

The background of the cover features a close-up, shallow depth-of-field shot of two sports balls. In the foreground, a brown leather football with white laces is in sharp focus. Behind it, an orange basketball is visible but blurred. The background is a bright, slightly hazy sky with soft clouds.

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Full Length Research Paper

Utilization of physical exercise by students of Cross River State tertiary institutions to achieve good health in the new millennium

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The numerous advantages of participation in physical activities (physical exercise) are: increased efficiency of heart and lungs; increased muscle strength and endurance; maintenance of proper body weight; and reduction of risk of coronary heart diseases. The study was conducted to ascertain students' knowledge of the effects of physical activities on their health as well as their level of participation in physical activities, for the purpose of achieving optimum level of health (wellness) in the new millennium. A total of three hundred (300) students randomly selected from the three campuses of tertiary institutions in Calabar served as subjects of the study. Three research questions were generated to guide the study. A well structured and validated questionnaire was used to gather information from the subjects. The study revealed that most of the subjects of the study (96%) displayed high knowledge of the effects of physical activities on human health. Level of participation in physical activities was found low, probable reasons deduced for poor level of participation were enumerated, while suggestions were made on how to raise level of participation in physical activities with the aim of using same to achieve good health/optimum level of well being in the new millennium.

Key words: Physical activities, university students, utilization, good health.

INTRODUCTION

Numerous studies revealed that physical exercise or physical activity is one of the health promoting activities among several factors (Insel and Roth, 2004; Ntui, 2000; Ajala, 2005). Sedentary or in active life is a slow poison to the skeletal, cardiac and visceral muscles which thrive in activity in general (Ntui, 2000). Any muscle, according to Ntui (2000), which is not exercised, atrophies. This view is supported by Bullock (1992) who states that lack

of muscle use results in atrophy. Ajala (2005) also posits that the following health problems were either linked with or made worse by getting too little exercise: overweight, feeling tired all the time, shortness of breath, stomach upsets, headaches, backache, weak muscles, high blood pressure, accelerated aging, heart disease, injuries to muscle, ligaments, tendons; injuries and pains in bones. The author further states that, the connection between

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this gloomy list of health problems and lack of exercise is simple. The body is like a finely tuned, complicated machine. If cared for, the different parts keep working well. If neglected, those parts get creaky and rusty. They break or get injured more easily. Therefore, it is obvious that exercise participation whether for competitive, recreation, fitness or rehabilitative purposes are in consonance with the health promotion and wellness goals of the present millennium.

The benefits of physical activity are well documented in literature (Kozier et al., 2004; Ntui, 2000; McGlynn, 1997; Ajala, 2005). The benefits of physical activities as revealed by a study of students in a large Midwestern University of which 77% participants exercised and their reasons were health, maintenance of fitness, stress reduction, enjoyment, and feeling good (Katrina, 2008). Actually, increased awareness of the health benefits of physical activity has led to increased recognition of the need for initiatives to reduce sedentary life styles (U. S. Department of Health and Human Services, 1996; American Heart Association, 1995).

According to Center for Disease Control (CDC, 1997), International Consensus Conference on Physical Activity Guidelines for Adolescents recommends that "all adolescents ... be physically active daily, or nearly every day, as part of play, games, sports, work, transportation, recreation, physical education or planned exercise, in the context of family, school and community activities". Furthermore, "adolescents should engage in three or more sessions per week of activities that last 20 min or more at a time and that require moderate to vigorous levels of exertion" (Sallis and Patrick, 1994).

Despite the benefits, research still indicates that participation in physical activities is low. Moreover, CDC (1996) notes that although children and adolescents are more physically active than adults, many young people do not engage in moderate or vigorous physical activity at least 3 days in a week. Indeed a study among students of Ohio State University Columbus revealed that 52% of the students were physically inactive and 31% had exercised regularly for six months or longer while 17% had exercised regularly for less than six months (Society for the Advancement of Education, 2001). According to the author "the steepest decline in the number of people who are involved in physical activity occurs during adolescence and early adulthood.

University students in Nigeria find themselves in a precarious situation where regular physical activity is not built into the academic programme. Inactive lifestyle has become a threat to several students. This is because university students are faced with long hours of cogitation, listening to lectures, reading in libraries, and browsing on computers. Moreover, emphasis is placed on producing sport talented groups who can win laurels for the institution not only in Nigeria but elsewhere (Okunbor and Agubuike, 2007). There are serious concerns raised by several international bodies (WHO,

UNESCO, IOC, CDC and others) on insufficient amount of appropriate physical and wellness activities (WHO, 2000; Okunbor and Agubuike, 2007). The level of participation of such students is not always governed by choice but often by unequal access to opportunities. Many students of South- South Zone of Nigeria tertiary institutions of which Calabar is located are deprived of living active lifestyles because they have limited physical, human and financial resources.

