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Aging Adults' Preferences for Wellness Program Activities and Delivery Characteristics: A Cross-Sectional Survey

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Abstract

Background—Lifestyle wellness programs help prevent and manage chronic diseases, yet few are designed for aging adults.

Purpose—Identify characteristics associated with aging adults' preferences for wellness program activities and delivery characteristics.

Subjects/methods—Cross-sectional, self-administered survey of a convenience sample of 386 adults aged 55 years. Logistic regression models identified characteristics influencing preferences.

Results—Current healthy behaviors, gender, and age influenced many preferences, while BMI, multiple chronic conditions, self-rated general health status, and quality of life did not.

Discussion—Incorporating aging adults' preferences for wellness programs will help design appealing and engaging programs.

Keywords

older adults; healthy behaviors; wellness programs; chronic diseases

INTRODUCTION

Background

Wellness is a universally desired state of being for aging adults and the target of many health promotion activities.¹ Aging adults face unique challenges to their well-being, not only by having high prevalences of chronic diseases, but also of having to manage more than one chronic condition at a time. Wellness programs that emphasize the adoption of healthy behaviors and disease self-management have the potential to prevent or delay the occurrence and consequences of multiple chronic conditions.² However, aging adults' engagement in wellness programs remain low.^{3–8} This low engagement may be partially explained by the existence of programs that were not designed specifically for older populations and that emphasize managing a single chronic disease.⁹ Thus, identifying which wellness program activities and delivery characteristics are appealing to aging adults, especially those with multiple chronic conditions may help design more engaging programs.

Globally, there is widespread support for wellness activities. The World Health Organization includes strategies to increase physical activity levels and improve nutrition in their global action plan to prevent and control the impact of chronic disease.¹⁰ In the United States, there are several national initiatives to support health promotion, disease prevention, and chronic disease self-management for older populations. Most of these efforts focus on promoting healthy behaviors related to single disease management, physical activity, and nutrition.^{9,11–13} However, other important wellness activities, such as, stress management and purposeful living have not been included in many of these initiatives.

Multiple Chronic Diseases and Wellness Programs

Worldwide, chronic diseases cause more than 71% of deaths, and 78% of deaths in low- and middle-income countries.¹⁴ In the United States chronic diseases account for 75% of annual health care expenditures and cause 70% of deaths.¹⁵ Chronic conditions compromise health status, occur more frequently with age, and often lead to unnecessary hospitalizations, loss of independence, and poor quality of life.^{16,17} There are global initiatives to alleviate the burden associated with chronic diseases. In 2011, the United Nations declared that the prevention and control of chronic diseases, such as, cardiovascular disease, cancer, chronic respiratory disease, and diabetes was essential to improving the health of its member nations.¹⁸ In response, the World Health Organization developed a global action plan for the prevention and control of chronic diseases that includes actions to address behavioral risk factors, such as, physical inactivity and unhealthy eating.¹⁰

There are also global initiatives to alleviate the burden associated with the presence of multiple conditions.¹⁶ Worldwide, the prevalence of having multiple chronic diseases is high for people age 50 years and older - with prevalence ranging from 45% to 71%.¹⁹ In the United States, 50% of adults aged 45–64 years and over 80% of adults aged 65 years and over have multiple chronic conditions.²⁰ Wellness programs that appeal to aging adults with multiple chronic conditions may help reduce this burden.

There is widespread financial support for programs that encourage healthy behaviors among older populations. In the United States, two Federal Acts provide funding to expand the

reach of preventative services and chronic disease self-management programs. The Patient Protection and Affordable Care Act allows Medicare to reimburse beneficiaries for an annual wellness visit to receive clinical preventative health services related to vaccinations, screenings, and counseling for healthy behaviors, such as, physical activity and nutrition.⁵ The American Recovery and Reinvestment Act: Communities Putting Prevention to Work: Chronic Disease Self-Management Program provides funds to disseminate chronic disease self-management programs nationally.²¹

