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## Leisure constraints experienced by university students in Greece

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### ABSTRACT

The aim of this study was (a) to investigate students' leisure constraints; (b) to identify students' profiles; and (c) to explore the effects of gender, residence, participation in physical activities, and health habits on the intensity of constraints experienced. Using the scale developed by Alexandris and Carroll (1997), it was observed that students perceived their leisure activities to be constrained by, mainly, accessibility and facilities. Analyses of variance employing constraints as the dependent variables, with (a) residence before age 18 and (b) health habits as independent variables, showed, for the dimension "lack of company," some statistically significant differences between students born and raised in small cities and those born and raised in big cities. Furthermore, students from small cities reported significantly more constraints arising from lack of company during leisure activities. In contrast, in four of the seven constraint dimensions, students who paid much attention to their nutrition habits (i.e., who ate more healthily) perceived fewer constraints on leisure activities than did students paying no attention to nutrition. Providing leisure and sport education, inculcating positive attitudes about participation, might reduce students' experience of leisure constraints and should be developed as a strategic marketing effort to involve both private and public sectors, since it is undeniable that an active lifestyle is healthier than a sedentary lifestyle.

### INTRODUCTION

Leisure constraints research focuses on investigating factors that inhibit or prohibit participation and enjoyment in leisure (Jackson, 2000). As a scientific field, it belongs to the broader field of leisure studies, and only in the last two decades has it arrived as a distinct field, thanks to systematic research (Jackson, 2005). Studying leisure constraints might lead to both humanitarian and managerial outcomes. From a humanitarian point of view, it would be valuable to understand the reasons underlying the final decision to participate in activities, since participation, even in soft forms of physical activity, has been found to offer various benefits to participants, such as a high level of self-esteem, freedom from some diseases, a high quality of life, and improvement of cardiac health (Strauss, 2000). From a managerial point of view, probing the source of leisure constraints may ultimately help in better organizing and promoting leisure activities. Research may also become valuable in the development of focused leisure policies and strategies for every institute or company that provides organized leisure activities.

Furthermore, a thorough understanding of what keeps people away from physical activities is essential for the identification of appropriate points of intervention to promote active lifestyles and the health benefits they offer (Davison & Lawson, 2006). Additionally, as Larson (2000) noted, leisure is a crucial developmental context for young people and adolescents. From this point of view, investigating leisure constraints among the specific age-based category of young students is vital. Knowledge gained could improve the implementation of leisure services for youth—the future, hopefully healthier, society.

It is valuable to investigate leisure constraints, since they seem to determine to a great degree actual participation in activities (Alexandris, Tsorbatzoudis & Grouios, 2002). Moreover, identifying the strongest constraints may provide information helpful in creating strategies to promote leisure and sport activities. Understanding differences in perceived constraints associated with gender, age, participation, and nutrition habits, should be useful for planning, promoting, and managing organized leisure sport activities.

The present study aimed to (a) identify the leisure constraints experienced by students in Thessaloniki in northern Greece; (b) depict students' profiles in terms of their health habits; (c) identify the hierarchy of intensity of the experience of constraints; and (d) investigate differences in constraints experienced, by gender, residence, participation in physical activities, and nutrition habits.

### LITERATURE REVIEW

Leisure constraints began to be systematically investigated in the 1980s. At that time, they were closely related to participation, presenting “barriers” that existed between a person’s desire to participate actively in a leisure activity and his/her actual participation. (Jackson, 2005) The optic angle changed greatly throughout the 1980s and 1990s (Jackson & Scott, 1999), as the variety of constraints acknowledged to wield an influence grew. This was the outcome of such new methodological approaches as factor analysis and cluster analysis (Hawkins & Freeman, 1993; Norman, 1996; Norman, 1995; Stodolska, 1998).