Low participation in exercise among university students is attributed to barriers such as; lack of knowledge, motivation, time and social support, laziness, perceived lack of safety, fear of injury or health problem, and lack of self-confidence among others (Katrina, 2008; Society for the Advancement of Education, 2001). Studies have indicated the structured wellness programmes can improve university students' attitude towards physical activity/exercise (Mack and Shaddox, 2004).

Urban planning, infrastructure development, schools, the workplace, government at all levels and sporting organisations all have an impact on people's willingness and capacity to engage in regular physical activity. Indeed, individuals can sustain a regular regime of moderate physical activity if it is incorporated into their daily routine. Promoting walking or cycling to work or school or creating urban and regional environments that are considered safe and promote walkability can therefore achieve significant long-term growth in the level of physical activity in the community.

Consequently, this study was undertaken to ascertain the students' level of knowledge of benefits of physical activities on their health, their level of participation in physical activities as well as to identify barriers to physical activities, which can hinder achievement of optimum health in the new millennium. Optimum level of health implies high level wellness of which regular physical activity is one of the factors that influence its. Wellness means optimum health and vitality, encompassing physical, emotional, intellectual, spiritual, interpersonal, social and environmental wellbeing (Insel and Koth, 2004). Three research questions were generated to help guide the study. The study therefore attempted to answer the following questions.

1. How adequate is the knowledge of students of tertiary institutions on the benefits derivable from physical activities?
2. What is the level of participation in physical activities among students in Cross River State tertiary institution?
3. What are the barriers militating against the students' participation in regular exercise (physical activity)?

METHODS AND PROCEDURE

The population of the study consisted of all students in tertiary institutions in Cross River State. The university campuses in Calabar were chosen because of large concentration of students.

Table 1. Knowledge of the benefits of exercise or physical activity among students of tertiary institutions in Cross River State, Nigeria.

Item	Response	
	Knowledgeable	Not knowledgeable
Physical activity is any form of physical exertion	286	14
Exercise/physical activity can enhance mother's health	299	1
Exercise/physical activity helps to promote social activities	295	5
Physical activity should last for at least 30 min per day	288	12
At least physical activity should be done three (3) times per week	287	13
Increased duration and intensity of physical activity is beneficial to the body	290	10
Physical activity prevent high blood pressure	289	11
Physical activity prevents people from being Isolated	284	16
Physical activity prevents obesity	293	7
Physical activity prevents heart diseases	285	15
Physical activity is necessary to prevent diseases of the joints	295	5
Physical activity makes the bones to be strong	295	5
Exercise promotes appetite	287	13
Blood supply to the body is stimulated by physical activity	294	6
Physical activity reduces mental tension	289	11
Physical activity if not regularly done leads to body pains	272	28
Physical activity enhances general health	293	7
Physical activity prevents constipation	282	18
Physical activity prevents the formation of kidney stones	277	23
Even when one is sick a level of physical activity is necessary	287	13
Watching television is not a means of physical activity	281	19
Total	6,048 (96%)	252 (4%)

Faculties not offering Physical and Health Education programme as a course of study were used. Ten departments were sampled from the six faculties selected, and 300 students randomly selected from these departments (30 from each department) were used as subjects of the study.

A validated questionnaire was used as research instrument to collate information from subjects of the study. Trial testing was also conducted to assess the reliability of the research instrument. A reliability coefficient (r) of 0.85 was arrived at after comparing the results of the two trial tests; this was considered well enough for the study.

Five graduate students of physical and health education were trained to serve as research assistants to collect data from subjects of the study. Simple descriptive statistical analysis such as tables and percentage were used to analyze the data collected for the study.

RESULTS

One hundred and fifty nine (53%) of the respondents were males while the remaining one hundred and forty one (47%) were females. 83% of the respondents were between the ages of 21 and 35 while the remaining 17% were below the ages of 21. Two hundred and fifty eight (86%) of the students were singles, while 14% were married. 30% of the respondents were in their final year of study, 46% in third year, 15% in second year, while the remaining 9% were in the first year of study. Respondents who were from science-based departments were

39%, 15% come from social sciences, 46 from arts and humanities.

