Journal of Leisure Research
2006, Vol. 38, No. 4, pp. 513-535

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National Recreation and Park Association

Construction and Validation of the National Survey on Recreation and the Environment's Lifestyles Scale

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This study sought to construct and validate a lifestyle scale that would capture for leisure professionals a more holistic picture of people's interests. A broader profile of their customers would allow recreation professionals to tailor information of their services. Public sector recreation managers could provide better services by learning about how customers spend their leisure time. With general lifestyle information, public sector recreation managers may better identify what services they should be providing or expanding. In this study, 36 items were identified that capture people's major activities. Replicated exploratory factor analyses across these items showed them grouping under nine factors. These factors could help recreation managers gain a deeper understanding of how people's lifestyles relate to their choice of recreation and leisure activities.

KEYWORDS: *Leisure, lifestyles, recreation participation, segmentation.*

Introduction

Wherever there is a need to design more effective outreach, communication, education, marketing, advertising or sales strategies, lifestyle information can be helpful. Lifestyle scales, if well designed and executed, identify activities that reflect activities of both necessity and activities of leisure (Horley, 1992; Peter & Olson, 1994; Veal, 1993; Vyncke, 2002). Because they capture both necessities and "niceties," lifestyle scales used in designing contact or delivery strategies are more likely to be successful (Vyncke). This is especially true when the information provided, about the services and programs being offered, is targeted to match people's routine activities, interests, and needs (Gobster, 2002).Within the recreation and leisure field, people's activities and interests started to be examined in earnest in the late 1970's under the mantle of "specialization" (Bryan, 2000). Since that time research into specialization (and lifestyles) has broadened from looking at differences

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within a specific group (e.g., bird-watchers, immigrants, married couples, golfers) (Bryan; Kalmijn & Bernasco, 2001; Petrick, Backman, Bixler, & Norman, 2001; Scott & Thigpen, 2003; Stodolska, 2000) to differences between specific groups (e.g., African-American versus Latino urban park users, skiers versus snowboarders, blind versus low vision or sighted youths) (Gobster, 2002; Vaske, Carothers, Donnelly, & Baird, 2000; Wolffe & Sacks, 1997).

Today, as recreation and leisure service providers become increasingly more competitive over existing and potential customers, research that helps to identify different lifestyles within and between specific groups continues to grow in its complexity and scope (McChesney, 1997). For instance, where earlier research mostly focused on differentiating groups by their recreational activities, setting preferences and demographic information, today's research now includes other more salient lifestyle information such as people's interests, attitudes, and opinions (Moore & Driver, 2005; Petrick, 2002). Similarly, earlier research that also looked at larger general populations often focused on people's recreational activities, their preferences, and standard Census demographic characteristics (Cordell, Betz, Green, Mou, Leeworthy, Wiley, et al., 2004; Cushman, Veal & Zuzanek, 2005; Morgan & Levy, 2002; Pennington-Gray, Fridgen & Stynes, 2003). Although this type of research was often significant and helpful (Cordell, Betz., Bowker, English, Johnson, Mou, et al., 1999), the usefulness of this information by recreational professionals in predicting people's choices and needs was somewhat limited as it did not include other salient "lifestyle" factors (Moore & Driver, 2005; Murdock, Backman, Hoque, & Ellis, 1991). However, as some recent studies have shown, by adding more diverse lifestyle information, recreational professionals are able to better tailor their programs to the needs, wants and demands of their customers (Gilbert & Warren, 1995; Vyncke, 2002).

Knowing more about people's lifestyles, in addition to describing them across an array of socio-demographic factors, increases the capability of recreation and leisure professionals to focus their recreation, park, education, and related leisure programs to an increasingly diverse American public. This information also benefits private product manufacturers, wholesalers, retailers and service deliverers by better describing their customers and by identifying better pathways for advertising (Francese, 1996; Gilbert & Warren, 1995; Morgan & Levy, 2002: Rice, 1988).

Subsequently, the aim of this study was to add to the present body of knowledge by constructing and validating a lifestyle scale that would help recreation and leisure professionals better design, inform, and deliver their programs and services to their customers. The term lifestyle has been defined as "the distinctive behavioral expression of a characteristic pattern of values and beliefs" (Horley, p. 206, 1992) and as "the distinctive pattern of personal and social behavior characteristics of an individual or a group" (Veal, p. 247, 1993). It has been suggested that an acceptable definition of lifestyle should also incorporate "intentional behavior or purposive activity" (Horley, p. 206). With this in mind, the term lifestyle was operationalized as a broadly defined pattern of intentional behaviors, both personal and social, as represented by a set of purposeful activities.

Therefore, this study sought to capture a holistic picture of the general public's hobbies, interests, recreational and cultural activities, and work, or in other words their "lifestyle" (Gladwell, 1990; Reimer, 1995; Stockdale, Wells, & Rall, 1996; Stodolska, 2000; Veal, 1993). Subsequently, an original lifestyle scale was conceptualized, reduced, and pretested for use within the National Survey on Recreation and the Environment (NSRE) (Cordell, Green, Leeworthy, Stephens, Fly, & Betz, 2005; Veal, 1993). Data from the NSRE was then used to test the construction and validity of the lifestyle scale.

