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Factors Associated With Balance Confidence in Older Adults With Health Conditions Affecting the Balance Vestibular System

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Abstract

Objective—To determine the functional, clinical, and comorbid health condition factors that contribute to balance confidence in persons with balance or vestibular disorders, or both.

Design—Cross-sectional descriptive.

Setting—Tertiary care center for balance disorders.

Participants—Older adults (N95) with signs and symptoms of vestibular dysfunction.

Interventions—Not applicable.

Main Outcome Measures—Activity-specific Balance Confidence Scale (ABC) was administered on examination for complaints of balance, postural instability, or both.

Results—Balance confidence as measured by the ABC was associated with functional balance performance on the Timed Up & Go test and the Dynamic Gait Index. Duration of symptoms and general health-related quality of life (as measured by the Medical Outcomes Study 36-Item Short-Form Health Survey) were significant covariates of balance confidence. Self reported treatment for anxiety, depression, or both, significantly reduced balance confidence.

Conclusions—Balance confidence is a complex construct in older adults with signs and symptoms of balance or vestibular dysfunction, or both. Decreased balance confidence in performing functional activities is associated with actual balance performance, duration of vestibular symptoms, general healthrelated quality of life, and the presence of comorbid psychological and visual impairments. Understanding these relationships can potentially improve management of older adults who present with balance or vestibular disease, or both.

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Keywords

Accidental Falls; Aged; Postural Balance; Rehabilitation; Vestibular Disease

Falls are a significant health problem among older adults. Each year, approximately 30% of community dwelling older people in developed countries fall at least once, and 10% to 20% fall twice or more.([1–5]) Falls represent the most common mechanism of injury in the geriatric population.6 Among older persons who fall, approximately 10% sustain a serious injury, such as a fracture, joint dislocation, or a severe head injury.([2,7–9])Falls and fall-related injuries are associated with pain, loss of confidence, restricted activity, functional decline, and institutionalization.([2,7,9]) It has been reported that nearly 40% of all nursing home admissions are in some way related to falls.([10])

Vestibular dysfunction has been recognized clinically as a significant differential diagnosis resulting in unexpected falls.([11–13]) Based on a recent national health survey, persons 40 years and older who reported dizziness were 12 times more likely to have reported a fall.([14]) The common signs and symptoms that characterize vestibular syndromes include perceptual, ocular-motor, and postural changes. These signs and symptoms can result from lesions occurring in the labyrinths, vestibular nerves, brainstem, and cerebellum and have been shown to be associated with falls.([15–17]) Inability to compensate for vestibular deficits could increase the risk of sustaining a fall for the older individual.([13,18–24])

Individuals with balance or vestibular system disorders, or both, often deliberately restrict physical activity, travel, and social commitments to avoid symptoms or the potential consequences. ([16,25–28]) The degree to which individuals reduce or eliminate normal daily activities (thus reducing quality of life) to avoid the potential for falls has not been previously considered in an examination of falls among persons with vestibular dysfunction.

Falling and associated risk factors in the subpopulation of older adults with vestibular disorders have not been well studied. Disorders of the vestibular system are reportedly the source of 40% to 50% of the dizziness found in patients referred to otolaryngology and primary care practitioners.([29,30]) A recent report([13]) suggests that vestibular disorders may be a factor in unexplained falls that are seen in an emergency department. There has only recently been 1 epidemiologic study of the prevalence of falls among individuals with vestibular disorders in large populations.([14]) Despite the acknowledgment that postural instability is a feature of vestibular dysfunction, the magnitude of the problem of falls among individuals with vestibular dysfunction has received little attention until recently.([13–15,31])

Common complaints associated with vestibular disorders, such as dizziness and balance loss, are shown to increase with age and are considered among the factors placing an individual at increased risk of falls.([22,24,32–36]) The prevalence of dizziness has been reported in 34% of U.S. citizens 40 years or older, and signs and symptoms such as dizziness and postural instability have been shown to appear more frequently in populations with a propensity for falls.([13])