Twenty-one items (posers) were utilized to test the adequacy of the knowledge of students of tertiary institution in Cross River State on the benefits derivable from physical activities. Table 1 contains a detail assessment of the students' knowledge of the benefits of exercise. Ninety six percent of the respondents were knowledgeable on the benefits of physical exercise while 4% were not.

Table 2 contains information on the nature and level of physical activities the students are involved in. The majority of the respondents do not walk at least 2.8 km in 35 min per day; jog (59%); play football (53%), wash floor for at least 20 min or more, three times a week. Regarding what the respondents do as physical activity, 61.33% climb stair, dance (52%), shoot basket ball (62.33%), run (52.67%) and swim (60.33%) for the recommended periods. Generally, forty-six percent of the respondents participated in different physical exercise whereas 51% did not.

Respondents were asked to respond to the twelve-item posers. Table 3 contains their reactions to the issues raised regarding the barriers to participation in physical activity. 78% of the respondents attested lack of awareness on the benefits of physical activity as a barrier, while 87.33% claimed that they cannot participate

Table 2. Practice (participation) of exercise/physical activity by students in tertiary institutions in Cross River State, Nigeria.

Item	Response		
	Yes	No	No response
I take bike or taxi to school even when I live near the campus	84 (28)	213 (71)	3 (1)
I hate trekking because it is stressful	61 (20.33)	236 (78.66)	3 (1)
Intra campus transportation reduces my stress of trekking	212 (70.67)	81 (27)	7 (2.33)
I hate to take lectures upstairs because climbing is very stressful	75 (25)	216 (72)	9 (3)
I work at least 2.8 km in 35 min per day	131 (43.67)	161 (53.67)	8 (2.66)
I climb stairs for at least 15 min per day	184 (61.33)	113 (37.67)	3 (1)
I dance at least 30 min 3 times per week	156 (52)	140 (46.67)	4 (1.33)
I jog at least 30 min three times per week	116 (38.67)	177 (59)	22 (7.33)
I play football at least for 40 min 3 times in a week	138 (46)	159 (53)	3 (1.33)
I shoot basket in basket ball at least 30 min 3 times a day	187 (62.33)	108 (36)	5 (1.67)
I skip with rope at least for 15 min per day	149 (49.67)	123 (41)	28 (9.33)
I run 2.5 km in 15 min per day	158 (52.67)	135 (45)	7 (2.33)
I do swimming at least for 20 min 3 times per week	181 (60.33)	107 (35.67)	12 (4.00)
I wash floor for at least 40 to 60 min for at least 3 times per week	131 (43.67)	164 (54.67)	5 (1.66)
I watch television as a means of physical activity.	114 (38)	177 (59)	9 (3)
Total	2077 (46%)	2310 (51%)	104 (3%)

*Figures in parentheses are percentages.

in physical exercise. 77.33% of the respondents did not have the skill and 67.33% did not have money for transportation to appropriate facility; 67.33 were afraid of injury. Generally, the results showed that 61% accepted that the listed barriers hindered them from participating in physical exercise while 38% said it was untrue.

FINDINGS AND DISCUSSION

The general aim of the study was to ascertain the students' level of knowledge of benefits of physical activities on their health, their level of participation in physical activities as well as to identify barriers to physical activities, which can hinder achievement of optimum health in the new millennium. The result in Table 1 showed that a high percentage of the respondents were knowledgeable on the benefits of exercise against a small proportion who was not knowledgeable. These results may be related to the fact that Physical Education is taught as a subject from primary school to the junior secondary school level. These results support Katrina (2008) that university students exercised for health, maintenance of fitness, stress reduction enjoyment and feeling good.

Some of the benefits documented in literature include: increased efficiency of heart and lungs: increased muscle strength and endurance, maintenance of proper body weight, reduction of the risk of coronary heart diseases including psychological and social benefits (Kozier et al., 2004; Ntui, 2000; McGlynn, 1997; Ajala, 2005). The knowledge on the benefits of exercise is important

because lack of knowledge portends doom. According to Ajala (2005), to change your own behaviour you must know what to do (knowledgeable). Therefore, students having good knowledge of the benefits of physical activities (exercise) implies that there is a positive step towards active life style.