Past Research

Early recreation and leisure lifestyle or activity preference research has tended to focus on people's choices of recreational activities and how these choices correlated to socio-demographic characteristics, e.g., race, gender, age, income (Veal, 1993). For example, in regard to race, considerable research has established that different proportions of whites, African Americans, Hispanics and other races chose different recreational activities (Cordell et al., 1999; Dwyer & Hutchinson, 1990; Floyd & Shinew, 1999: McDonald & McAvoy, 1997; Phillip, 1995). Other research has examined how recreational and leisure activity preferences differ within the same racial group (Floyd, Gramann, & Saenz, 1993; Floyd, Shinew, McGuire, & Noe, 1994; Outley, Floyd, & Shinew, 1997; Shinew, Floyd, McGuire, & Noe, 1995, 1996; Woodard, 1988). Research regarding gender and preference of recreational activities has found that both between (Firestone & Shelton, 1994; Henderson, 1994; Shaw 1994) and within (Dattilo, Dattilo, Samdahl, & Kleiber, 1994; Harrington & Dawson, 1995; Henderson, 1996; Cutler Riddick & Stewart, 1994) gender groups, significant differences exist in activity preference and participation rates. In a similar vein, researchers have also explored the effects that age, level of education, and level of income have on preference for recreational activities (Cordell et al., 1999; Iso-Ahola, Jackson, & Dunn, 1994; Lawton, 1994; Shinew et al., 1996).

One area of research that relates closely to lifestyles and that has also received considerable attention is that of recreational specialization (Bryan, 2000; Kuentzel & McDonald, 1992; Scott & Shafer, 2001). However, while the specialization concept has demonstrated its utility as a typology for understanding levels of involvement within and between particular recreation groups (e.g., anglers, boaters, skiers), more research is needed to improve a framework for understanding participant differences and how these differences tie more directly to an individual's lifestyle (Bryan, 2000, Fedler, 2000).

Until fairly recently, only a few studies actually explored activities beyond recreation which were "lifestyle" oriented, such as going to church, playing with children or grandchildren, drinking wine, visiting a theater, gardening, eating out (Morgan & Levy, 2002; Reimer, 1995; Veal, 1993; Vyncke, 2002). Yet, these studies were often used as a basis upon which to draw implications about the lifestyles of different groups. However, recreation participation and demographic data alone do not allow the richness and depth needed to provide comprehensive descriptions of overall lifestyle patterns, or for mar-

ket segmentation (Morgan & Levy, 2002; Vyncke). Growing consensus now indicates that recreational pursuits or lifestyles should be characterized by the "full range of day to day activities" (Veal, 1993, p. 241). Few would argue that activities related to personal consumption (e.g., home cooking, dining-out), leisure (e.g., reading, playing sports, going to the theater), domestic practices (e.g., home maintenance, playing with children, shopping), or paid work (e.g., commuting to work, using the internet) do not influence and shape lifestyles or choice of recreational pursuits.

Lifestyles Research

Of the recreation and leisure lifestyles studies that have been published (Allison & Geiger, 1993; Floyd & Shinew, 1999; Furlong, Campbell, & Roberts, 1990; Hawkins & Freeman, 1993; Iso-Ahola et al., 1994; Scott & Willits, 1998; Stodolska, 2000) only a few come close to research that approximates the activity, interest, and opinion (AIO) or lifestyle research prevalent in the marketing literature (Vyncke, 2002). One of the early authors involved in "lifestyles" research was Demby (1974), who coined the term psychographics. Demby felt that adding social and behavioral data to purely demographic data was akin to putting flesh on bones, and that it would result in much stronger marketing strategies through a deeper understanding of people (Vyncke, 2002). Unfortunately, in earlier studies the social or behavioral data were often drawn purely from personality tests, which were developed in clinical (i.e., for medical diagnostics) or academic (i.e., based on student populations) environments (Gunter & Furnham, 1992). Results of these studies were often plagued with inconsistent findings and low correlations (Gunter & Furnham, 1992).

In later studies, personality data were replaced with "lifestyle" data. Lifestyle data often employed sets of AIO (e.g., activities, interests, and opinions) items or scales (Peter & Olson, 1994). Studies concerning people's activities (e.g., work, hobbies, social events, vacation, & community), interests (e.g., family, recreation, food, media, & home) and opinions (e.g., education, culture, social issues, & business) often involved as many as 250-300 items (Vyncke, 2002). Other studies also used values, attitudes, and lifestyle scales in their research (VALS) (Reece, 1989; Shih, 1986). These studies typically utilized 300 or more items (Veal, 1993). Although studies using the AIO or VALS approaches have produced insightful and meaningful data, the large battery of items were difficult to use as they required extensive surveying, analysis and resources (Veal, 1993; Vyncke 2002).

Mitchell (1984) introduced a more efficient instrument to measure lifestyles containing only 55 items. But this instrument included only items pertaining to people's values (Horley, Carroll, & Little, 1988). With this in mind, Little (1983) and Horley et al. (1988) sought to study lifestyles through the use of the Personal Project Matrix (PPM), which incorporated aspects of people's attitudes and behaviors. The PPM asked respondents to list personal projects, normally about ten, that they were currently engaged in, and then

to rate each project from zero to ten based upon various criteria (e.g., enjoyment, stress, etc). The resulting scores were then used to create project dimensions or personal constructs. Little's replicated findings failed to distinguish lifestyle types, but Horley et al., identified and replicated three generalized lifestyle types (e.g., relaxed, pressured, and self-improvement) (Horley, 1992).