Constraints, however, are no longer considered the only factors that influence participation. In other words, a person’s experience of constraints does not necessarily lead to non-participation (Jackson, 2005). Crawford and Godbey (1987) distinguished three categories of leisure constraints: (a) intrapersonal constraints, including negative individual psychological states and/or other characteristics of an individual that interact with personal preferences (e.g., self-esteem and perceived physical skills); (b) interpersonal constraints, stemming from interactions and relationships among individuals (e.g., access to partners’ or friends’ company for leisure activities); and (c) structural constraints, which intervene between leisure preferences and participation (e.g., costs of participating and problems with facilities). Crawford and Godbey’s classification of leisure constraints (1987) reflects the dimensionality underlying leisure constraints and has been well supported by subsequent research (Backman, 1991; Henderson, Stalnaker, & Taylor, 1998; Hultsman, 1995; Jackson, 1991).

The hierarchical model by Crawford, Jackson and Godbey (1991), which was based on earlier work by Scott (1991), assigns intrapersonal and interpersonal constraints the strongest influence on formation of leisure habits, relegating structural constraints to a role of least importance. Individuals experience the three types of constraint hierarchically, according to the model, through the participation decision-making process; constraints interact with motivations and preferences and shape the level of participation. Individuals may, however, negotiate their way through constraints, finding ways to participate in the face of them.

Time- and cost-related constraints rank among the most frequent and powerful constraints on leisure activities generally (Jackson, 2005). Walker and Virden (2004) noted that constraints on time are the strongest ones, and the ones most common in relevant studies.

#### Leisure constraints and gender

Most of the relevant studies (Alexandris & Carroll, 1997; Jackson, 2005; Horna, 1989; Jackson & Henderson, 1995; Rocklynn, 1998) have come to the common conclusion that women face more intense leisure constraints than men, and this results mainly from lack of time. They tend to suggest that women’s place within society, women’s roles and responsibilities, often limit women’s freedom of choice. Furthermore, lack of technical skills, of private transportation, and of financial resources are also experienced by women more intensely than men (Harahoussou, 1996; Harrington & Dawson, 1995).

Leisure constraints, educational level, age and marital status

Leisure constraints have also been found to be related to demographic data other than gender, such as education, age, and marital status (Alexandris & Carroll, 1997; Jackson & Henderson, 1995; Witt & Goodale, 1981). People with more education have been found to experience a lower level of constraints, while older people report greater time constraints and married people report more constraints related to family responsibilities.

#### Leisure constraints and residence

The direct relationship between leisure constraints and residence has not previously been investigated. However, in a national survey in the United States (Klepeis et al., 1996) concerning energy expenditure for leisure-time physical activity, differences were reported among the country’s regions. Inhabitants of the Pacific region (California, Nevada, Arizona, and Hawaii) were more physically active than those of the Central region (Nebraska, Kansas, Iowa, and Missouri), for example.

#### Leisure constraints and participation in leisure activities

During the process of deciding to participate in leisure activities, experienced constraints may affect individuals’ preferences, interests, and enjoyment derived from participation. Alexandris, Tsorbatzoudis, and Grouios (2002) found that leisure constraints may affect frequency of participation in activities, sometimes leading even to complete non-participation. However, studies exist flatly countering that conclusion (Kay & Jackson, 1991; Scott, 1991). This discrepancy between findings makes the present investigation of leisure constraints and frequency of participation of some importance.

#### Leisure constraints and nutrition habits

Many studies demonstrate that regular participation in physical activity is part of a healthy lifestyle (U.S. Department of Health and Human Services, 2000). Physical activity may prevent those diseases fostered by the under-mobility characterizing everyday life; they may

also enhance quality of life more generally (Berlin & Colditz, 1998; Blair & Morrow, 1998; Corbin, Lindsey & Welk, 2000). It is also undeniable that healthy nutrition habits are important for good health (Twisk, Van Mechelen, Kemper & Post, 1997; U.S. Department of Health and Human Services, 1999).

Nutrition habits have been studied in relation to exercise habits (Pitsavos et al., 2005; Rimal, 2002; Schnohr et al., 2004), establishing that physically active people have healthier nutrition habits than those who are less physically active. However, nutrition habits have not previously been investigated in terms of their relation to leisure constraints. The authors of the present study asked whether constraints experienced on healthful leisure activities might have a negative association with healthy nutrition habits, in a context of a healthy *modus vivendi*.

