, yelled at, and self-respect (see Table 2). There were no significant gender differences. However, one significant difference for school level in the sport withdrawal motive of other fun things was found, $F (1, 45) = 5.43, p < .05$ (secondary more than primary). Two significant interaction effects of gender and school level were found in the motives
Table 2  **Sport Participation, Nonparticipation, and Withdrawal Motives**
With Main Effects for Gender (G), School Level (S), and Disability Type (D)

<table>
<thead>
<tr>
<th>Motives</th>
<th>Rank</th>
<th>M</th>
<th>SD</th>
<th>Main effects</th>
<th>Interaction effects (Gender by school level)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sport Participation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fun</td>
<td>1.5</td>
<td>3.35</td>
<td>0.78</td>
<td>D</td>
<td>ns</td>
</tr>
<tr>
<td>Fitness</td>
<td>1.5</td>
<td>3.35</td>
<td>0.85</td>
<td>S</td>
<td>ns</td>
</tr>
<tr>
<td>Achievement</td>
<td>3</td>
<td>3.09</td>
<td>0.96</td>
<td>D</td>
<td>ns</td>
</tr>
<tr>
<td>Friends</td>
<td>4</td>
<td>2.86</td>
<td>1.02</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Competence</td>
<td>5</td>
<td>2.61</td>
<td>1.13</td>
<td>D</td>
<td>ns</td>
</tr>
<tr>
<td>Praise</td>
<td>6</td>
<td>2.23</td>
<td>1.11</td>
<td>G, D</td>
<td>ns</td>
</tr>
<tr>
<td>Nonconformist</td>
<td>7</td>
<td>1.77</td>
<td>0.94</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Told to</td>
<td>8</td>
<td>1.75</td>
<td>0.95</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td><strong>Nonparticipation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own thing</td>
<td>1</td>
<td>2.83</td>
<td>1.14</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Other leisure</td>
<td>2</td>
<td>2.57</td>
<td>1.14</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Other achievements</td>
<td>3</td>
<td>2.40</td>
<td>1.18</td>
<td>S</td>
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<tr>
<td>Lack skills</td>
<td>4</td>
<td>2.05</td>
<td>1.07</td>
<td>D</td>
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<tr>
<td>Watch others</td>
<td>5</td>
<td>1.88</td>
<td>0.98</td>
<td>ns</td>
<td>ns</td>
</tr>
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<td>6</td>
<td>1.86</td>
<td>1.06</td>
<td>ns</td>
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<td>7</td>
<td>1.69</td>
<td>0.88</td>
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<tr>
<td>Let down</td>
<td>8</td>
<td>1.64</td>
<td>0.88</td>
<td>D</td>
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<td></td>
<td></td>
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<td>2.76</td>
<td>1.25</td>
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<td>2.76</td>
<td>1.07</td>
<td>S</td>
<td>ns</td>
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<tr>
<td>Friends</td>
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<td>2.67</td>
<td>0.99</td>
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<tr>
<td>Opportunity</td>
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<td>2.25</td>
<td>1.15</td>
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<td>Not competitive</td>
<td>5</td>
<td>2.08</td>
<td>1.10</td>
<td>D</td>
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<tr>
<td>Cooperate</td>
<td>6</td>
<td>1.98</td>
<td>1.01</td>
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<td>7</td>
<td>1.78</td>
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<td>1.04</td>
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of cooperate, $F(1, 45) = 5.17, p < .05$, and not competitive, $F(1, 45) = 7.22, p < .05$. The cooperate motive was rated significantly higher by primary males than the secondary males, but significantly lower by the primary female than the female secondary group. In contrast, the not competitive motive was rated much more important by the secondary females than the primary females, whereas the primary males rated it significantly higher than the secondary males did. For disability types, two significant differences were found in the withdrawal motives of not competitive, $F(4, 45) = 3.04, p < .05$ and injured, $F(4, 45) = 3.35, p < .05$. 
While children with mental disability perceived not competitive as more important than the other groups, children with physical disability rated the injury item as more important than the children with maladjustment.

