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ORIGINAL RESEARCH

U.S. Older Adults' Participation in Balance Activities

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The *Physical Activity Guidelines for Americans*, second edition recommends that older adults do multicomponent physical activity, which includes balance training in addition to aerobic and muscle-strengthening activities. The authors estimated the prevalence of U.S. older adults (age ≥65 years) who do balance activities and meet the aerobic and muscle-strengthening physical activity guidelines. The authors analyzed data on 1,012 respondents to the 2019 *FallStyles* survey, a nationwide web-based panel survey. Approximately four in 10 respondents (40.7%) reported doing balance activities on ≥1 day/week, 34.0% on ≥2 days/week, and 25.3% on ≥3 days/week. Prevalence differed by sex, education level, income level, census region, body mass index category, and meeting the aerobic and/or muscle-strengthening guidelines. The combined prevalence of participation in balance activities and meeting aerobic and muscle-strengthening guidelines ranged from 12.0% for ≥3 days/week to 15.8% for ≥1 day/week. Opportunities exist to introduce and increase participation in balance and multicomponent activities by older adults.

Keywords: aerobic, guidelines, muscle-strengthening

Although all adults gain substantial health benefits from engaging in regular physical activity, older adults (aged 65 years and older) can acquire specific health benefits, including improved muscle strength, bone health, and physical function (2018 Physical Activity Guidelines Advisory Committee, 2018; U.S. Department of Health and Human Services, 2018). These benefits are especially important for helping older adults to prevent falls, prevent injuries from falls, and perform activities of daily living (2018 Physical Activity Guidelines Advisory Committee, 2018; U.S. Department of Health and Human Services, 2018). The *Physical Activity Guidelines for Americans,* second edition (*Guidelines)* recommends that all adults (including older adults) achieve at least 150 min/week of moderate-intensity aerobic physical activity, at least 75 min/week of vigorous-intensity aerobic physical activity, or an equivalent combination, and two or more days of muscle-strengthening activities per week (U.S. Department of Health and Human Services, 2018). In addition, specific to older adults, the *Guidelines* recommends multicomponent physical activity as part of their weekly physical activity, which includes balance training in addition to aerobic and muscle-strengthening activities (U.S. Department of Health and Human Services, 2018). However, the *Guidelines* does not specify a frequency for doing balance training. Balance training activities improve an individual's ability to resist forces within or outside the body that cause falls (U.S. Department of Health and Human Services, 2018). A recent Cochrane systematic review and meta-analysis found that exercise programs that primarily involve balance and functional exercises are effective in reducing falls in older adults (Sherrington et al., 2019). Examples of activities that may improve balance include walking backward or sideways, standing on one foot, dancing, yoga or tai chi, sports, and structured programs that include balance training (U.S. Department of Health and Human Services, 2018).

National estimates of U.S. older adults meeting the aerobic and muscle-strengthening guidelines are tracked annually (U.S. Department of Health and Human Services, 2020), but estimates of older adults' participation in balance activities are limited. Some data from national surveillance systems have provided insights on specific physical activities performed by older adults that may help improve balance. For example, evidence suggests that yoga may have a beneficial effect on balance (Jeter, Nkodo, Moonaz, & Dagnelie, 2014). An analysis of data from the 2017 National Health Interview Survey estimated that 6.7% of U.S. adults aged 65 years and older participated in yoga during the past 12 months (Clarke, Barnes, Black, Stussman, & Nahin, 2018). Evidence also indicates "that dance regardless of its style, can significantly improve muscular strength and endurance, balance, and other aspects of functional fitness in older adults" (Hwang & Braun, 2015). Respondents to the 2011 Behavior Risk Factor Surveillance System were asked to report up to two types of physical activity they spent the most time doing during the past month, and 1.7% of men and 5.9% of women who were aged 65–74 years reported participating in dancing/aerobics (Watson, Frederick, Harris, Carlson, & Fulton, 2015).