#### Leisure constraints, smoking, and alcohol use

Smoking has also been studied in relation to participation in leisure activities (Schnohr et al., 2000; Theodorakis & Hassandra, 2005). Study results suggest in common that physically active people are less likely to smoke than inactive people, and there are similar findings concerning alcohol use (Krick & Sobal, 1990; Schnohr et al. 2000), in that physically inactive people were found to be relatively likelier to drink heavily. The present study's direct exploration of a relationship between leisure constraints and smoking and drinking should pinpoint these habits' roles in decisions about participating (the negotiation process) in activities.

## METHOD

### Participants and procedure

The present research was conducted among university students in Greece. Self-report questionnaires were distributed at student clubs and in teaching classrooms, between December 2005 and February 2006. Of 380 questionnaires distributed, 320 were returned (a response rate of 84%).

### Instrument

Alexandris and Carroll's scale (1997), which was developed and standardized for the general adult population in Greece, was used to measure experienced (or perceived) constraints. The scale comprises 39 statements, classified in seven dimensions, or constraint categories, about students' current participation in leisure activities. The seven-point Likert-type scale offers responses ranging from "very important" (1) to "not important" (7). Questions about demographic details followed.

## RESULTS

Of the surveyed students, 57.2% were women and 42.8% were men. The mean age was 21.60 years (S.D. = 2.11). As to residence, 33.8% had grown up in one of the two biggest urban centers in Greece, Athens and Thessaloniki, while 18.8% came from cities of no more than 200,000 inhabitants; 18.4% came from cities of no more than 50,000 inhabitants; 17.5% from cities of 25,000 or fewer inhabitants; and 11.6% from cities of 15,000 or fewer inhabitants. Students were asked for information about their nutrition, alcohol consumption, smoking, and drug use. The results are shown in table 1.

Table 1  
*Health habits*

Nutrition	Alcohol	Smoking	Drugs
Always consume healthy food 10.3%	Never drink 17.8%	Non-smoker 71.9%	Never used 90%
Mostly healthy food 34.7%	1 time per month 21.9%	1-3 per day 5.6%	<1 time per month 6.6%
Sometimes healthy food 41.6%	1 time per week 42.2%	4-10 per day 6.9%	1-3 times per month 1.3%
Do not consume healthy food 13.4%	>1 per week 18.1%	11-20 per day 9.7%	1 time per week 2.1%
		>20 per day 5.9%	

Students were also asked about their behavior concerning physical activity. More precisely, they were asked how often weekly they visited private gyms, whether they considered themselves to be athletes, how often they participated in university sport programs, and how often they practiced individually. All these questions were referred to weekly participation.

Table 2

*Participation in physical activities (hourly totals per week)*

	Not at all	1-2 hours	3-4 hours	5-6 hours	>7 hours	Total
Private gyms	76.3%	8.4%	6.6%	4.1%	4.6%	100%
Sport clubs	83.4%	4.1%	4.4%	2.8%	5.3%	100%
University	81.9%	5.3%	5.9%	3.1%	3.8%	100%
Individual	41.9%	37.2%	15.9%	2.5%	2.5%	100%

Descriptive statistics derived from the leisure constraints scale are contained in Table 3, which also presents the results (alpha scores) of reliability testing of each dimension's measure.

Table 3  
*Descriptive statistics from scale, including reliability*

Dimensions	M	SD	Alpha
Lack of access	3.59	1.76	.77
Lack of facilities	3.92	1.49	.81
Lack of company	4.37	1.50	.78
Lack of time	4.54	1.09	.60
Lack of knowledge	5.00	1.71	.84
Lack of interest	5.33	1.40	.85
Psychological dimension	5.72	1.13	.89

The dimension "lack of access" is perceived as the most important constraint, followed by "lack of facilities" and "lack of company." The reliability of the dimensions ranges from .60 to .89.