Lifestyle research has also been used to examine and explain differences in subgroups (i.e., students, disabled, elderly, immigrants, inn users). These studies often used a mixture of lifestyle and recreational activities (Floyd & Shinew, 1999; Horley, 1992; Stockdale, et al., 1996; Stodolska, 2000; Veal, 1993). Today more researchers are employing a battery of items to capture a more holistic picture of people's lifestyles that included their hobbies, vocational interests, work, recreation and social activities (Gladwell, 1990; Reimer, 1995; Veal, 1993).

Recent research by the "Outdoor Industry Foundation" (Outdoor Industry Association, 2000) explored active lifestyles of people participating in outdoor activities. Activities that people chose to do and frequencies of participation resulted in two distinct groups being identified: participants and enthusiasts. Based on the same criteria, Cordell et al. (1999; 2004) also identified similar lifestyles groups. In both studies, enthusiasts represented a small, but highly motivated subgroup of the population that used recreation facilities more often than other groups.

Research into more specific activities has also identified different lifestyle groups. For instance, by using past behavior and experience levels, unique user segments called infrequents, loyal infrequents, collectors, locals, visitors, and veterans were found to exist within a golf setting (Petrick et al., 2001). In another study, the recreation experience preferences scale (REP) was used in conjunction with economic and demographic information to form five clusters within snowmobile users. Results indicated that these clusters had substantially different reasons for snowmobiling (Coupal, Bastian, May, & Taylor, 2001).

In relation to outdoor recreation and tourism, a study by MacKay, Andereck, and Vogt (2002) identified outdoor recreation, sightseeing, and cultural activities as niche markets. People in these niche markets participated in different activities during their vacations. In examining tourism and cohorts (i.e., people born in the same time period), Pennington-Gray et al. (2003) found that "different cohorts may be attracted to different activities at different times" of their lives (p. 358). Of equal interest was the finding that "as generations aged, they became less interested in national and provincial parks," which has implications for public land managers (p. 358).

Although several studies have shown that the inclusion of lifestyle data often produces more balanced and robust typologies, segmentation by demographic variables is still by far the most widely used method of segmentation (Pennington-Gray et al., 2003; Vyncke, 2002). Subsequently, there is a need for more research that helps recreation professionals to better discriminate among different user groups (Gobster, 2002).

Methodology

The Study

The purposes of this study were to: (1) conceptualize a practical lifestyle scale of people's overall hobby, recreational, social, work, and special interest activities, (2) develop empirical data to test, reduce and refine by replication a lifestyle factor scale, and (3) identify examples of potential applications of a factored lifestyle scale for use by recreation and leisure professionals faced with delivering information and services to a growing diversity of constituents and public interests.

Lifestyle Scale

The lifestyle scale was designed in three main stages: (1) literature review and initial scale construction, (2) panel review and scale reduction, and (3) pretesting and refinement.

Literature review and initial scale construction. Initially a literature review was conducted to identify possible lifestyle items (e.g., activities, interests, values) for inclusion into a lifestyle scale within the NSRE (Gobster, 2002; Kalmijn & Bernasco, 2001; Veal, 1993, Vyncke, 2002; Wolffe & Sacks, 1997). Academic journals, applied professional journals and published lifestyle data from private companies were also reviewed to identify additional lifestyle items (e.g., hobbies, interests, recreational and cultural activities). By combining items from these identified resources an initial scale was produced containing a total of 127 items.

Panel review and scale reduction. To reduce the length of apparent time-of-interview burden of the scale, an initial review of all the items was conducted by this paper's authors, three outside research scientists, and two directors of a marketing survey laboratory. By consensus, items that were too highly specialized (i.e., restricted to very small percentages of the population) or deemed redundant were removed. This reduced the initial list from 127 to 87 items.

To further reduce the length of the scale for telephone interviewing, five research scientists and four academic researchers were asked to review the 87 items for face validity, wording, completeness, and other possible errors (e.g., redundancy). Reviewers were selected on the basis of their research backgrounds, research experience, and familiarity with the subject (i.e., scale construction, lifestyles literature). Reviewers were given the target of trying to reduce the list of items so they may be administered by telephone or in-person interview in a maximum of four minutes. After extensive dialogue, review and feedback 49 scale items were kept, by consensus, for pretesting.

Pretesting and refinement. A lifestyle module, containing the 49 items, was pretested using a scale that asked respondents to indicate if each item was an activity in which they "regularly," "sometimes," or "never" participated (Scott & Willis, 1998; Stockdale et al., 1996). Respondents also had

the standard option to indicate if they "did not know" or to "refuse to answer" any question asked.

A sample of respondents was generated using a computer-aided telephone interviewing system (CATI) with a random-digit-dial (RDD) sample. The CATI system randomly selected and dialed a telephone number; the interviewer, upon hearing someone answer, inquired how many people in the household were 16 years or older. The interviewer then asked to speak to the person 16 or older who had the most recent birthday (Link & Oldendick, 1998; Oldendick, Bishop, Sorenson, & Tuchfarber, 1988). Upon reaching an appropriate person, the interviewer read the survey questions as they appeared on the computer screen. If the timing of the call was inconvenient, a call back was scheduled for another date and time (Presser, Blair, & Triplett, 1992).

After two days of pretesting (n = 86), information (i.e., notes from monitored interviews, feedback from both respondents and interviewers) from the pretesting was used to check for completeness, wording, sequencing, and other possible errors in the scale. This information was used by the principal researchers and two market survey research directors to edit and strengthen the lifestyle module in terms of clarity and completeness. After changes were made, the lifestyle module was further pretested with the CATI system on another RDD sample. After two weeks, a sample of 658 respondents had completed the lifestyle module. Response rates for the pretests were 51.5% and 55.9% (i.e., eligible interview/(interview + partial interviews + refusals), respectively.

