

Perception of Constraints and Strength of Motivation: Their Relationship to Recreational Sport Participation in Greece

Bob Carroll and Konstantinos Alexandris
Centre for Physical Education and Leisure Studies,
University of Manchester, England

This study, based on Crawford, Jackson and Godbey's (1991) hierarchical model of leisure constraints, aimed to: (a) investigate the influence of constraints dimensions on recreational sport participation; (b) empirically test the "balance" proposition, by investigating the relationships between perception of constraints dimensions and strength of motivation for participation. The data were collected via a self-administered household questionnaire survey in an urban area in Greece. The results indicated that: (1) the constraints dimensions offered a significant contribution towards the prediction of participants and non-participants; (2) the individual/psychological lack of interest, lack of knowledge and time dimensions were the best predictors for distinguishing between participants and non-participants; (3) the strength of motivation was found to be negatively related to the perception of constraints, supporting the "balance" proposition.

KEYWORDS: *Recreational sport participation, intrapersonal, interpersonal, structural constraints, strength of motivation*

Introduction

The introduction of Crawford and Godbey's (1987) model of leisure constraints, which was further developed by Crawford, Jackson and Godbey (1991) provided a theoretical base for future research in the field of leisure constraints. This proposed model, for the first time, located constraints within the individual's decision making process. Recent studies (e.g. Raymore, Godbey, Crawford, & Von Eye 1993; Raymore, Godbey, & Crawford, 1994; Jackson & Rucks, 1995; Prime & Kerton, 1995; Alexandris & Carroll, 1997) utilized the model, and indicated its applicability and utility in an effort to understand a variety of aspects related to sport, recreation and leisure participation. Furthermore, a number of propositions, such as the "hierarchy of importance" (Crawford et al., 1991), "negotiation," and "balance" (Jackson, Crawford & Godbey, 1993) propositions were introduced based on this model. These propositions, most of which (e.g. the "balance") have had little empirical verification so far, suggested that the relationship between perception of constraints and participation is a complex one, and needs further investigation in order to be clarified.

Correspondence concerning this article should be addressed to: Dr. B. Carroll, CPELS, University of Manchester, Oxford Road, Manchester M13 9PL, England. Tel: 0161 275 4962/6, Fax: 0161 275 4962.

Based on the hierarchical model of leisure constraints, as proposed by Crawford et al. (1991), the present study aimed to: (a) investigate the influence of constraints dimensions on recreational sport participation; (b) empirically test the "balance" proposition (Jackson, Crawford and Godbey, 1993), by investigating the relationship between perception of constraints dimensions and strength of motivation for participation. It should be noted that the results will be discussed with reference to educational groups' differences in annual sport participation rates and perception of constraints, in order to provide an example of the interaction between constraints and motivation and their relations with sport participation. The study took place in Greece, where very few surveys on leisure and sport had taken place (Koronoeou, 1996; Papageorgio, 1989).

Constraints on Leisure

Crawford and Godbey (1987) categorized constraints into three categories according to the way that they affect the relationship between preference and participation: intrapersonal, interpersonal and structural constraints. According to the proposed model, intrapersonal constraints involve "individual psychological states and attributes" (p. 122), interpersonal constraints are "the result of interpersonal interaction or the relationship between individuals' characteristics" (p. 123), and structural constraints are "intervening factors between leisure preference and participation." (p. 124). This model was further developed by Crawford et al. (1991) who located constraints within a hierarchical decision making process. These authors introduced the "hierarchy of importance" proposition, according to which, constraints levels are arranged from the most proximal (intrapersonal) to the most distal (structural). This proposition suggests that intrapersonal constraints ("individual psychological states and attributes"), as the most proximal, are the most powerful of the three types of constraints, while structural constraints, as the most distal, are the least powerful. This has also been proposed by Iso-Ahola and Mannell (1985).

Crawford et al.'s (1991) model attracted significant attention by researchers and provided the theoretical basis for further empirical research in the field. Raymore et al. (1993), who conducted a study regarding adolescent constraints, provided empirical support of the three categories of leisure constraints (intrapersonal, interpersonal and structural) and the hierarchy of importance proposition. Furthermore, Raymore et al. (1994) utilized the model in an effort to investigate the relationship between self-esteem, gender, socio-economic status and perception of constraints among adolescents. These authors reported that self-esteem was negatively related with the perception of intrapersonal and interpersonal constraints.

Based on the hierarchical model of leisure constraints, Jackson et al. (1993) introduced a number of propositions, such as the "negotiation" and "balance" propositions which indicated the need towards further research in the field. The "negotiation" proposition suggested that "participation is

dependent not on the absence of constraints (although this may be true for some people) but on negotiation through them. Such negotiation may modify rather than foreclose participation" (p. 4). A number of questions were raised by this proposition related to: (a) the relationship between perception of constraints dimensions and leisure participation; (b) the way that individuals negotiate constraints; (c) the strategies that they adopt.

The first issue regarding the relationship between perception of constraints and leisure participation still remains a debateable one in the leisure constraints research. It had been widely assumed in the early studies that non-participation is the only outcome of the effects of leisure constraints. However, Jackson et al. (1993) by introducing the "negotiation" proposition suggested that constraints might lead to modified participation rather than non-participation. Two empirical studies, conducted by Kay and Jackson (1991), and Shaw, Bonen and McCabe (1991) rejected the negative relationship between perception of constraints and participation. Kay and Jackson (1991), in a British study, found that high levels of constraints were reported by both frequent participants and non-participants. In some cases constraints were reported more frequently by participants than non-participants. Furthermore, Shaw et al. (1991) reported non-significant relationships between the majority of leisure constraints and exercise participation. The item by item approach of the data analysis, and especially the limited number of constraints tested, are the main limitations in these two studies. However, empirical evidence for the negative relationship between perception of constraints and recreational sport participation was provided by Alexandris and Carroll (1997), who conducted a study in a sample of the Greek population different to the one reported later in this paper. These authors reported that intrapersonal constraints (individual/psychological, lack of interest and lack of knowledge) were negatively and significantly correlated with sport participation, while no significant relationships were found between structural and interpersonal constraints and recreational sport participation.