Although these data provide information on participation in some types of activities that may qualify as balance training, the current U.S. surveillance systems do not query older adults specifically about their frequency of participation in balance-related activities. Although the *Guidelines* does not specify a recommended frequency for older adults' balance activities (U.S. Department of Health and Human Services, 2018), it does indicate "that studies of fall prevention programs generally include about three sessions a week" (U.S. Department of Health and Human Services, 2018). Other national and international organizations have given specific recommended frequencies of balance activity participation for older adults. For example, the World Health Organization recommends older adults should do varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity on three or more days per week to enhance functional capacity and prevent falls (World Health Organization, 2020). National guidelines from Finland also recommend doing activities to increase muscular strength and improve balance on at least 2 days/week (The UKK Institute for Health Promotion Research, 2009), and a 2011 position statement from the American College of Sports Medicine recommends balance exercises at least two to three times per week (Garber et al., 2011).

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Understanding more about who participates in balance activities, at what frequency they participate, and what specific balance activities they participate in can help identify priority groups among older adults for balance activity promotional strategies. In our study, we first sought to estimate the prevalence of U.S. older adults (aged 65 years and older) who do physical activities to improve or maintain their balance, using various frequency categorizations and examining differences by selected characteristics (education level, income level, census region, and body mass index [BMI] category). We then assessed the combined prevalence of older adults who participate in different amounts of balance activities and meet other components of the physical activity guidelines (i.e., aerobic, muscle strengthening, and both guidelines). Finally, among older adults who do balance activities, we examined differences in the prevalence of specific types of balance activities performed across frequency categorizations for men and women.

Methods

Survey and Analytic Sample

Porter Novelli's 2019 *Styles* database is built from a series of web-based surveys via Ipsos' KnowledgePanel® (Ipsos, Paris, France), an online panel representative of the noninstitutionalized U.S. population. Panel members are randomly recruited by mail using probability-based sampling by address. The panel is continuously replenished and maintains approximately 55,000 panelists. The *SpringStyles* survey was fielded during March and April 2019 and was sent to a random sample of 11,012 adult panelists (aged ≥18 years), and 6,657 respondents returned completed surveys (response rate = 60.5%). The *FallStyles* survey, fielded during October 2019, was sent to a random sample of 4,677 panelists who completed the *SpringStyles* survey. A total of 3,624 *FallStyles* surveys were returned (response rate = 77.5%). Those who completed the survey received reward points worth approximately $5. Data were weighted to match the 2018 U.S. Current Population Survey proportions for sex, age, household income, race/ethnicity, household size, education level, census region, and metro status. Weighted and unweighted distributions were similar, although in general, the unweighted sample was slightly older and had a higher percentage of non-Hispanic White respondents. Institutional review board approval for these analyses was not needed because the authors had access only to anonymized data.

From the initial sample, 2,561 respondents who were ≤64 years old were excluded, 24 respondents were excluded for missing aerobic, muscle-strengthening, or balance physical activity data, and 27 respondents were excluded for missing BMI data (final analytic sample = 1,012).

Measures

Balance activities. To assess the frequency of doing balance activities, respondents were asked, "In a usual week, how often do you do physical activities or exercises specifically designed to improve or maintain your balance, such as standing on one foot?" Response choices ranged from 0 to 7 days/week. The types of balance activities done were assessed by asking respondents, "In a usual week, do you do any of these activities?" Respondents were able to select all that applied, and response options included "Walking backward or sideways," "Standing on one foot," "Using a wobble board," "Dancing," "Yoga or tai chi exercises," "Structured program with balance activities," and "None of these" (i.e., the respondent was doing some other type of balance physical activity). Participation in these specific activities was queried because they are listed in the *Guidelines* as examples of balance activities (U.S. Department of Health and Human Services, 2018).

Aerobic and muscle-strengthening physical activity. Modified versions of the National Health Interview Survey physical activity questions were used to assess aerobic and muscle-strengthening physical activity (National Center for Health Statistics, 2020). To classify respondents into levels of aerobic physical activity, they were asked how often in a usual week and, if applicable, the duration during leisure time they participated in (a) moderate-intensity activities (i.e., a moderate increase in breathing or heart rate) and (b) vigorous-intensity activities (i.e., large increases in breathing or heart rate). Minutes of moderate-intensity equivalent activity were calculated by counting 1 min of vigorous-intensity activity as 2 min of moderate-intensity activity (U.S. Department of Health and Human Services, 2018). Respondents were then classified into three activity levels using the current adult aerobic guideline (U.S. Department of Health and Human Services, 2018): (a) active, reporting at least 150 min/week of moderate-intensity equivalent physical activity; (b) insufficiently active, reporting some moderate-intensity equivalent physical activity but not enough to meet the active definition; and (c) inactive, reporting no moderate-intensity equivalent physical activity.