Low Participation in Health Promoting Behaviors

Despite global and national initiatives supporting the adoption of healthy behaviors, aging adults' participation in these activities is low. Many adults do not meet recommended physical activity guidelines, with participation rates being lower for women and the oldest adults.⁸ Globally, about one-quarter of adults age 60–69, one-third of adults age 70–79, and half of adults age 80 and older do not get the recommended levels of aerobic activity.⁸ Physical activity rates are worse for adults living in high-income countries.⁸ In the United States, less than 42% of Americans aged 65–74 and 31% of Americans aged 75 years and older meet aerobic physical activity recommendations to get 150 minutes of moderate intensity activity or 75 minutes of vigorous intensity activity each week.³ Adherence to physical activity recommendations drops even lower when adding recommendations for twice weekly strength building activities.⁸ Less than 15% of Americans aged 65–74 and about 10% of those aged 75 and older meet the strength building recommendation.⁴ Globally, people are eating twice the daily recommended amount of sodium.¹⁴ In the United States, adherence to nutritional guidelines to eat 1.5–2 cups of fruits and 2–3 cups of vegetables daily⁷ is also low, with 12.4% of adults aged 51 years or older eating the recommended amount of fruits and 10.9% of adults aged 51 years or older eating the recommended amount of vegetables.⁶ In the United states, less than 50% of Medicare beneficiaries access the covered clinical preventative services.⁵

Health Coaching

In addition to chronic disease self-management programs, health coaching has emerged as a promising solution for increasing healthy behaviors. The definition of health coaching is evolving and has most recently been defined as “a patient-centered approach wherein patients at least partially determine their goals, use self-discovery or active learning processes together with content education to work toward their goals, and self-monitor behaviors to increase accountability, all within the context of an interpersonal relationship with a coach. The coach is a healthcare professional trained in behavior change theory, motivational strategies, and communication techniques, which are used to assist patients to develop intrinsic motivation and obtain skills to create sustainable change for improved health and well-being.”²² Systematic reviews of randomized controlled trials on health coaching have found small statistically significant improvements in many healthy behaviors, including physical activity, weight loss, and healthy eating.^{23–25} However, most studies on health coaching effectiveness have targeted adults under the age of 60 and excluded older adults.^{23–25} Furthermore, most studies have focused on improving outcomes in people with a single chronic disease, with type 2 diabetes, cardiovascular disease, and obesity being the most commonly targeted diseases.^{23–25} The current body of evidence provides little

information on the effectiveness of health coaching for older adults, does not target multiple chronic conditions, and ignores individuals' preferences for program delivery.

Study Framework

The Institute of Medicine (IOM) offers a framework for investigating and implementing strategies for living well with chronic disease.¹⁶ Living well is defined as the best achievable state of health that encompasses all dimensions of physical, mental, and social well-being. This framework states that the well-being of people living with chronic diseases is influenced by ecological determinants of health and by the spectrum of health that people experience. There are multiple ecological determinants of health at the individual, family, community, and population level. Individual determinants of health include health behaviors, biology, genes, and coping responses. The spectrum of health ranges from being illness free to end of life and includes chronic disease, impairments, functional limitations, and disability. This framework also emphasizes the importance of identifying disparities among subpopulations, for example by age and gender. The IOM's living well with chronic disease framework was used to guide this study. This study emphasizes how individual determinants of health related to healthy behaviors and the spectrum of health individuals experience related to chronic disease, impairments, functional limitations, and disability influence their preferences for wellness programs.

Study Aims

Given aging adults low participation rates in many healthy behaviors, it is essential to design wellness programs tailored to their health status, interests, and preferences. Research suggests that physical activity programs that reflect people's interests are more likely to be successful.²⁶ The specific aims of this study were to: 1) describe aging adults' current participation in healthy behaviors; 2) determine the level of interest in participating in different wellness activities (i.e., physical activity, healthy eating, stress management, purposeful living, and connecting with social groups and activities), 3) determine preferences for the content and delivery of lifestyle wellness programs; and 4) determine if demographic, self-rated health, multiple chronic conditions, and current healthy behaviors influence aging adults' interest in wellness activities and preferences for program delivery. Information gained from this survey can inform the design of future wellness and chronic disease intervention programs relevant to aging adults who are at risk or are already living with chronic health conditions, with a focus on improving program appeal and engagement.

