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## The Study of Physical Activity Questionnaires at Hadong-gun in Korea

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**Abstract** Playing in sports helps people expand their social circles while building their skills to interact with other people. The exercise participation questionnaire (EPQ) was given to five hundred and fifty-one individuals to determine if significant differences existed in the composite scores of common people at Hadong-gun in Korea; if the groups differed in their responses to pooled items; and if subject groups differed on individual questionnaire items. The kinds of activities are classified into 17 categories: badminton, baseball, basketball, bowling, cycle, gate ball, golf, health, inline skate, jogging, jokgu, ping-pong, soccer, swimming, tennis, volleyball, and other activities. Soccer is the favorite sport for a measly 9.1% of men and woman is absent in the activities. Baseball and basketball are same trend. Whereas, jogging is by far the most popular sport in women. Given that half of the fieldwork took place in play yard or park (50.8%). This research report is one of a series of reports and summary digests available the questionnaire on exercise.

**Keywords** Exercise participation questionnaire, Hadong-gun, play yard or park

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### Introduction

Identifying group disparities in health enhancing behaviors such as physical activity remains an important goal of public health surveillance systems [1]. Sport means all forms of physical activity which, through casual and organized participation, aim at expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels [2]. The United States (US) health recommendations for moderate physical activity were released in 1995 advising a minimum of 30 minutes of moderate leisure time physical activity on most days of the week [3,4]

Obesity is now so common within the world's population that it is beginning to replace undernutrition and infectious diseases as the most significant contributor to ill health – heart disease, diabetes, high blood pressure, stroke and cancer[5]. Getting regular physical activity is one of the best things we can do for our health. It lowers the risk of heart disease, diabetes, stroke, high blood pressure, osteoporosis, and certain cancers, and it can also help control stress, improve sleep, boost mood, keep weight in check, and reduce the risk of falling and improve cognitive function in older adults.

Many people that play sports or exercise gain cooperation and interpersonal skills. Playing exercise provides a number of physical and mental benefits, such as helping develop muscles, building teamwork skills and promoting leadership abilities. Individual exercise, like running, and group exercise, like baseball, both offer a number of benefits. Physical benefits from playing sports include increased endurance and improved overall health. In addition, emotionally, exercise can help build relationships with family and friends as they provide support to players from the sidelines.



As jobs became less physically demanding, an interest for leisure time physical activity, mainly sport and recreation, increased [6]. Crucially, sport is at its most effective when combined with programs that address issues of personal and social development.

Health behavior guidelines, such as physical activity recommendations, are developed with the implicit theory that the release of the guidelines influences knowledge, which in turn affects behavior [7-8]. The Global Physical Activity Questionnaire (GPAQ) was developed by WHO for physical activity surveillance in countries. It collects information on physical activity participation in three settings (or domains) as well as sedentary behavior, comprising 16 questions (P1-P16). The domains are: Activity at work, Travel to and from places, and Recreational activities. We used the GPAQ for the research with some modifications.

The purpose of this paper was to investigate physical activity questionnaires, and to examine studies of their reliability and validity, focusing on the variable frequency. Our study helped determine the proportion of the Hadong-gun population with knowledge of current recommendations for moderate physical activity.

### Methodology

The inspection process of the present study involved conducting a self-administered survey, which included questions on persons for exercise. All 551 individuals at Hadong-gun, Gyeongsangnam-do province in Korea were provided with a packet containing study information, an informed consent document, and a parental questionnaire. We referenced the Global Physical Activity Questionnaire (GPAQ) Analysis Guide and developed exercise participation questionnaire (EPQ) with modified GPAQ. For example, "Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person." The present study conducted on eight months March and October, 2012. We calculated descriptive statistics, including means, standard deviations, and percentages for each variable [9].

We assume the aspects of biodiversity of Shannon-Weaver index of diversity [10]: the formula for calculating the Shannon diversity index ( $H'$ ) is

$$H' = - \sum p_i \ln p_i$$

$p_i$  is the proportion of important value of the  $i$ th exercise ( $p_i = n_i / N$ ,  $n_i$  is the important value index of  $i$ th exercise and  $N$  is the important value index of all the exercises).