The muscle-strengthening activity was assessed by asking respondents how often in a usual week they did physical activities or exercises specifically designed to strengthen their muscles. Response choices ranged from 0 to 7 days/week. Respondents reporting two or more days per week were classified as meeting the muscle-strengthening guideline (U.S. Department of Health and Human Services, 2018).

Respondent characteristics. Respondent characteristics included sex (male, female), age (65–74 years, ≥75 years), race/ethnicity (non-Hispanic White, other), education level (high school graduate or less, some college, bachelor's degree or higher), income level (<$50,000; $50,000–$99,999; ≥$100,000), census region (Northeast, Midwest, South, West), and metropolitan statistical area status (metro, nonmetro) (U.S. Census Bureau). Self-reported height and weight measures were used to calculate BMI and were classified as underweight/normal (≤24.9 kg/m^2), overweight (25.0–29.9 kg/m^2), and having obesity (≥30.0 kg/m^2) (National Heart Lung and Blood Institute, 1998).

Statistical Analysis

Due to the *Guidelines* not having a recommended frequency for older adults' balance activities and to allow for comparison with recommendations of other national and international organizations (i.e., American College of Sports Medicine, Finland, World Health Organization), the frequency of doing balance activities was examined by cutoffs of ≥1 day/week, ≥2 days/week, and ≥3 days/week. Prevalence and 95% confidence intervals (95% CIs) of doing balance activities on ≥1 day/week, ≥2 days/week, and ≥3 days/week were estimated overall by respondent characteristics and by meeting physical activity guidelines. In addition, prevalence and 95% CI of types of balance activities performed by respondents who reported doing balance activities were estimated by frequency category and by sex. Pairwise t tests and orthogonal polynomial contrasts were used to identify significant differences and trends by respondent characteristics where appropriate. Tests were considered significant at $p < .05$. Analyses were conducted in 2020 using

SUDAAN (version 11.0; Research Triangle Institute, Research Triangle Park, NC) to account for survey weights.

Results

The majority of included respondents were aged 65–74 years, non-Hispanic White, had at least some college education, lived in a metropolitan area, were overweight or had obesity, and did not do any balance activities (Table 1).

The prevalence of doing balance activities was 40.7% (95% CI [37.5, 44.0]) on ≥1 day/week, 34.0% (95% CI [31.0, 37.2]) on ≥2 days/week, and 25.3% (95% CI [22.7, 28.2]) on ≥3 days/week (Table 2). Regardless of frequency category, the prevalence of doing balance activities was highest among underweight/normal

Table 1 Selected Characteristics, U.S. Adults Aged 65 Years and Older, 2019 *FallStyles*