METHODS

Study Design and Participants

This was a cross-sectional survey of 386 adults. Eligible participants had to be age 55 years or older, able to speak and read English, and have adequate vision and dexterity to read and respond to a touch screen tablet. Participants were recruited during the 2015 Minnesota State Fair that occurred on August 27, 2015 – September 6, 2015. The study occurred in the University of Minnesota's Driven to Discover Research Building (D2D) on the Minnesota State Fair Grounds. In 2014, the University of Minnesota built this research venue to promote greater citizen participation in research, to support fast, efficient subject

recruitment, and to promote faculty and student engagement in research.²⁷ The study was conducted by 5 faculty investigators, 29 student volunteers, and 3 staff volunteers. Study volunteers received training from two faculty investigators (KT and CC) on study recruitment, informed consent, and data collection procedures, and were monitored by faculty investigators to ensure consistency in data collection. Participants were recruited as they walked by the building through signage and verbal solicitation from study volunteers and faculty investigators. Based on previous studies, completed at the Minnesota State Fair, a minimum sample size of 300 was expected to be recruited. A sample size of 300 would be sufficient to detect a 10% difference of proportions between two groups. The study occurred over five days during six-hour shifts. During each shift, one study investigator supervised two to four study volunteers. The survey was self-administered by participants using Research Electronic Data Capture REDCap™ which is an internet based data collection software.²⁸ Participants completed the survey using a tablet computer connected to a secure and encrypted internet connection. Upon completing the survey, participants received hand sanitizer and physical activity handouts from the National Institute on Aging.

Measures

Participants answered questions on demographic characteristics, the presence of chronic conditions, self-rated health status, healthy behaviors, interest in wellness activities, and preferences for wellness program delivery. Demographic characteristics included measures of age, gender, race, living arrangements, employment status, annual income, and educational attainment. Body mass index (BMI) was calculated from self-reported height and weight using the formula: $\text{weight (pounds)} / [\text{height (inches)}]^2 \times 703$.

Chronic Conditions—Participants' self-reported chronic medical conditions were defined as conditions that had been present for one year or more and required ongoing medical attention and/or limited activities of daily living.²⁹ Following national recommendations, a measure of multiple chronic conditions was created that identified eight categories of the most common, disabling, costly, and deadly chronic conditions.^{30–33} These included: 1) cardiovascular disease (i.e., coronary artery disease, congestive heart failure, angina, heart attack), 2) cancer (excluding skin cancer), 3) arthritis (i.e., osteoarthritis or rheumatoid arthritis), 4) diabetes, 5) stroke, 6) chronic lung disease (i.e., chronic obstructive pulmonary disease [COPD], emphysema, or chronic bronchitis), 7) depression, and 8) obesity or metabolic syndrome. Obesity was defined as having a BMI ≥ 30 . Overweight was defined as having a BMI between 25.0 and 29.9. Participants were considered to have metabolic syndrome if they had two or more of these conditions, overweight, hypertension, and high cholesterol. Participants were classified as having multiple chronic conditions if they had conditions in two or more of these eight categories.

Healthy Behaviors—Healthy behaviors were measured with four subscales from the Health Promoting Lifestyle Profile II questionnaire including: 1) exercise (regular participation in light, moderate, and/or vigorous activity that occur within either a monitored program or leisure activities); 2) nutrition (knowledgeable selection and consumption of healthful daily diet for well-being); 3) stress management (identification and mobilization of psychological and physical resources to effectively reduce tension); and 4) spiritual growth

(develop inner resources through transcending, connecting, and developing).³⁴ Each item uses a 4-point response format to measure the frequency of the self-reported health-promoting behavior. Domain scores are calculated by averaging the responses for each item within the subscale and can range from 1 to 4. Higher scores indicate greater participation in healthy behaviors. This measure has previously established good internal consistency and test-retest reliability and validity.³⁵ In this study, the internal consistency reliability calculated as Cronbach's alpha for each subscale was 0.84 for exercise, 0.67 for nutrition, 0.86 for stress management, and 0.75 for spiritual growth.