Fear of falling in older adults has been described as an independent risk factor for disability, loss of quality of life, and decreased mobility.([37]) Fear of falling and poor functional performance have been described as risk factors for falls in older adults.38 Estimates of fear of falling in community-dwelling older adults have ranged from 29% to 77%.([39,40]) Cross-sectional and longitudinal studies have revealed that fear of falling is associated with impaired balance, gait abnormalities, poor self-reported health status, and reduced activity levels.([2,41–43]) Fear of falling is frequently reported in persons with dizziness. ([44,45])

Fear of falling is often recorded as a dichotomous variable.40 In an effort to more accurately measure fear of falling, the Activities-specific Balance Confidence Scale (ABC) was developed. ([40,46]) Based on Bandura's concept of self-efficacy,([47]) the ABC is a 16-item questionnaire that asks respondents to score their level of confidence in performing a wide range of situation- specific activities such as reaching at eye level, reaching on tiptoes for an object, picking up a slipper from the floor and walking in a crowded mall. The ABC has been shown to have great utility in evaluating balance-related confidence with activities of daily living (ADLs) for persons with a moderate to high level of functioning in the realm of ADLs([48]) and has been associated with fall risk.([38,49,50]) Twenty of the 23 concepts identified using the back-coding technique are activities and participation items according to the International Classification of Functioning, Disability and Health (ICF) from the World Health Organization.([51]) The other 3 items were classified as body functions within the ICF.

An association has been shown between fear of falling as defined by balance confidence and balance performance.([38,52,53]) Community-dwelling older adults with fear of falling have demonstrated decreased performance on measures of balance and gait such as computerized posturography, 1-legged stance times, and the Performance-Oriented Mobility Assessment of Balance compared with persons with impaired balance but without fear of falling.([54]) Myers et al([48]) found a strong association between balance confidence as measured by the ABC and postural sway as measured by static posturography in community- dwelling older adults.

While evidence suggests that community-dwelling older adults who have concern about their ability to avoid falling may have impaired balance performance, information regarding the relationship between balance confidence/fear of falling and actual balance ability during ADL performance is quite limited in older adults with vestibular dysfunction. It is also unclear how balance confidence and fear of falling is affected by comorbid disease, vestibular disease characteristics, and self-perceptions of general health in persons with vestibular dysfunction. If balance confidence and fear of falling in themselves are a potential source of disability, an understanding of the dimensions of these characteristics is important to the development of interventions to reduce fall risk in older adults with vestibular impairment.

This cross-sectional study examined fear of falling in older adults with vestibular dysfunction referred to a tertiary care otolaryngology/physical therapy balance center. The purposes of this study were to (1) describe the relationships among balance confidence, balance performance, and functional mobility; and (2) identify the relationship between balance confidence and demographic characteristics, vestibular disease characteristics, fall

history, health condition comorbidity, and general health-related quality of life (HRQL) in older adults with vestibular disorders.

METHODS

Participants

Convenience sampling was used to recruit subjects. Participants were selected from among 140 consecutive community dwelling older adults 65 years and older referred to a tertiary care center for vestibular disorders, balance disorders, or both, over a 2-year period (2000 – 2001) from the Pittsburgh, Pennsylvania, metropolitan area. The mean age SD of the sample was 776.3 years (range, 65–93y). Patients were referred for physical therapy evaluation based on symptomatic complaints of dizziness, postural instability, or both. Subjects were eligible for inclusion if they were ambulating independently on indoor surfaces and were able to follow commands sufficiently to cooperate with the examination procedures. Subjects were excluded if they did not have a vestibular diagnosis confirmed by a neurotologist in their clinical record or if their history indicated signs, symptoms, or falls of a syncopal origin. From this initial group, 95 subjects were identified who had complete examination data for the study. The Institutional Review Board of the University of Pittsburgh approved this study. All data were collected and handled in accordance with Health Information Portability and Protection Act standards.