	Males			Females		
Characteristics	***n***	**%**	**Weighted % [95% CI][a]**	***n***	**%**	**Weighted % [95% CI][a]**
Overall	523	51.7	45.8 [42.5, 49.1]	489	48.3	54.2 [50.9, 57.5]
Age (years)						
65–74	341	65.2	64.8 [60.4, 69.1]	333	68.1	69.0 [64.5, 73.3]
≥75	182	34.8	35.2 [30.9, 39.6]	156	31.9	31.0 [26.8, 35.5]
Race/ethnicity						
White, non-Hispanic	426	81.5	74.1 [69.3, 78.4]	409	83.6	75.4 [70.2, 80.0]
Other	97	18.6	25.9 [21.6, 30.7]	80	16.4	24.6 [20.0, 29.8]
Education level						
High school graduate or less	143	27.3	33.0 [28.6, 37.7]	191	39.1	46.5 [41.7, 51.4]
Some college	162	31.0	30.5 [26.6, 34.8]	165	33.7	30.3 [26.3, 34.6]
Bachelor's degree or higher	218	41.7	36.6 [32.5, 40.9]	133	27.2	23.2 [19.7, 27.1]
Income level						
<$50,000	162	31.0	31.0 [26.9, 35.4]	187	38.2	37.9 [33.3, 42.7]
$50,000–$99,999	164	31.4	32.1 [28.0, 36.5]	164	33.5	35.3 [30.8, 40.0]
≥$100,000	197	37.7	36.9 [32.7, 41.4]	138	28.2	26.8 [22.9, 31.1]
Census region						
Northeast	94	18.0	17.7 [14.6, 21.4]	96	19.6	18.5 [15.2, 22.3]
Midwest	117	22.4	20.0 [16.8, 23.6]	123	25.2	24.3 [20.4, 28.6]
South	201	38.4	41.1 [36.7, 45.8]	157	32.1	35.3 [30.8, 40.2]
West	111	21.2	21.2 [17.7, 25.1]	113	23.1	21.9 [18.3, 26.0]
MSA status						
Metro	452	86.4	86.1 [82.6, 89.0]	408	83.4	82.7 [78.7, 86.1]
Nonmetro	71	13.6	13.9 [11.0, 17.4]	81	16.6	17.3 [13.9, 21.3]
BMI category						
Underweight/normal	136	26.0	26.6 [22.7, 30.8]	167	34.2	33.1 [28.8, 37.7]
Overweight	235	44.9	43.8 [39.4, 48.4]	168	34.4	34.5 [30.1, 39.2]
Have obesity	152	29.1	29.6 [25.6, 34.0]	154	31.5	32.3 [28.0, 37.1]
Aerobic physical activity level[b]						
Inactive	96	18.4	21.7 [18.0, 26.0]	133	27.2	30.5 [26.0, 35.3]
Insufficiently active	150	28.7	28.6 [24.7, 32.9]	142	29.0	28.6 [24.5, 33.0]
Active	277	53.0	49.6 [45.1, 54.2]	214	43.8	41.0 [36.4, 45.7]
Muscle-strengthening activity						
<2 days/week	314	60.0	61.4 [56.9, 65.7]	343	70.1	73.1 [69.0, 76.9]
≥2 days/week	209	40.0	38.6 [34.3, 43.1]	146	29.9	26.9 [23.1, 31.1]
Balance activity (days/week)[c]						
0	331	63.3	64.1 [59.7, 68.4]	256	52.4	55.2 [50.4, 59.9]
1	26	5.0	5.6 [3.8, 8.3]	36	7.4	7.5 [5.2, 10.8]
2	33	6.3	6.3 [4.4, 8.8]	55	11.3	10.8 [8.2, 14.1]
3	40	7.7	7.3 [5.3, 10.0]	57	11.7	10.8 [8.4, 13.9]
≥4	93	17.8	16.7 [13.7, 20.3]	85	17.4	15.6 [12.7, 19.1]

Note. CI = confidence interval; MSA = metropolitan statistical area; BMI = body mass index.
[a] Weighted proportion. [b] Physical activity level definitions: active (meeting the aerobic physical activity guideline of at least 150 min/week of moderate-intensity physical activity, 75 min/week of vigorous-intensity physical activity, or an equivalent combination), insufficiently active (some activity, but not enough to meet active definition), and inactive (no reported leisure-time physical activity).[c] Frequency of doing balance activities was assessed with the following question: "In a usual week, how often do you do physical activities or exercises specifically designed to improve or maintain your balance such as standing on one foot?" Response choices ranged from 0 to 7 days/week.

Table 2 Prevalence of U.S. Adults Aged 65 Years or Older Who Do Balance Activities by Different Frequency Categories, Overall, and by Selected Characteristics, 2019 *FallStyles*

