

What Drives the Baby-boomer Athletes? An Empirical Study of the Exercise Motivation of Senior Athletes

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Abstract

The primary purpose of this study was to acquire greater insights about the baby-boomers by developing a thorough understanding of the consumer and the psychological reasons driving motivations and participation in exercise and sport activities. Specifically, this research project aimed to construct the consumer typologies based on participant motivation. A total of 270 baby-boomer athletes participated in this research and 262 surveys were successfully completed. A 12-item instrument was devised on the front page of the survey to examine demographic, lifestyle, and athletic profiles of the sample. Participant Motivations Questionnaire (PMQ) (Gill, Gross, & Huddleston, 1983) was used as the research instrument to measure the motivation factors. T-tests revealed that teamwork driven motivation was significantly different by gender indicating that female seniors were more likely to have teamwork driven motivation than their male counterparts, $t(230) = -2.69, p < .01$. Two-step cluster analysis found that the motivation level did not affect the weekly training hours of baby-boomer athletes.

Key words: baby boomers, participant motivation, factor analysis, and two-step cluster analysis.

Introduction

Simply Google-search the word “baby-boomers” and more than 1.6 million results are generated in an instant. The name given to the group of 78 million Americans born from 1946 to 1964 is synonymous to “gold mine” for any forward-thinking business or marketing entity. The population of boomers is about 30 percent bigger than the generation of 20- to 40-year olds who follow them and when the last baby-boomer turns 65 in 2029, the generation will control more than 40 percent of the nation’s disposable income. Simply put, they are America’s wealthiest generation. Consequently, any business that aims to grow in the next twenty years is wise to include the boomers as part of its business mix (Ramstack, 2005).

To illustrate the rapidity and unpredictability with which the boomers are impacting the business environment, the word “Anterior Cruciate Ligament (ACL) tear” is no longer monopolized by a handful of unfortunate, top athletes in the world. The gruesome injury today represents a viable market potential for sports orthopedics and athletic trainers as the growing number of baby-boomers now commonly opt for the complex reconstructive surgery in lieu of wearing knee braces and living in pain (Harler, 2009). Rotator cuff and hip replacement surgeries are equally en vogue among baby-boomers (Shottenkirk, 2006). The formidable spending power of baby boomers also creates incremental opportunities for companies that target boomers’ grandchildren. Internet providers, resorts industry (May, 2006), sports apparel makers, and real estate industry have all been big beneficiaries of the big spenders. The primary purpose of this study was to acquire greater insights about the baby-boomers by developing a thorough understanding of the consumer and the psychological reasons driving motivations and participation in exercise and sport activities. Specifically, this research project aimed to construct the consumer typologies based on participant motivation. The Bay Area Sport Organizing Committee (BASOC) had approached the research team to seek expertise in collecting preliminary information about the senior athletes in Bay Area.

They have been so pre-occupied with meeting the operational demands and standards of the event that they have not had the luxury to learn at all about the participants (or consumers). Along with basic demographic and lifestyle information on the participants, the BASOC had specifically desired to learn about the motivational factors of the athletes and whether there would be any significant differences in motivations in terms of age, gender, educational and income levels. The sheer size of the boomer generation and a great diversity resulting from this large number has made the BASOC officials reluctant to generalize about the key characteristics.

The research questions (RQ) were then developed as follows.

RQ1: *Are there any motivational differences in terms of age, gender, income, and educational level among the participants of the 2007 Bay Area Senior Games?*

RQ2: *Can the groups of participants in the 2007 Bay Area Senior Games be segmented by the intensity of participant motivation?*

METHODS

Research Participants and Instruments

A total of 270 baby-boomer athletes participated in this research and 262 surveys were successfully completed. A 12-item instrument was devised on the front page of the survey to examine demographic, lifestyle, and athletic profiles of the sample. Participant Motivations Questionnaire (PMQ) (Gill, Gross, & Huddleston, 1983) was used as the research instrument to measure the motivation factors. A 30-item instrument on the back of the survey was rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The research subjects participated in a total number of fifteen sport programs in Senior Games and track and field, basketball, and soccer were the most preferred sports by male participants while soccer, swimming, and running were favored by female counterparts (Table 1).