**Discussion**

The purpose of this study was to examine sport participation (excluding physical education classes) of school-aged Chinese children with disabilities attending special schools in Hong Kong. Discussion centers on sport participation patterns and motives for participation, nonparticipation, and withdrawal for gender, school level, and disability type.

**Sport Participation Patterns**

The results of this study in general confirmed the findings of Noreau et al. (1995) that some children with disabilities are active participants in sport and recreation activities. Some children with disabilities (mostly those with hearing and maladjustment impairments) reported sport participation between 1-2 times per week, and 83% of all children participated in at least one sport during their free time. These findings were in contrast to those of Fu (1996), who generalized that individuals with disabilities are inactive and sedentary. Like Longmuir and Bar-Or (2000), we found that type of disability strongly affected participation patterns.

Thirteen percent of the children with disabilities were active members of sports clubs or organizations. This reveals that they are likely to participate in sport and physical activity organized by professional or community groups. For example, the HKSAP organizes more than 25 regular programs each week for individuals with physical disabilities at all levels and provides sports equipment and transportation for certain venues. Sport clubs can serve as an outlet for early sport specialization and contribute to children’s development through participation in a specific sport (Weiss & Hayashi, 1996).

However, none of the children with disabilities held membership in either private/commercial organizations or nondisability clubs, implying that they have fewer opportunities and face greater barriers such as lack of accessibility and insufficient money to recreate outside (Ferrara, Dattilo, & Dattilo, 1994). In a limited space area like Hong Kong, which has a total area of 1,098 square kilometres with a huge population of 6,708,000, as of mid-March 2001 (Census & Statistics Department, 2001), problems of accessibility and transportation may be greater than in other developed countries.

Over 50% of the children with disabilities mainly participated in other areas such as public playgrounds or parks rather than in school, clubs in commercial or private housing estates, or lessons. This could be because today, Chinese children have less formal but spontaneous participation styles in physical activity (Lindner, 1998). School was the second most popular location for children with disabilities; this may indicate that familiarity and accessibility of the school environment are especially important factors for them. Placing children with disabilities in special schools limits their interaction with nondisabled children. However, sport partners in a familiar environment may provide opportunities for children with disabilities to cope with physical self-care and develop higher levels of self-esteem. Special schools can provide special facilities and equipment that meet various kinds of needs.
Gender. From this study, girls were found to be less active, as shown by their significantly lower whole-year sport frequency and PI scores. Girls also participated in fewer sports, when compared to boys. The phenomenon of girls’ lower participation level has been recognized (e.g., Coakley, 2001; Hovell, Sallis, Kolody, & McKenzie, 1999; Janz, Witt, & Mahoney, 1995; Lindner, 1998; Thirlaway & Benton, 1993). Females seem “to have more general, diffuse, and subtle differences that socialise from sport” (Greendorfer, 1993, p. 12). In the Chinese traditional culture, girls tend to “accept their gender definition as quiet, soft, physically inferior and non-athletic” (Lo, 1996, p. 88). However, when taking “disability” into consideration, the presence of the interacting factors of gender role stereotyping and disability affect the extent of sport participation by females with disabilities. Females with disabilities generally lack gender role models for sport (Sherrill, 1993), and there is particularly a scarcity of female sport role models with disabilities in Hong Kong. In stark contrast, some male role models, such as the wheelchair fencer Cheung Wai-leung who won four gold medals in the 1996 Atlanta Paralympic Games, and the sprinter So Wa-wai who broke three world records in the 100m, 200m, and 400m in the 2000 Sydney Paralympic Games, are very well-known and famous among the Hong Kong Chinese.

