Preliminary Exercise Identity Scale (EIS) Norms for Three Adult Samples

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Norms for Three Adult Samples
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Sociological traditions suggest that role identities serve to give meaning and importance to past behavior as well as provide direction for future behavior. The Exercise Identity Scale (EIS) was developed to measure the extent to which exercise contributes to an individual's role-identity. This investigation examined age norms on the EIS. Data were collected from three populations including a convenience sample of 203 college students enrolled in three elective health-studies courses (92% Caucasian and 63% female), 441 of 531 (83%) law enforcement employees in a state department concerned with public safety (98% Caucasian and 96% male), and 1253 of 4000 (32%) randomly selected employees of a large financial services corporation (66% female). Exercise identity was measured by the sum of nine scaled items. To test the overall effects, these three samples were combined (N=1882). ANOVA results revealed statistically significant main effects for both exercise and age group for exercise identity scores and ruled out statistically significant gender differences. Neither the gender and age group interaction nor the exercise and age group interaction were statistically significant. Examination of the means reveals consistent score differences between exercisers and nonexercisers for exercise identity scores of approximately one standard deviation. There was also a trend for higher mean scores at the younger ages. These norms provide comparative information for other researchers who are interested in the use of the EIS in their efforts to study and predict fitness behaviors.

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In 1996, health care costs in the United States topped $1 trillion for an average of $3,759 per person. Current evidence strongly supports the importance of regular exercise as part of a healthy lifestyle. Regular exercise has been found to reduce the risks for coronary heart disease, hypertension, Type II diabetes, osteoporosis, and certain forms of cancer (breast, colon, lung, and reproductive tract) ("Coronary Heart Disease Attributable," 1990; Leon & Norstrom, 1995; Powell, Thompson, Caspersen & Kendrick, 1987; Severson, Nomura, Grove & Stemmermann, 1989; Shephard, 1995; Wood, 1994). In spite of the documented health benefits of participation in exercise, research continues to indicate that only one-fourth or less of United States and Canadian adults regularly participate in vigorous exercise (Caspersen, Merritt, & Stephens, 1995; Powell, Spain, Christenson, & Mollenkamp, 1986; Siegel, Brackbill, & Frazier, 1991; U.S. Center for Disease Control and Prevention, 1993). This high level of inactivity results in considerable economic and social costs to both individuals and businesses-most notably as a risk in CHD (Baum, Bernacki, & Tsai, 1986; Fries, Koop, Beadle, Cooper, England, Greaves, Sokolov, Wright, Kaman, & the Health Project Consortium, 1993; Kaman, 1995; Keeler, Manning, Newhouse, Sloss, & Wasserman, 1989; Pelletier, 1993; Wood, Collins, Halaney, Workinger, Olmstead, & Craig, 1986). Low participation and persistence in exercise programs has led researchers to explore a number of theoretical models including social cognitive theory, personal investment theory, protection motivation theory, the health belief model, the transtheoretical or stages of change model, self-efficacy, and the theory of reasoned action or planned behavior as a basis for explaining the processes of adopting and maintaining exercise as part of one's lifestyle. To date, this research has met with only limited success. (Dishman, 1990, 1994; Glanz, Lewis, & Rimer, 1997).

This investigation explored the relationship between role-identities and adherence to exercise behavior. Barriers and benefits, concepts that are a part of many models developed to explain motivation for exercise and other health-related behavior, are primary beliefs and values that are not randomly distributed throughout the population but are tied to specific social identities. Social-identity models provide a more realistic, culturally-sensitive approach to explaining how attitudes and beliefs influence behavior. Becker (1960), Blumer (1969), Goffman (1963), Stone (1970), and Stryker and Serpe (1982) along with many others, have discussed how the social nature of role identities leads past behavior to constrain and restrict future actions.

Patterns of behavior are important to the establishment of role identities. As people perform rituals associated with their role identities or act out some aspect of the role of exerciser, they may, through social interaction, have their identity as exerciser reinforced and validated. Simultaneously, this validation of the role identity increases the likelihood of exercise-related behaviors in the future. Once behaviors associated with a role identity such
as exerciser have been initiated or mobilized by a person and are recognized and reinforced by others, they are poised to become important to one’s concept of self. It is at this point that these behaviors appear most likely to become primary salient beliefs. If, through behavioral involvement and social interaction, the role identity of exerciser becomes a valued aspect of one’s concept of self and a primary salient belief, it may also become important in directing future exercise behavior.