These results support Iso-Ahola and Mannell's (1985) proposition that personal psychological constraints are the most important, and the empirical work of Spreitzer and Synder (1976), who found perceived ability was the strongest predictor of leisure involvement.

The studies conducted by Kay and Jackson (1991), Scott (1991), and Jackson and Rucks (1995) provided information related to the way that individuals negotiate constraints, and the strategies that they adopt. Kay and Jackson (1991) asked respondents how they coped with financial and time related constraints. These were the two most frequently reported constraints. With reference to the financial constraints the respondents reported that: they reduced their participation (60%), prevented them participating (11%), saved up to participate (11%), found cheaper opportunities (8%) and made other economies (4%). With reference to lack of time, 71% reported that it reduced their participation, and 27% reduced the time they spent in household tasks. Examples of negotiation strategies were presented by Scott (1991) who conducted a qualitative investigation of constraints associated with par-

ticipation in contract bridge. Ten constraints were identified by the study, and three negotiation strategies were revealed by the interviews: (a) acquisition of information was a first strategy adopted by a number of respondents to overcome the constraint named, "diminished opportunity for the young"; (b) altered scheduling of the games was a second strategy adopted by respondents to overcome constraints related to scheduling problems; (c) finally, skill development was a third strategy, which was adopted by a number of respondents to overcome the constraint named, "speed up of recreation specialisation." Finally, Jackson and Rucks (1995) conducted the most detailed study. Using both qualitative and quantitative data collected from an adolescent population in Canada the authors attempted to identify and classify negotiation strategies that were adopted by individuals in order to alleviate the effects of leisure constraints. The strategies were categorized into cognitive (reduction of cognitive dissonance) and behavioral (an observable change in behaviour). The study provided evidence that the majority of individuals adopted behavioural strategies in order to negotiate constraints. Examples of the behavioral strategies included modification in time and commitments, acquisition of necessary skills, change of interpersonal relations, and change of leisure aspirations. Furthermore, the negotiation strategies were reported to be related to the types of constraints encountered.

When constraints are blocked by external agencies, Iso-Ahola (1986) has suggested a 'theory of substitutability' to explain how individuals make decisions on substituted leisure behaviour. Two postulates and resultant derivations were presented based on individuals' perception of the need for substitute activities and the psychological qualities of the leisure activities. The final postulate states that an individuals' willingness to substitute is influenced by the "feeling of choice or freedom." The second postulate proposes that substitution depends on the perception of psychological qualities of the leisure activity to be replaced and alternatives available. Thus, the first postulate and its derivatives explain how the perceived external pressures, interests and motives result in substitute activities or not. The willingness to substitute or not is also explained in the second postulate and its derivations. This states that the perceived motives and rewards are gained from choices in leisure activities and behaviours and from those in available alternatives, and also through the specificity of qualities and the range of alternatives available. Of particular relevance to psychological rewards in substitutability is the relation to perceived self competence in the activities, the quality of social interaction, and perceived costs in terms of time, effort and commitment.

Motivation

Iso-Ahola (1989) suggested that there is hardly anything more basic to leisure behaviour than the factors which prompt such behaviour. Such factors are known as motives, and they are the reasons for and direction of behav-

ious. Internal and external stimuli give rise to motivation, which is the desire to participate. It is the strength of that desire, which could be a result of one or a combination of motives, which may be crucial in perceiving or overcoming constraints (Jackson et al. 1993). Within leisure behaviour it is the intrinsic rather than the extrinsic motivation which is more dominant (Graef, Csikszentmihalyi & Gianinno, 1983) because it is more pleasure and satisfaction producing and facilitates attempts to meet optimum levels of stimulation and arousal. Using research (e.g. Mannell 1980), Iso-Ahola (1989) shows that freedom of choice and control along with intrinsic rewards in the form of psychological benefits are the main determinants of defining what is leisure behaviour, frequency of participation and depth of involvement in the pursuits. He also identifies the fundamental dimensions or forces which operate simultaneously and which explain all motivational leisure behaviour. One is a seeking force for personal or interpersonal intrinsic rewards, whilst the second is an escaping force from personal or interpersonal environments.

Intrinsic motivational level appears to be influenced by a number of factors such as leisure awareness, leisure repertoire, leisure ethic (Iso-Ahola & Weissinger, 1987), and perception of constraints (Ellis & Witt, 1984). What may be significant in three of these (all apart from leisure ethic), is the reduction in freedom of choice and control, a point made by Ellis and Witt (1984) in relation to certain constraints. Using Weissinger (1986), Iso-Ahola (1989) points out that the experience of intrinsic motivation is a personal capacity.

The "balance" proposition is probably the most important of those presented by Jackson et al. (1993), as it developed and conceptualized the idea of constraints interacting with strength of motivation for participation. According to this proposition: "Both the initiation and outcome of the negotiation process are dependent on the relative strength of, and interactions between, constraints on participating in an activity and motivations for such participation" (p. 9).

Whilst previous researchers (Crawford & Godbey, 1987; Crawford et al. 1991) have addressed the issue of participation as a result of the relative strength between preferences and constraints, there appears to be little empirical work which has related strength of motivation and motives with constraints and particularly within the hierarchical model of leisure constraints. The "balance" proposition has not yet been empirically investigated. The concept of leisure motivation has been widely used in the sport and recreation psychology and behavioral research. In a recent study, Ragheb and Tate (1993) proposed a behavioral model of leisure participation, based on strength (intensity) of motivation, attitudes towards leisure and satisfaction. Using a causal modelling design the study provided support of the causal relationships between intensity of motivation, leisure participation and satisfaction.