Self-reported Quality of Life and Health Status—The Patient-Reported Outcomes Measurement Information System (PROMIS) Global Short Form was used to measure participants' general perceptions of their health-related quality of life and health status.³⁶ This 10-item instrument provides self-reported information on multiple domains including health-related quality of life, global rating of general health, physical health status, and mental health status. The physical and mental health status raw scores were converted into T-score values following PROMIS instructions to allow for comparisons with population means.³⁷ T-score distributions are standardized such that a score of 50 represents the mean for the United States general population, with a standard deviation of 10 points. Higher T-scores represent better health. For example, a sample with a mean score of 60 on the physical health scale represents a sample that is one standard deviation healthier than the general population. In this study, the measures had good internal consistency reliability with Cronbach's alpha being 0.67 for the physical health score and 0.82 for the mental health score.

Interest in Wellness Activities—Investigator-designed questions measured participants' level of interest in participating in wellness activities. Participants used a 4-point Likert item to indicate how interested (not at all, slightly, interested, and very) they were in participating in the following wellness activities: physical activity, healthy eating, purposeful living, connecting with social groups and activities, and managing stress.

Preferences for Wellness Program Delivery—Questions about participants' preferences for the delivery of wellness programs were modified from the 2009 Australian population-based HABITAT (How Areas in Brisbane Influence Health and Activity) survey.²⁶ This included questions about program frequency, duration, format (has a set routine or format, and provides rewards for meeting goals), and social setting (done by internet, done with telephone calls, done in person, done one-on-one with a health coach, done in a group, done with people my age, and done with people my own gender).²⁶ Participants indicated how important these components were in deciding whether to participate in a formal wellness program using a 5-point Likert item (unimportant, slightly important, neutral, important, very important).

Ethical Considerations

This study was reviewed and approved by the University of Minnesota Institutional Review Board (IRB study number 1505S69824). All participants provided informed consent;

however, the IRB granted a waiver to document consent, since the study was determined to be minimal risk and data were collected anonymously.

Analysis

Descriptive statistics were used to describe participant characteristics and preferences. Logistic regression models were used to identify which demographic, health status, and health behavior characteristics predicted preferences for wellness activities and program delivery characteristics. Initially, predictors with a *p* value of .10 or less in univariate models were eligible for inclusion in multivariate models to identify independent predictors. Model selection was based on comparison of the best models created using backward elimination and stepwise selection techniques in SAS version 9.4 (Cary, NC). Multivariate models were compared with univariate models to check for issues of collinearity. Each model was summarized with the area under the curve, where a 1.0 would indicate perfect prediction and a 0.5 would indicate correct prediction in 50% of cases.

RESULTS

Participant Characteristics

Participants (N=386) were mostly white, slightly overweight, college-educated women with a mean age of 65 ± 7 years, who primarily lived within the Twin Cities Metropolitan area (Table 1). The most common chronic conditions were cardiovascular disease, cancer, and musculoskeletal conditions. Approximately 21% had two or more serious chronic conditions. Over 94% of participants rated their general health and quality of life as good, very good, or excellent. The mean global physical (52.9) and mental health (53.9) T-scores were above the normative T-score of 50, indicating slightly better health than the general population.

Healthy Behaviors

The vast majority of participants (93%) did not currently smoke cigarettes, however, about one-third had a history of smoking (Table 1). Approximately one-third of participants consumed alcoholic beverages at least twice weekly (Table 1). The health promoting behavior with the highest level of participation was spiritual growth (mean score 3.1), followed by healthy eating (mean score 2.9), stress management (mean score 2.7), and exercise (mean score 2.6) (Table 1).

Level of Interest in Wellness Program Activities and Delivery Characteristics

When asked how many days a week formal wellness programs should occur, the most popular response was three days a week (27%), followed by seven days a week (20%), and then five days a week (18%) (Table 1). When asked how long a formal wellness program should last 73% of participants indicated as long as needed (73%) (Table 1).

Most participants were interested in all of the wellness activities with the order of preferences being healthy eating (91%), purposeful living (90%), physical activity (86%), managing stress (72%), and connecting with social groups and activities (67%) (Table 2). A slight majority of participants preferred programs done in person (57%), with a set routine or

format (54%), and done with people the same age (52%) (Table 3). Over 40% of participants preferred programs done one-on-one with a health coach and providing rewards for meeting goals (Table 3). Less important program delivery characteristics were programs done in groups (35%), done over the internet (30%), and done with people the same gender (21%) (Table 3). Only 9% of participants were interested in programs delivered by telephone (Table 3).

