Physical Activity Behaviors of Older Adults

Noreen L. Goggin and James R. Morrow, Jr.

The purpose of this study was to determine older adults’ physical activity behaviors and stage of readiness for physical activity. Data were collected on 403 American adults over the age of 60. Of these participants, 206 were aged 61–70 and 197 were over the age of 70. Participants first provided information regarding their perceptions of the benefits of physical activity. Then questions were asked to determine their stage of readiness for physical activity (i.e., precontemplation, contemplation, etc.). Results indicated that older adults are aware of the health benefits of physical activity (89%), but 69% of them are not participating in sufficient physical activity to obtain such benefits. Physical activity involvement decreases with increased age, and older men tend to be more physically active than older women. Increased knowledge about the benefits of physical activity and one’s stage of readiness for it might help increase the number of older adults who engage in sufficient physical activity.

Key Words: aging, exercise, stage of readiness

In 1996, the older population (65+) numbered 33.9 million and represented 12.8% of the U.S. population (Administration on Aging, 1998). By the year 2030, this number will approach 70 million. In the publication Healthy People 2000: National Health Promotion and Disease Prevention Objectives (U.S. Department of Health and Human Services [USDHHS], 1991), three specific objectives pertaining to older adults were identified. One was to increase the number of elderly people who participate in physical activity. In fact, the USDHHS claims that physical activity is “the key ingredient to healthy aging” (1991, p. 587). Thus, helping older adults begin or maintain a physically active lifestyle is important.

Numerous scientific studies have demonstrated the importance of physical activity for healthy, sedentary, and even frail older adults. Physical activity can be effective for reducing or preventing functional declines linked to secondary aging. For example, older adults who are physically active show improved cardiovascular function (Mazzeo et al., 1998), reduced risk of osteoporosis (Layne & Nelson, 1999), reduced risk of falling (MacRae, Feltner, & Reisch, 1994), and reduced loss of muscle mass and strength (Fiatarone et al., 1990). In addition, the World Health Organization (WHO, 1997) has published a document emphasizing both the short-term and the long-term benefits of physical activity. They suggest that physical activity...
activity can be broadly defined and provides physiological (e.g., cardiovascular, flexibility, muscle strength), psychological (e.g., general well being, reduced stress, enhanced mood), and social (e.g., empowerment, cultural integration, intergenerational activity) benefits.

Nevertheless, older adults are not participating (and adhering) in sufficient physical activity or exercise programs that can delay disease and increase quality of life (Courneya, 1995; Marcus, 1995). One method to enhance continued physical activity is to design interventions to specific individuals’ stages of readiness for physical activity. Armstrong, Sallis, Hovell, and Hofsetter (1993) suggest that understanding why adults choose to exercise will likely lead to effective interventions.

One method to examine physical activity and exercise promotion is to use the transtheoretical model proposed by Prochaska and DiClemente (1982). The model proposes that individuals pass through stages of change, in which change is a dynamic process. Marcus and colleagues (Marcus, 1995; Marcus, Selby, Niaura, & Rossi, 1992; Marcus & Simkin, 1994) have successfully applied this model to exercise behaviors and one’s stage of readiness for physical activity participation. The proposed stages through which one passes to change behaviors are precontemplation, contemplation, preparation, action, and maintenance. Those in precontemplation have no plans to change their behavior, whereas contemplators are thinking about changing their behavior in the near future. Individuals in preparation are trying to change their behavior in the very near future, those in action are active in the new behavior, and those in maintenance have extended their behavior for a period of time (Armstrong et al., 1993; Marcus & Simkin). Armstrong et al. found that stage of change was a significant predictor of an individual’s likelihood of adopting an exercise program. Thus, knowing one’s stage of readiness for physical activity could lead to interventions likely to change one’s behavior.

Gorley and Gordon (1995) conducted one of the few studies examining motivational readiness with an older population. They examined 583 Australian adults aged 50–65 to determine whether stage of readiness, self-efficacy, and decisional balance could be applied to exercise behaviors in a slightly older, nonworksite population. They chose this population because of its low participation rate in moderate and vigorous physical activity (Gorley & Gordon). Participants were asked to self-report their level of physical activity and exercise using the Stage of Change Instrument based on the work of Prochaska and DiClemente (1982) and Marcus et al. (Marcus, 1995; Marcus et al., 1992; Marcus & Simkin, 1994).