Procedure

Data were collected during a single physical therapy examination session by or under the supervision of a licensed physical therapist in accordance with clinic procedures. Demographic, comorbid health condition, and vestibular condition information were collected as part of the patient history. Comorbid health conditions were obtained by a standard clinical survey. Subjects noted whether they were currently receiving or had received treatment for any of 19 comorbid health conditions. Vestibular diagnosis was obtained from the International Classification of Diseases, Ninth Revision (ICD-9) code as confirmed by the referring physician.

Vestibular diagnosis was categorized based on the ICD-9 code as having a peripheral, central, mixed, or other/unspecified basis. Subjects were asked to describe current symptom duration (in months) and chief complaint as dizziness, postural instability, or both. Subjects also were requested to report the number of falls (instances of involuntarily coming in contact with the ground or lower surface) in the previous 6 months. Based on this number of falls, subjects were categorized as non fallers (no falls), 1-time (single fall), or recurrent (^{2}) fallers. Table 1 displays characteristics of the study sample. General HRQL was determined using the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) that was collected during the physical therapy examination. The SF-36 includes 36 items across 8 dimensions of HQRL. The 36-item SF-36 has been shown to demonstrate adequate reliability and validity for health outcomes in older adults.(^{55}) A single composite score on a scale of 0 to 100 as the mean of the 8 subscales was used as a measure of HRQL.

Balance confidence was determined by administration of the ABC before any functional testing occurred.([46]) The mean rating (0 –100; 0, no confidence; 100, complete confidence) for the 16 items was used to determine total balance confidence. Subjects were categorically determined to display fear of falling if their total ABC was below 50%.([40,56]) Functional balance was determined through administration of the Timed Up & Go (TUG) test.([57]) The TUG is a measure of the time required for a subject to rise from a standard chair, walk 3m at a comfortable and safe pace, turn, and return to sitting in the chair. The test has been reported to be both sensitive (87%) and specific (87%) using a cutoff of 14 seconds for identifying community-dwelling older adults at risk for falls.([58])

Functional gait performance was determined using the Dynamic Gait Index (DGI).959) The DGI consists of 8 tasks such as walking at different speeds, walking with head turns, ambulating over and around obstacles, ascending and descending stairs, and making quick turns. Each item is scored on a 4- level (0 –3; 0, unable to perform; 3, performs safely) ordinal scale with a maximum possible score on the total DGI of 24.([59]) A score of 19 or less has been associated with an increased risk of falling in older adults and in patients with vestibular disorders.([31,60,61])

Data Analysis

All data analyses were conducted using SPSS version 13.0.a Descriptive analyses were performed for all measures collected at examination. The Pearson product moment correlation coefficient was used to determine the relationship between the ABC and the TUG, as well as the ABC and the SF-36. The Spearman rank-order correlation coefficient was used to determine the relationship between the ABC, the SF-36, and the DGI.

To determine the functional factors related to balance confidence, multiple linear regression analysis was used, with the ABC as the dependent variable and TUG, DGI, and SF-36 as predictor variables. A backwards step multivariate modeling procedure was used that included age, and a variable was retained for a final model if the coefficient demonstrated a t test P value <.05. To describe the effect of comorbid conditions, fall status, and vestibular diagnostic categorical variables, a generalized linear model was used that also included the functional test variables as covariates.

RESULTS

Descriptive Statistics

Descriptive statistics for the ABC, TUG, DGI, and SF-36 are shown in table 2. The mean ABC for the study sample (51% confident) is slightly above the value (50%) described as indicating a lower level of self-efficacy in physical functioning.62 By using a categorical definition of ABC of less than 50%, 44% of the study subjects indicated reduced physical functioning on initial examination (see table 2).

