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## Age and Gender Differences in Participation Rates, Motivators for, and Barriers to Exercise

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### *Abstract*

*Participants completed a questionnaire about their involvement in exercise and the motivators for and barriers to their participation in physical activities. There was a significant age difference in the total number of barriers reported. There were also significant gender differences in several aspects of exercise, within both a college sample and a sample of community residents. Because of the numerous health benefits of exercise for men and women of all ages, it is important that we understand what motivates individuals to be active. The findings of the present study suggest that the individual's age and gender are important factors to consider when developing programs to encourage physical activity.*

*Keywords: exercise, motivators, barriers, adult age differences, gender differences*

Participation in physical activity is an important part of a healthy lifestyle that impacts mental wellbeing, physical health, and longevity (Molanorouzi, Khoo, & Morris, 2015). In a study that looked at older adults' (ages 52-71) participation in the Senior Games, a multi-sport competitive event for athletes over the age of 49, researchers concluded that the main benefits derived from participation were developing a sense of perseverance, gaining independence, social networking, physical fitness, enhanced self-image, and pure fun. In addition, participants were able to create their own ethos, develop a social identity, and establish new friendships (Heo, Culp, Yamada, & Won, 2013). Other documented health benefits from physical activity for older adults include improved functioning and reduced risk of falls (Biedenweg, Meischke, Bohl, Hammerback, Williams, Poe, & Phelan, 2014).

Exercise comes in countless forms, and many types of exercise can be pursued throughout the adult lifespan. Research has shown, though, that younger and older adults have different perspectives on physical activity. There are age-related differences in

the amount and type of exercise performed, and young and old adults tend to differ in what they perceive to be motivators and barriers to their own participation. Gender is another factor that influences type and amount of exercise, and may contribute to motivational differences.

The present paper begins with a review of current literature on adult age differences in exercise, including amount of exercise, types of exercise, motivators to participate in physical exercise, and barriers that prevent participation in exercise. Those four factors are considered together in the design of the present study, which aims to assess their relative importance to both genders and across generations.

### **Amount of Exercise**

Myers and Roth (1997), in a study of college students, found that 58% of the participants reported exercising at least three times per week. Furthermore, 61% of the students planned to become more active over the next month. In a more recent study, Drenowatz, Hand, Shook, Jakicic, Hebert, Burgess, and Blair (2015) examined physical activity participation rates among individuals ranging in age between 21 and 36 years.

Their participants reported even greater activity levels than those in the Myers and Roth study, with 84.2% of the total sample participating in some form of exercise.

Other researchers have examined the participation rates when a specific exercise program is prescribed. King, Byrne, Hunt, and Hills (2010), for example, studied men and women with a mean age of 39. The participants were prescribed a traditional resistance training program or a light-resistance circuit training program. After 16 weeks of program participation, activity levels were assessed. Results showed that the participants in the circuit training program completed slightly more exercise activities than what was prescribed to them, while people completing the resistance training exercised slightly less than what was prescribed. No gender differences were reported.

In a literature review of 21 randomized controlled trials, Martin and Sinden (2001) examine exercise adherence rates and their predictors for participants aged 55 or older. The people who best complied with their prescribed exercise amounts were “individuals who were in better physical condition at baseline, had a history of a physically active lifestyle, were nonsmokers, and had higher exercise self-efficacy” (p. 107). Collectively, the older participants in the 21 studies Martin and Sinden reviewed completed 65-85% of their prescribed exercise programs. In comparison, an average of only 50% of younger adults adhered to their prescribed programs. Martin and Sinden found that compliance rates for older adults were highest in strength and flexibility programs as opposed to aerobic programs.

Dondzila et al. (2014) studied the amount of exercise performed by people living in proximity to a senior center that housed community-based fitness resources. The mean age of the participants was 73.

Three different spatial tiers were compared ( $\leq 1.6\text{km}$ ,  $>1.6\text{km}$  to  $\leq 3.2\text{km}$ , and  $>3.2\text{km}$  to  $8.0\text{ km}$ ) to determine if the distance from fitness resources was a factor in participation rates. There were no differences in awareness rates or utilization of the senior center based on proximity. However, moderate to vigorous physical activity participation was highest among adults who lived the farthest from the center.

