

# What factors influence older adults to discuss falls with their health-care providers?

Den-Ching A. Lee B App Sc Grad Dip,\* Lesley Day PhD,† Keith Hill PhD,‡  
Lindy Clemson PhD,§ Fiona McDermott PhD¶\*\* and Terry P. Haines PhD††,‡‡

\*Research Physiotherapist, ‡‡Director, Allied Health Research Unit, Kingston Centre, Monash Health, Cheltenham, Vic., †Deputy Director, Monash Injury Research Institute, Monash University, Clayton, Vic., ‡Head of School, Faculty of Health Sciences, School of Physiotherapy, Curtin University, Bentley, WA, §Professor in Ageing and Occupational Therapy, Occupational Therapy Department, Faculty of Health Sciences, The University of Sydney, Lidcombe, NSW, ¶Associate Professor, Social Work Department, Faculty of Medicine, Nursing and Health Sciences, Monash University, Caulfield East, Vic., \*\*Research Social Worker, Social Work Department, Monash Medical Centre, Monash Health, Clayton, Vic. and ††Associate Professor, Physiotherapy Department, Faculty of Medicine, Nursing and Health Sciences, Monash University, Frankston, Vic., Australia

## Abstract

### Correspondence

Den-Ching A. Lee B App Sc, Grad Dip  
Research Physiotherapist  
Allied Health Research Unit  
Kingston Centre  
Monash Health  
Cnr Heatherton and Warrigal Road  
Cheltenham  
Vic. 3192  
Australia  
E-mail: angel.lee@southernhealth.org.au

### Accepted for publication

20 September 2013

**Keywords:** barriers, discussions, falls prevention, health-care providers, older adults

**Objective** To identify from the older adults' perspective, the factors associated with discussion about falls with their general practitioners and other health professionals and the factors associated with initiation of these discussions. We explored the content of and barriers to discussion about falls.

**Methods** A prospective cohort study where a baseline cross-sectional survey was followed by a survey 1 year later. Survey domains were drawn from constructs of behavioural change models. Data from 245 older community dwellers in Victoria, Australia, in the follow-up survey were used for this study. Survey format consisted of yes and no responses, Likert scale and open/closed-ended responses.

**Results** Few older adults talked with and initiated a talk with their health-care providers about falls in the follow-up period. Multiple regression showed anxiety or depression [OR = 2.78, 95% CI (1.21–6.41)], chronic medical conditions such as diabetes [OR = 2.71, 95% CI (1.19–6.17)] and having a self-reported fall in the last 12 months [OR = 4.26, 95% CI (2.16–8.41)] were associated with discussion of falls with general practitioners. Higher perception of risk of sustaining a serious injury from falling [OR = 1.49 (1.03–2.13)] was associated with discussion about falls with other health professionals. Participants discussed various topics of falls with their health-care providers. Different barriers to discussion about falls were identified.

**Conclusion** Health-care providers should routinely discuss falls prevention with older adults. Dissemination of evidence-based advice and followed up with referral during consultations, particularly in general practitioners could advance falls prevention practice. The results could help to develop a conceptual framework to predict the likelihood of falls discussion.

## Introduction

Approximately one-third of adults aged 65 and over fall annually.<sup>1</sup> Falls are the leading cause of injury-related death and hospitalization,<sup>2,3</sup> a significant source of morbidity and can decrease quality of life amongst older adults.<sup>4</sup> Despite the impact of falls, there is a concern that very few older adults talk to their health-care providers about falling.<sup>5</sup>

Most falls in older adults are associated with multiple risk factors,<sup>6</sup> many of which are potentially remediable. However, older adults generally underestimate their risk of falling and are not particularly receptive to direct messages about falls prevention.<sup>7</sup> They also have low levels of knowledge of evidence-based falls prevention activities.<sup>8,9</sup> Thus, it appears that many older adults are ill-equipped to manage their own risk of falls. Health-care providers are important sources of information and can play a central role in falls prevention. It is therefore important to understand the factors that motivate older adults to have a discussion with health-care providers about falls and their prevention.

This is an exploratory study which aimed to investigate what factors influenced falls information seeking in older adults and to identify associations between demographic characteristics, health and mobility status, health-care use, and perceptions of falls and fall risks, with whether they have had discussions about falls with their health-care providers, and whether older adults initiated these discussions. We also sought to explore the content of these discussions as recalled by older adults, and the barriers perceived to having a discussion about falls with their health-care providers.