Table 2 shows students in Cross River State Tertiary institutions participation in exercise (physical activity). The result indicated that the level of participation was 46% against 51%. Majority of the respondents do not walk, jog, play football, wash floor for at least 20 min or more, three times in a week. These results may be related to lack of scheduled time for these activities as part of the university programme. Students need time, less school work, more motivation, fewer commitment and training for physical activity as revealed in Katrina (2008)'s study. Regarding what the students do as physical activity, majority of the students climb stairs, dance, run, and swim for the recommended periods. Some of these results may be related to the fact that some of the lecture rooms are upstairs and most of the students run in order to get a seat since most of the lecture halls do not have enough seats. Secondly, dancing is a form of recreation and involves physical activity and most Nigerians enjoy it. The general level of participation in physical activity is low if students are to benefit from physical activities. Nigerians have not imbibed the culture of regular physical activity; therefore, if our youths are to be encouraged lecturers, administrators and others who are involved in moulding the students need to show good example by engaging in exercise.

Table 3. Barriers to participation in exercise (physical activity) among students of tertiary institutions in Cross River State, Nigeria.

Items	Response		
	True	Untrue	No response
I am not aware that physical activity is essential to health	234 (78)	62 (20.67)	4 (1.33)
I do not want to be injured	150 (50)	146 (48.67)	4 (1.33)
There are no guaranteed safety	139 (46.33)	154 (51.34)	7 (2.33)
I want to avoid health problems that can arise from exercise	177 (59)	121 (40.33)	2 (0.67)
I don't think I can do exercise at all.	262 (87.33)	36 (12)	2 (0.67)
I do not have money to transport myself to the stadium	202 (67.33)	96 (32)	2 (0.67)
There are no facilities for exercise in the campus	176 (58.66)	117 (39)	7 (2.33)
There are no professionals to design the programme	174 (58)	124 (41.33)	2 (2.33)
There is no time	138 (46)	159 (53)	3 (1)
There is no encouragement from the school authorities	147 (49)	151 (50.33)	2 (0.67)
I do not have the skill to perform physical activities	232 (77.33)	66 (22)	2 (0.67)
It is very costly to enroll in structured or planned physical activity	170 ()	128 ()	2 (0.67)
Total	2201 (61%)	1360 (38%)	39 (1%)

*Figures in parentheses are percentages.

The result in Table 3 shows that lack of awareness was seen as a barrier to participation in physical activity. This may be related to the negative wording of the item on the questionnaire. The results of this study had attested to high knowledge on the benefits of physical exercise. Majority of the respondents also lacked confidence to engage in physical activity, lacked skill and would not like to be injured during physical activity. This may be related to lack of regular practice. Laziness, lack of motivation, lack of social support, and other priorities have been identified as barriers to university students' participation in physical activity (Katrina, 2008; Society for the Advancement of Education, 2001).

CONCLUSION AND RECOMMENDATIONS

The importance of exercise or physical activity in maintaining physical, psychological and social health cannot be overemphasized. Students need to be knowledgeable and also participate in exercise to derive the known benefits. In this study, it was concluded that students were knowledgeable about the benefit of exercise, the level of participation was low and the level of barriers identified by students was high.

Based on the findings in this study, it is recommended that:

- i) Regular sporting activities should be held between faculties, departments and others.
- ii) Facilities and equipment should be provided for physical activity.
- iii) Time should be created for students to participate in exercise.
- iv) Students should be encouraged to walk as a way of

life.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

“I am (not) a basketball person”: Self-sport brand-me relationships among basketball spectators

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The current study introduces a psychographic variable, the self-sport brand-me relationship, as a mediator for better understanding of spectator sport consumption on television and the internet. The self-sport brand-me relationship refers to an individuals' perceived self-identification or rejection of a relationship with a sport participation as an affective involvement as a primary expression of oneself. Using a quota and convenience sampling, 546 Taiwanese respondents from players in basketball courses, the audience in an indoor arena, and people who had experience watching basketball, completed self-administered questionnaires. The survey included three sections: age and gender, a scale measuring self-sport relationships (SSR) (8 items), and two modes (watching basketball games on television and the internet) of spectator behavior. The findings support the hypotheses that (1) self-sport brand-me relationships positively associates with watching sports on television and the internet, and (2) plays a mediating role on demographic influences on watching behavior. The variance of watching behavior in basketball is approximately explained by age and gender for 10%, whereas the model that includes the variable of self-sport brand-me relationship increases the explained variance to 34%. Nurturing such self-sport relationships serves to build sport markets by reducing the negative influence of some demographic categories on sport watching behavior. The self-sport relationships between self-images and images of desired sport participation reveal significant image congruence. This congruence recalls the prior experience of arousal in the sport participation and transfers this arousal into spectatorship, thereby increasing interests and experiencing more in watching the sport.

Key words: Basketball, brand-me, fan, spectator sport, sport participation, self-expression.