Insert table 1 about here

RESULTS AND DISCUSSION

Factor Analysis

PMQ has been developed to identify the motivation factors in youth sports in the early 1980s and has been confirmed to be an effective tool for decades (Lee & Park, 2008). Since the target population of this current research was baby-boomer athletes, the authors wanted to confirm if PMQ is still a good measurement tool in this study. Therefore, Principal Factors extraction with varimax rotation was performed through SPSS on 30 items for a sample of 262 senior athletes who participated in the Senior Games. With a cut of .50 for inclusion of a variable in interpretation of a factor, 2 of 30 variables did not load on any factor and it was deleted.

According to the results of factor analyses, five factors were extracted and variables were ordered and grouped by size of loading to facilitate interpretation and five factors were named as *competition driven, self-esteem driven, teamwork driven, energy driven, and challenge driven*. Loadings of variables on factors, communalities, and percents of variance and covariance are shown in Table 2. Interpretive labels are suggested for each factor in a footnote.

Insert table 2 about here

First of all, in order to confirm these five factors were valid in this current study, the five-factor model has been tested to confirm that these factors were valid for this study. Confirmative Factor Analysis (CFA) has been executed using AMOS program (Table 3).

Insert table 3 about here

According to Kim (2002), what indices should be used to assess the overall model fit has been the major consideration in conducting the equivalence of structural equation modeling. Hu and Bentler (1999) provide some measures of model fit. First, the difference between the sample covariance matrix and the covariance matrix based on the model is measured by the Chi-square goodness-of-fit statistic. If it has statistically significant values of χ^2 , then it indicates a poorly fitting model. Second, cut-off values of .95 and above should be used to support adequate fit based on the normed fit index (NFI) and comparative fit index (CFI). If NFI and CFI have the lower values than .95, then it implies a poorly fitting model. Third, the cutoff value of .06 or less should be used for the root mean square error of approximation (RMSEA).

Fourth, after considering all the fit indices, they recommended a cutoff value of close to .95 for the NFI and CFI in conjunction with a cutoff value of .05 (or less) for the RMSEA. The decision for the model fit was not easy to make because NFI and CFI strongly supported the good model fit while RMSEA moderately opposed (Table 3). In other words, it can be said that this model is acceptable for the relationship among these variables shown in Table 4. The standardized factor loadings of *competition driven*, *self-esteem driven*, *teamwork driven*, *energy driven*, and *challenge driven* toward PMQ model were .12, .24, .40, .46, and .60, respectively with uniqueness values of .69, .68, .76, .81, and .78.

Insert table 4 about here

After confirming the PMQ model fit for this current study, the reliabilities have been tested. The reliabilities of *competition driven* with 11-item (1, 3, 6, 12, 15, 17, 20, 24, 26, and 29), *self-esteem driven* with 5-item (14, 21, 23, 25, and 28), *teamwork driven* with 5-item (2, 8, 18, and 22), *energy driven* with 4-item (4, 9, 13, 16, and 19), and *challenge driven* with 3-item (10, 11, and 27) were .94, .83, .88, .80, and .79, respectively.

Third, in order to answer the first research question, a series of t-tests and Analysis of Variance (ANOVA) were conducted. Bonferroni rationale with adjusted alpha level from .05 to .01 (.05/5) was applied into this analysis recommended by Huck (2000) because multiple t-tests were executed. T-tests revealed that *teamwork driven motivation* was significantly different by gender indicating that female seniors were more likely to have teamwork driven motivation than their male counterparts, $t(230) = -2.69, p < .01$. The fact that 27.7% of men participated in Track and Field while 28.4% of women took part in Soccer partially supported this result. Tabachnick and Fidell (2001) assert that MANOVA works best with highly negatively correlated DVs, and acceptably well with moderately correlated DVs in either direction about |.6|. Also they state that MANOVA is wasteful where there exist very highly positively correlated DVs because once that DV becomes a covariate, there is no variance remaining in the lower priority DVs to be related to IV main effects or interactions. They suggest the idea of picking a single DV, or creating a composite score for use in ANOVA instead of MANOVA. As you see in Table 5, four highly positively correlated DVs were found in this current data set and therefore, a series of the one-way ANOVAs with a Bonferroni-adjusted alpha level of $p = .003 (.05/15)$ were conducted. The results revealed that age, education and income levels had no significant effects on individual motivations.