Relationship Between Balance Confidence and Measures of Gait Function, Balance, and General HRQL

Moderately strong, significant correlations were found between the ABC and the functional performance measures of the TUG and DGI, as well as with the SF-36. Table 3 displays the correlation coefficients among the ABC, the functional performance tests (DGI and TUG), and the SF-36. The correlation between the SF-36 and the functional performance measures was weak, with significance only found (P<.05) between the SF-36 and the total DGI.

Higher levels of balance confidence as measured by the ABC were associated with better TUG scores (fig 1A) and DGI scores (fig 1B). When the contribution of the functional performance measures was tested independently using linear regression with adjustment for age and SF-36, higher (better) performance on the DGI (P=.01) and decreased time to perform the TUG (P<.01) were significant predictors of higher levels of balance confidence. When all variables were combined, the model of best fit included the TUG, the SF-36, and age (analysis of variance F_{94}12.9, P—.01). All variable coefficients were significant at P <. 01 except for age (p=.16). Age was retained despite the low significance of its coefficient because of its potential confounding effect on the ABC and the predictor variables. Additionally, a model with age accounted for a greater degree of variance in the ABC (R^2=30%) than a 2-variable model without age (R^2=28%).

Contribution of Vestibular Disease Characteristics to Balance Confidence

The patient's chief complaint at examination (dizziness, instability, or both) demonstrated a borderline significant effect on balance confidence. A 3-variable model with age, symptom duration, and chief complaint was significant (F44.08, P<.01) and predicted 16% of the variance in the ABC. After adjustment for age and months of symptom duration, patients who reported a chief complaint of dizziness and instability demonstrated lower mean balance confidence than patients with either dizziness or instability alone. Figure 2A illustrates mean ABC scores for patients with chief complaints of dizziness, instability, and both complaints. These mean ABC scores are adjusted for the effects of age and symptom duration and are shown estimated at the mean age (77y) and symptom duration (17mo) for the study sample. The model parameter estimate for chief complaint was borderline significant (P=.05). Post hoc pairwise comparisons (least significant differences) demonstrated that patients reporting dizziness combined with instability reported significantly (P=.04) lower balance confidence than patients with chief complaints of either dizziness or instability alone.

Mean ABC score was not significantly related to vestibular diagnosis or fall history (non falling, falling once, or recurrent falling) after adjustment for the confounding effects of age and symptom duration. There was no observed difference between diagnostic basis of vestibular or balance disorder and duration of symptoms.

Contribution of Comorbid Health Conditions to Balance Confidence

The total number of self-reported comorbid health conditions did not demonstrate a significant effect on ABC score (p=.66). Two individual self-reported conditions had a significant age-adjusted negative effect on balance confidence: anxiety/depression and visual

difficulties. Individuals with self reported anxiety/depression (P<.01) and visual deficit (P=.03) demonstrated significantly lower ABC scores than subjects without these conditions. The effect of self-reported anxiety/depression on ABC score remained after adjustment for the potential confounding effects of general HQOL (total SF-36 score) (P<.05).

The best multivariate model predictive of balance confidence that combined functional performance, vestibular disease characteristics, and comorbid disease characteristics included age, symptom duration, the TUG, the SF-36, and self-reported anxiety/depression (table 4). This 5-factor model was significant (F511.7, P<.01) and explained 38% of the variance in ABC. Figure 2B illustrates the mean difference between subjects with and without self-reported anxiety/depression with adjustment for age, SF-36, and TUG score.

Evaluation for Potential Selection Bias

To evaluate for possible selection bias resulting from the selection of subjects with complete examination data, comparisons were done between study subjects (n=95) and those that were eliminated (n=45) because of missing data. No significant mean differences were found for age, symptom duration, number of comorbid conditions, ABC, TUG, and SF-36. The median DGI score ([16]) was higher in the study group than for the 19 eliminated subjects who completed the DGI (median, 11). This median difference was significant (Mann-Whitney test, z=–2.51; P=.01). These results indicate that the group eliminated because of an incomplete examination may be representative of subjects who are at a lower level of functional performance.