Gender role stereotyping was found to be perpetuated in the actual participation and choices of sports of the children with disabilities. Boys were fond of playing soccer, whereas girls more frequently participated in less strenuous physical activities such as cycling and rope jumping. McManus and Armstrong (1996b) reported similar results that showed that “most of the girls will be involved in games such as band-jumping—a game of self-improvement, whilst the boys will be playing much more vigorous games such as football” (p. 38). Males are generally active in sports perceived as masculine such as soccer, whereas girls participate more often in less strenuous activities such as jogging or swimming (Fu, 1993; Lindner, 1998; Sivan & Robertson, 1996). That soccer was not popular among the girls underlines the perceived masculine nature of the activity and the influence of gender role stereotyping in the Hong Kong Chinese culture.

Disability Type. Among disability type differences, children with maladjustment and hearing impairment were far more active than the children with visual impairment, mental disability, or physical disability. This suggests that fewer opportunities are available for some groups than others. These may stem from attitude toward self or the attitudes of others. Physical appearance, when no obvious signs of disability are present, may be a decisive factor in frequent participation. Competence, real or perceived, may be important also. Much research is needed in this area.

A higher percentage of children with mental disability were active members of sports clubs than children with other disabilities. This suggests that children with mental disability (and/or their parents) preferred participating in well-organized sports clubs such as the HKSAM, where they could be involved in various sports activities, training, or competitions at regional and intercities level, and in the Hong Kong Special Olympics. They are usually taken to sport venues by public transport such as bus with their parents. Elite athletes, however, are granted travel allowance from the Sports Aid for the Disabled Fund.

Children with different kinds of disabilities had different participation locations for sport engagement. Children who lived at schools with a residential section were not necessarily more active. For example, children with visual impairment (80% lived at schools with a residential section) and children with mental
disability (0% lived at schools with a residential section) were less active than others in sport participation, and they did not participate more in school settings.

Motives for Participation, Nonparticipation, and Withdrawal

For sport participation motives, fun and fitness were perceived as equally important by the children with disabilities. These results support previous findings (Fu, 1996; Fung, 1990), which indicate that fun is the crucial motive for sport and physical activity participation in the local context. Our findings also support past research (Crocker & Bouffard, 1992; Fung, 1992; Sherrill, 1986) in that fitness is a vital sport motive. Competence and achievement motives, however, were perceived as less important in our study. Hong Kong children with disabilities, in general, are not elite athletes; therefore, it is not surprising to see that they rated the competence and achievement motives lower. These results are consistent with those of Lindner and Sit (1999), who examined the sport participation motivation of 4,690 Chinese school-aged children without disabilities. Children at large were less motivated by the competence- or achievement-related motives and more by the fun and fitness ones. This is understandable because local children’s participation in sports and physical activities is more of a recreational than a competitive nature (Lindner, 1995). This is also evident in children with disabilities. The importance ratings of the fun and fitness motives suggest that children with disabilities are recreation oriented and wish to gain physical, mental, and social benefits through sport participation.

For sport nonparticipation motives, our findings revealed that children with disabilities perceived wanting to do their own thing as their most important nonparticipation motive. These results are congruent with published data for Hong Kong children without disabilities (Lindner & Sit, 1999), which suggest that children without disabilities are likely to “pursue their own interests.” Children today are more individualistic, and their behaviors are believed to be influenced by their own preferences and interests (DeKnop, Skirstad, Engstrom, Theeboom, & Wittock, 1996). Coupled with low mean ratings of the skill- and social-related motives, sport nonparticipation in children with disabilities seemed more related to personal than to achievement or social reasons.

For sport withdrawal motives, children with disabilities ranked both needed time for studying and doing other fun things in the first position. Their rating of the withdrawal motive of studying is consistent with sport research on participation motivation in Hong Kong children without disabilities (Lindner & Sit, 1999). Children’s emphasis on studying is not surprising, because Hong Kong culture strongly values meritocracy and sport culture is weak (Fu, 1993). When children must divide their time between studying and physical activity participation, it is common for them to sacrifice the latter. The competence- and social-related motives were again perceived as less important by the children with disabilities. The importance rating of the withdrawal motive of doing other fun things lends further support to the notion that personal issue is a decisive motive factor. Children’s dropping out of sport is salient when other “life conflicts” such as studying (Lindner & Sit, 1999) or participating in other interesting nonsport activities (Petlichkoff, 1996) take priority.