Insert table 5 about here

Fourth, a series of simultaneous multiple regressions, the data associated with all independent variables are considered at the same time, were performed between five motivation factors to participate in the Senior Games as a dependent variable and number of hours to exercise, budget to spend in the Senior Games. To control for other factors potentially confounding the relationship between the levels of motivation and commitment to exercise and Senior Games, such following variables as gender, age, ethnicity, and education were also included as independent variables. All variables were entered into the regression simultaneously. The results of regression revealed that the number of hours to exercise contributed significantly to prediction of *competition driven motivation*, $t(188) = 2.54, p < .05$ shown in Table 6. Ethnicity also contributed significantly to the explanation of the *self-esteem driven*, $t(195) = 2.11, p < .05$. In addition, *teamwork driven* was predicted by gender and ethnicity, $t(196) = 2.88$ and 2.54 , respectively, $ps < .05$. Finally, the number of hours to exercise, gender, and ethnicity proved to be significantly important factors to explain *challenge driven*.

Insert table 6 about here

The second research question was created to develop a consumer segmentation typology using both demographic variables as well as self-expressed motivations for the Senior Games participation. Therefore, the hierarchical cluster analysis has been conducted to find the number of possible clusters and two-step cluster analysis has been executed to determine the characteristics of demographic profiles for the pre-decided clusters by the levels of participant motivation. The two-step cluster analysis procedure is an exploratory tool designed to reveal natural groupings (or clusters) within a dataset that would otherwise not be apparent (Yuan & He, 2008). The clustering was considered as the most relevant statistical tool for marketing segmentation based on their motivation levels of participation in the Senior Games. Regarding clustering criterion, Akaike (AIC) has been chosen instead of Schwarz (BIC) due to the fact that BIC usually produces the relevantly small number of clusters compared to AIC. And the two-step cluster analysis has been used and it produced two clusters based on the pre-produced five factors in this current study. As you can see in Table 7, the total number of 113 cases was excluded from this cluster analysis and 82 were grouped into cluster one named as 'high' and 75 were cluster two labeled as 'low' based on the motivation level.

Insert table 7 about here

High group had higher levels of motivations of competition, self-esteem, teamwork, energy, and challenge than the average while low group had lower levels of than the average motivation shown in Table 8.

Insert table 8 about here

After two clusters were produced, the frequency analysis among these groups and the demographic information has been conducted. As shown in table 9, there was no significant difference on weekly training hours.

Insert table 9 about here

After two clusters were produced, the frequency analysis among these groups and the demographic information has been conducted. The motivation level did not affect the weekly training hours of which produces two explanations. First of all, it is reasonable assumed that senior athletes with higher exercise motivations have been working out based on their lifetime physical activity plan (Demont, 2003) to prevent sports injuries. In other words, senior athletes are differentiated from the groups of athletes who consistently want to test their guts to sharpen their athletics skills and abilities. Secondly, due to their limited physical ability such as their cardiovascular systems and strengths compared to their younger counterparts would not let them go over their physical limit and capacity because their goals to exercise is to slow the decline in balance and coordination (Demont, 2003). Therefore, it is apt to say conclude that they are concerned about more the quality of the exercise program than the quantity.

Two-step cluster analysis found that the exercise motivation somewhat explained their financial status for the Senior Games. In other words, highly motivated senior athletes are more likely to have more budgets than their less motivated counterparts. Due the recent economic downturn, baby-boomers were slow-downed to retire from the work as well as to invest in good health (Bell, 2006). The correlation study between family income and exercise motivation stays also in the same line with Bell (2006)'s where the majority (87.1%) of cluster one group (correlation between family income and motivation) make over \$100,000 a year while only 12.9% of athletes in cluster two group make more \$100,000 a year. The results of this research were to be utilized in developing future marketing communication strategies as well as identifying market segments, that is, groups of customers with similar motivations. It is expected that this preliminary study has signaled a grounds-breaking research for the series of future research projects for the BASOC.