Characteristics	Balance activities[a] on ≥1 day/week		Balance activities[a] on ≥2 days/week		Balance activities[a] on ≥3 days/week	
	%	95% CI	%	95% CI	%	95% CI
Overall	40.7	[37.5, 44.0]	34.0	[31.0, 37.2]	25.3	[22.7, 28.2]
Sex						
Male	35.9†	[31.7, 40.3]	30.2†	[26.3, 34.5]	24.0	[20.4, 28.0]
Female	44.8#	[40.1, 49.6]	37.3#	[32.9, 41.9]	26.5	[22.7, 30.6]
Age (years)						
65–74	42.7	[38.7, 46.8]	34.5	[30.8, 38.4]	25.7	[22.4, 29.3]
≥75	36.7	[31.5, 42.2]	33.2	[28.2, 38.6]	24.5	[20.1, 29.5]
Race/ethnicity						
White, non-Hispanic	41.5	[38.2, 45.0]	35.6	[32.4, 39]	26.7	[23.8, 29.9]
Other	38.3	[30.7, 46.4]	29.3	[22.8, 36.9]	21.1	[15.7, 27.9]
Education level						
High school graduate or less	32.7*	[27.5, 38.4]	25.0*	[20.4, 30.2]	16.9*	[13.2, 21.4]
Some college	41.3	[35.9, 46.9]	35.9	[30.8, 41.5]	28.2	[23.5, 33.4]
Bachelor's degree or higher	51.1	[45.7, 56.4]	44.5	[39.2, 49.9]	34.0	[29.0, 39.3]
Income level						
<$50,000	36.0*	[30.6, 41.9]	29.1*	[24.2, 34.5]	21.2*	[17.1, 26.0]
$50,000–$99,999	38.3	[33.0, 44.0]	32.2	[27.2, 37.6]	25.3	[20.8, 30.4]
≥$100,000	48.4	[42.9, 54.0]	41.5	[36.1, 47.1]	29.9	[25.1, 35.2]
Census region						
Northeast	40.4	[33.3, 47.9]	34.1	[27.5, 41.5]	24.7	[18.8, 31.7]
Midwest	37.0†	[30.8, 43.7]	32.2	[26.3, 38.7]	25.1	[19.8, 31.2]
South	39.4	[34.1, 45.0]	31.5†	[26.7, 36.7]	21.9†	[17.9, 26.5]
West	47.1#	[40.2, 54.1]	40.4#	[33.7, 47.4]	32.1#	[26.1, 38.8]
MSA status						
Metro	42.0	[38.5, 45.5]	35.0	[31.7, 38.4]	25.9	[23.0, 29.0]
Nonmetro	33.9	[26.0, 42.7]	29.0	[22.0, 37.0]	22.3	[16.3, 29.8]
BMI category						
Underweight/normal	44.7†	[38.8, 50.7]	38.1†	[32.6, 44.0]	30.0†	[25.0, 35.6]
Overweight	41.6	[36.6, 46.8]	36.2†	[31.4, 41.3]	25.6	[21.4, 30.2]
Have obesity	35.7#	[30.1, 41.8]	27.5#	[22.5, 33.1]	20.5#	[16.3, 25.5]
Meeting physical activity guidelines[b]						
Aerobic						
Yes	52.4†	[47.7, 57.0]	45.8†	[41.1, 50.4]	35.9†	[31.6, 40.4]
No	31.2#	[27.1, 35.6]	24.5#	[20.9, 28.5]	16.7#	[13.7, 20.3]
Muscle strengthening						
Yes	68.9†	[63.7, 73.6]	62.6†	[57.2, 67.7]	49.1†	[43.7, 54.5]
No	27.3#	[23.8, 31.1]	20.5#	[17.4, 23.9]	14.0#	[11.5, 16.9]
Both						
Yes	70.0†	[63.8, 75.6]	63.5†	[57.1, 69.5]	53.4†	[47.0, 59.8]
No	32.2#	[28.7, 35.9]	25.5#	[22.4, 28.9]	17.2#	[14.6, 20.1]

Note. CI = confidence interval; MSA = metropolitan statistical area; BMI = body mass index.

[a]Frequency of participation in balance activities was assessed with the following question: "In a usual week, how often do you do physical activities or exercises specifically designed to improve or maintain your balance such as standing on one foot?" Response choices ranged from 0 to 7 days/week. [b]Definitions of meeting physical activity guidelines—aerobic: at least 150 min/week of moderate-intensity physical activity, 75 min/week of vigorous-intensity physical activity, or an equivalent combination; muscle strengthening: ≥2 days/week of muscle-strengthening activities; both: meeting the aerobic and muscle-strengthening guidelines.