INTRODUCTION

Researchers use age and gender widely as demographic variables for market segmentation due to their relative ease of attainment. In the sports setting, an individual's age and gender frequently affect spectator sport consumption. Young to middle-aged males are more likely to attend professional men's sporting events than other

demographic segments (Zhang et al., 1995). Males consume more sport media than females (Anderson et al., 2004). Although, tourism and sports researchers can access these traditional segmentation variables efficiently, an effective marketing investigation often requires diverse segmentation variables to increase the depth for a

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successful marketing plan (Pitts and Stotlar, 2002). The current study introduces another psycho-graphic variable, self-sport brand-me relationship, as a mediator to better understand spectator sport consumption on television and the internet.

Age and gender as predictors of sport consumption

Demographic variables such as age and gender are useful in predicting spectator sport consumption. For example, a probability sample in the nationwide social survey "2007 Taiwan Social Change Survey (TSCS)" ($n = 2,147$) shows that people who had watched sports live and on television ($n=442$, the mean age =36 years old) were significantly younger ($F=211.19$, $p<.001$) than people who had not watched sports live or on television ($n=710$, the mean age =51 years old). Particularly, because basketball requires high strength and quick rhythm, younger versus older fans may associate more likely with playing this sport (H1) and spend more time watching basketball games (H2). Gender differences may be the product of gender role socialization (Gill, 2002). High school boys have more favorable attitudes towards physical education than girls (Koca and Demirhan, 2004). Also, numerically more men watch more sports than women (Ganz and Wenner, 1991). Males may identify more strongly with being a fan and engage in more sport fan behavior than females (Dietz-Uhler et al., 2000). Consequently, H3 is that males are more involved in playing basketball and spend more time watching basketball games than females (H4).

Self-sport brand-me relationships

An individual considers products not only for what they can do but also for what they mean (Hirschman and Holbrook, 1982; Levy, 1959) to extend, expand and strengthen the sense of the person's self (Ahuvia, 2005; Belk, 1988). A person engages a leisure activity not only for fun and relaxation but also for experiencing symbolic nature of the activity in terms of how much this participation defines "who I am" (Belk et al., 1982; Fournier, 1998; Holbrook and Hirschman, 1982; Mick, 1986). An individual might implicitly define self by symbols and express one's personality by engaged activities consciously or unconsciously (Mick, 1986; Sirgy, 1982). The individual infuses an activity with signs which portray confirmatory facts (Goffman, 1959), for example, indicating to self that, "I am a sports person who likes to participate in some sport." When the image of a sport is perceived congruent with a person's self-concept, the person is motivated to participate in the sport (Oyserman, 2009). This identity-congruent sport participation is an identity-based leisure choice, resulting in a harmonious connection between the self and the sport—high congruence is the "self-sport brand-me

relationship". The self-sport brand-me relationship would send desired identity signals to others with the communication of the identity through a leisure preference (Berger and Heath, 2008). With a self-sport relationship to self-express oneself, the person would seem to live in a sport and more likely to watch the sport on television and on the internet because the watching behavior becomes part of oneself. The meaningful relationship can reinforce one's concept of self through the identity activity in which the relationship is grounded (Fournier, 1998). The relationship with sport may help express a significant aspect of self through mechanisms of self-worth and self-esteem in the sport participation and spectatorship. The self-sport brand-me relationship refers to an individuals' perceived self-identification or rejection of a relationship with a sport as an affective involvement as a primary expression of oneself (Little, 1976; McIntyre and Pigram, 1992). "I am a basketball person" or "I am not a basketball person" is an everyday example of a trope, implying brand-me relationships with the basketball. The use of "brand-me" here extends to a sport in general and not only a specific sports team. The affective involvement with a sport is demonstrable in multiple dimensions including a manifestation of the sport importance, enjoyment in the sport participation and self-expression through the sport (McIntyre and Pigram, 1992). The engagements in a sport provide clues about, "Who I am," by the activity symbolism. The activity symbolism refers to communicate nonverbally oneself and to achieve the satisfaction of self-expression through the choice of this leisure activity (Belk et al., 1982). The relationship between self and the desired sport participation reveals the congruence of self-images and images of the sport. The experience of arousal (Kerr, 1985) in participation of a sport associates closely within sport spectatorship, thereby increasing preference to watching the sport (McDonald et al., 2002). Consequently, H5 is that the self-sport brand-me relationship has a positive association with watching the sport on television and the internet. Stemming from the fact that psychological variables are usually mediating variables in the relationship between demographic variables and behavior (Cooper and Schindler, 2008), the self-sport brand-me relationship is likely to play a mediating role in the effects of age and gender on watching behavior (Figure 1). This model informs a more complex view of spectator sports consumption than considering demographic antecedents alone.