Characteristics Associated with Interest in Wellness Activities

Table 4 reports the results of five multiple logistic regression models that identify characteristics associated with participant interest in different wellness activities. Each row indicates the results of one multiple regression model with the dependent variable being the wellness activity listed in the first column, and the independent variables being the characteristics listed in the other column headings. Age, BMI, having two or more serious chronic conditions, general self-rated health, quality of life, and physical health ratings were not associated with the level of interest in any of the wellness activities, so they are not included in the final models or table. Participants with higher engagement in healthy behaviors tended to have more interest in wellness activities that support their current healthy behaviors. For example, people with higher levels of exercise behaviors were more interested in physical activities (odds ratio [OR]: 11.12). Participants with higher levels of spiritual growth behaviors were more interested in purposeful living activities (OR: 7.46), connecting with social groups (OR: 2.77), and managing stress (OR: 2.83). Participants with healthier nutrition behaviors were more likely to be interested in healthy eating activities (OR: 32.3), connecting with social groups (OR: 1.92), and managing stress (OR: 2.25). Participants with worse mental health were more likely to be interested in stress management programs (OR: 0.92). Women were more likely to be interested in learning how to connect with social groups and activities than men (OR: 1.69).

Characteristics Associated with Preferences for Wellness Program Delivery Characteristics

Table 5 reports the results of eight multiple logistic regression models that identify characteristics associated with participants' preferences for the delivery of wellness programs. Each row indicates the results from one regression model with the dependent variable being the format characteristic listed in the first column, and the independent variables being the characteristics listed in the other column headings. Gender, age, and higher engagement in stress relieving behaviors were the most common characteristics associated with different preferences. Women were more likely to prefer wellness programs that occurred in groups (OR: 2.66) with people of the same age (OR: 1.59) and gender (OR: 4.6) and that had a set routine or format (OR: 1.56). Younger participants (age 55–64 years) were more likely than participants aged 65 years and older to prefer wellness programs that were conducted one-on-one with a health coach (OR: 2.09), included participants of the same gender (OR: 1.88), had a set routine or format (OR: 1.67), and provided rewards for meeting goals (OR: 2.80). Participants with higher engagement in stress relieving behaviors were more likely to prefer programs delivered via telephone calls (OR: 2.13), conducted in person (OR: 1.90), done in a group (OR: 1.95), done with people of the same gender (OR: 2.08), has a set routine or format (OR: 1.64), and provides rewards for meeting program

goals (OR: 1.96). Participants with higher levels of physical activity were less likely to prefer programs done with people of their own age (OR: 0.64) and gender (OR: 0.58).

DISCUSSION

This study provides new information on aging adults' preferences for wellness program activities and delivery characteristics that can be used to design, promote, deliver, and evaluate wellness programs. Existing literature has identified preferences mainly for physical activity; this study provides new information about preferences for other important activities, including, healthy eating, purposeful living, stress management, and connecting with social groups and activities. Participants had the highest interest in healthy eating and purposeful living. Current healthy behaviors, gender, and age influenced many preferences, while BMI, multiple chronic conditions, self-rated general health status, and quality of life did not.

Participants were most interested in wellness activities that aligned with their current healthy behaviors. For example, people with higher levels of exercise were more likely to be interested in wellness programs that included physical activity. This suggests that programs should tailor their content and offer alternatives for physical activity based on participants' current level and type of exercise. This may require content that goes beyond the knowledge of a beginner. It also suggests that wellness activities may need to be designed to appeal to people who are not already engaged in those healthy behaviors and provide strategies for adopting these behaviors.

The results indicate that there are important gender differences in preferences for wellness programs, and that programs should consider these preferences in their design as well as marketing. Women were more likely to prefer doing activities in a group with people of the same age and gender. They were also more interested in learning how to connect with social groups and activities and attending programs with set routines and formats. These results are similar to those found in a nationally representative survey of older Australians, where women preferred physical activities that occurred at fixed times and were done with people of the same age and gender.³⁸ While there is some evidence that older women prefer physical activity programs conducted with other women, a recent randomized controlled trial on group physical activity in older adults found that adherence was the same between groups of similar and mixed gender.³⁹ Other gender differences in program preferences appear in the literature as well. Chronic disease self-management programs tend to attract more women than men.²¹ About 78% of the first 100,000 participants enrolled in a national chronic disease self-management program were women.²¹ Most health promotion research studies have targeted both genders with less than 8% enrolling just women and about 2% enrolling just men.⁹ Given the findings of the current study and the literature, it may be necessary to design programs exclusively for men or women.