†,#Significant differences: within subgroups, values that have a different symbols are significantly different (Bonferroni corrected $p < .05$). *Significant linear trend ($p < .05$).

respondents compared with those with obesity and among those who met physical activity guidelines compared with those who do not. In addition, the prevalence of doing balance activities increased with increasing education and income level. Lastly, females had a higher prevalence of doing balance activities compared with males except for the category of ≥3 days/week.

Overall, 15.8% (95% CI [13.6, 18.2]) of respondents reported doing any balance activities and met the aerobic and muscle-strengthening physical activity guidelines (Table 3). The prevalence of meeting both physical activity guidelines and doing balance activities on ≥2 days/week was 14.3% (95% CI [12.3, 16.6]) and was 12.0% (95% CI [10.2, 14.2]) for ≥3 days/week.

Among respondents who reported doing any balance activities, the most commonly reported balance activity was standing on one foot, followed by walking backward or sideways and doing a structured program with balance activities (Figure 1). Differences by sex varied by frequency category and were observed for the following response choices: more females than males reported standing on one foot, doing a structured program with balance activities, dancing, yoga, or tai chi exercises; and more males than

Table 3 Prevalence of U.S. Adults Aged 65 Years or Older Who Do Balance Activities and Meet Physical Activity Guidelines by Different Frequency Categories, 2019 *FallStyles*

	Frequencies of doing balance activities[a]					
	≥1 day/week		≥2 days/week		≥3 days/week	
Meeting physical activity guidelines[b]	%	95% CI	%	95% CI	%	95% CI
Aerobic	23.5	[20.9, 26.3]	20.6	[18.1, 23.2]	16.1	[14.0, 18.5]
Muscle strengthening	22.2	[19.7, 25.0]	20.2	[17.8, 22.8]	15.8	[13.7, 18.2]
Both	15.8	[13.6, 18.2]	14.3	[12.3, 16.6]	12.0	[10.2, 14.2]

Note. CI = confidence interval.
[a]Frequency of participation in balance activities was assessed with the following question: "In a usual week, how often do you do physical activities or exercises specifically designed to improve or maintain your balance such as standing on one foot?" Response choices ranged from 0 to 7 days/week. [b]Definitions of meeting physical activity guidelines—aerobic: at least 150 min/week of moderate-intensity physical activity, 75 min/week of vigorous-intensity physical activity, or an equivalent combination; muscle strengthening: ≥2 days/week of muscle-strengthening activities; both: meeting the aerobic and muscle-strengthening guidelines.