Descriptive statistics, item analysis, and initial factor analytic runs were also examined to help identify possible problems with any items. Eight items had been contemplated for possible removal by the principal researchers for several reasons (e.g., very few respondents engaged in the activity, an item was viewed as too general or too specialized, respondents misunderstood or had problems interpreting the item). Additionally, an initial exploratory factor analysis using principal component factoring was conducted on the remaining lifestyle items using the default technique of extracting components with eigenvalues greater than 1.0 (Comrey & Lee, 1992). An additional five items were deleted because they showed low loading values ($p < .40$) and low associations with any of the extracted factors (Comrey & Lee, 1992; Gorsuch, 1983). Information from the data screening procedures, in conjunction with results of the pretest data and the initial factor analysis, resulted in 36 items being kept and used in the lifestyle scale (See Table 1).

Data Collection Procedure

The National Survey on Recreation and the Environment (NSRE) is the United States' on-going, nationwide recreation survey, dating back to the Outdoor Recreation Resources Review Commission of 1960 (Cordell, McDonald, Lewis, Miles, Martin & Bason, 1996). The most recent NSRE is an in-the-home phone survey of individuals in over 85,000 households across all

TABLE 1
Lifestyle Scale Items and Their Descriptions

Item	Lifestyle Item Descriptions
A1	Spend time on creative arts such as painting, playing a musical instrument, writing, etc.
A2	Enjoy making things out of wood, metal, glass, yarn, or other materials
A3	Collect stamps, coins, antiques, toys, or any other collectibles as a hobby
A4	Invest in and keep up with the stock market
B1	Do your own home improvement, decorating, or auto maintenance
B2	Grow vegetables or fruit in your garden
B3	Cook meals at home
C1	Spend time raising children or attending activities related to them
C2	Spend time with one or more grandchildren
C3	Take care of and play with one or more pets
D1	Operate your own independent business
D2	Work at home or "telecommute"
D3	Commute more than 45 minutes to work every work day
E1	Attend ballgames or follow other professional or college sports
E2	Watch sports on television
F1	Donate to charitable causes or non-profit organizations
F2	Work as a volunteer in organized youth activities, such as sports, scouts, arts
F3	Participate actively in a civic club or community service organization
F4	Attend religious services and church gatherings
G1	Take vacations away from home at least once a year
G2	Spend time at your vacation home or property, including time-shares
G3	Live somewhere else three or more months out of the year
H1	Read nature, wildlife, or environmental magazines
H2	Attend classes to learn new skills, languages or subjects, e.g., continuing education
H3	Attend cultural events, concerts or other performing arts
H4	Read news, business, or professional magazines
I1	Take walks in my neighborhood or nearby park
I2	Visit a fitness club or otherwise exercise at least 3 times a week
J1	Recycle household products such as glass, paper, or plastic
J2	Actively participate in an environmental or conservation group or organization
K1	Keep informed about the latest consumer technology and gadgets
K2	Use the Internet, e-mail or personal computers at home
L1	Get together socially with friends or neighbors
L2	Use the facilities or attend events at a country club or other private recreation club
M1	Eat out in restaurants, including fast food, or order take-out food at least 2 times a week
M2	Attend movies at the theater 1 or more times a month. Note. Table contains the final 36 lifestyle scale items with their descriptions

ethnic groups and locations throughout the United States. Questions broadly address outdoor recreation participation, demographics, household structure, lifestyle activities, environmental attitudes, natural resource values (for example, concerning wilderness), constraints to recreation participation, and attitudes toward management policies.

Sampling

The lifestyle scale was added as a special module of questions to the National Survey on Recreation and the Environment (NSRE). The lifestyles scale (i.e., the 36 items) was included within version II of the NSRE (See Table 1). Version II data were collected from November 1999 through February 2000. A RDD sample of 4,897 interviews, from across the United States, were completed (with a response rate of 52.1%). See Table 2 for a breakdown of the sample by socio-demographics.

TABLE 2
Socio-Demographic Variables of the Sample

Socio-Demographic Variables	Percent (%) of Sample
Gender	
Male	55
Female	45
Race	
White	81
African-American	8
Hispanic	7
American Indian	2
Other	2
Age	
16-30 Years	27
31-50 Years	43
51+ Years	30
Education	
8th to 11th Grade	11
High School Graduate or Some college	47
Bachelor's Degree	32
Graduate Degree	10
Income*	
$14,999 or Less	6
$15,000 to $34,999	25
$35,000 to $49,999	20
$50,000 to $74,999	23
$75,000 to $99,999	12
$100,000+	12

Note. '*' Income percentages do not tally to 100% as this information was not always provided.

Limitations

Random-digit-dialing reaches a random sample of household telephone numbers (the NSRE does not contact cell or mobile phone numbers), rather than of people. Affluent families are virtually certain to have a telephone number (97%), often more than one. At the other end of the scale, many low-income households do not have a telephone (ranging from 8% to 23%, depending on geographic area). As a result, affluent people are likely to be somewhat over represented in the survey sample (Bowen, 1994; Groves, 1990; Tucker, Lepkowski, Casady, & Groves, 1992). To compensate for these types of sampling biases, the NSRE data set was weighted. Weighting was achieved using a combination of multivariate and multiplicative weights to account for age, race, sex, education, and urban/rural differences between the sample and the U.S. Census. This weighting adjustment helps adjust estimates of recreation participation and other NSRE variable estimates to better represent the proportionate distribution of the U.S. population across social strata.