### Results and Discussion

In terms of age groups, the respondents aged teenage to twenty comprised 9.3% of the total, those 21 to 40 years 42.3%, those 41 to 60 years 37.9%, and 61 over groups 10.5% (Table 1).

**Table 1:** The distribution of the respondents in terms of age groups

Age	Frequency	Percent	Valid percent	Cumulative percent
1~20	51	9.3	9.3	9.3
21-40	233	42.3	42.3	51.5
41-60	209	37.9	37.9	89.5
61>	58	10.5	10.5	100.0
Total	551	100.0	100.0	

Table 2 showed the employment status of the respondents. The others are classified as not employed. Farmers and fishermen are mostly concentrated in outside of this region. Their *rate* was 23.6% among all respondents. *The second high group* consists of government official.

The kinds of activities are classified into 17 categories: badminton, baseball, basketball, bowling, cycle, gate ball, golf, health, inline skate, jogging, jokgu, ping-pong, soccer, swimming, tennis, volleyball, and other activities (Table 3). Across the four grade groups, men were consistently more active than women (data not shown). For example, soccer is the favorite sport for a measly 9.1% of men and woman is absent in the



activities. Baseball and basketball are same trend. Whereas, joggings by far the most popular sport in women. However, it is informative to examine the gender differences in physical activity in the context of exercise intensity. Shannon-Weaver index ( $H'$ ) for exercises was 2.545.

**Table 2:** The distribution of the respondents in terms of fields of work

Fields of work	Frequency	Percent	Valid percent	Cumulative percent
Student	74	13.4	13.4	13.4
Company	63	11.4	11.4	24.9
Government official	108	19.6	19.6	44.5
Independent businessman	41	7.4	7.4	51.9
Housewife	68	12.3	12.3	64.2
Profession	30	5.4	5.4	69.7
Farmers and fisherman	130	23.6	23.6	93.3
Other	37	6.7	6.7	100.0
Total	551	100.0	100.0	

**Table 3:** Kind of exercise for the respondents in Hadong-gun regions

Kind of exercise	Responses		Percent of cases	
	No.	Percent		
Jogging	151	19.9%	27.8%	
Badminton	119	15.7%	21.9%	
Soccer	69	9.1%	12.7%	
Swimming	48	6.3%	8.8%	
Volleyball	44	5.8%	8.1%	
Health	43	5.7%	7.9%	
Tennis	37	4.9%	6.8%	
Ping-pong	37	4.9%	6.8%	
Cycle	32	4.2%	5.9%	
Golf	30	4.0%	5.5%	
Jokgu	24	3.2%	4.4%	
Gate ball	22	2.9%	4.0%	
Baseball	17	2.2%	3.1%	
Basketball	16	2.1%	2.9%	
Bowing	11	1.4%	2.0%	
Inline skate	4	0.5%	0.7%	
Other	55	7.2%	10.1%	
Total	759	100.0%	139.5%	

Shannon-Weaver index ( $H'$ ) 2.545

Respondents were asked how often they took part in sport, exercise or any physical activity per week (Table 4). They were reminded to include activities like cycling, dancing, fishing, bowling, yoga etc. and to include walking if they walked for more than around 2 kilometers, or 30 minutes at a time. Time use analysis can be based on either mean population time or mean actor time. Mean population time is the average of time spent by all persons on a particular exercise, including those who did not perform the exercise. Mean actor time is the average time spent by persons who actually performed the activity. Table 4 showed the weekly mean population time spent on each kind of exercise. A half (50.6%) of respondents indicated that they exercise several times a



week. The adult populations are meeting the recommended activity levels of 30 minutes of moderate activity on most days. At least 49.4% of people say that they never play sport or do so less than once a week. Those with the lowest levels of participation by these criteria are 2-3/week (29.2%), 4-5/week (12.9%), and everyday (8.5%).  $H'$  for quantity of exercises was 1.520.