Methods

Data Collection

The data were collected by means of a self-administered household questionnaire survey conducted in an urban area in Greece (city of Larissa). The area selected was where the housing was typical for the population of the area, that is, it was neither deprived or decayed where the poverty and lack of access would restrict leisure activities (Papageorgiou 1989), nor had exceptionally expensive housing. It was expected from the knowledge of the researchers, that there would be a mix of occupations and socio-economic status, a range of ages and educational levels, and both males and females. This was confirmed by a pilot study and on checking the demographic variables in the main study. Ten streets were selected randomly, and prospective respondents were contacted by visiting every fifth house in the streets, following Veal's (1992) suggestions. Those answering the door were asked if an adult, either male or female, would complete the questionnaire. Wherever the response was positive, the respondents were asked, either, to complete questionnaire immediately, or, to have it ready for the following day for collection. Contact was established with one thousand individuals (adults), of whom 50.2% completed the questionnaire ($n = 502$). Pupils were excluded from the sample, as Physical Education is compulsory in Greece. Two issues regarding the limitations of the sampling method should be addressed: (a) The sampling method employed was not a strict probability one (e.g. selection of respondents by electronic lists); (b) The sampling method employed (simple random sampling) was not very systematic (e.g. stratified sampling method). However, it was judged to be the best choice considering the limited availability of time, the limited financial resources, and the lack of official data on the population.

The Instrument

The instrument collected information on individuals' recreational sport participation, constraints on sport participation, strength of motivation and demographic details. The instrument was translated into Greek and translated back into English and was reviewed by two bilingual Greek teachers of Greek literature to ensure translation correctness and comprehension. It was also discussed with postgraduate students and teachers interested in recreational sport activities and participation to ensure relevance, understanding and face validity. It was then piloted in Greece as reported below.

Sport participation. Respondents were first asked the extent to which they had participated in recreational sport activities within the past year. These were classified into groups: frequent (at least once a week), moderate (at least once a month), infrequent (less than once a month) participants, and non-participants (never). The one year reference period was judged to be more appropriate than the four week period, as it has the advantage of covering all the seasons (Cushman, Veal, & Zuzanek, 1996). In contrast, the

four week period fails to account for seasonal participation and to capture infrequent participants (Matheson, 1991). However, as Robinson and Godbey (1993) argued, the one year reference period has limitations which should be addressed. Measures of participation based on the one year's reference period might not always be reliable and accurate (Veal & Cushman, 1996). Respondents might have difficulties in recalling over such a long time. Furthermore, as Chase and Harada (1984) argued, self-reports of participation might suffer from a substantial response error, that is, the difference between actual and reported participation.

Respondents were also provided with a list of twenty two sporting activities, in order to have a clear idea about which activities should be considered as "recreational sports." As Alexandris and Carroll (1997) reported, these activities successfully captured the whole range of recreational sports undertaken by the Greeks in the area in which the investigation was conducted. The list included team sports, such as basketball, football and volleyball, fitness related activities, such as aerobics, weight training and dancing, and individual activities, such as water and snow skiing, swimming and tennis. Walking was the most debatable activity. Since almost all activities involve walking, the term "walking for recreation and exercise purposes" was used. Information about annual activities participation rates was also collected, which was not used for the present study.

For the purposes of this paper, in order to test the "balance" proposition, only participants (3 groups) and non-participants will be used to illustrate the relationships.

Leisure constraints. The leisure constraints questionnaire (Alexandris & Carroll, 1997) was used in order to collect information regarding constraints on recreational sport participation. Alexandris and Carroll (1997) developed and standardized this questionnaire in a sample of the Greek population ($n = 150$). As they reported, it was shown to have satisfactory psychometric characteristics (Cronbach Alpha .85 for whole scale, all items with factor loadings above .40, Cronbach Alpha above .60 on each factor). Respondents were asked to evaluate the importance of each of twenty nine statements as limiting or prohibiting factors for their recreational sport participation, or as reasons for their non-participation (non-participants), using a four point Likert scale ranking from very important (4) to not important (1). Constraints were investigated in relation to actual participation for the year before the investigation.

Principal component analysis of the constraints scale. A principal component analysis was performed in order to examine the factor structure of the scale. Only those components with eigenvalue greater than 1.0 were retained and rotated with both orthogonal and oblique rotations. Both methods gave similar results. Orthogonal rotation was retained because of conceptual simplicity and ease of description (Tabachnick & Fidell, 1989). The seven factors accounted for 62.2% of the variance (Table 1). The loading matrix indicated that all the items loaded satisfactorily ($>.35$) on the factors. The seven factors emerged as follows: (a) Factor 1 referred to six items defined by individual/

TABLE 1
Principal Component Analysis of the Constraints Scale

Sub-scales	Individual Psychological	Lack of Knowledge	Facilities Services	Accessib./ Financial	Lack of Partners	Time	Lack of Interest
It makes me feel tired	.81						
Feel too tired for recreation	.78						
Afraid of getting hurt	.70						
Health problems	.60						.39
Not feel confident	.59						
Not happy in social situations	.39						
Not know where I can learn		.78					
Not know where to particip.		.75					
Not have anyone to teach me		.68					
Not skilled enough	.38	.64					
Not fit enough	.44	.52					
Facilities poorly kept			.84				
Facilities inadequate			.80				
Facilities crowded			.75				
Do not like facilities offered			.48				
No opportunity near home				.81			
Transportation takes time				.80			
Not having a car				.74			
Cannot afford				.55			
Friends do not have time					.89		
Have nobody to partic. with					.84		
Friends do not like particip.					.78		
Time:work/studies						.75	
Time:family						.71	
Time:social commitments			.41		.68		
Timetable does not fit						.51	
Did not enjoy in the past							.84
Not interested							.81
Not want to interrupt routine							.40
Eigenvalue	6.7	2.8	2.0	1.9	1.3	1.2	1.1
Cumul. % of variance	23.4%	33.1%	40.2%	47.0%	53.7%	58.4%	62.4%
Mean	1.59	1.76	2.01	1.99	1.84	2.49	1.51
SD	.66	.72	.80	.79	.72	.84	.69
Alpha	.82	.82	.78	.78	.85	.64	.69

psychological constraints; (2) Factor 2 referred to five items resulting from lack of knowledge of the opportunities to participate; (3) Factor (3) referred to four items concerning facilities/services related constraints; (4) Factor 4 referred to four items related to financial/accessibility constraints; (5) Factor 5 referred to three items related to lack of partners constraints; (6) Factor 6 referred to four items defined by constraints related to time problems; (7) Factor 7 referred to three items, related to lack of interest/not enjoyable past experiences related constraints. The internal consistency reliability (Cronbach's Alpha) of the whole scale was found to be .87, which is satisfactory (DeVellis, 1991). Further, the values of the alpha for the sub-scales were also acceptable as they ranged from .64 to .85 (Table 1).