Response rates for this study varied from 51% to 55%. However, in comparing 33 studies, Krosnick (1999) found that response rates for government agencies ranged from 19% to 64%. In examining the demographic representativeness of the studies data, to determine if lower response rates implied lower quality data, Krosnick found that surveys with relatively low response rates often have excellent demographic representativeness. Similarly, Keeter, Miller, Kohut, Groves, and Presser (2000) discovered no significant differences between identical survey questions conducted in separate studies, one achieving a response rate of 36% and the other a response rate of 61%. The Council for Marketing & Opinion Research (CMOR) collected similar information from various organizations and found RDD phone studies often have a 10% to 13% response rate (Council for Marketing and Opinion Research, 2001).

Another source of bias comes from language barriers through the undesirable but unavoidable exclusion of people who cannot speak either English or Spanish. According to the 2000 Census, 12.5% of the U.S. population is Hispanic. For the non-English speaking segment of the Hispanic population, the NSRE was conducted in Spanish. The most difficult part of this process was getting the translation generic enough for overall comprehension by all the various Hispanic dialects. The complexity of the translation and interviewing processes made interviewing in all languages, except English or Spanish, prohibitively costly. Therefore, other non-English speaking U.S. residents were excluded from the survey.

Analysis of Data

For the analyses, cases with incomplete profiles were deleted. Further, responses to individual items of "Don't Know" or "Refused" were recoded as missing data. The statistical program, SPSS for Windows (version 11.5, Scientific Software, 2003), was used for all analyses.

An exploratory factor analysis using the principle components method with varimax rotation was run to determine the number of dimensions underlying the 36 item lifestyle scale. Principal components analysis refers to a family of exploratory multivariate procedures which aims to provide a reduced structure from a larger listing of variables (Gorsuch, 1983; Comrey & Lee, 1992). Exploratory factor analysis (EFA) assumes that the exact number of dimensions underlying a set of data is unknown.

The principal components extraction method has many advantages. Its primary advantage is that each component extracted from the data set accounts for the maximum amount of variance among the set of variables under study (Gorsuch, 1983). Additionally, the principal components method assumes that all the variance underlying the data set is relevant and it seeks an optimal solution that best explains the relationships among items in the data set. A criticism of the principal components extraction method is that it does not allow for measurement error in responses (i.e. the diagonal of the correlation matrix is set to 1.0, implying no measurement errors in responses). However, the impact of the diagonal elements on the off diagonal elements is minimized as the number of items under study increases (Comrey & Lee, 1992). In this study, the sizeable number of items, 36, tends to lessen substantially the impact of the diagonal elements. Finally, the principal components method tries to distribute the variance accounted for by each component in a somewhat uniform manner across the set of extracted components. This procedure helps create components of relative equality, in terms of the amount of variance accounted for, alleviating the tendency for one dominate component to emerge.

Once an extraction method is chosen, the EFA researcher may choose a rotation method. Rotation helps to mathematically redistribute the relationships among the components, without changing the relationships between items and components and is conducted to aid in interpretability of the final solution (Gorsuch, 1983). In this study, a varimax rotation was used, which is a type of orthogonal rotation that tends toward producing unrelated components. Orthogonal solutions are easier to interpret because the item loadings are correlations between the item and the component (Comrey & Lee, 1992). Further, an examination of the component correlations showed that intercorrelations among components were mostly low ($p < .15$).

EFA has been criticized as an internally driven analysis method with few criteria to evaluate its results. Replicating the analysis using a comparable, independent sample of the same population is an optimal technique to validate an EFA solution (Crocker & Algina, 1986; Horley, 1992). Following this protocol, the NSRE Lifestyles data were randomly divided into two independent samples using the SPSS Random Selection Procedure. Sample 1 (n = 2,448) was used as the development sample and Sample 2 (n = 2,449) was used as the replication sample. The EFA procedures described were conducted upon both samples. For each sample, the exact same series of analysis steps were independently executed and compared. Comparison of the two EFA solutions helps determine whether the final solution is an adequate

representation of the number of dimensions underlying the responses or is simply the product of chance.

Each of the EFA principal component solutions were evaluated based on four criteria (Comrey & Lee, 1992; Crocker & Algina, 1986; Gorsuch, 1983). First, percent of variance explained by the overall set of components and by each individual component was assessed. Solutions that explain the underlying relationships will account for a greater amount of underlying variance in the data set. Also, considering the amount of variance accounted for by each component helps to determine if the component is significantly contributing to the solution. The second evaluative criterion considered was the occurrence of simple structure. Simple structure states that each item should associate with one component. Cross-loading items, where an item has strong relationships with more than one component, may cause problems when interpreting the EFA solution. Items were considered markers of a component if their loading value was at least .40. Lower item-to-component correlations were considered if an item did not associate as highly with any other component. Third, the solution was evaluated for the absence of specific factors. Specific factors are components consisting of one item and are often an indication that the data set has been "over factored" (Gorsuch). Finally, the solution was judged upon its interpretability. This criterion is arguably the most important because for the solution to be useful, it needs to be substantively important based upon the researcher's knowledge of the content area.