DISCUSSION

The effect of functional mobility, as well as vestibular condition– specific and comorbid health condition characteristics, on balance confidence in older adults with signs and symptoms of vestibular disease in a tertiary care setting was examined. Two easily administered clinical measures of balance and gait, the TUG and DGI, were found to predict balance confidence in older adults with balance and vestibular disorders. Both the TUG and the DGI performed equally well with adjustment for age and general HRQL.

When both the TUG and the DGI were considered in a multivariate model, the DGI was removed because of the relatively strong correlation with the TUG. The TUG measures balance with gait and postural transitions, while the DGI assesses the impact of head movements and gait transitional movements on balance. A clinician can choose which measure provides the information most relevant to a patient’s impairments without compromising the ability to make inferences on the patient’s confidence in performing various activities. The advantage of the TUG over the DGI is that it requires less time to administer.

Compared with general populations of community-dwelling older adults, subjects with vestibular disorders demonstrated a significant degree of limitation in gait function, functional balance, and general HRQL. The patient group had a mean ABC score of 51% versus a mean score of 79%([63]) and 80%([64]) for community-living older adults.

The mean TUG of 15.2 seconds for these subjects is greater than the threshold of 14 seconds described as indicative of increased fall risk for community-dwelling older adults.([58,63]) The mean DGI of 15 is below the cutoff ([19]) indicating increased fall risk previously described for persons with vestibular dysfunction and community-living older persons in the community.([31,60,61])

The average HRQL (SF-36) in the older adults with balance and vestibular disorders was lower than what has been described by Andresen et al([55,65]) for community-dwelling older adults. The reported mean level of the SF-36 (53%) is greater than that reported for each subcomponent of the SF- 36 by Enloe and Shields66 for a population of persons (mean age ± SD, 56±13y) with vestibular disease. The mean age of our sample was 77 years versus 56 years for Enloe and Shields; thus, age may have downwardly affected our SF-36 scores in persons with vestibular disorders.

Our results are similar to findings regarding the contribution of functional performance to balance confidence in general populations of community-dwelling older adults. Studies by Hatch63 and Myers([48]) and colleagues reported strong relationships between balance performance and balance confidence. In a recent report, Whitehead et al([67]) observed lower ABC scores and slower gait speed to be related in a group of older adults after hip fracture.

Hatch([63]) demonstrated that the Berg Balance Scale predicted 60% of the variance in balance confidence in community dwelling older adults. In our study with a clinical population of older adults with vestibular impairments, functional balance performance predicted only 30% of balance confidence. Thirty eight percent of the variance in balance confidence was explained by a combination of functional, condition-specific, and comorbid condition effects: age, symptom duration, the TUG, the SF-36, and selfreported anxiety/ depression. These findings indicate that in addition to functional effects, balance confidence decreases with increasing vestibular symptom chronicity.

There was clear evidence of lower levels of balance confidence in patients with vestibular dysfunction reporting present or past treatment for anxiety, depression, or both. Depression and slow gait speed have been related to fear of falling in a previous report40 of older persons. The impact of a self-reported history of anxiety, depression, or both, on balance confidence was present despite adjustment for covariates of functional performance (DGI and TUG) and general HRQL. A relationship between self-efficacy and psychological symptoms has been described in studies of older adults.([39,68]) The relationship between depression, anxiety, and vestibular disease has also been described.([69–74]) Depression appears to negatively affect perceptions of the ability to perform activities for patients with vestibular impairments. A patient's self-perception of physical function and mobility can be independent of balance skills and must be considered in the planning of intervention strategies with patients with disorders of balance.