There were important differences in preferences between participants aged 55–64 years and those aged 65 years and older. Adults aged 55–64 years were more likely to prefer wellness programs available by the internet, conducted one-on-one with a health coach, done with people the same gender, with set routines and formats, and that provided rewards for

meeting goals. Others have found that older adults are less concerned with physical activity programs having fixed routines and set schedules.²⁶ This may reflect the fact that older adults are more likely to be retired and to have more flexible schedules. Previous research also found that older adults were more likely to prefer physical activities with people of the same age and less likely to prefer competitive, team-based, or vigorous activities.²⁶

Having multiple chronic conditions was not associated with participants' level of interest in any wellness activity or preferences for any of the wellness program delivery characteristics. This suggests that when designing wellness programs for adults with multiple chronic conditions, developers can confidently use any of these elements. These results should be viewed in light of the relatively lower prevalence of multiple chronic conditions in this sample of adults aged 55 years and over (21%) versus the national prevalence of 50% for adults over age 45.²⁰ However, the measure of multiple chronic conditions used in this study included only the most common, disabling, and deadly chronic conditions.^{30–33} This most likely accounts for the lower prevalence, but it also identifies a group of people at high risk for developing complications, and it is beneficial to know that this high risk group has similar preferences for wellness programs as their healthier counterparts.

Health-related quality of life and self-rated general health had no influence on preferences for wellness programs. The implications of these results should be tempered by the fact that over 95% of participants rated their general health and quality of life as good to excellent.

BMI had no influence on preferences for wellness programs. These results are not consistent with other studies that have found that overweight adults tend to prefer exercise classes that are done with people of the same gender.⁴⁰ Additionally, other researchers have indicated that obese older adults are more likely to prefer exercise programs that are team-based, supervised, occurring at a fixed time, done with people their own age and gender.²⁶ Future research is needed to further establish how BMI influences preferences for wellness program activities and formats.

Health coaching is gaining increasing attention as a strategy to promote healthy behaviors and to facilitate self-management of chronic conditions. The results in this study suggest that one-on-one health coaching is more likely to gain the interest of adults aged 55–64 years and by those with higher engagement in spiritual growth behaviors. The majority of health coaching interventions investigated to date have focused mainly on managing type 2 diabetes, cardiovascular disease, and obesity among middle aged adults.^{24,41} However, a small body of literature suggests that health coaching improves physical activity in aging adults whether or not they had chronic conditions.²³ Both face to face and telephone health coaching were effective at increasing physical activity levels in older adults, but face-to-face coaching had a stronger effect.²³ In the current study, while older adults were less likely to prefer health coaching than those aged 55–64 years, a good portion were interested in health coaching.

Study Strengths and Limitations

The venue of this study is innovative and unique. The Driven to Discover Research Facility (D2D) opened in 2014 on the Minnesota State Fairgrounds to provide researchers with

access to a large and diverse pool of individuals. The fair occurs for 11 days at the end of every summer. Almost two million people attend the fair annually, which is the equivalent of approximately one-third of Minnesota's population.²⁷ An example of the reach of the program included the participation in D2D studies of over 60,000 people in 2017.²⁷ The D2D venue provided rapid and convenient access to participants for this study. Participants ranged in age from 55 to 88 years with 23% aged 70 years or older. The recruitment of 386 participants and data collection took 30 hours over the course of 5 days.

There are several important study limitations. The majority of participants were white educated women. Given the low number of non-white participants, we were unable to identify preferences that may have differed for people of other racial and ethnic backgrounds. This was a convenience sample of adults with a mean age of 65 years, who were healthy enough to attend a large crowded outdoor fair. Given the lower prevalence of chronic conditions, the sample is not representative of the aging adult population. However, this potential bias was identified *a priori*, and monitored using the PROMIS global short form. In terms of physical health, the sample's mean T-score was 53, which is only slightly higher than the normative population with T-scores of 50. The same occurred for the mental health score. This indicates that the physical and mental health of this sample was similar to population norms.