Strength of motivation. A modified version of Beard and Ragheb's (1981) scale was used. This scale included four items and was based on Cattell and Child's (1975) sixty six signs of strength of motivation measurement. This scale aimed to measure strength (intensity) of motivation for participation in leisure activities in general, and consequently was not judged to be fully appropriate for the present study (recreational sport participation).

The modified scale was once again based on Cattell and Child's signs of strength of motivation measurement. The sixty six signs were subjected to a critical analysis by the investigators and a graduate in Physical Education and Leisure studies group (University of Manchester, 1994-1995). Five signs of motivation measurement were selected as the most appropriate and applicable to recreational sports, as follows: (a) Guilt sensitivity (expression of guilt feelings for non-participation); (b) persistence (continuation in work of interest in face of difficulty); (c) defensive fluency (listing good consequences of course of action); (d) preferences (readiness to admit preference for a course of action); (e) activity: Time (time spent on course of action). Based on these five signs, a pool of six items was developed, as follows: (a) Guilt sensitivity: "I regret when I am unable to participate in recreational sporting activities"; (b) persistence: "Even when participation is inconvenient I still try to participate"; (c) defensive fluency: "I feel that participation in recreational sports is vitally important to me"; (d) preferences: "I am really interested in participating in particular recreational sporting activities," and "I feel that spending time for recreational sports is more worthwhile than spending time for other leisure activities." It should be emphasised that a short scale was strongly desirable in an effort to achieve a satisfactory response rate. Respondents were asked to comment on the six statements in a four point Likert scale ranging from always true (4) to never true (1). It was piloted on one hundred and thirty university students of Aristotelian University of Thessaloniki, Greece, and was shown to have satisfactory psychometric properties. (Cronbach Alpha .82, item to total correlation above .65, successful discrimination between participants and non-participants, Alexandris, 1996).

Item analysis of the motivation scale. Two types of item analysis methods were performed (McIver & Carmines, 1994) in order to test aspects of the scale's reliability: correlation analysis and analysis based on the criterion of

internal consistency (internal consistency reliability). The results of the correlation analysis indicated that all the items correlated satisfactorily ($r > .68$) with the sum score (Table 2). The scale was also shown to have satisfactorily internal consistency reliability ($\alpha = .82$). Furthermore, all the items contributed positively towards the scale's reliability.

Demographic Information. In the last part of the instrument respondents were asked to provide demographic information regarding their gender (males, females), marital status (single, married), age and level of education. The age of the respondents was coded in ordinal categories, as follows: 18-25, 26-35, 36-45, 46-65. Four levels of education were included, as follows: primary level of education (individuals educated at the primary level), secondary level of education (individuals educated at the secondary level), university graduates, and university students. The demographic characteristics of the sample are presented in Table 3.

The socio-economic status of the sample could have been measured through occupational groups. However, there are some difficulties in the collection of this data in Greece particularly for females and families, where insecurity in employment has led to 'moonlighting' and working from home and economically active people not being included in the official statistics

TABLE 2
Item Analysis of the Strength of Motivation Scale

Items	Mean	SD	Item-total Correl.	Alpha if Item Deleted	Statistics for the Scale		
S1	3.16	.77	.69**	.80	<i>Mean</i>	<i>SD</i>	<i>Alpha</i>
S2	2.64	.84	.76**	.78	3.01	.56	.82
S3	2.63	.80	.75**	.78			
S4	2.96	.80	.68**	.80			
S5	3.27	.69	.72**	.79			
S6	3.35	.71	.74**	.80			

** $P < .01$

TABLE 3
Demographic Characteristics of the Sample

Gender Groups		Age Groups		Educational Groups		Marital Status	
Males	231 (45%)	18-25	135 (27%)	Primary	48 (10%)	Single	200 (39%)
Females	271 (55%)	26-35	175 (34%)	Secondary	223 (44%)	Married	302 (61%)
		36-45	127 (26%)	Univer. Students	61 (13%)		
		46-65	65 (13%)	Univer. Graduat.	170 (33%)		

(Koroneou, 1996). In addition, although females have increased their access to high schools and university education, there has in fact been a decrease in the labour force among women in Greece (Koroneou, 1996). Coalter, Dowers and Baxter (1995) warn of the difficulties in collecting data on social class. Therefore, there is some doubt on the accuracy of this data, and in view of the close relationship between socio-economic status and educational level elsewhere (Coalter et al., 1995), and as an indication of lifestyle, educational level has been used as the variable to discuss the theoretical proposition indicated earlier in this paper.

Results

Although data was collected on the frequency of participation (non-participants, infrequent, moderate and frequent participants) and the demographic variables of gender, age, marital status and level of education, only the variables of participants/non-participants, and level of education will be presented here in order to facilitate the discussion on the relationships of motivation and constraints to participation and to test the "balance" proposition (Jackson et al., 1993) in line with the aims of this paper. Data on demographic variables in relation to frequency of participation and perception of constraints, which may be of interest to readers, is available in Alexandris 1996.

Sport participation. Almost one third of the respondents (32%) never participated in any of the sporting activities during the twelve months before the survey, while the majority of the respondents (68%) were shown to have participated during the past year. As mentioned previously, from the four demographic variables only education related variations in the annual participation rates will be presented in the discussion on the relation of the perception of constraints and the strength of motivation. A cross-tabulation of the four educational groups against sport participation/non-participation revealed significant statistical differences ($\chi^2 = 45$, $p < .001$) in the participation rates of the four groups. Participation rates decreased significantly with advanced levels of education. Pairwise comparisons between the four educational groups, as a way of post-hoc investigations, revealed highly significant differences ($p < .001$) between individuals educated at the primary level (participation rate 73%) and the remaining three educational groups, and marginally ($p = < .05$) significant differences between the university students' (80%) and the secondary group's (67%) participation rates, as well as between the secondary (67%) and university graduate (76%) groups' participation rates.