Initial evidence of an exercise identity was obtained in a canonical correlation analysis performed in order to examine perceptions of susceptibility, benefits, and barriers concerning exercise behavior as well as competence in physical activity (predictor set) with the presence or absence of four CHD risk indicators (Storer, Cychosz, & Anderson, 1997). Additional evidence has suggested the association between a health-related social identity as exerciser and exercise behavior (Anderson & Cychosz, 1995). To further explore the possibility of a social identity associated with exercise, an exercise role-identity scale was developed and subjected to preliminary examination. The Exercise Identity Scale (EIS) (Anderson & Cychosz, 1994) was based on the perspective that a reciprocal relationship evolves between role identities and exercise behavior (Ajzen & Fishbein, 1980; Blumer, 1969; Strader & Katz, 1989). The construct validity, test-retest reliability, and internal consistency of the scale are acceptable and have been reported elsewhere (Anderson & Cychosz, 1994; Anderson, Cychosz, & Franke, 1998; Cardinal & Cardinal, 1997). Cross-sectional (Anderson & Cychosz, 1994; Anderson, Cychosz, & Franke, 1998) and prospective (Cardinal & Cardinal, 1997) evidence supports the relationship between exercise identity and exercise behavior. The prospective study not only showed a similar exercise behavior-exercise identity relationship at each time period, but found that exercise identity scores at weeks 1 and 7 were significant predictors of exercise involvement through week 14.

This study continues our investigation of the link between the social identity of exerciser and exercise behavior. Specifically, this study examined age norms on the Exercise Identity Scale derived from three samples drawn from populations which are frequently targeted for fitness interventions.

Methods

Participants

In the first sample, questionnaire data were collected from a convenience sample of 203 college students enrolled in three elective health-studies courses (First Aid, Personal Health, Exercise and Nutrition for Wellness). Ninety-two percent of the participants self-identified as White, not of Hispanic origin, and 63% were female. For the second sample, questionnaire data were collected from 441 of all 531 (83%) law enforcement employees in a state department concerned with public safety. Ninety-eight percent of the participants self-identified as white,
not of Hispanic origin, and 96% were male. For the third sample, data were collected utilizing the corporate electronic mail system. Data were obtained from 1253 respondents in a simple random sample of 4000 employees in a large financial services corporation (32%). No information relating to participants racial or ethnic background was available for these respondents. Sixty-six percent of the respondents were female.

Measures

Exercise identity was assessed using Anderson and Cychosz’s (1994) nine-item Exercise Identity Scale. The Exercise Identity Scale (EIS) is a measure designed to assess the extent to which exercise behavior is descriptive of one’s concept of self.

The EIS consists of nine items rated on a 7-point Likert format from strongly disagree (1) to strongly agree (7). EIS scores are the sum of responses to the nine items. Factor analysis has previously found the nine items to be unidimensional (Anderson & Cychosz, 1994; Anderson, Cychosz, & Franke, 1998). Cronbach’s alpha coefficients were .95, .94, and .95 in each of the three samples respectively. On the basis of Nunnally’s (1978) criterion of .70, the scale demonstrated acceptable internal consistency with each sample.

Age was divided into four categories (LE 29, 30-39, 40-49, GE 50). Participants reported their number of weeks of exercising, and using a 3-week recall reported their number of exercise sessions per week, minutes of exercise per session and their perceived level of exertion. Perceived exertion was self-reported for each respondent’s “average exercise session” ranging from (6) breathless, sweating, (5) breathing heavily, sweating, (4) energetic but able to talk, often sweat, (3) energetic but able to talk conversationally, rarely sweat, (2) rarely or never sweat, and (1) not much different from other parts of my daily routine. Participants that indicated they had exercised vigorously enough to work-up a sweat at least three times a week for twenty minutes a session were categorized as exercisers. This format results in three behavioral indicators of exercise (number of weeks of exercise, minutes per week of exercise, and level of perceived exertion). The format for these questions is consistent with methods utilized in several large-scale epidemiologic investigations (Gionet & Godin, 1989; Heath, Pate, & Pratt, 1993; LaPorte, Montoye, & Casperson, 1985; Schechtman, Barzilai, Rost, & Fisher, 1991; Siconolfi, Lasater Snow, & Carleton, 1985; Slater, Green, Vernon, & Keith, 1987; Washburn, Adams, & Haile, 1987).

Results

ANOVA results ruled out statistically significant gender differences for exercise identity scores for the combined sample, $F(1,1879)=2.76, p=.10$, while statistically significant age differences for exercise identity scores were found $F(3,1879)=22.85, p<.001$. The gender by age interaction effect was not significant, $F(3,1879)=1.79, p=.15$. Since this interaction effect
was not statistically significant, male and female respondents were grouped together for ex-
amination of age and exercise group norms for exercise identity scores.

ANOVA results revealed statistically significant main effects for both exercise and age
group on exercise identity scores for the combined sample, F (1, 1877) = 579.17, p < .001 and F
(3, 1877) = 21.67, p < .001 respectively. The exercise and age group interaction effect was not
statistically significant, F (3, 1877) = 0.38, p = 0.77. Means and standard deviations are shown in
Table 1. Examination of these data reveal that, regardless of age group, consistent differences
between exercise and nonexercise respondents for mean exercise identity scores were approxi-
mately one standard deviation. In addition, there is a trend toward higher mean exercise
identity scores for the younger ages.