Gender. In contrast to research on adult athletes with disabilities indicating that males rate competence and achievement motives higher, and females rate the friendship motive higher (Brasile, Kleiber, & Harnisch, 1991; Fung, 1992), no
gender differences were evident in the motive statements in this study. This suggests that the level of participation (competition vs. recreation) is a contributing factor influencing sport and physical activity participation motivation. The praise motive for sport participation for girls with disabilities was especially important. Girls in general are likely to receive praise in the form of social support from significant others when participating in physical activity (Haywood, 2001). Inasmuch as females with disabilities typically experience more prejudice and discrimination than males with disabilities do (Sherrill, 1997), girls may especially need social support in order to sustain their participation in sport. We did not explore sources of praise, kinds of praise, or timing of praise in this study.

**School Level.** School level or global age differences were found in the sport motive of fitness, in the nonparticipation motive of other achievements, and the withdrawal motive of other fun things. Secondary students rated these motives significantly higher than the primary participants did. These findings are not consistent with the results of Brasile and Hedrick (1991), who found that younger athletes have a stronger social motive for sport participation than older athletes do. Instead, our results suggest that older children with disabilities are more fitness-oriented and desire to do other important or fun things that they perceive as worthwhile or interesting. An explanation might be sought based on older children’s greater “personal interests” such as appearance and achievement, which provide personal satisfaction and social recognition at their age (Hurlock, 1994). This needs to be examined in future investigations. The interaction effects of gender and school level in the withdrawal motives of cooperate and not competitive suggest that younger males tended to be social-oriented, whereas older females were likely to engage in physical activity of a competitive nature. Failure to meet their particular sporting needs would result in their dropping out from sport and physical activity.

**Disability Type.** This factor was found to be a more important factor influencing sport participation motivation in children with disabilities than gender and school level (see Table 2). Children with physical disability, for example, subscribed more strongly to skill-related and injury motives for their sport nonparticipation and withdrawal. Since children with physical disability have a “visible” disability due to the existing problems of mobility or insufficient gross motor skill, they may also have a lower level of perceived physical ability. In the local study by Sit and Lindner (2000), it was reported that children with disabilities with low levels of perceived physical ability rated lack skills as a more important nonparticipation motive than those children having high levels of perceived physical ability. It is also not surprising to find that children with physical disability ranked the sport withdrawal motive of injured highest, since the consequence of sport injury may further increase the degree and extent of physical disability, at least in their perception.

It is of interest to note that compared to other groups, children with mental disability demonstrated significantly stronger appreciation of competence- and competitive-related sport and withdrawal motives. They were also found to be significantly motivated by the fun and praise sport motives, which reflects their intrinsic as well as extrinsic motivation for sport participation. These findings may be related to their high level of participation, as some of them were elite athletes representing Hong Kong in Special Olympics. Athletes with disabilities who have both strong task and ego orientations have been well-documented (Brasile & Hedrick, 1991; Brasile et al., 1991; Pensgaard, Roberts, & Ursin, 1999; White & Duda, 1993). Such athletes are believed to have both intrinsic and extrinsic moti-
vation. Children with visual impairment also appeared driven by the achievement sport motive, whereas children with hearing impairment were driven by both achievement and social motives. We believe, therefore, that different kinds of disabilities (and hence different kinds of experiences) affect specific motives for participation in sport and physical activity. This may occur because barriers, opportunities, and limitations (perceived and real) tend to vary by disability. Time of onset of disability (congenital vs. acquired) may influence this and should be investigated.

Conclusions

Disability type, followed by gender and school level, is the most significant demographic variable that affects children’s sport participation patterns and motives. Researchers and practitioners should therefore determine children’s sporting needs or motives dependent on personal demographic information, with emphasis on their types of disabilities and the opportunities generally afforded each type of disability within the community or culture. This will, in turn, help maximize children’s sport participation, which aims at developing and encouraging healthier and more active lifestyles.

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