Anova

*Students' residence prior to age 18*

The ANOVA revealed statistically significant differences ( $F_{4,313}=2.52, p<.05$ ) in the dimension "lack of company" based on place of residence before age 18; the post hoc Scheffe test showed that students who had lived in cities of 15,000 citizens ( $M=3.90$ ) found lack of company to be a more important constraint than did students from the biggest cities ( $M_2 = 4.60$ ).

Nutrition habits

The ANOVA revealed statistically significant differences related to students' nutrition habits in four out of seven constraint dimensions. The dimensions in which there were significant differences were: (a) lack of time ( $F_{3,316} = 4.58, p<.05$ ); (b) psychological dimension ( $F_{3,316}=6.33, p<.05$ ); (c) lack of company ( $F_{3,314}=4.69, p<.05$ ); and (d) lack of interest ( $F_{3,314}=5.44, p<.05$ ). The post hoc Scheffe test revealed that (a) for students who did not pay attention to nutrition and did not consume healthy food ( $M=4.29$ ), time was a more important constraint than for students who paid much attention to nutrition and consumed healthy food ( $M=5.08$ ); (b) for students who did not pay attention to nutrition and did not consume healthy food ( $M_1=5.21$ ), the psychological dimension was a more important constraint than for students who paid attention to nutrition and consumed healthy food ( $M_2=6.29$ ); (c) for students who did not pay attention to nutrition and did not consume healthy food ( $M_1=3.74$ ), "lack of company" was a more important constraint than for students who paid attention to nutrition and consumed healthy food ( $M_2=4.76$ ); and (d) for students who did not pay attention to nutrition and did not consume healthy food ( $M_1=4.79$ ), "lack of interest" was a more important constraint than for students who paid attention to nutrition and consumed healthy food ( $M_2=5.71$ ). No statistically significant differences were seen according to gender or to weekly sport participation.

DISCUSSION

Students' profile

The majority of the students in the sample were undergraduate men beginning the third decade of life. Most were born and had grown up in cities of more than 200,000 inhabitants; they were largely non-smokers and mainly social drinkers. They tended to give little or no attention to nutrition habits. As far as participation in physical activities, the majority did not participate in university leisure or sports programs, nor were they active athletes at sport clubs. However, almost one-third of them did regularly visit private gyms, and most spent from one to seven or more hours per week in individually organized physical activities. These results seem to be in accord with similar studies (Pitsavos et al., 2005; Rimal, 2002; Schnohr et al., 2004), in that physically active people have previously been found to have more healthy nutrition habits than physically inactive people.

### *Leisure constraints*

In the present study, "lack of access" was the dimension deemed their most important constraint by the students. Perceived "lack of facilities" was the second most important constraint, and "lack of company" was the third. This finding accords with findings of previous studies, throughout which these three dimensions usually constitute the most important factors preventing people from participating in leisure activities (Alexandris & Carroll, 1997; Alexandris & Carroll, 1999).

A possible explanation for the importance of "lack of access" is that students lack opportunity to participate in physical activities close to home, since most live in the center of a city. Transportation often demands time, with traffic jams a daily problem in, for example, Thessaloniki. In addition, students, especially those living in Thessaloniki on a temporary basis, to study, typically do not own cars. By its unpunctuality, furthermore, public transportation apparently discourages students from using it.

The finding concerning lack of facilities may reflect the low quality of some sport and leisure facilities, including overcrowding. Studies conducted in Greek environments have showed that leisure services, especially in public and municipal facilities, are not satisfying, mainly due to insufficient promotion of sport and leisure activities for all (Alexandris & Carroll, 1999). As Alexandris (1998) noted, insufficient sport facilities and limited opportunities in leisure programs are often responsible for low participation.

Facilities-related problems also give an idea of how students feel about university facilities and programs. One statement from the instrument, "I do not like activities that are offered in organized programs," was indicated by the students to be a significant constraint; they report preferring individual activities in high-quality facilities, according to the descriptive statistics.