## Methods

### Design

The current work took place in the context of a prospective cohort study in which a baseline cross-sectional survey was followed approxi-

mately 1 year later by a follow-up survey. The baseline survey examined older adult perceptions of a range of falls prevention activities, current levels of participation in these activities, their own perception of fall risks and collected demographic variables. The follow-up survey investigated a range of health outcomes, health-care use due to falls, perceptions of fall risks and risk of injury from falling, whether the older adults had discussed or initiated a discussion about falls with a health professional, the aspect of falls that was discussed, the recollection of advice given by health-care providers on falls prevention and barriers to discussion with health-care providers about falls during the follow-up period. This article focuses on falls information exchange between the participants and their health-care providers in the past 12 months and its relationship with demographic characteristics, comorbidities, health service use, self-reported falls history and difficulty with mobility, and perception of fall risks of the participants.

### Participants

Participants from the baseline survey who consented to participate in the follow-up survey in 12 months' time were contacted for the present study. The participants in the baseline survey were community-dwelling Australians aged  $\geq 70$  years from the State of Victoria with sufficient spoken English language proficiency (able to hold and maintain a telephone conversation). They were randomly selected from 2006 Victorian electronic residential telephone number listing. Equal numbers of those with and without the following chronic medical conditions were recruited: diabetes, congestive heart failure, pulmonary disease, renal disease, depression or anxiety. These medical conditions were sampled because older adults with these conditions incurred the most falls-related cost in a previous study which investigated hospital admission data in Victorian public hospitals.<sup>10</sup> People with significant cognitive impairment defined as a score of  $\geq 13$  on the six-item

cognitive impairment test at baseline or at the follow-up survey were excluded.<sup>11</sup>

### Survey instrument

A set of customized questions was designed to investigate the discussion of falls by the older adults with their health-care providers. The questions were derived from the theoretical concepts of Protection Motivation Theory and the Health Belief Model in the domain of threat appraisal with regard to risk of falls.<sup>12,13</sup> The questions were part of a broader questionnaire, which was adapted from a previously developed instrument used amongst hospital in-patients to examine perceived risk of falls and perceptions towards participation in falls prevention interventions.<sup>8,14,15</sup>

Perceptions related to fall risks, for example, whether the participants thought that they were likely to fall or sustain a serious injury in the next 12 months were examined through use of 5-point Likert scaled items (strongly agree to strongly disagree with undecided as a central point). Self-reported difficulty with mobility tasks was ranked in the order of 'can do without difficulty', 'can do with difficulty' and 'cannot do'. Closed questions were used to collect data on the occurrence of falls discussions, the discussion initiator, the types of health-care provider and the types of falls prevention advice reportedly given by their health-care providers in the follow-up period. Open-ended questions were used to collect data on the topic of the falls discussion and the barriers to discussion. Some examples of open-ended questions used were as follows: 'What (issues about falls) did you discuss (with your general practitioners)?', 'Is there any reason why you don't discuss the issue of falls with your general practitioner?'; 'Is there any reason why you don't discuss the issue of falls with health professionals other than your general practitioner?'.