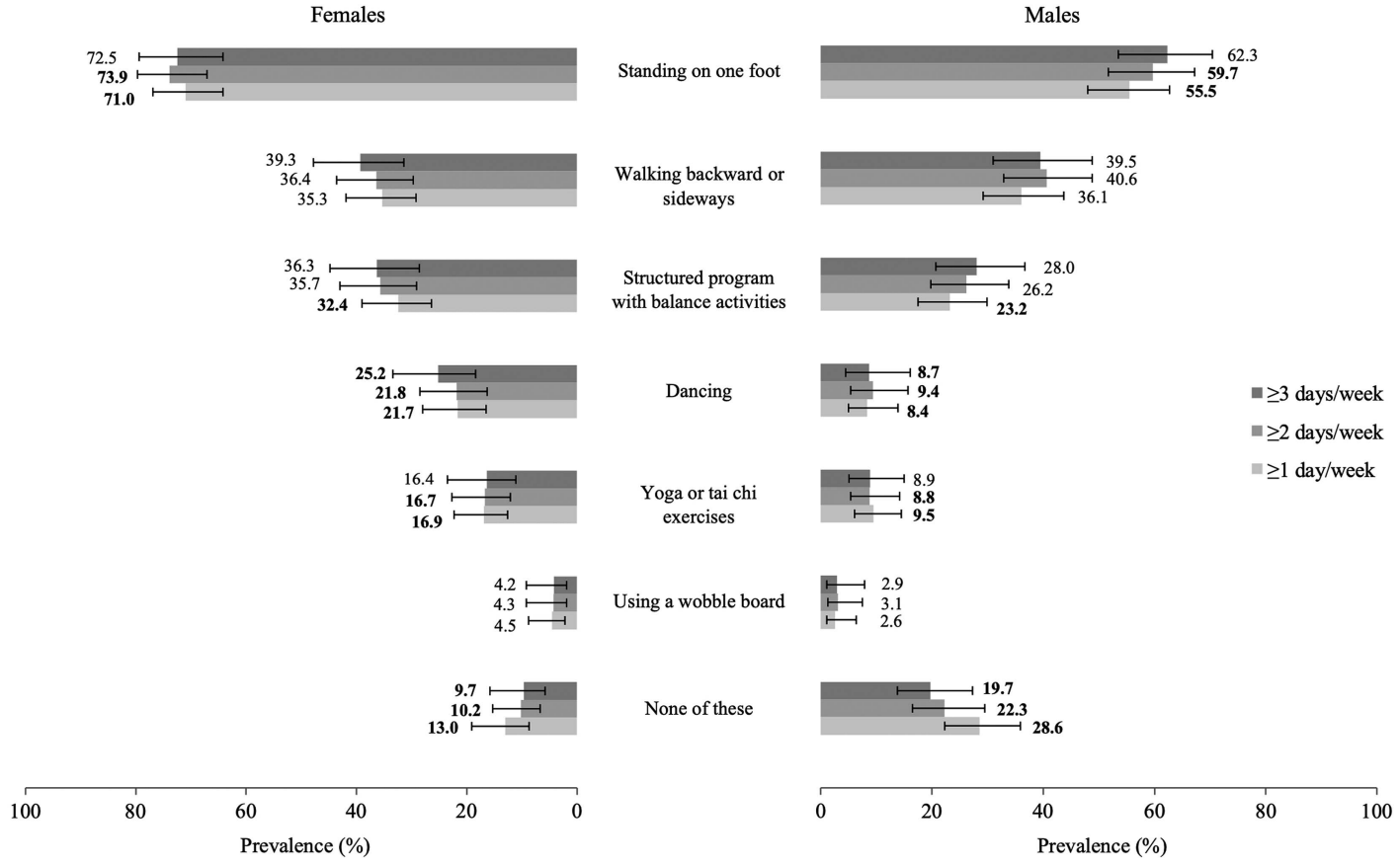

Figure 1 — Prevalence of types of balance activities done by U.S. adults aged 65 years or older by sex and frequency of doing balance activities, *FallStyles* 2019. *Note.* Estimates in bold indicates a statistically significant difference by sex ($p < .05$). The types of balance activities done were assessed by asking respondents, "In a usual week, do you do any of these activities?" Respondents were able to select all that applied, and response options included "Walking backward or sideways," "Standing on one foot," "Using a wobble board," "Dancing," "Yoga or tai chi exercises," "Structured program with balance activities," and "None of these."

females reported doing none of the response choices (i.e., the respondents were doing other types of balance activities).

Discussion

Our finding that only four in 10 U.S. older adults do any balance activities suggests that many older adults are not participating in balance activities that can improve activities of daily living and help prevent falls. Our study found that participation in balance activities differed by sex, education level, income level, BMI category, and meeting physical activity guidelines. Opportunities exist to introduce balance activities to those older adults who are not doing any and to increase the frequency of participation among those who already do balance activities, such as leisure-time physical activity (e.g., dancing or yoga) or a structured program that includes balance activities.