Gorley and Gordon (1995) indicated that individuals who were in the stages of preparation, action, and maintenance were involved in higher levels and intensities of physical activity. Precontemplators reported that they never participated in physical activity regularly or reported the longest time interval since participation in physical activity. The precontemplators were more likely to focus on negative aspects of exercise (e.g., time involved), whereas those in maintenance placed emphasis on the positive benefits of exercise. Gorley and Gordon’s results indicate that the stage of readiness model can be used with an older adult population; thus, similar intervention strategies could be applied to this group. They suggested that strategies focus on emphasizing the opportunities that exercise provides and increasing self-efficacy to ensure future participation.

Courneya (1995) also conducted a study with older adults (60+) to determine whether the consequences of physical inactivity (e.g., likelihood of disease) could
distinguish a participant's stage of readiness for physical activity. Participants self-reported their stage of readiness and perceived severity of lack of physical activity. The results indicated that participants who perceived that the consequences of physical inactivity were detrimental were more likely to be in an active stage (i.e., action, maintenance).

In 1996, the Office of the Surgeon General released *Physical Activity and Health: A Report of the Surgeon General* (SGR; USDHHS, 1996) to provide information about the relationship between physical activity and health status and quality of life. More specifically, the purpose of the report was "to summarize the existing literature on the role of physical activity in preventing disease and on the status of interventions to increase physical activity" (USDHHS, 1996, p. 3). As a result of this report, a variety of organizations (e.g., American College of Sports Medicine [ACSM], American Alliance for Health, Physical Education, Recreation and Dance [AAHPERD], National Coalition for Promoting Physical Activity [NCPPA], American Heart Association [AHA]) were encouraged to promote physically active lifestyles to their colleagues, the media, U.S. officials, and the general populace. These organizations are also attempting to obtain funding to support and promote physically active lifestyle initiatives and interventions.

The NCPPA was created to coordinate and serve as the main organization for obtaining information related to physical activity, health, and the SGR (Morrow & Blair, 1999). The coalition funded a national telephone survey whose purpose was threefold. First, was the public aware of the surgeon general's *Physical Activity and Health*? Second, can the public restate the surgeon general's message about the importance of physical activity? The final purpose was to identify physical activity behaviors. The purpose of the present study was specifically to determine the physical activity behaviors and stage of readiness for physical activity of Americans over the age of 60.

**Methods**

**Participants**

The participants in this study were 403 American older adults over the age of 60 who were randomly telephoned; 260 were women (65%), 142 were men (35%); 1 participant would not provide gender information. In addition, 206 participants ranged in age from 61 to 70 years (51%), and 197 were over 70 years of age (49%). Of the participants, 325 were White (81%), 23 were African American (6%), 8 were Hispanic (2%), and 5 were Asian American (1%). Forty-two participants (10%) reported their ethnicity as another classification or did not report it. An institutional review board for protection of human subjects approved the procedures.

**Survey Instrument and Procedures**

The questionnaire was formulated from input obtained through organizations (e.g., NCPPA, ACSM, AAHPERD) and researchers with physical activity expertise. Items were chosen for understandability, ease of telephone questioning, and response coding. A pretest of the questionnaire was conducted with face-to-face
interviews of 5 individuals and a random telephone sample to determine their understanding of the questions (Morrow, Jackson, Bazzarre, Milne, & Blair, 1999). These data were not used in actual data collection or analyses.

The final questionnaire consisted of approximately 50 items that could result in 100 responses, depending on how the questions were answered. All participants might not have answered all questions because of branching based on specific responses. For example, if the participant was unaware of the SGR on Physical Activity and Health, specific questions about it were not asked. Questions focused on the awareness of the SGR on Physical Activity and Health, participation in physical activity, knowledge of the relationship between physical inactivity and disease, and stage of readiness for physical activity.

The questionnaire was administered by trained telephone interviewers to individuals who were randomly telephoned across the contiguous United States as part of a larger study related to the SGR on Physical Activity and Health. Telephone contact was made Monday through Thursday evenings, 6–9 p.m., and covered all time zones. Each interviewer read the questions as they appeared on a computer screen. If items from a similar section were presented together, the computer program presented the items randomly. Thus, not all participants received the questions in the same order, so that a response set or bias could be prevented. For example, a question might have read “Which of the following physical activities do you believe will provide a health benefit?: [swimming, child care, etc.]”

Demographic variables (age classification, gender, ethnicity, and educational level) were also obtained. All respondents were over the age of 17. Data were obtained on 2002 respondents. The overall refusal rate was approximately 50%, and 20% of the respondents were over 60 years of age (403 total) and were used in these analyses. Refer to Morrow et al. (1999) for more detailed descriptions of the study.