Conclusions

Aging adults are interested in many wellness activities, including healthy eating, purposeful living, physical activity, managing stress, and connecting with social groups and activities. They preferred activities that supported current healthy behaviors. Women had greater interest than men in activities that occurred in groups with people of the same age and gender. Compared to adults aged 55–64 years, adults aged 65 years and older were less interested in health coaching, internet based programs, and programs that provide rewards for meeting goals. These findings can be used by health professionals interested in designing, promoting, delivering, and evaluating wellness programs for aging adults.

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Table 1.

Participant Characteristics (N= 386)

Characteristic	N	%	Mean ± SD (Range)
Age			65.0 ± 7.0 (55–88)
Female	231	60.0	
White	360	93.5	
Education			
High school diploma or less	29	7.5	
Some college	67	17.4	
College degree	279	72.5	
Don't want to answer	10	2.6	
Body mass index			27.0 ± 5.1 (17.1–52.1)
Residence			
Twin Cities Metropolitan Area	284	78.0	
Minnesota outside of Twin Cities	49	13.5	
Outside of Minnesota	31	8.5	
How often do you have a drink containing alcohol?			
Never	82	22.0	
Monthly or less	91	24.5	
2 to 4 times a month	73	19.6	
2 to 3 times a week	65	17.5	
4 or more times a week	59	15.9	
I don't want to answer	2	0.5	
Do you now smoke cigarettes?			
No	273	93.2	
Every day	5	1.7	
Some days	3	1.0	
I don't want to answer	5	1.7	
Have you smoked at least 100 cigarettes in your lifetime?			
Yes	123	34.8	
No	226	63.8	
Don't know	3	0.9	
I don't want to answer	2	0.6	
Two or more chronic conditions	80	21.0	
Cardiovascular disease	175	45.8	
Obesity or metabolic syndrome	136	35.2	
Cancer	92	24.1	
Lung disease	26	6.7	
Musculoskeletal conditions	88	23.0	
Autoimmune conditions	14	3.7	
Endocrine conditions	70	18.1	
Diabetes	37	9.7	

Characteristic	N	%	Mean ± SD (Range)
Psychological conditions	71	18.6	
Gastrointestinal conditions	69	17.9	
Neurological conditions	4	1.1	
Other conditions	26	6.8	
PROMIS items			
General self-rated health			
Excellent	73	19.2	
Very good	175	46.1	
Good	110	29.0	
Fair or poor	22	5.8	
Quality of life			
Excellent	120	31.5	
Very good	194	50.9	
Good	51	13.4	
Fair	15	3.9	
Poor	1	0.3	
Global physical health T-score (normative range: 16.2–67.7)			52.9 ± 7.3 (29.6–67.7)
Global mental health T-score (normative range: 21.2–67.6)			53.9 ± 7.9 (28.4–67.6)
Health promoting lifestyle behaviors			
Exercise (range: 1–4)			2.6 ± 0.7
Nutrition (range: 1–4)			2.9 ± 0.5
Stress management (range: 1–4)			2.7 ± 0.5
Spiritual growth (range: 1–4)			3.1 ± 0.6
How many days a week should a formal wellness program occur?			
1	32	8.6	
2	29	7.8	
3	102	27.4	
4	55	14.8	
5	66	17.7	
6	14	3.8	
7	75	20.1	
How long should a formal wellness program last?			
0–3 months	38	10.1	
3–6 months	38	10.1	
6–12 months	23	6.1	
As long as needed	278	73.7	

Table 2.

Interest in Participating in Wellness Activities among Adults Age 55 Years and Older

Activity	Interested	
	N	%
Healthy eating	346	90.8
Purposeful living	344	90.3
Physical activity	326	85.6
Managing stress	276	72.4
Connecting with social groups and activities	254	66.7

N =Number of participants indicating they were interested or very interested in the activity vs. not at all or slightly interested.

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Table 3.

Preferences for Wellness Program Delivery among Adults Aged 55 Years and Older

Format	Important	
	N	%
Done in person	212	57.0
Program has set routine or format	199	53.5
Done with people my age	193	51.6
Done one-on-one with a health coach	166	44.4
Program provides rewards for meeting goals	157	41.9
Done in a group	131	34.9
Done by internet	112	30.0
Done with people the same gender	80	21.3
Done with telephone calls	35	9.4

N = Number of participants responding important or very important to the question: "How important are the following in deciding whether or not you will participate in a formal wellness program?"