Silverwood, Pierce, Nitsch, Mishra, and Kuh (2012) studied intergenerational social mobility as a factor in exercise participation. They found that participants who had a job involving manual labor, or had a father who was a manual laborer, tended to have less sedentary behavior during the work day, and greater walking activity, but lower leisure-time physical activity. In contrast, people who experienced upward social mobility based on their occupations or education had more sedentary behavior during the day, and less walking, but more leisure-time physical activity.

Resnick, Galik, Gruber-Baldini, and Zimmerman (2010) studied the activity levels of older adults residing in assisted-living communities. Based on subjective and objective reports, Resnick et al. (2010) concluded that the residents engaged in very little physical activity. Over a 24-hour time period, residents engaged in an average of 8.5 minutes of exercise and 16.5 minutes of recreational activity. One recommendation given by the researchers is to educate the nursing assistants on how to motivate residents to increase rates of physical activity. The staff must ensure that the residents are reaching the current guidelines for amount of physical activity in order to improve their overall health status.

Rydwik et al. (2013) studied 2593 individuals over the age of 65. According to recommendations for physical exercise from the World Health Organization and the

American College of Sports Medicine, 46% of the participants fulfilled the criteria for health-enhancing exercise, compared to 16% meeting the requirements for fitness-enhancing exercise. Health-enhancing exercises are defined as physical activities performed approximately 30 minutes per day. Fitness-enhancing exercise is participation in moderate to intense exercise a minimum of 2-3 days per week. Although both exercise methods improve a person's health, an important distinction between the two types is that health-enhancing exercise is not designed to improve physical fitness.

As is clear from previous research, aspects of an individual's environment can affect the amount of physical activity that a person completes. Relevant factors include whether the individual was prescribed an exercise program by a doctor, the type of exercise, the proximity of fitness resources, and the individual's socioeconomic status. It should be noted that socioeconomic status varies globally, and the majority of published research was conducted in richer, western countries. Across the literature, comparable participation rates in exercise have been found in healthy people of all age groups. As would be expected, older adults in assisted-living facilities or nursing homes have low levels of participation in exercise.

#### **Types of Exercise**

Fan, Kowaleski-Jones, and Wen (2013) examined age differences in types of physical activity. Data from the 2003-2006 National Health and Nutrition Examination Surveys were taken from 3,952 women age 25 and older. Seventeen different types of physical activity were considered. Results showed that across the adult lifespan, the top five leisure physical activities were walking, dancing, treadmill, biking, and yoga. A decline in participation in running, dancing, treadmill, and team sports occurred between the ages of 35 to 44, and there was a decline in household

physical activity, walking, weightlifting, and hiking between the ages of 55 to 64. A large decline occurred in most activities for people age 75 and older. Overall, Fan et al. concluded that total physical activity declines with age, as "the percentage of women meeting the physical activity guidelines decreased from 61% for those ages 25 to 34 to 39% for those 75 or older" (p. 1190). Although there was a decline in leisure-based physical activity beginning between the ages of 35 and 44, a significant decline in physical activity did not occur until the ages of 55 to 64.

Collecting data from young adults between the ages of 21-36, Drenowatz et al. (2015) found that the most popular exercise among their sample was endurance exercise, with a total of 54.2% people participating in this form of physical activity. In order of declining popularity, the next most popular exercises were brisk walking, resistance exercise, aerobics, sports, and swimming, with percentages participating at 42.7, 40.3, 34.1, 31.2, and 15.6, respectively. A high percentage of participants engaged in household physical activity and active travel, at 91.8% and 47%, respectively, but the researchers concluded that these activities of daily living "do not significantly contribute to the variability in energy expenditure or physical activity" (p. 216).

A research study done in Malaysia by Molanorouzi, Khoo, and Morris (2015) examined participation rates among 1,360 people aged 20-64 in five different types of physical activity: individual racing sports, team sports, racquet sports, martial arts, and exercise (walking, jogging, dancing, gym). The participation rates among the five types were 272, 358, 279, 211, and 240 people, respectively. Thus, the most popular type of physical activity was team sports. The finding contrasts with the results of Martin, Cooper, Harris, Brage, Hardy and Kuh (2014) who

studied 2,188 participants aged 60-64 and found that 71% favored walking, 33% swam, 24% engaged in floor exercises, and 16% participated in conditioning exercises.