The sample of patients in this investigation had a prevalence of self-reported falls of 45% in the 6 months before examination. The 45% self-reported fall rate is higher than the proportion that is generally reported for community-dwelling elderly.([1–3,5]) Herdman et al([15]) reported a fall prevalence in older subjects with vestibular dysfunction of 41% in

subjects with peripheral disorders (unilateral and bilateral) older than 65 years. No information on health condition comorbidity, symptom duration, or symptomatic complaints was reported. Herdman's patients also demonstrated a relatively low level of disability, with 82% and 92% of the bilateral and unilateral vestibular subjects, respectively, reporting no limitation in ADLs.15 In Herdman's sample of people with unilateral and bilateral loss, the mean age of both groups was 63 years, with less than half of the sample older than 65 years. They do suggest that younger people, even those at risk for falling, continued to perform "risky behaviors."([15])

Inferences from the mean TUG and DGI scores indicate that older adults with vestibular disorders are at increased risk for falls by community-dwelling standards.([16,75]) The relationship between fall history and ABC was attenuated by the confounding variables of age and symptom duration. Reduced balance confidence without the experience of a recent fall is consistent with findings in non–vestibular-impaired populations.([63])

Study Limitations

There are several potential limitations to this study. The cross-sectional design limits the ability to make casual inferences between the independent predictor variables and balance confidence. This limitation has clinical implications because it cannot be determined whether functional performance is reduced as a result of limited self-efficacy or vice versa. Similarly, it cannot be inferred whether reduced self-efficacy is a cause or an effect of a present or a past mood disorder. These limitations could be resolved by a prospective design that studies changes in balance self-efficacy associated with changes in clinical and functional condition. A prospective design may also enhance the use of the results for specific clinical interventions to improve balance confidence. An additional limitation based on study design is potential recall bias for fall history or comorbid health conditions. Missing data limiting sample size is also a limitation. Many patients fail to complete the SF-36 in a clinical setting, possibly finding it a cumbersome survey to complete at initial examination.

CONCLUSIONS

Older adults with signs and symptoms of vestibular dysfunction report difficulty with activities because of impaired balance. The basis for decreased balance confidence during ADLs is multifactorial. The clinical presentation of decreased balance confidence was associated with TUG and DGI scores, duration of vestibular symptoms, general HRQL, and the presence of comorbid anxiety/depression. Balance confidence is an important indicator of potential functional gait and balance performance in older adults with balance and vestibular disorders. Clinicians should consider a history of anxiety or depression, in addition to balance confidence, in the design of interventions for patients with balance and vestibular disorders.

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List of Abbreviations

ABC	Activities-specific Balance Confidence Scale
ADLs	activities of daily living
DGI	Dynamic Gait Index
HRQL	health-related quality of life
ICD-9	*International Classification of Diseases, Ninth Revision*
ICF	*International Classification of Functioning, Disability and Health*
SF-36	Medical Outcomes Study 36-Item Short-Form Health Survey
TUG	Timed Up & Go