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Table 1: Descriptive Statistics for 270 Baby-Boomer Athletes' Gender and Sports Programs (n=262)

Sports Program	Gender (Male/Female)	Total
Cycling	10/6	16
Soccer	22/19	41
Softball	2/0	2
Tennis	16/4	20
Running	20/10	30
Biking	1/2	3
Walking	5/5	10
Golf	1/0	1
Basketball	34/1	35
Track of Field	54/5	59
Shot put	3/1	4
Swimming	12/14	26
Triathlon	1/0	1
Table Tennis	13/0	13
Badminton	1/0	1
Total	195/67	262

Table 2 Factor Loadings for Principal Factor Extraction and Varimax Rotation of Five Factors

	Component				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1. I want to improve my skills	.594	.119	.099	-.083	.572
2. I want to be with my friends	.241	-.084	.641	.024	.460
3. I like to win	.574	.528	.148	-.055	.093
4. I want to get rid of energy	-.045	.231	.111	.526	.376
5. I like to travel	.216	-.013	.322	.430	.442
6. I want to stay in shape	.817	-.109	.080	.124	.256
7. I like the excitement	.755	.147	.237	.283	.153
8. I like the teamwork	.327	.016	.779	.289	.176
9. My parents or close friends want me	.090	.314	.381	.557	.053
10. I want to learn new skills	.168	.224	.212	.270	.713
11. I like to meet new friends	.308	.155	.441	.197	.605
12. I like to do something I'm good at	.737	.275	.111	.041	.102
13. I want to release tension	.257	.291	.146	.548	.325
14. I like the rewards	.487	.501	.146	.297	-.024
15. I like to get exercise	.875	-.052	.108	.142	.098
16. I like to have something to do	.513	.255	.099	.593	.035
17. I like the action	.693	.226	.213	.357	.109
18. I like the team spirit	.378	.179	.742	.250	.172
19. I like to get out of the house	.182	.196	.209	.745	.138
20. I like to compete	.754	.176	.152	.152	.014
21. I like to feel important	.125	.828	.038	.256	.084
22. I like being on a team	.126	.357	.758	.235	.155
23. I want to go on to a higher level	.424	.537	.223	-.031	.164
24. I want to be physically fit	.874	-.049	.083	.075	.149
25. I want to be popular	-.129	.744	.162	.306	.159
26. I like the challenge	.821	.164	.183	.014	.076
27. I like the coaches or instructors	.034	.465	.217	.230	.598
28. I want to gain status or recognition	.011	.851	-.027	.200	.197
29. I like to have fun	.767	-.091	.257	.096	.145
30. I like to use the equipment of facility	.375	.335	.066	.202	.402
Percent of variance	2.58	13.12	10.54	9.89	9.19

Note. Extraction Method: Principal Component Analysis; loadings >.50 shown in bold.

Table 3 Fit Indices for Participant Motivation Model (N=262)

Invariant	χ^2	df	NFI	RMSEA	CFI
PMQ model	23.48	5	.99	.12	.99

Table 4 Factor Loadings and Uniqueness for Confirmatory Factor Model of Participant Motivation Variables (N=262)

Measure and variable	Standardized		Uniqueness
	Factor loading	SE	
Competition driven	.12	-	.69
Self-esteem driven	.24	.05	.68
Teamwork driven	.40	.04	.76
Energy driven	.46	.05	.81
Challenge driven	.60	.03	.78

Table 5 Intercorrelations between Motivation Factors (N=262)

	1	2	3	4	5
1. Competition	-	.44**	.55**	.50**	.50**
2. Self-esteem		-	.43**	.64**	.53**
3. Teamwork			-	.62**	.63**
4. Energy				-	.61**
5. Challenge					-

Note. ** Correlation is significant at the 0.01 level (2-tailed); $r > |.6|$ shown in bold.