Finally, "lack of company," the third most important dimension of constraint in this study, may be explained by the generic phenomenon of isolation, which seems stronger in big cities. However, the finding may also reflect the fact that, after all, young people prefer other kinds of activities in their free time, despite declaring that they would participate in physical activities if accompanied by a companion. As Aittasalo, Miilunpalo, and Suni (2003) pointed out, in technologically developed countries, a sedentary lifestyle is adopted by more and more people.

The dimension "lack of time," which is characterized as the most common and strongest constraint by Jackson (2005), in this study ranks only fourth in the hierarchy of intensity. In other words, one might argue that students do not experience time as a strong constraint on their leisure activities. A reason may be that students' daytime programs comprise studying and attending lectures only some of which are compulsory. Therefore, students have more free time than those adults who are already in the labor market.

Regarding residence before age 18, students from towns of no more than 15,000 inhabitants experienced the constraint "lack of company" more intensely than did students who came from the two biggest cities in Greece. In other words, it was more common among students born and raised in small communities to feel a lack of friends or partners for leisure activity companionship. This is straightforward. People from small communities have more opportunity to develop friendly relations and interactions with people than do city dwellers. When they move to a bigger city (as many students in the sample had, in order to attend college), such people experience "lack of company" comparatively intensely.

Regarding students' nutrition habits, the statistically significant differences that were observed distinguished "students who paid much attention to their nutrition by always consuming healthy food" from "students who did not pay any attention at all to their nutrition habits." More precisely, students who paid attention to nutrition experienced leisure constraints at a lower level than students unconcerned with the food they consumed. It seems, then, that students who take care of themselves in terms of diet do the same in terms of physical activity, their approach counterbalancing any constraints experienced. As Twisk et al. (1997) pointed out, physical activity and diet are two important components of contemporary life. Healthy food and regular participation in leisure activities, or physical activities of soft form, seem to play an important part in good health. While nutrition habits have previously been studied in relation to participation in physical activities (Pitsavos et al., 2005; Schnohr et al., 2004; Rimal, 2002), the results of the present study represent a more sensitive approach and lead to the conclusion that people with healthy nutrition habits feel less constrained in their leisure physical activities than do people unmindful of their nutrition habits.

The portion of this study examining smoking and drinking in a context of leisure constraints showed no statistically significant differences between smokers/drinkers and non-smokers/non-drinkers. However, it has been found that smoking and drinking can affect leisure participation (Krick & Sobal, 1990; Schnohr et al., 2000; Theodorakis & Hassandra,

2005). The “bad” habits of smoking and alcohol use do not seem strong enough to affect constraints; they affect actual participation, but not the beginning of decision making, where negotiation plays a part.

The novelty of the current study lies in the fact that it directly links leisure constraints to nutrition habits. So far, nutrition habits have been examined for their relevance to actual participation. One could argue that this finding highlights even more clearly the important role that healthy nutrition habits can play in a balanced, high-quality life.

The fact that most of the students did not participate in university leisure and sport programs should, first of all, put university leisure and sport program providers on alert. Students experienced problems with facilities; overcrowding might mean facilities were inadequate to cover students’ needs, or perhaps that there were some very popular activities. University leisure providers should pinpoint student needs and preferences, then redesign their programs as necessary. This could be achieved with such marketing tools as SWOT analysis, which focuses on gathering data about potential participants and describing their needs.

Of course, students’ characteristic preference for individually organized activities might be another indication of the social alienation that people experience and/or prefer in big cities. This is an important issue, though one beyond the authors’ scope. Access to sport facilities seems to be another constraint for students. It is in part an issue of urban planning concerning local authorities and public transportation officials; but as far as universities are concerned, student buses could be provided to transport students from a department or other central point on campus, to exercise facilities or sites for outdoor recreation.

In conclusion, providing leisure and sport education and fostering positive attitudes towards lifelong fitness could prevent the experience of leisure constraints. Such education should not be approached, however, as an effort to be made only by individual leisure and sport providers. It should be developed as a strategic marketing plan involving the private and the public sector, since it is undeniable that participating in leisure and sport activities promotes health.