### Procedure

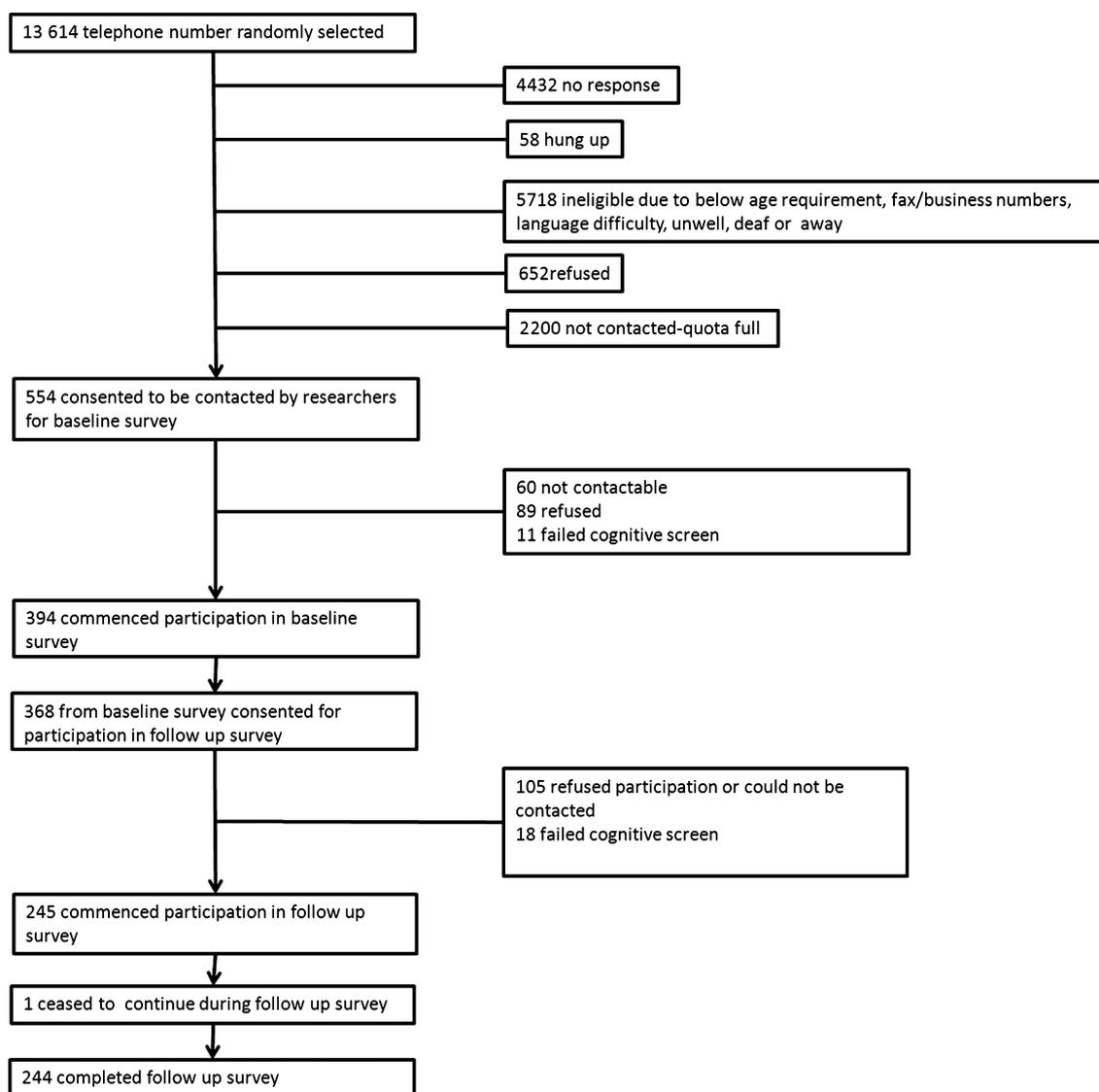
A survey research company commenced recruitment of potential participants in October

2010. Random selection from the 2006 Victorian electronic residential telephone listings, which was the most readily available listing at the time, was used as the sampling frame. Participants in the baseline survey were interviewed by research assistants between December 2010 and February in 2011, whilst participants in the follow-up survey were interviewed between January and March 2012. The study was approved by the Monash University Human Research Ethics Committee. Participation in the baseline and follow-up survey is shown in Fig. 1.

Telephone interviewers received training in application of the survey and were aided by having questions and relevant prompting material included in a Survey Monkey online survey program (created in [www.surveymonkey.com](http://www.surveymonkey.com)). The data were coded by the interviewers directly into Survey Monkey. Responses to open-ended questions were able to be transcribed verbatim where the response was brief. Extended responses were summarized by the interviewer who then confirmed the paraphrased response with the participant and were recorded subsequently.