Participants self-reported the types of physical activity and the frequency with which they participated in these activities on a usual day. These activities were classified as moderate or vigorous using the physical activity compendium developed by Ainsworth et al. (1993). According to these authors, classification allows for ease of coding physical activities and can be used across studies to describe activity patterns of populations. They assigned intensity to the various activities by the energy expended (i.e., metabolic-equivalent level). In the present study, vigorous referred to activities such as basketball, jogging, running, fast cycling, aerobics class, and swimming laps; moderate referred to activities such as brisk walking and gardening. In addition, participants were questioned about their perception of the three major benefits of being physically active.

Finally, the participants were asked specific questions about their stage of readiness for physical activity (SRPA) on an 8-point scale. Although previous studies have used four or five stages of readiness, Marcus et al. suggest that when examining exercise behaviors, additional stages might be necessary because participants are often “clustered in the Action or Maintenance stages” (1992, p. 62). The stages and their descriptions for the present study include

0: precontemplation—I do not exercise or walk regularly, and I do not intend to start in the near future.
1: contemplation—I do not exercise or walk regularly, but I have been thinking of starting.
2: preparation—I am trying to start to exercise or walk regularly, or I exercise or walk infrequently.
3: subaction—I am doing vigorous exercise less than 3 times per week or moderate exercise less than 5 times per week.
4: action for moderate physical activity—I have been doing moderate exercise greater than 5 times per week for the last 6 months.
5: maintenance for moderate physical activity—I have been doing moderate exercise greater than 5 times per week for the last 7+ months.
6: action for vigorous physical activity—I have been vigorously exercising 3–5 times per week for the last 6 months.
7: maintenance for vigorous physical activity—I have been doing vigorous exercise 3–5 times per week for the last 7+ months.

According to CDC/ACSM guidelines (minimum of 30 min/day with 5 days of moderate physical activity or 3 days of vigorous physical activity), if a participant is classified in one of the first four stages, he or she is not receiving sufficient physical activity for a health benefit. Thus, only the participants in action or maintenance for moderate or vigorous physical activity are receiving a health benefit (Pate et al., 1995).

DATA ANALYSIS

Chi-square analyses were conducted to determine whether there was a relationship between meeting the CDC/ACSM guidelines for a health benefit and gender, age, and perceived importance of physical activity. Individual stages of behavior were also analyzed by gender and age.

Results

One year after the release of the SGR on Physical Activity and Health, 45% of older adults were aware of it. This percentage is greater than that reported for the overall population (32%) who participated in the survey (Morrow et al., 1999). Older adults were aware of the importance of physical activity for a health benefit; 89% of them reported that lack of physical activity was an important or very important health risk.

SRPA was related to gender, \( \chi^2(7, N = 385) = 22.05, p < .002 \), with men being more active. In addition, participants aged 61–70 were more likely to be physically active than were those aged 71 and over, \( \chi^2(7, N = 385) = 16.79, p < .02 \). Older adults reported that physical activity provides several important benefits (see Table 1). The most frequently reported benefits include feeling better about one’s self, cardiovascular/endurance fitness, fatness/weight control, improved function, and prevention of heart disease.

Older adults who perceived that physical activity was very important to health (see Figure 1) were more likely (63%) to meet CDC/ACSM guidelines for sufficient physical activity to receive a health benefit, \( \chi^2(3, n = 374) = 9.09, p < .01 \). In the 61–70 age group, 34% met the CDC/ACSM guidelines, and in the 70-and-above age group, 27% met the guidelines, \( \chi^2(1, n = 386) = 2.41, p > .05 \). Thirty-four percent of the men met the CDC/ACSM guidelines, and 29% of the women met them, \( \chi^2(1, n = 385) = .83, p > .05 \).
Table 1  Major Benefits of Physical Activity

<table>
<thead>
<tr>
<th>Benefit</th>
<th>% reporting*</th>
</tr>
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<tbody>
<tr>
<td>Feel better about oneself</td>
<td>32</td>
</tr>
<tr>
<td>Cardiorespiratory endurance/fitness</td>
<td>26</td>
</tr>
<tr>
<td>Fatness/Weight control</td>
<td>24</td>
</tr>
<tr>
<td>Improved function</td>
<td>18</td>
</tr>
<tr>
<td>Heart disease prevention</td>
<td>16</td>
</tr>
<tr>
<td>Lower blood pressure</td>
<td>13</td>
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<tr>
<td>Increases energy</td>
<td>12</td>
</tr>
<tr>
<td>General health</td>
<td>9</td>
</tr>
<tr>
<td>Reduces risk of chronic disease</td>
<td>8</td>
</tr>
<tr>
<td>Flexibility</td>
<td>8</td>
</tr>
<tr>
<td>Strength</td>
<td>8</td>
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<tr>
<td>Relieves stress</td>
<td>8</td>
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</tbody>
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*Totals more than 100% because of multiple responses.