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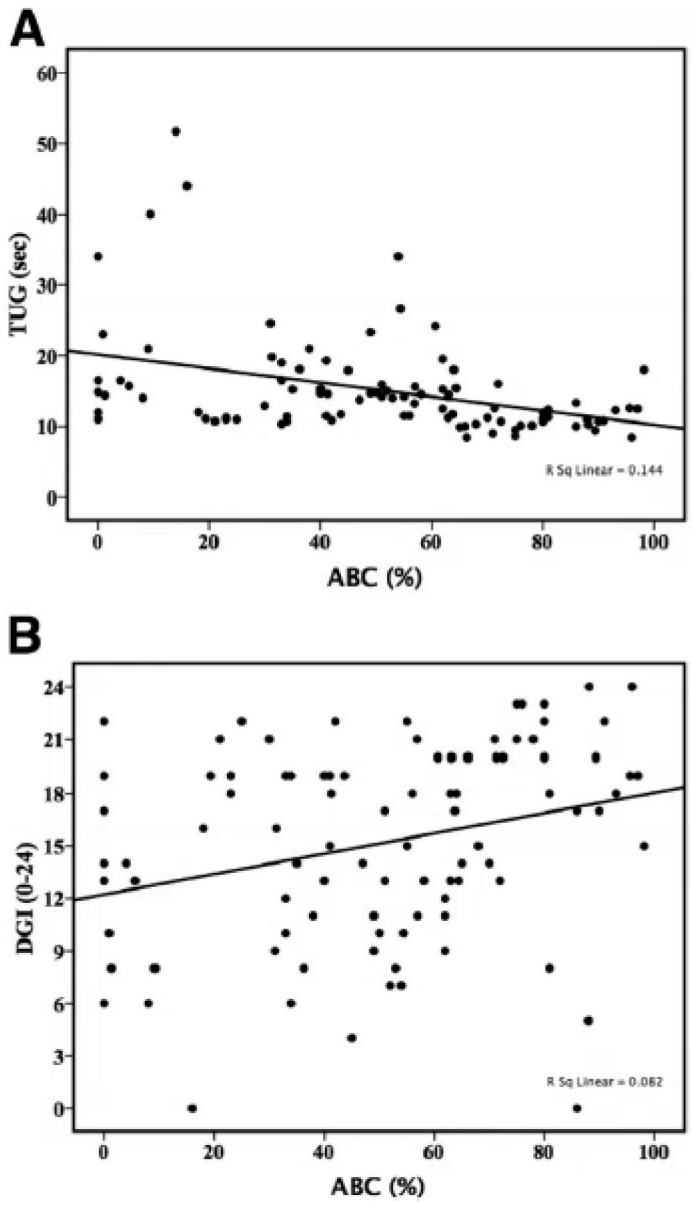

Fig 1.

Scatterplot with fit lines of ABC scores and performance on the TUG test (A) and DGI (B) on initial physical therapy evaluation for vestibular and/or balance disorders (N=95).