### Statistical analysis

Associations between independent and dependent variables of whether the participants (1) had a discussion with their general practitioners, (2) had a discussion with other health professionals, (3) initiated a discussion with their general practitioners or (4) initiated a discussion with other health professionals were explored using univariate logistic regression analyses. The independent variables considered were demographic characteristics, comorbidities, self-reported falls history and health service use due to falls in the last 12 months, perceptions about fall risks in the next 12 months and self-reported difficulty with mobility tasks. Fisher's exact test of probability was employed instead of logistic regression where there was an empty cell in the  $2 \times 2$  contingency table. Multiple logistic regression analysis was performed to explore the



**Figure 1** Participant flow in baseline and follow-up surveys.

relationships between significant independent variables and each dependent variable. A ‘backwards elimination’ model-building procedure was used where all variables with a significant univariate association with the respective dependent variable began in the multiple logistic regression model.<sup>16</sup> Independent variables were then removed sequentially based upon having the highest adjusted *P*-value in the model. Independent variables were removed from each model until all independent variables had a *P*-value  $\leq 0.05$ . Sets

of plausible interaction terms between independent variables were then entered into the models to see whether they improved the model fit. Pairs of independent variables examined were gender and depression/anxiety; depression/anxiety and being a faller; gender and being a faller; living alone and being a faller; perception of risk of fall and being a faller; and perception of risk of serious injury from falling and being a faller. Data analysis was performed using STATA version 12 (College Station, TX, USA).

Qualitative data from survey items on the content of discussions about falls and barriers to discussion with their general practitioners and other health professionals were coded using the summative approach of content analysis (number and percentages) combined with qualitative description of participants' response.<sup>17</sup> Coding of barriers was guided by the conceptual framework developed by Day *et al.*<sup>18</sup> which underpinned the overall survey instrument. Researcher D.-C.A.L. organized the recorded responses and grouped them into categories and subcategories with reference to the framework. New categories and subcategories were generated for responses that were not captured by the framework. This coding of data was led by D.-C.A.L. and reviewed in collaboration with T.P.H. to ensure adequate description of participants' responses.

## Results

The flow of participants through the baseline and follow-up surveys is shown in Fig. 1. There were 245 participants who commenced in the follow-up survey. One participant did not complete the survey. The mean age of participants was 78 years. Sixty per cent were female and 49% lived alone. Demographic characteristics, comorbidities, health service use, self-reported falls and difficulty with mobility in the last 12 months, perception of fall risks and their associations with dependent variables are presented in Table 1.

Ninety-three participants (38.0%) from the follow-up study reported falling in the 12 months from baseline. Of the 53 participants who reported falling and sought medical attention, 29 (54.7%) consulted their general practitioner, 11 (20.8%) visited other health professionals, 9 (17.0%) required hospital admission, and 4 (7.5%) presented to an emergency department.

Of the 245 participants, 55 (22.4%) had a discussion with their general practitioners about falls in the preceding year, of whom 37 (15.1%) initiated the discussion. Thirty-two participants (58.2%) who reported having had

a discussion with general practitioners about falls recalled being given a recommendation; 15 were advised to 'be careful', 'slow down' or 'be aware of their environment'; six were told to exercise, four received advice on medications, three were advised on use of a gait aid, two were referred to a falls and balance clinic, one was referred for occupational therapy home visit, and one was advised to modify their home environment. Twenty-three participants (41.8%) reported having had a discussion with their general practitioners about falls did not recall receiving any recommendations to prevent future falls.

Fewer participants had a discussion about falls with other health professionals (38, 15.5%) or initiated the discussion (34, 13.9%). Of the 38 participants, 37 reported the types of health professional. These included a physiotherapist (23), a nurse (5), a dietician (1), a pharmacist (1), a podiatrist (1), an occupational therapist (1) and other professionals such as medical specialists (5). Most of these participants (33, 89.2%) recalled receiving one or more recommendations about preventing falls; 17 were advised to do exercise, five were advised to modify their home environment, three were given general advice to 'be careful', 'walk slowly', 'be aware of the environment', two were told about correct footwear, two were referred to a falls and balance clinic, two were advised to use a gait aid, one was referred for an occupational therapy home visit, and one was advised about their medications. Only four participants (10.8%) who reported having had a discussion with other health professionals about falls did not recall receiving any recommendations to prevent future falls.

Seventy-one of 245 participants (29%) discussed falls with general practitioners and/or other health professionals. Amongst the participants who reported they had fallen in the 12-month follow-up period, 48 of the 93 fallers (52%) did not discuss falls with either their general practitioner or another health professional.