Figure 1.  Importance of physical activity.

Discussion

Most older adults were in preparation (17%, 7 million) or subaction (34%, 15 million), and 18%, or 8 million, were precontemplators or contemplators. Twenty-seven percent (13 million) were in action or maintenance for moderate physical activity, and only 4% (4 million) were in action or maintenance of vigorous physical activity (see Figure 2).

Although older adults are aware of the importance of physical activity (89%), most of them (69%) are not involved in sufficient physical activity, according to CDC/ACSM guidelines (Pate et al., 1995), to receive a health benefit. Neither age nor gender was significantly related to meeting CDC/ACSM guidelines for the
sample aged 61 and over. The threshold of intensity for a health benefit is related to one’s current level of physical activity, exercise, lifestyle behaviors, and health status. This poses a challenge to researchers and clinicians working with older adult populations; that is, older adults are aware of the importance of physical activity but are not actually engaging in it. Thus, interventions should focus on helping older adults increase their physical activity levels.

Interventions must be multidimensional to achieve the goal of increased physical activity levels of older adults. Individual interventions promoted by health care providers could focus on incorporating behavior-change strategies into one’s lifestyle. A variety of behavior changes such as improved nutrition, cessation of smoking, self-efficacy (Armstrong et al., 1993), and physician-suggested exercise programs (Marcus, 1995) might lead to increased physical activity. Community interventions that emphasize social networking and expand program offerings (both group and individual programs) in a variety of settings are likely to enhance participation by older adults. Finally, environmental interventions should focus on redesigning environments to increase public involvement (e.g., creating walking trails near senior housing developments, buildings close to needed services).

The data indicate a reduction of physical activity with increasing age. The younger group (61–70) reported higher levels and intensities of physical activity. In addition, older men were more likely to be involved in vigorous activity, whereas older women were much more likely to be in precontemplation and contemplation stages. Exercise interventions and health-promotion messages for men and women and those of different ages might need to be structured somewhat differently to target the needs of each population (Marcus, 1995). For example, older women tend to participate in exercise programs for social interaction, whereas men exercise for the physical benefits (McPherson, 1994). Thus, a community intervention that targets exercise participation for women might focus on the social interaction and networking (e.g., establishing new friendships) that could result from a group exercise program.

An encouraging finding was that older adults who perceived physical activity as being very important (63%) met CDC/ACSM guidelines for sufficient physical activity to obtain a health benefit (see Figure 1). Thus, older adults who understand that physical activity is very important are more likely to be actually involved in
sufficient physical activity for a health benefit. This supports the results reported by Courneya (1995). The overall results of this study are similar to those obtained by Gorley and Gordon (1995), who found that older adults (albeit young older adults) in their stages of readiness for physical activity were involved in higher intensity and greater frequency of activity.

Finally, some limitations to the study should be mentioned. The percentage of older female respondents (65%) was higher than that of the 1997 U.S. Census estimate (57%). According to Morrow et al. (1999), this might be a function of who answered the survey. It is possible that women are more likely to answer the phone. Fifty percent of the households contacted refused to participate in the survey. The average response time for the older adult population was 13 min but ranged from 7 to 50 min, with 16% of the people taking 20 min or longer to respond.

In conclusion, increased knowledge about the benefits of physical activity as one gets older (WHO, 1997) and an understanding about SRPA might help increase the number of older adults who engage in sufficient physical activity to obtain a health benefit. Intervention strategies directed at the specific needs, knowledge, and physical abilities of older adults should be developed to help motivate them to become more physically active.

One major goal of Healthy People 2010: National Health Promotion and Disease Prevention Objectives (USDHHS, 1999) is to increase the quality and health of life. This goal has extremely important implications for older adults. Simply extending length of life is not sufficient—quality of life must also be improved. Continual promotion of healthy lifestyles and, more important, increasing physical activity patterns and exercise behaviors can ensure that by 2010, older adults live longer, healthier lives. This promotion can be achieved through a variety of community programs, media campaigns, and professional organizations (such as NCPPA).

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References