Results

Development Sample

The initial scree plot suggested seven to eleven components underlying the development sample, Sample 1. Each of the EFA solutions from seven through eleven were run and examined according to the four evaluative criteria. A nine-component solution was considered to have the optimal solution across the four criteria (See Table 3). This nine-component solution accounted for 52% of the variance across the 36-item lifestyle scale and the 2,448 observations in the development sample data. There did not appear to be one dominant component and the rotation converged in 11 iterations. Goodness of Fit statistics, χ^2 (df 342, n = 2,448) = 939.42, $p \leq .001$), also indicated a "good fit." Further, the solution had very few items cross loading on more than one component. There were no components with only one lifestyle activity, indicating that the nine-component solution had not over factored the 36 activities. Finally, the nine-component solution was interpretable, logical, and meaningful in explaining the lifestyles of Sample 1 respondents. Table 3 presents the loading values and the percent of variance accounted for by each of the nine factors.

Replication Sample

The exact same series of analyses performed on the development sample were run using the replication sample to determine if the nine component

TABLE 3
Nine Components of the Lifestyles Scale: With Loading Values and Variance

Item	C 1	C 2	C3	C 4	C 5	C 6	C 7	C 8	C 9
H4	.54 (.65)								
A4	.53 (.60)								
H3	.52 (.47)								
F1	.51 (.46)								
I1	.50 (.40)								
G1	.48 (.48)						.40		
K1	.41 (.53)								
J1	.40 (.35)								
L1	.38 (.40)								
I2	.35	(.32)							
C2		−.65 (−.66)							
M2		.55 (.49)							
H2		.53 (.59)							
K2		.52 (.54)							
E1			.85 (.85)						
E2			.80 (.81)						
F2				.69 (.60)					
F3				.63 (.58)					
F4				.59 (.67)					
B3					.61 (.49)				
B1					.58 (.59)				
C1					.49 (.52)				
B2					.44 (.53)				
C3					.39 (.40)				
D3					.32		(.38)		
D1						.78 (.81)			
D2						.77 (.76)			
G2							.71 (.69)		
G3							.61 (.67)		
L2							.40 (.40)		
A2								.63 (.68)	
A3								.59 (.57)	
A1								.52 (.57)	
J2									.66 (.53)
H1									.53 (.40)
M1									−.38 (−.60)
%V	**7.6 (7.6)**	**6.0 (6.3)**	**5.1 (5.0)**	**5.0 (5.0)**	**4.8 (4.8)**	**4.6 (4.5)**	**4.5 (4.4)**	**4.3 (4.3)**	**4.2 (3.9)**

Notes: C1 = modern life; C2 = education and self-learning; C3 = watching sports; C4 = contributing; C5 = home and family; C6 = work; C7 = travel; C8 = hobbies; and C9 = nature and the environment. Replication sample loadings and variance accounted for per factor are provided in parenthesis. % V = percentage of variance accounted by each factor.
Sample sizes: Development sample N = 2,448; Replication sample N = 2,449.

solution could be considered viable. The scree plot run on the replication sample also suggested that seven to eleven components could best explain the replication sample data set. As with the development sample, the nine component solution for the replication sample satisfied all of the criteria: percent of variance accounted for, simple structure, absence of specific factors, and interpretability. The nine-component solution accounted for 53% of the variance in the replication sample and did not possess a dominant component. Also, the nine-component solution provided a simple structure, with very few items cross loading on more than one component. No one-activity components were present and the rotation converged in 10 iterations. Goodness of Fit statistics, χ^2 (df 342, n = 2,449) = 993.61, $p \leq .001$), also indicated a 'good fit.' Equally as important, the nine-component solution for Sample 2 was felt to be interpretable, logical, and meaningful. Table 3 provides the component solution for the replication sample, where the replication sample values are shown in parenthesis to allow for comparison across the two solutions. As shown in Table 3, there was considerable overlap between solutions from the two random samples. The vast majority of items loaded similarly on the same components, showing that the nine-component solution was replicated. It appears that the solution with nine groups performed well in accounting for the relationships underlying the 36-item NSRE lifestyles scale. In addition, reliability of these components, using Cronbach's alpha, ranged from .60 to .85.

Lifestyle Components

The lifestyle items grouped under nine distinct components. These factors represented nine lifestyles and were labeled by nine descriptive themes: modern life, education and self-learning, watching sports, contributing, home and family, work, travel, hobbies, and nature and the environment (See Table 4). Each of these nine themes attempted to capture the relationship of the items within their groupings and the different lifestyles they portrayed.

Modern life. The modern life factor expresses the tendency to stay current with contemporary culture, health trends, and up-to-date technology and information. This factor consisted of the following lifestyle items: Read news, business, or professional magazines; invest in and keep up with the stock market; attend cultural events, concerts or other performing arts; donate to charitable causes or non-profit organizations; take walks in my neighborhood or nearby park; take vacations away from home at least once a year; keep informed about the latest consumer technology and gadgets; recycle household products such as glass, paper, or plastic; get together socially with friends or neighbors; and visit a fitness club or otherwise exercise at least three times a week.