Participants were more likely to have had a discussion about falls with their general practi-

**Table 1** Univariate associations between demographics and attitudes towards falls and patient discussion with health professionals

	Data from follow-up survey	<i>n</i> with data	Had a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Had a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value
<i>n</i> (%)	245 (100)		55 (22.4)	37 (15.1)	38 (15.5)	34 (13.9)
<b>Demographics</b>						
Age – mean (SD)	77.5 (5.7)	245				
Gender (female)	148 (60.4%)	245	1.24 (0.68–2.28), <i>P</i> = 0.487	1.36 (0.67–2.75), <i>P</i> = 0.392	0.76 (0.37–1.57), <i>P</i> = 0.461	0.81 (0.38–1.72), <i>P</i> = 0.581
Marital status		242	1 (0.55–1.85), <i>P</i> = 0.99	0.92 (0.45–1.87), <i>P</i> = 0.82	1.35 (0.67–2.70), <i>P</i> = 0.399	1.05 (0.51–2.17), <i>P</i> = 0.897
Married, living with a partner	124 (51.2%)					
Widowed	80 (33.1%)					
Divorced	23 (9.5%)					
Separated	7 (2.9%)					
Never married	8 (3.3%)					
Lives on their own	121 (49.4%)	245	1.0 (0.56–1.85), <i>P</i> = 0.96	1.34 (0.66–2.71), <i>P</i> = 0.418	0.97 (0.49–1.94), <i>P</i> = 0.935	1.28 (0.62–2.65), <i>P</i> = 0.508
Cognitive Impairment		245	1.0 (0.90–1.11), <i>P</i> = 0.965	1.0 (0.88–1.13), <i>P</i> = 0.992	0.97 (0.85–1.10), <i>P</i> = 0.616	0.96 (0.84–1.10), <i>P</i> = 0.576
Test score – mean (SD) <sup>1</sup>	2.9 (2.8)					
<b>Comorbidities</b>						
Congestive heart failure	10 (4.1%)	244	2.4 (0.65–8.8), <i>P</i> = 0.189	0.61 (0.08–4.97), <i>P</i> = 0.645	Fisher's exact, <i>P</i> = 0.369	Fisher's exact, <i>P</i> = 0.365
Another form of heart disease <sup>2</sup>	79 (32.5%)	243	1.76 (0.94–3.29), <i>P</i> = 0.08	1.39 (0.67–2.89), <i>P</i> = 0.377	0.95 (0.45–2.0), <i>P</i> = 0.894	1.16 (0.54–2.47), <i>P</i> = 0.709
Stroke <sup>3</sup>	21 (8.6%)	245	1.83 (0.7–4.80), <i>P</i> = 0.217	2.49 (0.90–6.91), <i>P</i> = 0.08	0.90 (0.25–3.22), <i>P</i> = 0.871	1.04 (0.29–3.73), <i>P</i> = 0.955
Cancer	60 (24.6%)	244	1.06 (0.53–2.12), <i>P</i> = 0.866	1.36 (0.63–2.96), <i>P</i> = 0.432	1.31 (0.60–2.82), <i>P</i> = 0.498	1.57 (0.72–3.45), <i>P</i> = 0.26
Osteoporosis or osteopenia	56 (22.9%)	245	1.73 (0.88–3.39), <i>P</i> = 0.11	1.53 (0.70–3.34), <i>P</i> = 0.282	1.47 (0.68–3.18), <i>P</i> = 0.333	1.49 (0.67–3.35), <i>P</i> = 0.329