Motivation and sport participation. In order to investigate the relationship between motivation and sport participation, the mean scores of participants and non-participants in the strength of motivation scale were calculated and the significance of the difference found was evaluated using an independent sample *t*-test. The results indicated that the scale successfully

discriminated between participants and non-participants. Sport participants ($M = 3.21$) scored significantly higher ($t = 14.8$, $df = 500$, $p = < .001$) than the non-participants ($M = 2.55$).

Demographic differences in motivation. Gender, age, level of education and marital status were used as the independent variables and were examined in association with the strength of motivation. The mean scores of the groups were calculated and the significance of the differences found was evaluated using independent sample t -tests and one-way ANOVA'S. As shown in Table 4, males and females had identical mean scores ($M = 3.0$). In contrast, significant differences were found in the comparisons between age, education and marital status groups' mean scores. In Table 4, groups for age and level of education have each been given a letter to help understand the post-hoc test (Scheffe). In terms of the age groups, motivation decreased significantly $F(3,498) = 4.4$, $p < .005$ with advancing age. Post-hoc investigations revealed significant differences between the 18-25(a) and 45-65(b) groups' mean scores. Significant differences $F(3,498) = 5.9$, $p < .001$ between the four educational groups' scores were also identified. The primary group (a) was the lowest motivated of the four. Post-hoc investigations (Scheffe's test) revealed significant differences between the primary (a) and all the other groups' (secondary (b), graduates (c), students (d)) scores. Finally, single individuals were shown to be significantly ($t = 2.6$, $df = 500$, $p < .01$) more motivated than the married ones.

Perception of constraints and level of education. As mentioned previously, from the four demographic variables only educational differences in the perception of constraints will be presented, in order to discuss these differences in relation to the annual participation rates and the strength of motivation, and present an example of the interaction between constraints and motiva-

TABLE 4
Demographic Differences in the Strength of Motivation

Gender		Age Groups		Level of Education		Marital Status	
Mean		Mean		Mean		Mean	
Males	3.00	18-25 (a)	3.10	Primary (a)	2.71	Single	3.08
Females	3.00	26-35 (b)	3.04	Secondary (b)	2.99	Married	2.95
		36-45 (c)	2.93	Graduates (c)	3.05		
		46-65 (d)	2.83	Students (d)	3.13		
$t = .04$		$F = 4.4$		$F = 5.9$		$t = 2.6$	
n.s.		$p < .005$		$p < .001$		$p < .01$	
df = 500		Scheffe's test		Scheffe's test		df = 500	
		differences		differences between			
		between		groups:			
		groups:		a + b, a + c, a + d			
		a + d					

tion. The selection of the educational variable was made for clarity of discussion, as the differences in the perception of constraints among the educational groups were very clear. A detailed analysis of all the demographic differences in the perception of constraints dimensions has been made elsewhere (Alexandris, 1996) Table 5 presents the mean scores, multivariate and univariate analyses for the educational groups on the constraints factors. In order to understand the post-hoc test (Scheffe) each educational group has been given a letter, primary(a), secondary(b), graduates(c), and students(d). A one-way ANOVA revealed highly significant differences $F(3,498) = 12.7$, $p < .001$ between the four educational groups' mean scores in the whole scale. The perception of constraints significantly decreased with advanced levels of education. Post-hoc investigations (Scheffe's test) revealed significant differences between the primary and all the other educational groups' scores. In terms of the sub-scales, a MANOVA was performed in an effort to control over type 1 error (Bryman & Cramer, 1994). The four educational groups were entered as the independent variable and the seven constraint factors as the dependent (Table 5). The MANOVA revealed a significant effect [Wilk's lambda = .887, $F(21,1482) = 4.4$, $p < .001$]. Follow up univariate analyses of variance (ANOVA) indicated significant differences in the individual/psychological $F(3,498) = 10$, $p < .001$, lack of knowledge $F(3,498) = 12$, $p < .001$, accessibility/financial $F(3,498) = 5.7$, $p < .001$, lack of interest $F(3,498) = 7$, $p < .001$ and lack of partners $F(3,498) = 3.8$, $p < .01$ dimensions. The primary group had the highest scores in all these scales. Each of the significant ANOVA's was followed by Scheffe's post-hoc comparisons to determine between which groups the differences were statistically significant. All the results are presented in Table 5 (last column).

Perception of constraints and sport participation. An independent sample t-test revealed that non-participation scored significantly higher ($t = 5.1$, $df = 500$, $p < .001$) than participants in the total constraints scale. A MANOVA was further performed in order to evaluate participants and non-participants means scores differences in the constraints dimensions, controlling over type 1 error. Participants and non-participants were entered as the independent variable and the seven constraint factors as the dependent variables (Table 6), The MANOVA revealed a significant effect [Wilk's lambda = .86, $F(7,494) = 10.7$, $p < .001$]. Follow-up univariate analyses indicated that the differences were significant in the individual/psychological $F(1,500) = 50$, $p < .001$, lack of knowledge $F(1,500) = 21.5$, $p < .001$, lack of interest $F(1,500) = 34.1$, $p < .001$ and time $F(1,500) = 10.1$, $p < .005$ dimensions. In all these dimensions, non-participants scored higher than participants (Table 6).

Furthermore, a direct discriminant analysis was performed (SPSSx-Discriminant) in order to evaluate the discriminatory power of each of the constraints dimensions on sport participation/non-participation. The seven constraints dimensions were used as the predictors and the two groups (participants and non-participants) as the dependent variable. The discriminant analysis also revealed a statistically significant separation (canonical $R = .37$).