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#### REFERENCES

- Aittasalo, M., Miilunpalo, S., & Suni, J. (2003). The effectiveness of physical activity counselling in a work-site setting. A randomized controlled trial. *Patient Education Counselling, 55*, 193–202.
- Alexandris, K. (1998). Patterns of recreational sport participation among the adult population in Greece. *Cyber Journal of Sport Marketing, 2*(2), 1–9.
- Alexandris K., & Caroll, B. (1997). An analysis of leisure constraints based on different recreational sport participation levels: Results from a study in Greece. *Leisure Sciences, 19*, 1–15.
- Alexandris, K., Tsorbatzoudis, C., & Grouios, G. (2002). Perceived constraints on recreational sport participation: Investigating their relationship with intrinsic motivation, extrinsic motivation and amotivation. *Journal of Leisure Research, 34*(3), 233–252.
- Backman, S. (1991). An investigation of the relationship between activity loyalty and perceived constraints. *Journal of Leisure Research, 23*, 332–344.
- Berlin, J. A., & Colditz, G. A. (1990). A meta-analysis of physical activity in the prevention of coronary heart disease. *American Journal of Epidemiology, 132*, 612–628.
- Blair, S. N., & Morrow, J. R. (1998). Introduction: Cooper Institute /American College of Sport Medicine 1997 Physical Activity Intervention Conference. *American Journal of Preventative Medicine, 15*, 255–256.
- Corbin, C. B., Lindsey, R., & Welk, G. (2000). *Concepts of fitness and wellness* (3rd ed.). Boston: McGraw-Hill.
- Crawford, D. W., & Godbey, G. (1987). Reconceptualizing barriers to family leisure. *Leisure Sciences, 9*, 119–127.
- Crawford, D. W., Jackson, E. L., & Godbey, G. (1991). A hierarchical model of leisure

constraints. *Leisure Sciences*, 13, 309–320.

Davison, K. K., & Lawson, C. T. (2006). Do attributes in the physical environment influence children's physical activity? A review of the literature. *International Journal of Behavioral Nutrition and Physical Activity*, (Vol), 3–19.

Elmendorf, W. E., & Willits, E. K. (2005). Urban park and forest participation and landscape preference: A review of the relevant literature. *Journal of Arboriculture*, 31(6), 311–317.

Ferris, A. L. (1962). *National Recreation Survey*, Outdoor Recreation Resources Review Commission (Study Report no. 19). Washington, D.C.: U.S. Government Printing Office.

Harahoussou, Y. (1996). Sociocultural influences on Greek women's involvement in physical recreation. *International Review for Sociology of Sport*, 31, 219–227.

Harrington, M., & Dawson, D. (1995). Who has it best? Women's labor force participation, perceptions of leisure and constraints to enjoyment of leisure. *Journal of Leisure Research*, 27(1), 4–24.

Hawkins, B. A., & Freeman, B. (1993). *Factor analysis of leisure constraints for ageing adults with mental retardation*. Paper presented at the NRPA Symposium on Leisure Research, San Jose, CA.

Henderson, K., Stalnaker, D., & Taylor, G. (1988). The relationship between barriers to recreation and gender-role personality traits for women. *Journal of Leisure Research*, 20, 69–80.

Horna, J. L. (1989). The leisure component of the parental role. *Journal of Leisure Research*, 10(3), 203–215.

Hultsman, W. (1995). Recognizing patterns of leisure constraints: An extension of the exploration of dimensionality. *Journal of Leisure Research*, 27, 228–244.

Jackson, E. L. (2000). Will research on leisure constraints still be relevant in the twenty-first century? *Journal of Leisure Research*, 32, 62–68.

Jackson, E. L. (2005). Leisure constraint research: Overview of a developing theme in leisure studies. In Jackson, E. (Ed.), *Constraints to Leisure* (pp. ??–??). State College, PA: Venture Publishing.

Jackson, E. L. (1991). Leisure constraints/constrained leisure [Special issue]. *Journal of Leisure Research*, 23, 279–285.