Table 1. Continued

	Data from follow-up survey	<i>n</i> with data	Had a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Had a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value
Depression or anxiety	38 (15.5%)	245	3.13 (1.51–6.52), <i>P</i> = 0.002*	2.38 (1.04–5.45), <i>P</i> = 0.04*	5.22 (2.39–11.40), <i>P</i> = 0.000*	5.45 (2.44–12.19), <i>P</i> = 0.000*
Arthritis	146 (59.6%)	245	2.11 (1.09–4.08), <i>P</i> = 0.026*	2.37 (1.07–5.28), <i>P</i> = 0.034*	1.82 (0.85–3.86), <i>P</i> = 0.121	2.46 (1.07–5.70), <i>P</i> = 0.035*
Diabetes	43 (17.6%)	244	2.16 (1.05–4.41), <i>P</i> = 0.036*	2.31 (1.04–5.15), <i>P</i> = 0.04*	0.67 (0.25–1.83), <i>P</i> = 0.434	0.58 (0.19–1.76), <i>P</i> = 0.339
Lung disease <sup>4</sup>	39 (15.9%)	245	1.68 (0.79–3.60), <i>P</i> = 0.178	1.28 (0.52–3.17), <i>P</i> = 0.589	1.23 (0.50–3.05), <i>P</i> = 0.647	1.16 (0.44–3.01), <i>P</i> = 0.767
Inner ear dysfunction affecting balance	31 (12.7%)	245	1.24 (0.52–2.94), <i>P</i> = 0.63	1.42 (0.54–3.73), <i>P</i> = 0.481	0.78 (0.26–2.39), <i>P</i> = 0.669	0.91 (0.30–2.78), <i>P</i> = 0.867
Cataracts	55 (22.4%)	245	1.09 (0.54–2.22), <i>P</i> = 0.811	0.49 (0.18–1.34), <i>P</i> = 0.164	0.60 (0.24–1.53), <i>P</i> = 0.288	0.71 (0.28–1.81), <i>P</i> = 0.471
Other visual impairment	64 (26.1%)	245	1.08 (0.55–2.12), <i>P</i> = 0.825	1.24 (0.57–2.67), <i>P</i> = 0.588	1.38 (0.65–2.92), <i>P</i> = 0.406	1.67 (0.77–3.60), <i>P</i> = 0.193
Joint replacement	45 (18.4%)	245	1.53 (0.74–3.17), <i>P</i> = 0.254	2.98 (1.38–6.45), <i>P</i> = 0.006*	1.47 (0.64–3.38), <i>P</i> = 0.359	1.75 (0.75–4.06), <i>P</i> = 0.193
Broken bone since turning 60	49 (20%)	245	2.21 (1.11–4.39), <i>P</i> = 0.024*	1.89 (0.86–4.16), <i>P</i> = 0.112	1.30 (0.57–2.95), <i>P</i> = 0.538	1.28 (0.54–3.02), <i>P</i> = 0.58
Health service use indicators						
Participants admitted to hospital due to fall(s) in the last 12 months	9 (3.7%)	243	2.94 (0.76–11.37), <i>P</i> = 0.117	3.05 (0.73–12.78), <i>P</i> = 0.128	2.94 (0.70–12.32), <i>P</i> = 0.140	3.4 (0.81–14.32), <i>P</i> = 0.095
Participants admitted to hospital due to other reasons than falls in the last 12 months	61 (24.9%)	245	0.6 (0.31–1.16), <i>P</i> = 0.13	0.64 (0.30–1.37), <i>P</i> = 0.253	0.50 (0.24–1.05), <i>P</i> = 0.067	0.55 (0.26–1.20), <i>P</i> = 0.135

Table 1. Continued

	Data from follow-up survey	<i>n</i> with data	Had a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Had a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value
Participants presented to emergency department due to fall(s) in the last 12 months	4 (1.6%)	245	3.54 (0.48–25.78), <i>P</i> = 0.211	1.90 (0.19–18.76), <i>P</i> = 0.583	5.70 (0.78–41.73), <i>P</i> = 0.087	2.10 (0.21–20.81), <i>P</i> = 0.526
Participants visited general practitioners due to fall(s) in the last 12 months	29 (11.8%)	245	7.9 (3.45–18.14), <i>P</i> = 0.000*	5.39 (2.31–12.60), <i>P</i> = 0.000*	4.28 (1.83–10.02), <i>P</i> = 0.001*	4.21 (1.75–10.10), <i>P</i> = 0.001*
Participants visited other health professionals due to fall(s) in the last 12 months	11 (4.5%)	245	6.78 (1.91–24.1), <i>P</i> = 0.003*	7.86 (2.26–27.31), <i>P</i> = 0.001*	73.6 (9.07–596.72), <i>P</i> = 0.000*	37.62 (7.69–183.99), <i>P</i> = 0.000*
Health insurance (private insurance or Department of Veterans Affairs coverage)	155 (64.9%)	239	1.19 (0.62–2.28), <i>P</i> = 0.596	1.05 (0.49–2.22), <i>P</i> = 0.908	0.72 (0.35–1.49), <i>P</i> = 0.375	0.66 (0.31–1.40), <i>P</i> = 0.276
Falls history and perceptions	93 (38%)	244	4.88 (2.56–9.30), <i>P</i> = 0.000*	4.94 (2.30–10.59), <i>P</i> = 0.000*	2.02 (1.01–4.07), <i>P</i> = 0.048*	2.03 (0.98–4.20), <i>P</i> = 0.058
Self-reported faller in the last 12 months	114 (46.5%)	245	1.54 (1.15–2.04), <i>P</i> = 0.004*	1.59 (1.14–2.22), <i>P</i> = 0.006*	1.32 (0.95–1.82), <i>P</i> = 0.094	1.37 (0.98–1.92), <i>P</i> = 0.069
I think that I will fall over at some point in the next 12 months	47 (19.2%)	243	1.16 (0.87–1.56), <i>P</i> = 0.314	1.22 (0.87–1.69), <i>P</i> = 0.247	1.45 (1.05–2.04), <i>P</i> = 0.024*	1.37 (0.97–1.92), <i>P</i> = 0.071
Strongly agree	6 (2.4%)					
Agree	36 (14.7%)					
Undecided	42 (17.1%)					
Disagree	114 (46.5%)					
Strongly disagree	47 (19.2%)					
I think that if I were to fall over in the next 12 months, I would be likely to get a serious injury (for example, a broken bone)						