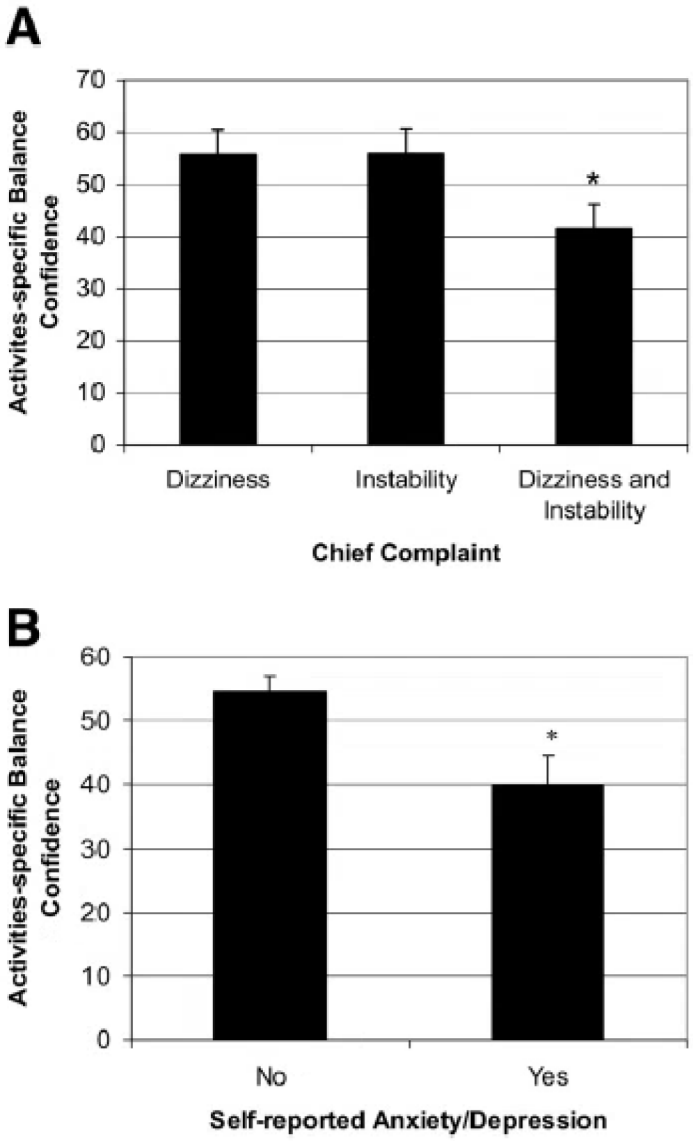

Fig 2.

Mean and SE for ABC scores for patients with chief complaints of dizziness, instability, or both (A) and self-reported comorbid anxiety and/or depression (B) with adjustment for significant covariates.

Table 1

Descriptive Characteristics of Study Population [N=95]

Characteristics	Values
Age (y)	77.0 ± 6 (78.0, 65–89)
Sex	
Men	23 (24.2)
Women	72 (75.8)
Symptom duration (mo)	16 ± 23.8 (7.0, 0–120)
Vestibular diagnosis	
Peripheral	32 (33.7)
Central	3 (3.2)
Mixed	26 (27.4)
Other/unspecified	34 (35.8)
Chief symptomatic complaint	
Dizziness	31 (32.6)
Instability	32 (33.7)
Both	32 (33.7)
History of falls in previous 6mo	
None	26 (27.3)
≥1	43 (45.3)
≥2	26 (27.4)
No. of total reported comorbid health conditions	3.6 ± 1.9 (3.0, 0–10)
Individual reported health conditions	
Arthritis	49 (51.6)
Hypertension	45 (47.4)
Hearing difficulty	33 (34.7)
Vision difficulty	31 (32.6)
Anxiety/depression	23 (24.2)
Heart disease	22 (23.2)
Muscle/bone/joint injury	20 (21.1)
Stomach ulcer/other GI	19 (20.0)
Allergy	18 (18.9)
Headache/migraine,	14 (14.7)
Diabetes mellitus	14 (14.7)
Cancer	14 (14.7)
Stroke/Parkinson/other neurologic	13 (13.7)
Lung disease	7 (7.4)
Skin condition	7 (7.4)
Anemia/blood disorder	5 (5.3)
Renal/liver disease	2 (2.1)
Seizure disorder	2 (2.1)

NOTE. Values are mean ± SD (median, range), n (%), or as otherwise indicated.

Abbreviation: GI, gastrointestinal.

Table 2

Descriptive Results for ABC, TUG, DGI. and SF-36 (N=95)

Variables	Values
ABC (% confident]	50.6 ± 27.5 (54, 0–98)
Functional limitation *	42 (44.2)
TUG (s)	15.2±7.3 (13.3, 8–52)
DGI	15.0±5.7 (16,0–24)
Total SF-36 (%)	53.1 ± 20 (53, 11.5–100)

NOTE. Values are mean ± SD (median, range) or n (%).

* Functional limitation defined as ABC <50%.

Table 3

Correlation Coefficients Between the ABC, TUG, DGI, and SF-36

Variables	TUG	DGI*	SF-36
ABC	−.40†	.37†	−.41†
TUG	NA	−.64†	−.15
DGI*	−.64†	NA	.25‡

NOTE. Pearson product-moment correlation coefficients are displayed except where indicated.

Abbreviation: NA, not applicable.

*Spearman rank-order correlation.

†$P<01$;

‡$P<.05$.

Table 4

Multivariate Generalized Linear Model Predictive of Balance Confidence

Source	F	*P*	R^2
Total model	11.70	.00	.38
Age (y)	3.68	.06	.04
TUG (s)	17.47	.00	.17
SF-36	7.00	.01	.08
Symptom duration (mo)	3.17	.08	.04
Self-reported anxiety/depression	6.12	.02	.07