Table 4. Characteristics Associated with Level of Interest in Different Wellness Activities among Adults Aged 55 Years and Older

Wellness Activity	Female	Characteristic					Model AUC
		Mental Health Score	Exercise Behavior	Nutrition Behavior	Stress Management Behavior	Spiritual Growth Behavior	
Physical activity	-	-	11.12 (5.71–21.66) p=.001	-	-	-	.843
Healthy eating	-	-	-	32.30 (11.50–90.89) p=.001	-	-	.901
Purposeful living	-	-	-	2.31 (1.17–4.57) p=.016	-	7.46 (3.14–17.76) p=.001	.817
Learning how to connect with social groups and activities	1.69 (1.05–2.72) p=.032	-	-	1.92 (1.27–2.89) p=.002	2.77 (1.68–4.56) p=.001	-	.706
Managing stress	-	0.92 (0.88–0.96) p=.001	-	2.25 (1.44–3.50) p=.001	-	2.83 (1.57–5.10) p=.001	.708

- Each cell presents the Odds Ratio (95% confidence intervals) and p value
- Each row is a multi-variate logistic regression model where the outcome is dichotomized as those who answered that they are interested or very interested in the activity vs. not at all or slightly interested
- Blank cells indicate that the variable was not statistically significantly associated with the dependent variable and therefore not included in the final multi-variate model
- The following characteristics were not statistically significantly associated with any of the univariate models (results not shown) and were excluded from the final model and table: age, BMI, having multiple chronic conditions, general self-rated health, quality of life, and physical health score.
- AUC=Area Under the Curve

Characteristics that Influence Preferences for Wellness Program Delivery Characteristics among Adults Aged 55 Years and Older

Table 5.

Delivery Characteristic	Characteristic							Model AUC	
	Female	Age 55-64 Years*	Physical Health Score	Mental Health Score	Exercise Behavior	Nutrition Behavior	Stress Management Behavior		Spiritual Growth Behavior
Done by internet	-	1.47 (0.93-2.32) p=.101	-	-	-	-	-	-	.547
Done with telephone calls	-	-	-	-	-	-	2.13 (1.07-4.24) p=.031	-	.618
Done in person	-	-	-	-	-	-	1.90 (1.25-2.89) p=.003	-	.595
Done 1:1 with a health coach	-	2.09 (1.36-3.20) p=.001	-	-	-	-	-	1.52 (1.03-2.22) p=.033	.622
Done in a group	2.66 (1.63-4.31) p<.0001	-	-	-	1.47 (1.02-2.11) p=.038	-	1.95 (1.20-3.17) p=.001	-	.685
Done with people my age	1.59 (1.04-2.43) p=.034	-	-	-	0.64 (0.47-0.87) p=.005	-	-	-	.611
Done with people the same gender	4.60 (2.30-9.19) p<.0001	1.88 (1.07-3.28) p=.027	-	-	0.58 (0.38-0.90) p=.015	-	2.08 (1.17-3.71) p=.013	-	.736
Program has set routine or format	1.56 (1.00-2.44) p=.050	1.67 (1.08-2.60) p=.021	0.96 (0.93-0.99) p=.012	-	-	-	1.64 (1.05-2.55) p=.029	-	.624
Program provides rewards for meeting goals	-	2.80 (1.79-4.39) p<.0001	-	0.96 (0.93-0.99) p=.016	-	-	1.96 (1.21-3.16) p=.006	-	.670

* Comparison group is Age 65 years and older

- Each cell presents the Odds Ratio, (95% confidence intervals), and p value
- Each row is a multi-variate logistic regression model where the outcome is dichotomized as those who answered important or very important to the question, how important are the following in deciding whether or not you will participate in a formal wellness program?
- Blank cells indicate that the variable was not statistically significantly associated with the dependent variable and therefore not included in the final multi-variate model
- The following characteristics were not statistically significant in any of the univariate models (results not shown) and were excluded from the final model: BMI, having multiple chronic conditions, general self-rated health and quality of life.
- AUC=Area Under the Curve