In summary, an individual's age and gender both influence the types of physical activities pursued. Walking is one of the most popular forms of exercise among older adults. Other popular activities in advanced age include swimming and floor exercises. Endurance exercises, such as running, tend to be more popular with younger adults. Women, young and old, show a preference for leisure physical activities such walking, dancing, treadmill, biking, and yoga.

#### **Motivators to Participate in Physical Exercise**

Myers and Roth (1997) separated their college student participants into four stages of exercise adoption. The stages were "precontemplation (inactive and not intending to increase physical activity), contemplation (inactive but intending to become more active), training (active and intending to become even more active), and maintenance (active but not intending to become more active)" (p. 279). The researchers utilized a model that included four benefit factors: social, psychological, body image, and health. One finding of their study was that participants in the training stage perceived more benefits of exercise than did participants in the other stages. Furthermore, college students in the contemplation and maintenance stages perceived more benefits of exercise than did participants in the precontemplation stage. There were also significant gender differences, as women reported more psychological and body image benefits (but fewer social benefits) than men.

In a study of adult age differences, Molanorouzi et al. (2015) examined motives for physical activity in young adults aged 20-40 and middle-aged adults aged 41-64. Eight

different motives were assessed including mastery, enjoyment, psychological, physical, appearance, others' expectations, affiliation, and competition/ego. Young adults tended to be motivated by affiliation, mastery, and enjoyment - with an emphasis on intrinsic motivation. In contrast, middle-aged adults tended to be motivated by the psychological condition and others' expectations - with an emphasis on extrinsic motivation. Motivations varied by the type of activity as well as the age of the participant.

A recent study of adults aged 65 and older, by Patel, Schofield, Kolt, and Keogh (2013), revealed three main motives for participating in physical activity. The first one was participants enjoyed the activity, which accounted for 75% of the total variance. Another 17% of the variance was attributable to the second motive of participating, for health and medical reasons. The third motivation was labeled engagement-based reasons, meaning that participation was based on the fact that the individual wanted to be physically active. This third motive accounted for 15% of the total variance. In another study with an older sample, Rasinaho, Hirvensalo, Leinonen, Lintunen, and Rantanen (2007) examined the motivations of individuals aged 75-81. About half of the participants with severely or moderately limited mobility stated that disease management was an important motive for exercise. Participants with no mobility limitations more often reported health maintenance, positive experiences, suitable environment, self-expression, and self-confidence as motives for exercise. Regardless of their mobility limitations, participants labeled social contact as an important motive. The importance of social contact was confirmed in a study by Heo, Culp, Yamada, and Won (2013). When older adult participants chose to join the Senior Games (a sports competition) they stated that

their main reasons for participating were social belonging and interactions. A person's social network was highly associated with participation, as older individuals expressed the desire to interact with people in their own age group.

As part of the Ireland Health and Activity Survey, researchers examined age-group differences in motivations for physical exercise. The participants were split into two age groups, 16-44 years and 45-74 years. A significant difference was found for the motivating factor "to have fun," as significantly fewer older adults stated that it was important. Similarly, significantly fewer older adults rated "to improve or maintain your health" as an important motivator to exercise when compared to the younger adults. The number one motivator for the younger adults was "to feel in good shape physically," while the most important motivator for the older adults was "to feel mentally alert" (Campbell, MacAuley, McCrum, & Evans, 2001).

Using a sample of older adults, mostly females in their early 70s, Biedenweg et al. (2014) found several motivators to older adults' participation in organized exercise programs. Examples of personal motivators are enjoying being with others while exercising, wanting a routine that held them accountable, and the desire to learn something new or get out of the house. Several environmental motivators were also found, such as encouragement from a doctor, lack of fees to join the program, and program location.

The relationship between a faith-based community center and physical activity levels among middle-age and older adults was studied by DeMano Doehring (2014). The researcher found that the individuals who used the community center more often were more physically active. The most important motivator stated by the participants was

health-related benefits. Furthermore, if the adult already had a network with people at the community center they had more encouragement to be physically active.

Young adults between the ages of 18-25 believe social media can be an important motivator to physical exercise. There are apps that people can use to hold themselves accountable to their exercise program. Social media also allows a person to learn about new exercises they may want to try. Furthermore, just being on social media can motivate a person to exercise (Marshall, 2010; Teodoro & Naaman, 2013). If they post pictures, they will most likely want to look their best in them. Finally, participants stated that seeing a picture of a person who has lost a lot of weight is inspirational and motivational (Vaterlaus, Patten, Roche, & Young, 2015).