TABLE 5
Mean Scores, Multivariate, and Univariate Analysis for the Educational Groups on Constraints Scale

	Primary (a) (<i>n</i> = 48) Mean	Secondary (b) (<i>n</i> = 223) Mean	University Graduates (c) (<i>n</i> = 170) Mean	University Students (d) (<i>n</i> = 61) Mean	Univar. <i>F</i>	<i>p</i>	Differences Between Groups Scheffe's test
Individual/Psychol.	2.00	1.56	1.45	1.72	10	.001	a + b, a + c, a + d, b + d
Lack of Knowledge	2.21	1.75	1.57	1.95	12.4	.001	a + b, a + c, c + d
Facilities/Services	2.15	1.99	1.96	2.11	—	—	—
Accessib./Financial	2.33	2.00	1.83	2.07	5.7	.001	a + c
Lack of partners	2.10	1.72	1.86	2.00	3.8	.001	a + b
Time	2.67	2.61	2.39	2.16	8.9	.001	a + c, b + c, a + d
Lack of interest	1.88	1.51	1.41	1.44	7.0	.001	a + b, a + c, a + d

Wilk's lambda = .87,
 $F(21, 1482) = 4.4$,
 $p < .001$

N.B. Higher mean = a higher level of constraints.

TABLE 6
Mean Scores, Multivariate, Univariate and Discriminant Analysis for Participants and Non-participants on the Constraints Scale

Scales	Non-Participants (n = 162)	Participants (n = 340)	Univariate F	p	Correlations with Discriminant Function
	Mean	Mean			
Individual/Psychological	1.88	1.45	6.4	$p < .001$.81
Lack of Knowledge	1.97	1.66	4.9	$p < .001$.52
Facilities/Services	1.97	2.03	.75	n.s.	-.09
Accessibility/Financial	2.05	1.95	1.3	n.s.	.15
Lack of interest	1.74	1.39	5.8	$p < .001$.67
Lack of partners	1.93	1.79	1.7	n.s.	.26
Time	2.63	2.42	3.2	$p < .005$.37
Wilk's lambda =					Classification analysis
$F(7,494) = 4.4, p < .001$					Non-Participants = 60.5%
Canonical R = .37					Participants = 72.4%
Eigenvalue = .15					Total = 69.3%

Four of the seven constraints dimensions (individual/psychological, lack of interest, lack of knowledge, and time) contributed significantly to the prediction of the group membership (participants and non-participants). Table 6 presents the correlations between predictors and the discriminant function (last column), the eigenvalue and the canonical correlation of the discriminant function, as well as the classification procedures. The loading matrix of the correlations between predictors and the discriminant function indicated that the individual/psychological and lack of interest dimensions were the two best predictors for distinguishing between participants and non-participants. Non-participants were more likely than participants to be affected by individual/psychological and lack of interest related constraints. With reference to the two remaining dimensions that contributed signifi-

TABLE 7
Bivariate Correlations (r) Between Constraints Dimensions and Strength of Motivation

	Individual/ Psycholog.	Lack of Knowledge	Facilities/ Services	Accessib./ Financial	Lack of Interest	Lack of Partners	Time	Whole Scale
Strength of Motivation	-.30**	-.20**	-.03	-.08	-.37**	-.11*	-.20**	-.30**

*Significant level .05

**Significant level .01

cantly to the prediction of the group membership, the loading matrix indicated that non-participants were also more likely than participants to be affected by time and lack of knowledge related constraints. The classification procedures indicated that 68.5% (344 cases) of the total sample (502 cases) were correctly classified. In terms of the two groups, a higher proportion of participants (72.4%, 246 cases) were correctly identified, compared to the proportion of the non-participants (60.57%, 98 cases).

Strength of motivation and perception of constraints. Bivariate correlations (Pearson's r) between scores in the strength of motivation scale and the constraints dimensions were calculated in an effort to investigate the relationship between perception of constraints and motivation for participation. The results are present in table 7. As shown, the strength of motivation was found to be negatively and significantly ($r = -.30$, $p < .01$) correlated with the perceptions of constraints as a whole. In terms of the constraints dimensions, significant correlations were found in five of them, labelled lack of interest ($r = -.37$, .01 level), individual/psychological ($r = -.30$, .01 level), time ($r = -.20$), lack of knowledge ($r = -.20$), and lack of partners ($r = -.11$, .05 level). No significant relationships were found between motivation and the facilities/services and accessibility/financial dimensions.

Discussion

The study provided evidence that there is a negative and significant relationship between perception of constraints and sport participation. Furthermore, it indicated that individuals' perception of constraints can be useful in the effort to predict participants and non-participants. This has important practical implications. These results supported Alexandris and Carroll's (1997) study, and are in contrast with Kay and Jackson's (1991) and Shaw et al.'s (1991) studies, which reject the negative relationship between perception of constraints and participation. In particular, the present study indicated that the individual/psychological, lack of knowledge, lack of interest, and time dimensions were those that significantly discriminated between participants and non-participants. The first three of these dimensions (individual/psychological, lack of interest and lack of knowledge) have been conceptualized by previous researchers (e.g. Crawford & Godbey, 1987; Iso-Ahola & Mannell, 1985) as intrapersonal constraints. Consequently, it could be argued that individuals who perceive high levels of intrapersonal constraints are less likely to participate in sports. This argument is in line with both Iso-Ahola and Mannell's (1985) theory and the "hierarchy of importance" proposition (Crawford et al., 1991), which suggested that intrapersonal constraints might be the most powerful and influential constraints on individuals' decision to start taking part in recreational activities. The negative relationship between sport participation and the time dimension which was revealed in the present study is an issue worth noting. Time related constraints have been categorized by previous researchers within the structural category, and consequently, according to the hierarchical model, they

should not be among the most powerful determinants of sport participation. The negative relationship between time and sport participation might relate to the difficulties in categorizing constraints within the intrapersonal and structural categories. It could be argued that time related constraints can be considered both as structural and intrapersonal constraints. Constraints related to the opening hours of the sport and health clubs and the timetable of the activities (e.g. "timetable does not fit with mine") are clearly external, and consequently structural constraints. However, time related constraints might also be experienced intrapersonally. Boothby, Tungatt and Townsend (1981) argued that time budgets are personal constructs, involving self-designed priorities with assessments of their relative worth, need and preferred schedules. Consequently, time related constraints might not always be external, they might also be considered as personally perceived constraints.