Education and self-learning. The education and self-learning factor indicates a desire for knowledge, new experiences, and skills, and for spending time with family members. This factor included the following lifestyle items:

TABLE 4
Lifestyle Groupings and Themes

C1 Modern Life
(H4) Read news, business, or professional magazines
(A4) Invest in and keep up with the stock market
(H3) Attend cultural events, concerts or other performing arts
(F1) Donate to charitable causes or non-profit organizations
(I1) Take walks in my neighborhood or nearby park
(G1) Take vacations away from home at least once a year
(K1) Keep informed about the latest consumer technology and gadgets
(J1) Recycle household products such as glass, paper, or plastic
(L1) Get together socially with friends or neighbors
(I2) Visit a fitness club or otherwise exercise at least 3 times a week

C2 Education and Self-Learning
(C2) (-) Spend time with one or more grandchildren
(M2) Attend movies at the theater 1 or more times a month
(H2) Attend classes to learn new skills, languages or subjects, for example, continuing education
(K2) Use the Internet, e-mail or personal computers at home
(*I2) Visit a fitness club or otherwise exercise at least 3 times a week

C3 Watching Sports
(E1) Attend ballgames or follow other professional or college sports
(E2) Watch sports on television

C4 Contributing
(F2) Work as a volunteer in organized youth activities, such as sports, scouts, arts
(F3) Participate actively in a civic club or community service organization
(F4) Attend religious services and church gatherings

C5 Home and Family
(B3) Cook meals at home
(B1) Do your own home improvement, decorating, or auto maintenance
(C1) Spend time raising children or attending activities related to them
(B2) Grow vegetables or fruit in your garden
(C3) Take care of and play with one or more pets

C6 Work
(D1) Operate your own independent business
(D2) Work at home or "telecommute"

C7 Travel
(G2) Spend time at your vacation home or property, including time-shares
(G3) Live somewhere else three or more months out of the year
(L2) Use the facilities or attend events at a country club or other private recreation club
(D3) Commute more than 45 minutes to work every work day
*(G1) Take vacations away from home at least once a year

C8 Hobbies
(A2) Enjoy making things out of wood, metal, glass, yarn, or other materials
(A3) Collect stamps, coins, antiques, toys, or any other collectibles as a hobby
(A1) Spend time on creative arts such as painting, playing a musical instrument, writing, etc.

C9 Nature and the Environment
(J2) Actively participate in an environmental or conservation group or organization
(H1) Read nature, wildlife, or environmental magazines
(M1)(-) Eat out in restaurants, including fast food, or order take-out food 2 or more times a week

Note. '*' Denotes a cross-loading item; '-' Denotes that the item had a negative loading with the component.

Spend time with one or more grandchildren; attend movies at the theater one or more times a month (this item had a negative loading); attend classes to learn new skills, languages or subjects, for example, continuing education; use the Internet, e-mail or personal computers at home; and visit a fitness club or otherwise exercise at least 3 times a week.

Watching sports. The watching sports factor reflects an interest in sports, whether it be watching or attending. Hence, this factor included the lifestyle items of attending ballgames or following other professional or college sports and watching sports on television.

Contributing. The contributing factor illustrates a propensity for charitable, civic or community involvement or service. This factor included the following lifestyles items: Work as a volunteer in organized youth activities, such as sports, scouts, arts; participate actively in a civic club or community service organization; and attend religious services and church gatherings.

Home and family. The home and family factor reveals an affinity for traditional activities such as cooking meals at home; doing your own home improvement, decorating, or auto maintenance; spending time raising children or attending activities related to them; growing vegetables or fruit in your garden; taking care of and playing with one or more pets.

Work. The work factor, as it name implies, relates to business or work-oriented activities such as operating your own independent business and working at home or "telecommuting."

Travel. The travel factor reflects the desire to take extended vacations, to live somewhere else and to spend time at country clubs. This factor contains the following lifestyle items: Spend time at your vacation home or property, including time-shares; live somewhere else three or more months out of the year; use the facilities or attend events at a country club or other private recreation club; commute more than 45 minutes to work every work day; and take vacations away from home at least once a year.

Hobbies. The hobbies factor expresses a penchant for making, collecting or drawing things. This factor has the following lifestyle items: Enjoy making things out of wood, metal, glass, yarn, or other materials; collect stamps, coins, antiques, toys, or any other collectibles as a hobby; and spend time on creative arts such as painting, playing a musical instrument, writing.

Nature and the environment. The nature and environment factor indicates an interest in nature in general. This factor included the following lifestyle items: Actively participate in an environmental or conservation group or organization; read nature, wildlife, or environmental magazines; and eat out in restaurants, including fast food, or order take-out food two or more times a week (this item had a negative loading).

Discussion

The results reported in this study indicate support for both the construction and validation of the developed lifestyle scale. For instance, analysis

revealed considerable overlap between the two solutions with the vast majority of items loading on the same nine principal factors. These nine factors also accounted, both logically and statistically, for the relationships underlying the 36-item lifestyles scale. Replication and further analysis also suggested that the scale was robust with strong internal consistency.

By encompassing different aspects of a person's lifestyle the scale also helps to make clearer the multi-faceted picture of Americans' lives—or in this case, the lives of a cross-section of Americans aged 16 and over. Being able to distinguish between different recreation participants and different lifestyle groups has been a major goal both for researchers and recreational professionals for many years (Petrick et al., 2001). This scale is a step towards achieving that goal. In fact, in combination with recreation and demographic data, the lifestyle scale has already helped to increase what we know about people's lives by producing distinctly different lifestyle profiles (Cordell et al., 2004). For instance, Cordell et al. identified and distinguished two lifestyle groups called "the enthusiasts" and "the ultra enthusiasts." These groups, by far, spent more time participating in recreation activities than most people and spend far more on equipment and services. Hence, for these reasons, recreation and leisure professionals want and need to know all about them, and what they are doing in their leisure hours (Cordell et al.).