To review, if younger adults perceive more benefits of exercise, they are more likely to be motivated to participate. On the other hand, some older adults have a difficult time believing they will receive benefits from their participation, so they are less motivated to begin. The motivating factor "to have fun" is more commonly stated by younger adults. In contrast, health and disease management is a very common motivator among adults over the age of 65.

#### **Barriers that Prevent Participation in Exercise**

The research design used by Myers and Roth (1997), in a study discussed above, included four barrier factors: time-effort, physical effects, social, and specific obstacles. The students in the precontemplation stage of exercise perceived more total barriers than individuals in the other three stages. Specifically, precontemplators perceived more barriers on the time-effort subscale, and participants in the contemplation stage perceived more time-effort barriers than did those in the training stage. On the social subscale, both precontemplators and

contemplators had more barriers than did students in the maintenance stage.

Young adult participants in the study done by Vaterlaus et al. (2015) stated that social media can function as a barrier to exercise as well as a motivator. Negative aspects of social media include that it can displace exercise time, distract one while exercising, or provide inaccurate information about exercise.

Dondzila et al. (2014) found that current health status and lack of interest were the two main barriers preventing their older adult participants from utilizing the community-based fitness resource in their area. For older adults, some other barriers to their participation in physical activity stem from their lack of confidence in their ability to exercise. Furthermore, they are less likely to believe in the benefits derived from exercising, and their outside environment can present barriers to them (Resnick et al., 2010). Rydwick et al. (2013) found that “advanced age and low education were negatively related to participation in both health- and fitness-enhancing exercise independent of health indicators among people over the age of 65...” (p. 799).

Three barriers to physical activity that are common among the adult population age 65 and older are personal barriers, such as not feeling motivated; perceptual barriers, such as feeling too old to exercise; and time constraints, such as having family responsibilities (Patel et al., 2013). Rasinaho et al. (2007) also examined barriers to exercise among their group of older adults aged 75-81. The majority of participants with severely limited mobility stated that their poor health was their main barrier to exercising. Other barriers more often reported by those with mobility limitation were fear and negative experiences, lack of company, and an unsuitable environment.

Biedenweg et al. (2014) studied barriers to older adults’ participation in organized programs promoting exercise behaviors. Personal barriers included already getting enough exercise, not being motivated or ready, and the presence of poor health. Participants also listed other barriers, such as being too busy and not having an affiliation with the people in the specific program. Similar to other researchers, DeMano Doehring (2014) concluded that common barriers to physical activity for older adults are the environment, lack of time, lack of motivation, priorities, and physical health.

Older adults may be prevented from participating in exercise because of poor health status, lack of interest, lack of confidence, and poor self-motivation. In contrast, some of the main barriers preventing younger adults from participating in exercise are insufficient effort, negative physical effects, and social barriers. Furthermore, young adults believe that the use of social media can interfere with exercise activity. Barriers common to younger and older adults are time constraints and family responsibilities.

### **Present Study**

The purpose of the present study was to examine age and gender differences in exercise, with the goal of providing information that could help in the development of methods to increase exercise participation. The myriad of health benefits derived from exercising makes this an important topic of basic and applied research. Based on the current literature, it was hypothesized that younger and older adults would participate in similar rates of exercise in a typical week, but that younger adults would participate in a greater variety of activities. Younger and older adults were

expected to have similar numbers of motivators for and barriers to exercise.

## Methods

### Participants

There were a total of 195 college student participants (65.3% female), all between the ages of 18–24. Participants were also recruited from community groups (N=75, 64% female). The youngest community participants were 25–44 years old (N=25); the middle community group ranged in age from 45–64 years (N=20); and the older community group members were 65–89 years old (N=30). Data collection occurred in Western New York in autumn.

### Materials and Procedure

A paper and pencil questionnaire was distributed to participants. It included basic demographic questions followed by a series of four questions about the participant's exercise activity (see Appendix A). The questionnaire took less than ten minutes to complete.