As discussed previously, Jackson et al., (1993), proposed that motivational factors might intervene within the individuals' decision making process and might interact with the perception of constraints. These authors also suggested that participation in leisure might be determined by the relative strength of motivation in relation to the perception of constraints. The present study indicated that the strength of motivation for sport participation was significantly and negatively related to the perception of constraints as a whole, and positively related to sport participation. These relationships suggest that more motivated individuals are less likely to perceive high levels of constraints or are able to overcome them more readily, and are more likely to participate in sports than the less motivated ones. In particular, the bivariate correlations revealed negative and significant relationships between motivation and the individual/psychological, lack of interest, lack of knowledge, time, and lack of partners dimensions. The three dimensions which have been conceptualized within the intrapersonal category (individual/psychological, lack of interest and lack of knowledge) had the strongest negative correlations with motivation, which suggests that the level of motivation might be an important determinant for the successful negotiation and overcoming of the intrapersonal and time related constraints, which were shown to have a negative effect on sport participation. The negative relationship between the time dimension and motivation is once again worth noting, as it might provide support for the argument expressed previously that time is a personal construct which involves self-designed priorities (Boothby et al., 1981).

An alternative explanation is that those who perceive the highest level of constraints become less motivated. The suggestion here is that the level of motivation is affected by the perceived level of constraints (Ellis & Witt 1984; Iso-Ahola, 1989). Even highly motivated individuals may become less motivated when faced with a perceived level of constraint or type of constraint. However, it is likely that there is a dynamic relationship between motivation and perceived constraints and each is influenced by the other. Moreover, it is also likely that some elements of Iso-Ahola's (1986) theory of substitutability apply, such as, individuals seek similar psychological qualities

from the activities, or avoid negative psychological feelings, when they are constrained.

The interaction between motivation and perception of constraints can be further indicated by examining the educational group differences in the strength of motivation, in relation to the perception of constraints and the sport participation rates. The primary level group was the least motivated one, had the lowest participation rate, and was the most constrained group. In contrast, the university students had the highest participation rate and were also shown to perceive high levels of constraints. However, this group had the highest levels of motivation. Finally, the university graduates, who were the least constrained group, were also shown to be highly motivated (the second most motivated group). The "balance" proposition (Jackson et al., 1993) is applicable in interpreting these results.

Both university students and the primary group perceived high levels of constraints. However, university students were more motivated than individuals within the primary level group, and this motivation might have helped them to overcome constraints (successful negotiation) and participate in sports. In contrast, individuals within the primary level group might have been blocked by the constraints, because of their low levels of motivation, or, their low level of motivation leads them to using the constraints as an excuse. In particular, individuals within the primary level group were shown to be significantly more constrained than the other educational groups mainly by intrapersonal constraints (individual/psychological, lack of knowledge, lack of interest) which were found to have the strongest negative relationships with the strength of motivation. Consequently, the inability to overcome these constraints might be due to their low level of motivation. Finally, the low reporting of constraints by the university graduate group might indicate that either these individuals perceive low levels of constraints, or they have not reported constraints which have been successfully overcome, because of their high levels of motivation. The second interpretation seems to be the most probable, and, as it is also in line with Jackson et al.'s (1993) proposition.

"Variations in the reporting of constraints can be viewed not only as variations in the experience of constraints but also as variations in success in negotiating them" (Jackson et al., 1993, p. 6).

In summary, the present study has provided tentative empirical support for the "balance" proposition (Jackson et al., 1993), and indicated that the strength of motivation may have an important influence on the perception of constraints, negotiation of constraints and thus on sport participation. Constraints were shown to be negatively related to the strength of motivation, which in turn was shown to be positively related to sport participation, which suggests that highly motivated individuals are less likely to perceive high levels of constraints, and are more likely to participate in sports.

Future Research

Crawford et al. (1991) argued that constraints factors might continue to have relevance even after an individual starts participating in an activity. Con-

straints might influence subsequent aspects of engagement, such as the person's frequency of participation. The present study provided information regarding only the relationship between perception of constraints and sport participation/non-participation. The relationship between frequency of sport participation and perception of constraints is an important one, as the frequency of participation is a vital component of expressed demand (Coalter, Dowers, & Baxter, 1995). Do constraints influence the frequency of participation? If the answer is yes, which constraints dimensions are the most influential? The answers to these questions are of particular importance to the practitioners. It would be expected, according to the hierarchical model, that interpersonal and structural constraints would be negatively related with the frequency of participation. However, it should be noted that measures of frequency of sport participation should be detailed (e.g. combination of frequency and duration, Shaw et al., 1991) in order to produce applicable and meaningful results. Furthermore, the strength of motivation could also be investigated in relation to the frequency of sport participation and the perception of constraints. It is clear that motivation is an important factor in overcoming constraints and participating more frequently in sport. However, it would be worth turning this idea on its head and investigate the effect of constraints on motivation for participation. For example, the perception of the strength or importance of constraints may well be a demotivating source, which then becomes a blocking device as in the case of psychological intrapersonal constraints (Iso-Ahola & Mannell, 1985). What is required is a greater understanding of how perceived constraints, motives and motivation work in relation to each other, and how constraints can be removed and motivation enhanced. This could perhaps be achieved through adapting a qualitative approach which has tended to be limited in both the constraints and motivation literature.

References

- Alexandris, K. (1996). *Constraints and Motives in Recreational Sport participation within the Adult Population in Greece*. Unpublished doctoral dissertation, University of Manchester, England.
- Alexandris, K., & Carroll, 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.
- Beard, J., & Ragheb, M. (1981). *Measuring leisure motivation*. Paper presented at the SPRE Research Symposium of the National Recreation and Park Association, Minneapolis, Minnesota.
- Boothby, J., Tungatt, F. M., & Townsend, A. (1981). Ceasing participation in sports activity: Reports and their implications. *Journal of Leisure Research*, 13, 1-14.
- Bryman, A., & Cramer, D. (1994). *Quantitative data analysis for social scientists*. London: Routledge.
- Cattell, R., & Child, D. (1975). *Motivation and dynamic structure*. New York: John Wiley and Sons.
- Chase, D., & Harada, M. (1984). Response error in self-reported recreation participation. *Journal of Leisure Research*, 16, 322-329.
- Coalter, F., Dowers, S., & Baxter, M. (1995). The Impact of social class and education on sports participation: Some evidence from the General Household Survey. In K. Roberts (Ed.), *Leisure and Social Stratification* (pp. 59-71). Leisure Studies Association, Publication No. 53.
- Crawford, D., & Godbey, G. (1987). Reconceptualizing barriers to family leisure. *Leisure Sciences*, 9, 119-127.