METHODOLOGY

According to 2007 TSCS conducted by the Institute of Sociology in Academia Sinica and sponsored by the Ministry of Science and Technology, basketball is the most frequently played and watched sport in Taiwan. For this reason, basketball was chosen as a specific target sport in the current study. Based on this sport, a questionnaire was designed to collect data. Ethical approval was granted for this study by an appropriate university ethics panel. The

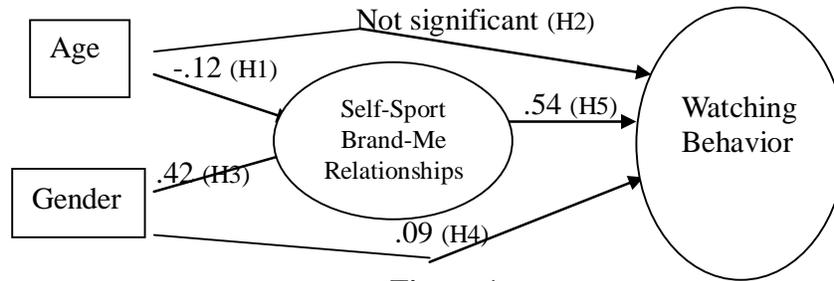


Figure 1. Self-sport brand-me relationship's mediating role and demographic influences on watching sports.

Table 1. Demographic and descriptive information of the sample.

frequency		frequency		frequency			
< =19	178	Watch	0	153	Watch	0	296
20-24	259	Sports	<15mins	86	Sports	<15mins	79
25-29	42	on TV	15-30mins	67	on the	15-30mins	62
30-34	15	in an	30-60mins	69	internet	30-60mins	40
Age 35-39	17	Average	1-2 hrs	74	in an	1-2 hrs	31
40-44	13	Week	2-4 hrs	46	Average	2-4 hrs	14
45-49	11		>4 hrs	48	Week	>4 hrs	19
50-54	5		Male	297	Self-Sport		
< = 55	3	Gender	Female	245	Brand-me	Mean = 3.38 (5 points)	
					Relationship	S.D. = 1.03	

questionnaire includes the instruction for participants at the beginning, indicating the purpose of the research, confidentiality of the data management and anonymous data analyses. If the participants did not feel comfortable, they could return the questionnaire any time.

Measures

A questionnaire was developed, including three sections: age and gender, a scale measuring self-sport relationships (SSR) and two modes (watching basketball games on television and the internet) of spectator behavior (Table 1). The SSR scale has eight items: one item for the perceived level of knowledge about basketball and seven items for the affective involvement with basketball participation in terms of importance, enjoyment and self-expression (Little, 1976; McIntyre and Pigram, 1992) using 5-point Likert scale between 1 strongly disagree and 5 strongly agree. Three items of importance include playing basketball is important, meaningful and valuable activity for me. Two items of enjoyment were: playing basketball is an activity that makes me feel happy; I enjoy the activity of playing basketball. Two items of self-expression include, "When I play basketball, I can express myself; when I play basketball, I am pleased that others will see my performance." The Chinese version of the 8 items of the SSR scale was available in some of Chinese unpublished theses with reliable validity. Researchers adjusted the Chinese items. For example, original Chinese items were for cycling or artificial rock climbing, and this study changed the targets into playing basketball. A pilot study with participants of 30 college students and 121 people waiting at a train

station was also conducted to insure the questions were clear for respondents to understand and answer.

Data collection

Because this study primarily examined the relationship between basketball participation (that is, self-sport brand-me relationships in playing basketball) and watching behavior, the sample included three parts: the basketball participants, the basketball audience in the indoor arena, and people who had any experiences in watching basketball games. Using a quota and convenience sampling, questionnaires were distributed in basketball courses to the players, in the live games of Taiwan's Super Basketball League (SBL) to the audience, and in other places to people who had any experiences in watching basketball. Participants in basketball courses were supposed to have comparatively high self-sport brand-me relationships in playing basketball and the audience in the live games was supposed to have comparatively high watching behavior, whereas respondents recruited from other places were supposed to have comparatively low self-sport brand-me relationships in playing basketball and watching behavior. Such data composite would provide enough variance of variables to test their relationships in the model. Using paper-and-pencil, respondents were asked to complete the self-administered questionnaire and returned it to the researchers. In basketball courses, 100 players answered the questionnaire when they took a break. In the basketball indoor arena, 165 people attending SBL games returned the questionnaires before the games or during the half-time interval. For other places, questionnaires were distributed in university classes to 58

Table 2. The correlation matrix among variables.