### Results and Discussion

Table 1 shows response means on the four exercise questions, for men and women across all four age groups. An independent-samples Mann-Whitney U test revealed significant gender differences among the college sample in the four categories studied: number of hours of participation in exercise ( $p < .001$ ), number of activities ( $p = .040$ ), number of motivators ( $p = .029$ ), and number of barriers ( $p = .047$ ). Compared to women, men participated in more hours of exercise and more types of activities, and they reported having a greater number of motivators. Women reported having more barriers to exercise than men. It is not surprising that the women would report lower levels of participation, because they perceived fewer motivators and more barriers. To encourage greater participation by

women, these issues would need to be addressed.

In the community groups (participants age 25 and older), an independent-samples Mann-Whitney U Test revealed significant gender differences in the hours of exercise ( $p = .014$ ) and the number of different physical activities they participate in ( $p = .047$ ). The direction of the difference was the same as was found with the college sample; men completed more hours of exercise in a typical week and participated in a greater variety of activities when compared to women. The explanation for gender differences in the community group, for amount and type of activity, is less clear than it was for the college sample. Men and women in the community group did not differ in terms of number of motivators or barriers reported.

An independent-samples Kruskal-Wallis Test was used to compare the three community groups (ages 25–44, 45–64, 65 and older). A significant age difference was found in the number of barriers reported ( $p < .001$ ). Individuals in the youngest community group reported having the most barriers to exercise, and individuals in the oldest community group reported having the fewest barriers to exercise. This generational difference in perceived barriers can be explained in terms of the responsibilities at different stages of life. Relative to middle-aged and older adults, members of the youngest community group are likely to have greater responsibilities for their families and careers. Despite the difference in perceived barriers, there were no significant age differences found in the number of hours of exercise, the number of activities, or the number of motivational factors reported.

The numerous health benefits associated with exercise make motivators and barriers an important topic for research. Once motivators and barriers are clearly identified, programs can be designed to maximize



motivation factors and minimize barriers to activity. Furthermore, research that increases our understanding of the types of activities that best suit men and women at different ages, will help practitioners develop methods to increase exercise levels among those not meeting the recommended standards.

The information gathered is essential for doctors and other health care providers, so that they can use effective methods to increase motivation and encourage patients to exercise more. The management staff of gyms and other community fitness centers could potentially increase membership levels and retain members, by using this information to provide the necessary support and encouragement.

One limitation of the present study is the fact that data collection was through a self-report questionnaire, which means participants' answers may be biased. For example, social desirability bias may have affected participants' responses to the first question, which asked the number of hours in a typical week they participate in exercise. The bias could have caused participants to overestimate their exercise participation in order to come closer to what society deems appropriate or desirable. Furthermore, people may not be completely aware of what motivates them to exercise or what types of barriers prevent their participation. Though somewhat limited in how it is interpreted, self-report data is important information that should be considered together with more objective observational studies. It is suggested that future research validate the self-report measure by including both data collection methods in a single design.

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## Appendix

Table 1

Response Means of Men and Women across Age Groups

Age Group	Gender	Amount of Exercise	Number of Activities	Number of Motivators	Number of Barriers
18-24	Male	2.71	2.09	2.02	1.76
	Female	2.12	1.83	1.79	2.03
25-44	Male	2.50	1.78	1.60	2.50
	Female	1.87	1.57	1.053	2.93
45-64	Male	2.40	2.00	2.40	1.40
	Female	1.73	1.07	1.93	1.53
65-89	Male	2.36	1.50	1.90	1.22
	Female	2.06	1.50	2.00	1.50

Note: For amount of exercise, 0-1 hour was coded as 1, 2-5 hours was coded as 2, 6-10 hours was coded as 3, and more than 10 hours was coded as 4.

Appendix A

How many hours in a typical week do you participate in physical activity (sports, exercise, etc.)?

- 0-1 hour
- 2-5 hours
- 6-10 hours
- more than 10 hours

What types of exercises do you participate in? Check all that apply, and circle the one that most applies to you.

- sports teams
- cardiovascular exercise
- weight training
- aerobic classes
- other (please describe): \_\_\_\_\_

What motivates you to participate in physical activity? Check all that apply, and circle the one that most applies to you.

- want to stay get/stay in shape
- enjoy the activities
- friends or family ask you to participate
- charity events (e.g., 5K)
- other (please describe): \_\_\_\_\_

What are the barriers that prevent you from exercising more? Check all that apply, and circle the one that most applies to you.

- not enough time
- not enough energy
- can't motivate yourself
- physical injury or disability
- no one to participate in activities with
- other (please describe): \_\_\_\_\_