Table 1.
Means and Standard Deviations for Exercise Identity by Age and Exercise Group

<table>
<thead>
<tr>
<th>Age</th>
<th>LE 29 Exercise</th>
<th>30-39 Exercise</th>
<th>40-49 Exercise</th>
<th>GE 50 Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>48.7</td>
<td>30.7</td>
<td>26.0</td>
<td>36.5</td>
</tr>
<tr>
<td>SD</td>
<td>12.0</td>
<td>11.4</td>
<td>11.6</td>
<td>12.9</td>
</tr>
<tr>
<td>(n=130)</td>
<td>(n=73)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law Enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>47.5</td>
<td>44.1</td>
<td>41.2</td>
<td>36.5</td>
</tr>
<tr>
<td>SD</td>
<td>11.6</td>
<td>11.9</td>
<td>10.9</td>
<td>12.0</td>
</tr>
<tr>
<td>(n=42)</td>
<td>(n=55)</td>
<td>(n=64)</td>
<td>(n=57)</td>
<td>(n=33)</td>
</tr>
<tr>
<td>Corporate Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>43.7</td>
<td>42.4</td>
<td>40.4</td>
<td>42.8</td>
</tr>
<tr>
<td>SD</td>
<td>11.8</td>
<td>13.1</td>
<td>12.8</td>
<td>11.7</td>
</tr>
<tr>
<td>(n=268)</td>
<td>(n=160)</td>
<td>(n=278)</td>
<td>(n=137)</td>
<td>(n=72)</td>
</tr>
<tr>
<td>Total M</td>
<td>45.6</td>
<td>42.7</td>
<td>40.5</td>
<td>40.6</td>
</tr>
<tr>
<td>SD</td>
<td>12.0</td>
<td>12.7</td>
<td>12.4</td>
<td>12.3</td>
</tr>
<tr>
<td>(n=440)</td>
<td>(n=288)</td>
<td>(n=342)</td>
<td>(n=194)</td>
<td>(n=105)</td>
</tr>
</tbody>
</table>
Simultaneous regression analysis was performed for data in each sample to examine the level of association between exercise identity scores with the three behavioral indicators of exercise (minutes per week of exercise, number of weeks of exercise, and perceived intensity of exercise). Results indicated that the behavioral measures were significantly associated with exercise identity scores for each of the three samples (college students, $R^2 = 28\%$; law enforcement personnel, $R^2 = 49\%$; corporate employees, $R^2 = 27\%$).

**Discussion**

Previous research has established the psychometric properties of the *Exercise Identity Scale (EIS)* and consistently shown a significant association for exercise identity with both exercise participation and degree of fitness. Until now little attention has been directed to the actual EIS scores for various groups. This investigation, however, helps to establish preliminary adult norms for the EIS. The evidence in this study displays consistent group differences in mean exercise identity scores as a function of participation or nonparticipation in exercise. These differences were quite pronounced, generally in the range of a full standard deviation. Although there was a modest trend toward higher mean exercise identity scores among the younger participants, mean scores were generally stable across age for the total sample and within the three subsamples. Scores ranged from 40.6 to 45.6 among the exercise group and 24.6 to 30.7 among the nonexercise respondents.

The exercise identity construct may be useful in explaining the social psychological process of becoming and being an exerciser. This perspective proposes that there is a mutually reinforcing relationship between the role of exerciser and one’s behavior as an exerciser. Because role identities arise and evolve out of social interaction, a person may engage in behaviors that they see as important to their role identity as an exerciser. A variety of behaviors may be explored but only some of these are recognized and reinforced by others. Recognition and reinforcement by others clarifies as well as validates a person’s identity as an exerciser. Validation of a person’s identity as an exerciser places pressure upon one to continue to exercise and perhaps even reaffirm the identity through additional exercise behavior as well as the rituals and displays of symbols associated with being an exerciser.

If the exercise identity is sufficiently strengthened, a person’s behavior may become constricted in the sense that the person will adopt changes in lifestyle that are congruent with the identity of exerciser. This is important because the reinforcing aspect of the reciprocal relationship between exercise behavior and role identity of an exerciser may be an important point of intervention. The EIS consistently distinguishes between exercisers and nonexercisers. As such, it may identify persons least likely and most likely to continue and maintain participa-
tion in an exercise program. Of course, these results represent three samples drawn from populations which are frequently targeted for fitness interventions. Inferences beyond similar samples must be done with caution. Further examination of the behavior/fitness level/role identity relationship may aid in the identification and development of intervention strategies that can more effectively foster the development and validation of an exercise identity among clients and, thus, may increase the possibility of long-term adoption of exercise as a part of their lifestyle.

References


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