An additional aspect of the developed lifestyle scale is that although the items were initially selected to represent different and multiple facets of a person's lifestyle, with the intent of maximizing content validity, the results revealed a simple structure of nine factors. The fact that the scale encompasses many items yet still reduces to just nine factors speaks to the potential usability and interpretation of the scale by recreation professionals.

In comparison to existing scales (e.g., AIO, VALS, PPM) that mostly utilize large numbers of items to create robust factors, this scale uses far fewer items. By using fewer items this scale is better suited, than some previously longer scales, for telephone surveys or site studies that have limited contact time with respondents. The fact that the scale has already been used in conjunction with other data (i.e., recreation participation, sociodemographic) to produce distinct lifestyle groups also speaks to its versatility (Cordell et al., 2004).

Implications

Dramatic changes are occurring in the composition of the populations of almost all communities and regions of this country. Without doubt these unprecedented population changes will herald significant increases in the diversity of people's use and preferences for recreation and leisure activities (Cordell, Green, & Betz, 2002; Murdock et al., 1991). Effective and responsive program designs to address growing diversity must be based on as much in-depth knowledge as can be obtained across social groups composing the

population. No longer is it acceptable to assume "one size" fits all. This axiom applies equally to people within a group, as it does to the entire population.

For instance, the population age 65 and older of this country has been growing very rapidly in the last two decades, and projections show continued growth (Cordell & Overdevest, 2001). Numerous studies have also shown that recreation participation typically slows down and activity choices shift as people grow older (Cordell et al., 1999; Iso-Ahola et al., 1994; Powell, 1994). Therefore older people have lifestyles as diverse as any other groups in our society and as diverse as the population generally. One itinerary of recreation activities will no more fit the diversity within the growing senior population than it would fit the growing diversity of the population at large. Hence, recreation and leisure professionals need to recognize that their lands, facilities, and services can't be everything to everyone, and so they shouldn't be targeting everyone for everything. Therefore, designing education, marketing, recreation or other programs based on lifestyle differences of seniors for different senior groups, in this case, is likely to greatly increase delivery effectiveness.

In working with lifestyle data, the public sector can learn from the growing experience of the private, for-profit sector. Commercial product and service marketing in the private sector often aims to optimize effectiveness by differentiating potential customer bases according to dominant lifestyle characteristics or profiles (Francese, 1996; Heath, 1996; Vyncke, 2002). Advertising and other promotions are tailored to match lifestyle interests, as well as demographics (Gilbert & Warren, 1995; Rice, 1988). Numerous commercial lifestyle scales have been developed and are widely used by successful businesses (for a high price) to plan and better target marketing strategies (Claritas Express, 2002; Kamakura & Wedel, 1995; Morgan & Levy, 2002). Commercial scales focus on identifying people's interests and hobbies, such as attending church, having pets, using the internet, playing with grandchildren, collecting stamps, and also upon recreation activities people enjoy such as walking, tennis, swimming, and skiing (Claritas Express, 2002). This information is then used to create customer profiles. These profiles are used to help organizations match their services to their customer's existing or potential needs. If recreation and leisure professionals and their agencies would utilize similar information and scales, they would also be able to create customer profiles.

These profiles could then be used to match their own programs and services to their customer's existing and potential needs. These profiles could also help recreation and leisure professionals to make better decisions regarding their management operations (e.g., hours of operation, reservation procedures); resource allocations (e.g., targeting programs, hiring and using of staff); new services, facilities or program development (e.g., type, size, and location); pricing policies (e.g., based on people's desired level of service); and targeted goals (e.g., based on people's desired benefits or experiences) (Petrick et al., 2001).

Due to the fact that this scale was used on a broad national sample, it is recommended that future researchers endeavor to use the scale on a population related to a specific site (i.e., park, forest) or catchment area (i.e., all counties within a certain distance from a site). It is also suggested that the scale be used on different activity cohorts (e.g., kayakers, hunters, golfers), and on different age cohorts (e.g., seniors, middle-aged) to see what more can be learned about particular group's lifestyles.

Conclusion

The United States' population is rapidly increasing, while at the same time becoming more socially diverse. With greater diversity come many new challenges for recreation managers and planners, such as trying to identify new ways of reaching their constituents to learn about their wants and needs. At the same time, recreation managers are trying to educate the public about the existing recreation opportunities, benefits, and services already available to them. Changes in the composition of the population have also led to varying values being placed on different recreational resources, and to the growth of new or alternative forms of recreational activities (e.g., base jumping, geo-caching, bull-frogging, etc). An evolving challenge for recreation managers is to better understand the changes and provide appropriate services and facilities for their diverse customer base.

For many Americans recreation and leisure are a key or fundamental, although ever-changing, part of their lifestyle. However, in all likelihood, the growing diversification of this country's population will make obsolete many of the approaches successfully used in the past to reach, understand, and address people's changing recreational needs. For these reasons research on people's lifestyles is both important and needed. Therefore, recreation and leisure managers need to develop more sophisticated and comprehensive tools that will enable them to 1) better serve existing users; 2) identify potential users; 3) more fully understand and address people's changing recreation and leisure needs and preferences; and 4) successfully market their facilities and services. Gaining a deeper understanding of people's lifestyles is not an option for recreation professionals, but a necessity for the future growth of the profession as a whole.

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