	Age	Gender	Self-Sport Brand-me Relationships
Gender (male=1, female=0)	-0.11*		
Self-Sport Brand-me Relationships	-0.16**	0.43**	
Watching Behavior	-0.12**	0.31**	0.57**

* $p < .05$, ** $p < .01$

students, and they also helped recruit 140 participants from their friends or relatives to answer the questionnaires. In order to have diverse sources of the sample, it took a weekend to collect data in a public train station. People in the station were approached with a brief explanation about this study. If one agreed to participate, a blank questionnaire and a pen were provided. In the station, 94 participants returned the questionnaires. Totally, 600 questionnaires were distributed in all places, 557 questionnaires were returned (return rate = 93%). Because more than half of questions were not answered, 11 questionnaires were considered not valid and discarded. In total, 546 questionnaires in the survey were used. The sample consisted of 245 females (45%) and 297 males (55%) (4 with missing data on this gender question). The sample had 47% ($n=259$) between 20 and 24 years old and 33% ($n=178$) below 19 (Table 1). The level of reliability of the two modes of spectator behavior was 0.71 (Cronbach alpha), whereas the reliability of the self-sport relationship scale was 0.96. Both reliabilities exceed the recommended level 0.70 (Nunnally and Bernstein, 1994).

FINDINGS

As testing a single model was insufficient by itself because in every case there were many other possible similar models that might explain relationships in the data (Meehl and Waller, 2002), the current study compares regression models to examine the extent of mediating effects. Prior to presenting the results of three regression models and mediating effects, using a correlation matrix that includes all variables in a table provides descriptive information and examines whether the problem of collinearity exists among independent variables of regression models.

The correlation matrix

Because the ordinal scale of age had the same distance for every five years, it was treated as interval to calculate age's correlations with other variables. Results of the correlation matrix among variables showed that male respondents were slightly younger than female respondents (Table 2). The younger the respondents were, the higher the self-sport brand-me relationships and watching behavior were (Table 2). This result was similar to that from the nationwide probability sample in "2007 Taiwan Social Change Survey (TSCS)". Male respondents had higher self-sport brand-me relationships and watching behavior than female respondents (Table 2). This finding was similar to the finding from TSCS. The correlation

between self-sport brand-me relationships and watching behavior was high (0.57) (Table 2). The absolute correlation values among independent variables were not high (between 0.11 and 0.43) (Table 2), indicating the problem of collinearity in regression models does not occur.

Three regression models

Linear regression analyses were conducted with all independent terms entered into the alternative models in the investigation. Variables were included in three regression equations. The first regression model used the self-sport relationship as the dependent variable and age and gender as independent variables. The tolerances of collinearity statistics were 0.99 for both age and gender much higher than 0.10, indicating no collinearity among independent variables (Hair et al., 2009). The results (adjusted $R^2 = 0.20$) of the first regression analysis showed that the standardized regression coefficients were all statistically significant for age (standardized beta = -0.12, $p=.003$) and for gender (standardized beta = 0.42, male=1, female=0, $p<.001$) (Figure 1 and Table 3). These results support H1 that the younger respondents associate more probably with playing basketball than the older and support H3 that males are more involved with playing basketball than females. The second regression model used the watching behavior as the dependent variable, and age, gender, and the self-sport relationship (SSR) as independent variables. The tolerances were 0.97 for age, 0.81 for gender, and 0.82 for SSR much higher than 0.10, indicating no collinearity among independent variables (Hair et al., 2009). The results (adjusted $R^2 = 0.34$) of the second regression analysis showed that standardized coefficients were statistically significant for gender (standardized beta = 0.09, male=1, female=0, $p=.03$) (supporting H4) and for self-sport relationships (standardized beta = 0.54, $p<.001$) (supporting H5), but not significant for age (Figure 1 and Table 3). H4 is that males spend more time watching basketball games than females; H4 receives support. H5 is that the self-sport relationship has a positive association with watching basketball and also receives support. The third regression model includes age and gender (without the self-sport relationship) as independent variables and the watching behavior as the dependent

Table 3. Results of regression analyses.