Participation in balance activities is not currently assessed in U.S. national surveillance systems, which limits comparisons of our findings to similar studies. A study examining a representative sample of Finnish adults in 2013–2014 found that 5.2% of adults aged 65–74 years and 3.6% of adults aged ≥75 years did balance activities on ≥2 days/week (Bennie et al., 2017). A 2009 study in New South Wales, Australia, found that about 6% of adults aged ≥65 years reported participating in balance activities during the past week (Merom et al., 2012). These estimates differ substantially from our findings of 40.7% of older adults doing balance activities on ≥1 day/week and 34.0% on ≥2 days/week. This may be partially due to differences in analytic methods and in the survey questions used to assess participation in balance activities. For example, one study assessed older adults' participation in balance training by asking about their participation in "activity that requires or develops balance (for example, tai chi, dancing, games, balance exercises on, for example, one leg, uneven ground, or on hands and knees)" for at least 10 min/session (Bennie et al., 2017), whereas the survey question used in our study included only one example of a balance activity and did not include a minimum bout requirement. This may have resulted in the respondents in our study having a broader interpretation of activities that qualify as balance activities, leading to higher estimates. In addition, the differences in estimates may also be due to population-level differences in balance activity behavior among older adults. However, patterns of participation in balance activities by sociodemographic characteristics in both studies were similar to those in our study (Bennie et al., 2017; Merom et al., 2012). To our knowledge, ours is the first study to estimate the prevalence of doing balance activities among a nationwide sample of U.S. older adults. Future research can consider performing similar analyses to help monitor the prevalence of U.S. older adults meeting this component of the *Guidelines.*

Older adults should do multicomponent activities that include balance activity as well as aerobic and muscle-strengthening activities; however, there is no recommendation for a specific amount of balance activity provided in the *Guidelines* (U.S. Department of Health and Human Services, 2018). When we examined the combined prevalence of participation in balance activities and meeting aerobic and muscle-strengthening physical activity guidelines, the overall prevalence ranged from 12.0% for ≥3 days/week of balance training activity to 15.8% for ≥1 day/week. The prevalence of participating in balance activities at all the frequencies examined was higher among those meeting the aerobic guideline and especially higher among those meeting the muscle-strengthening component. Activities or programs that are multicomponent may present important opportunities to not only introduce and increase participation in balance activities for older adults but also the aerobic and muscle-strengthening components of the guidelines. For example, EnhanceFitness®, an evidence-based group exercise and falls prevention program (Project Enhance, 2020), structures its programming on aerobic exercise, strength training, balance, and flexibility training to help older adults maintain their health and independence as they age. Further research and promotion of evidence-based fall prevention programs may help increase participation in multicomponent activities among older adults.

Patterns of differences in doing balance activities by sociodemographic characteristics were similar to those commonly found in surveillance data for meeting the aerobic and muscle-strengthening guidelines except for "by sex" (U.S. Department of Health and Human Services, 2020). For example, our study found that the prevalence of doing balance activities among older adults increased with increasing education and income level, which are patterns that are also commonly observed when examining the prevalence of meeting the aerobic and muscle-strengthening guidelines (U.S. Department of Health and Human Services, 2020). However, in our study, females reported a higher prevalence of participating in balance activities overall and in several types of balance activities than males, and these findings suggest that differences may exist in participation in balance activities overall and by balance activity types. Understanding older adult participation in specific types of balance activities may help guide programming efforts and strategies to increase balance activity participation. In addition, future research can identify and address personal and environmental barriers and seek to understand demographic subgroup differences in balance activity participation to better tailor interventions and public health fall prevention programs.

Limitations

This study is subject to some limitations. Sample selection bias may be associated with the use of an internet panel survey of volunteers. However, previous research has found a general equivalence between random-digit dialing and panel approaches (Fisher & Kane, 2004; Pollard, 2002). Although survey data were weighted based on eight factors from the 2018 U.S. Current Population Survey, we excluded approximately 70% of respondents in the original 2019 *FallStyles* sample due to respondents being 64 years old or younger; this may limit the generalizability of our findings. In addition, all survey data are self-reported, and self-report data may be influenced by the tendency of some respondents to answer questions in a socially desirable way. Furthermore, the aerobic physical activity question used assessed leisure-time physical activity but did not assess transportation-related or occupational aerobic physical activity, which may be important physical activity domains, particularly among older adults. Lastly, the validity and reliability of the self-reported survey question about balance activity is unknown.

Conclusions

This study is the first to estimate the prevalence of participation in balance activities among a nationwide sample of U.S. older adults. We found that approximately four in 10 U.S. older adults reported doing balance activities on at least 1 day/week. Participation in balance activities differed by sex, education level, income level, BMI category, and meeting physical activity guidelines. Opportunities exist to introduce and increase participation in balance activities by older adults.

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