**Table 4:** The weekly mean population time spent on each kind of exercise.

Quantity of Exercise	Frequency	Percent	Valid Percent	Cumulative Percent
Below one/week	119	21.6	21.6	21.6
One/week	153	27.8	27.8	49.4
2-3/week	161	29.2	29.2	78.6
4-5/week	71	12.9	12.9	91.5
Everyday	47	8.5	8.5	100.0
Total	551	100.0	100.0	
Shannon-Weaver index ( $H'$ ) 1.520				

Different people will have different preferences and predispositions with regard to how they respond to exercise at different times of the day. Many people (57.9%) exercise at night (Table 5). Generally speaking, it is easier for an individual to stay on track with a fitness regime first thing in the morning because there is less time for family, evening plans, commuting, late nights in the office, and other distractions to get in the way. Fatigue from a long day can also lead to skipped evening workouts. It's most important to find a realistic, consistent workout schedule, no matter what the time.  $H'$  for time of exercises was 1.122.

**Table 5:** Time of exercise for the respondents in Hadong-gun regions

Time of exercise	Frequency	Percent	Valid percent	Cumulative percent
Morning	79	14.3	14.3	14.3
A.M	47	8.5	8.5	22.9
P.M	106	19.2	19.2	42.1
Night	319	57.9	57.9	100.0
Total	551	100.0	100.0	
Shannon-Weaver index ( $H'$ ) 1.122				

The general characteristics for the space of exercise are shown in Table 6. Given that half of the fieldwork took place in play yard or park (50.8%).  $H'$  for spaces of exercises was 1.271. Simple Participation such as jogging at play yard or park was as effective as a targeted intervention to promote healthy weight in children with obesity [11].

**Table 6:** The space of exercise for the respondents in Hadong-gun regions

Space of exercise	Frequency	Percent	Valid percent	Cumulative percent
Public gymnasium	87	15.8	15.8	15.8
Play yard or park	280	50.8	50.8	66.6
Playground of school	120	21.8	21.8	88.4
Private gymnasium	53	9.6	9.6	98.0
Company gymnasium	11	2.0	2.0	100.0
Total	551	100.0	100.0	
Shannon-Weaver index ( $H'$ ) 1.271				

The availability/accessibility of facilities was cited by a half of the currently active as reasons why they stopped exercising for a while. Near distance from near my home or workplace is very important factor (Table 7). Small proportions wanted cheaper admission prices (3.6%) despite the fact that cost was not one of the main reasons given for not exercising. Overall, they mentioned cheaper admission and/or cheaper facilities (play yard or



park). This should be borne in mind when interpreting the results. It should also be noted that those on lower incomes and those in more deprived areas were no more likely to mention cheaper admission or facilities as changes which might encourage them to participate.  $H'$  for reason of convenience was 1.534.

**Table 7:** The reason of convenience

The reason of convenience	Frequency	Percent	Valid percent	Cumulative percent
Near distance from house or workplace	228	41.4	41.4	41.4
Traffic problem	62	11.3	11.3	52.6
Charge of utilization	20	3.6	3.6	56.3
Good facilities	25	4.5	4.5	60.8
Get-together	18	3.3	3.3	64.1
None of alternative	168	30.5	30.5	94.6
Various items	7	1.3	1.3	95.8
Other	23	4.2	4.2	100.0
Total	551	100.0	100.0	
Shannon-Weaver index ( $H'$ )		1.534		

Murray and Mori [12] reported that those living in the most deprived were not as strongly convinced of the benefits of exercise. Lower numbers in these areas strongly agreed that “being physically active is good for your physical health”, that it is “good for your mental health”, that it “gives you more energy” or that it is “enjoyable”. This perhaps suggests that health communications stressing the benefits of being physically active should be targeted at deprived areas [12]. Parks are common community features that provide opportunities for physical activity, yet we know little about the specific park characteristics that are most related to physical activity. Many aspects of parks could be measured and studied in relation to physical activity [13]. Thus, effective collaboration between public health professionals, parks and recreation planners and managers, sociologists, psychologists, economists, urban planners, architects, landscapers, and public safety officers is needed to design feasible interventions and enhance park-based physical activity levels [14]. The survey also provides detailed socio-demographic information to help understand which sections of local-city society take sport and physical activity the most seriously. We would like to take the opportunity to thank all the respondents across the continent who has given their time to take part in this survey. Without their active participation, this study would not have been possible.

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