	Regression model 1	Regression model 2	Regression model 3
Dependent variable	Self-sport brand-Me relationships	Watching behavior	Watching behavior
Independent Variables (Standardized Betas)	Age (-0.12) Gender (0.42)	Age (n.s.) Gender (0.09) Self-sport Brand-me Relationships (0.54)	Age (-0.09) Gender (0.30)
Adjusted R ²	0.20	0.34	0.10
F and p values	65.80, <i>p</i> < 0.001	89.37, <i>p</i> < 0.001	30.81, <i>p</i> < 0.001

Note: n.s. = not significant

variable. The tolerances were 0.99 much higher than 0.10 for both age and gender, indicating no collinearity. The results (adjusted R² = 0.10) of the third regression analysis showed that standardized regression coefficients were all statistically significant for age (standardized beta = -0.09, *p* = .037) and for gender (standardized beta = 0.30, male=1, female=0, *p*<.001) (Table 3).

Assessment of mediation

The study includes four steps to assess the mediating effects (Baron and Kenny, 1986; Gau et al., 2007) of SSR through a series of regression analyses. The first step examined whether the independent variables affected the mediator. The analyses of the first regression model showed that age and gender significantly affected SSR (Table 3). The second step examined whether the mediator (SSR) affected the dependent variable that was, watching behavior in this study. The analysis of the second regression model showed that SSR positively influenced watching behavior (Table 3). The third step examined whether or not independent variables affected the dependent variable when excluding the mediator. The analysis of the third regression model showed that age and gender significantly affected watching behavior (Table 3). The fourth step examined whether the coefficients of independent variables became non-significant (that is, full mediation) or reduced (that is, partial mediation) when the mediator was included in the model. Compared to the regression coefficient in the third model that excluded the mediator SSR, the regression coefficient of gender in the second model that included SSR reduced from 0.30 to 0.09 whereas the absolute values of regression coefficients for age decreased from -0.09 in the third model to non-significant in the second model (Table 3). These findings indicated the mediating effects of self-sport relationships on the demographic influences on watching sports in television and the

internet. SSR partially mediated the relationship between gender and watching behavior, and fully mediated the relationship between age and watching behavior. Therefore, H2 indicates that the younger respondents spend more time watching basketball games than the older receives partial support because the influence of age on watching behavior was only indirect through the mediator SSR. Watching sports requires less physical challenge than playing sports and this perspective might explain why age does not directly influence watching behavior.

DISCUSSION AND CONCLUSION

The results confirm prior studies demonstrating age and gender differences in self-sport brand-me relationships (Dietz-Uhler et al., 2000; Ganz and Wenner, 1991; Koca and Demirhan, 2004). Using the specific sport basketball as a target, the current study supports the hypothesis that the self-sport brand-me relationship has a positive connection with the watching behavior. Shamir and Ruskin's (1984) failure to show strong relationships between involvement in physical activity and the level of spectatorship may be due to their research design not including the use of a specific sport as a target. The self-sport relationships between self-images and images of desired sport participation revealed significant image congruence (Belk et al., 1982; Oyserman, 2009). This congruence may recall the prior experience of arousal in participation and transfer this arousal into spectatorship, thereby increasing interest in watching the sport (McDonald et al., 2002). The self-sport brand-me relationship plays the mediating role in the demographic effects on watching sports behavior. Particularly, the self-sport relationship fully mediates the relationship between age and viewing behavior. Thus, nurturing such self-sport relationships can serve to build markets for sports by reducing the negative influence of some demographic categories on

sport watching behavior. Because numerous new forms of sport media consumption have appeared in the market place over the last decade, the prediction of customers' sport media consumption continues to be important in sport marketing. Future research needs to examine the effects of self-sport brand-me relationships in a different sport and for a different type of sport spectatorship. Because age and gender information are easy to access, they are practical to be segmentation variables. However, the variance of watching behavior in basketball explained by age and gender was approximately 10%. When the model added a psychographic variable, self-sport brand-me relationship in this study, the variance explained increased to 34%. This study contributes to introduce the concept of self-sport brand-me relationship, develop a better model of predicting watching behavior, and provide an effective segmentation variable along with age and gender in the spectator sport market. The concept of mediation by a self-perceived variable by which the consumer defines themselves through a particular sport receives empirical support. This theory with empirical support increases understanding of the motivation for and nature of enjoyment derived from sport viewing, and in this way the study here contributes to knowledge of how and why fans attend to particular sports. Further studies may be required to clarify constructs such as self-sport brand-me relationship, sport identification, and involvement with a sport and to examine their possible relationships.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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The background of the slide features a close-up, slightly blurred image of an orange basketball with black lines, positioned in the upper right. Below it, a portion of a silver dumbbell is visible, showing its central bar and weights. The overall background has a dark, gradient-like appearance with some light blue and white highlights at the top, suggesting a sky or a bright light source.

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