Table 6 Results of Multiple Linear Regression Analyses (n=262)

Variables	B	SE	β	
Competition	Hours	1.63	.63	.19*
	Budget	1.10	.61	.13
	Gender	.096	1.37	.05
	Age	-.04	.37	-.01
	Ethnicity	1.17	.66	.13
	Education	.29	.67	.03
Self-esteem	Hours	.54	.31	.13
	Budget	.11	.30	.03
	Gender	-.29	.67	-.03
	Age	-.08	.18	-.31
	Ethnicity	.70	.33	.15*
	Education			
Teamwork	Hours	.26	.29	.06
	Budget	.05	.29	.01
	Gender	1.8	.63	.21**
	Age	.02	.17	.01
	Ethnicity	.79	.31	.18*
	Education	-.02	.31	-.00
Energy	Hours	.40	.32	.09
	Budget	.16	.32	.04
	Gender	-.44	.69	-.05
	Age	-.23	.19	-.09
	Ethnicity	.48	.35	.10
	Education	-.57	.35	-.12
Challenge	Hours	.49	.20	.17*
	Budget	.38	.20	.14
	Gender	.92	.43	.15*
	Age	.07	.12	.05
	Ethnicity	.52	.22	.16*
	Education	.33	.21	.11

Note. $p < .05$, $p < .01$

Table 7 Results of Two-Step Cluster Analysis by Exercise Motivation

		N	Percentage of Combined	Percentage of Total
Cluster	1	82	52.2%	30.4%
	2	75	47.8%	27.8%
	Combined	157	100.0%	58.1%
Excluded Cases		113		41.9%
Total		270		100.0%

Table 8 Profile of Two-step Cluster by Motivation to Participate in the Senior Games

	Competition	Self-esteem	Teamwork	Energy	Challenge
	Mean	Mean	Mean	Mean	Mean
Cluster High	42.41	14.66	13.26	15.49	9.50
Low	47.81	17.19	15.40	17.83	11.04
Combined	44.99	15.87	14.28	16.61	10.24

Table 9 Frequency Analysis among these groups and the demographics

Variables	1	2	3	4	5	6
Weekly Training Hours	1-3 hours (n/%)	4-6 hours (n/%)	6-9 hours (n/%)	10+ hours (n/%)	Not regularly (n/%)	
Cluster 1	7(41.2%)	31(55.4%)	30(57.7%)	14(45.2%)	0(0%)	
Cluster 2	10(58.8%)	25(44.6%)	22(42.3%)	17(54.8%)	1(100%)	
Budget for Event	Under \$50	\$50-100	\$100-200	\$200-400	Over \$400	
Cluster 1	58(57.4%)	13(46.4%)	2(12.5%)	7(70.0%)	2(100.0%)	
Cluster 2	43(42.6%)	15(53.6%)	14(87.5%)	3(30.0%)	0(0%)	
No. of Senior Games events' participation	1-2 times	3-5 times	5 or more	First Senior Games Ever		
Cluster 1	0(0%)	5(33.3%)	18(56.3%)	21(45.7%)		
Cluster 2	14(100.0%)	10(66.7%)	14(43.8%)	25(54.3)		
Age	50-54	55-59	60-64	65-69	70-74	75 +
Cluster 1	18(64.3%)	17(50%)	29(72.5%)	11(44.0%)	3(15.8%)	4(44.7%)
Cluster 2	10(35.7%)	17(50%)	11(27.5%)	14(56.0%)	16(84.2%)	7(55.3%)
Education	HS Diploma	Two-year Degree	Bachelor's Degree	Graduate Degree		
Cluster 1	1(12.5%)	4(19.0%)	17(36.2%)	60(74.1%)		
Cluster 2	7(87.5%)	17(81.0%)	30(63.8%)	21(25.9%)		
Family Income	Under \$20,000	\$20,001-40,000	\$40,001-60,000	\$60,001-80,000	\$80,001-100,000	Over \$100,001
Cluster 1	0(0%)	3(30.0%)	0(0%)	1(3.0%)	17(51.5%)	61(87.1%)
Cluster 2	2(100.0%)	7(70.0%)	9(100.0%)	32(97.0%)	16(48.5%)	9(12.9%)