Jackson, E. L., & Scott, D. (1997). Constraints to leisure. In E. L. Jackson and T. L. Burton (Eds.), *Leisure Studies: Prospects for the twenty-first century* (pp. 299–321). State College, PA: Venture Publishing.

Jackson, E. L., & Henderson, K. (1995). Gender-based analysis of leisure constraints. *Leisure Sciences*, 17, 31–51.

Johnson, C. Y., Bowker, J. M., & Cordell, K. (2001). Outdoor recreation constraints: An examination of race, gender and rural dwelling. *Southern Rural Sociology*, 17, 111–133.

Kay, T., & Jackson, G. (1991). Leisure despite constraint: The impact of leisure constraints on leisure participation. *Journal of Leisure Research*, 23, 301–313.

Klepeis, N. E., Tsang, A., & Behar, J. (1996). Analysis of the National Human Activity Pattern Survey (NHAPS): A resource for assessing exposure to environmental pollutants. Las Vegas, NV: U. S. Environmental Protection Agency.

Krick, J. P., & Sobal, J. (1996). Relationships between health protective behaviors. *Journal of Community Health*, 15(1), 19–34.

Norman, W. (1995). *Perceived constraints: A new approach to segmenting the vacation travel markets*. Paper presented at the NRPA Symposium on Leisure Research, San Antonio, TX.

Norman, W. (1996). A perspective on recreational use of South Carolina rivers. *South Carolina River News*. 2(3), 1–2.

Pitsiavos, C., Panagiotakos, D. B., Lentzas, Y., & Stefanidis, C. (2005). Epidemiology of leisure time physical activity in socio-demographic, lifestyle and psychological characteristics of

men and women in Greece: The ATTICA study. *BMC Public Health*, 5(37).

Rimal, A. (2002). Association of nutrition concerns and socioeconomic status with exercise habits. *International Journal of Consumer Studies*, 26(4), 322–327.

Rocklynn, C. H. (1998). Adolescent girls and outdoor recreation: A case study examining constraints and effective programming. *Journal of Leisure Research*, 30(3), 356–379.

Schnohr, C., Hojbejerre, L., Riegels, M., Leder, L., Prescott, E., & Gronbaek, M. (2004). Does educational level influence the effects of smoking, alcohol, physical activity and obesity on mortality? A prospective population study. *Scandinavian Journal of Public Health*, 32, 250–256.

Scott, D. (1991). The problematic nature of participation in contract bridge: A qualitative study of group related constraints. *Leisure Sciences*, 13, 321–336.

Stodolska, M. (1998). Assimilation and leisure constraints: Dynamics of constraints on leisure in immigrant populations. *Journal of Leisure Research*, 3, 521–551.

Strauss, R. C. (2000). Childhood obesity and self esteem. *Journal of Pediatrics*, 105, 1–15.

Theodorakis, Y., & Hassandra, M. (2005). Smoking and exercise. Differences between exercisers and non-exercisers [Part II]. *Inquiries in Sport and Physical Education*, 3, 239–248

Twisk, J., Van Mechelen, W., Kemper, H., & Post, G. (1997). The relation between “long-term exposure” to lifestyle during youth and young adulthood and risk factors for cardiovascular disease at adult age. *Journal of Adolescent Health*, 20, 309–319.

U.S. Department of Health and Human Services. (2000). *Healthy people 2010: Understanding and improving health* (2nd ed.). Washington, D.C.: U.S. Government Printing Office.

U.S. Department of Health and Human Services. (1999). Public Health Service, Center for Disease Control and Prevention, National Center for Chronic Disease. Prevention and Health Promotion, Division of Nutrition and Physical Activity.

Viriden, R. J., & Walker, G. J. (1999). Ethnic/racial and gender variation among meanings given to, and preferences for, the natural environment. *Leisure Studies*, 21, 219–239.

Witt, P. A., & Goodale, T. L. (1981). The relationship between barriers to leisure enjoyment and family stages. *Leisure Sciences*, 4, 29–49.

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