- Crawford, D., Jackson, E., & Godbey, G. (1991). A hierarchical model of leisure constraints. *Leisure Sciences*, 13, 309-320.
- Cushman, G., Veal, A., & Zuzanek, J. (1996). Cross-national leisure participation research: A future. In G. Cushman, A. Veal, & J. Zuzanek (Eds.), *World leisure participation: Free time in the global village* (pp. 237-257). Wallingford: Cab International.
- Devellis, F. (1991). *Scale development. Theory and applications. Applied social research methods series volume 26*. London: Sage Publications.
- Ellis, G. D., & Witt, P. A. (1984). The measurement of perceived freedom in leisure. *Journal of Leisure Research*, 18, 81-95.
- Graef, R., Csikszentmihalyi, M., & Gianinno, —. (1983). Measuring intrinsic motivation in everyday life. *Leisure Studies*, 2, 155-168.
- Iso-Ahola, S. E. (1986). A theory of substitutability of leisure behaviour. *Leisure Sciences*, 8, 367-389.
- Iso-Ahola, S. E. (1989). Motivation for leisure. In E. L. Jackson & T. L. Burton (Eds.), *Understanding leisure and recreation: Mapping the past charting the future* (pp. 247-279). State College: R. A. Venture Publishing.
- Iso-Ahola, S. E., & Mannell, R. C. (1985). Social and psychological constraints on leisure. In M. G. Wade (Ed.), *Constraints on Leisure* (pp. 111-151). Springfield, IL: Charles C. Thomas.
- Iso-Ahola, S. E., & Weissinger, E. (1987). Leisure and boredom. *Journal of Social and Clinical Psychology*, 5, 356-364.
- Jackson, E. (1990). Recent developments in leisure constraints research. In B. Smale (Ed.), *Leisure challenges: Bringing people resources and policy into play. proceedings of the sixth Canadian congress on leisure research* (pp. 341-344). Toronto: Ontario Research Council on Leisure.
- Jackson, E. (1991). Special issue, introduction. Leisure constraints/constrained leisure. *Leisure Sciences*, 13, 273-278.
- Jackson, E., Crawford, D., & Godbey, G. (1993). Negotiation of leisure constraints. *Leisure Sciences*, 15, 1-11.
- Jackson, E., & Rucks, V. (1995). Negotiation of leisure constraints by junior-high and high-school students: An exploratory study. *Journal of Leisure Research*, 27, 85-105.
- Kay, T., & Jackson, G. (1991). Leisure despite constraint: The impact of leisure constraints on leisure participation. *Journal of Leisure Research*, 23, 301-313.
- Koroneou, A. (1996). Women's leisure and the family in Greece: Between tradition and modernity. In N. Samuel (Ed.), *Women, leisure and the family in contemporary society. A multinational perspective* (pp. 209-217). Wallingford: Cab International.
- Mannell, R. C. (1980). Social psychological techniques and strategies for studying leisure experiences. In S. E. Iso-Ahola (Ed.), *Social Psychological Perspectives on Leisure and Recreation* (pp. 62-88). Springfield, IL: Charles C. Thomas.
- Matheson, J. (1991). *Participation in sport*. London: HMSO.
- McIver, J., & Carmines, E. (1994). Unidimensional scaling. In S. M. Lewis-Beck (Ed.), *Basic Measurement* (pp. 139-227). London: Sage Publications.
- Papageorgiou, F. (1989). Leisure policy and the quality of life in Athens. In P. Bramham, I. Henry, H. Wommaas, & H. van der Poel (Eds.), *Leisure and urban processes* (pp. 47-67). London: Routledge.
- Prime, S. L., & Kerton, V. (1995). A lifetime of inactivity to a lifestyle of activity: The extent to which general practitioner (GP) referral schemes encourage long-term behavioural change. In G. McFee, W. Murphy, & G. Whannel (Eds.), *Leisure cultures: Values, genders, lifestyles* (pp. 273-288). Leisure Studies Association. Publication No.54.
- Ragheb, M., & Tate, R. (1993). A behavioural model of leisure participation, based on leisure attitude, motivation and satisfaction. *Leisure Studies*, 12, 61-70.
- Raymore, L., Godbey, G., Crawford, D., & von Eye, A. (1993). Nature and process of leisure constraints: An empirical test. *Leisure Sciences*, 15, 99-113.

- Raymore, L., Godbey, G., & Crawford, D. (1994). Self-esteem, gender and socio-economic status: their relation to perception of constraint on leisure among adolescents. *Journal of Leisure Research*, 26, 99-118.
- Robinson, J., Godbey, G. (1993). Sport, fitness and the gender gap. *Leisure Sciences*, 15, 291-307.
- Shaw, S., Bonen, A., & McCabe, J. (1991). Do more constraints mean less leisure? Examining the relationship between constraints and participation. *Journal of Leisure Research*, 23, 286-300.
- Spreitzer, E., & Synder, E. E. (1976). Socialisation into sport: an exploratory path analyses. *Research Quarterly*, 47, 238-245.
- Tabachnick, B., & Fidell, L. (1989). *Using multivariate statistics* (2nd edition). New York: Harper Collins.
- Veal, A. (1992). *Research methods for leisure and tourism. A practical guide*. London: Longman.
- Veal, A., & Cushman, G. (1996). Leisure in different worlds: The survey evidence. In M. Collins (Ed.), *Leisure in industrial and post-industrial societies* (pp. 403-412). Leisure Studies Association. Publication No.49.
- Weissinger, E. (1995). The development, reliability and validity of a scale to measure intrinsic motivation in leisure. *Journal of Leisure Research*, 27, 379-400.