Table 1. Continued

	Data from follow-up survey	<i>n</i> with data	Had a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with general practitioners in past 12 months OR (95% CI), <i>P</i> -value	Had a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value	Initiated a discussion with other health professionals in past 12 months OR (95% CI), <i>P</i> -value
Strongly agree	6 (2.5%)					
Agree	45 (18.5%)					
Undecided	39 (16%)					
Disagree	120 (49.4%)					
Strongly disagree	33 (13.6%)					
Self-reported difficulty with mobility tasks						
Can you use public transport such as buses, trams or trains without assistance?		237	1.83 (1.08–3.12), <i>P</i> = 0.026*	1.66 (0.91–3.02), <i>P</i> = 0.101	1.92 (1.07–3.44), <i>P</i> = 0.028*	2.02 (1.11–3.68), <i>P</i> = 0.022*
Can do without difficulty	189 (79.9%)					
Can do with difficulty	38 (16%)					
Cannot do	10 (4.2%)					
Can you walk up and down stairs without a handrail?		242	1.60 (1.06–2.36), <i>P</i> = 0.022*	1.55 (0.98–2.45), <i>P</i> = 0.061	1.32 (0.84–2.08), <i>P</i> = 0.226	1.55 (0.96–2.48), <i>P</i> = 0.072
Can do without difficulty	97 (40.1%)					
Can do with difficulty	94 (38.8%)					
Cannot do	51 (21.1%)					
Can you bend and pick up an object from the floor without any assistance?		243	1.78 (0.96–3.29), <i>P</i> = 0.065	1.39 (0.68–2.84), <i>P</i> = 0.373	1.72 (0.87–3.42), <i>P</i> = 0.117	2 (1.00–4.00), <i>P</i> = 0.049*
Can do without difficulty	196 (80.7%)					
Can do with difficulty	43 (17.7%)					
Cannot do	4 (1.6%)					

OR, odds ratio; CI, confidence interval.

\**P* ≤ 0.05.

<sup>1</sup>Cognitive impairment test score (0–28, higher scores are more impaired).

<sup>2</sup>Coronary heart disease, cardiomyopathy, ischaemic heart disease, hypertensive heart disease, inflammatory heart disease, disease affecting one or more valves of the heart, heart murmur.

<sup>3</sup>Mini-strokes, aneurysms, transient ischaemic attacks.

<sup>4</sup>Asthma, emphysema, chronic obstructive pulmonary disease, chronic obstructive airways disease.

**Table 2** Multiple regression analysis: associations between significant independent variables and discussion/initiation of discussion with general practitioners, discussion/initiation of discussion with other health professionals about falls

Independent variables	Discussion with general practitioners about falls OR (95% CI), <i>P</i> -value	Initiated discussion with general practitioners about falls OR (95% CI), <i>P</i> -value	Discussion with other health professionals about falls OR (95% CI), <i>P</i> -value	Initiated discussion with other health professionals about falls OR (95% CI), <i>P</i> -value
Depression or anxiety	2.78 (1.21–6.41), <i>P</i> = 0.016*		5.3 (2.32–12.12), <i>P</i> = 0.000*	5.24 (2.28–12.01), <i>P</i> = 0.000*
Diabetes	2.71 (1.19–6.17), <i>P</i> = 0.017*			
Arthritis	2.18 (1.05–4.55), <i>P</i> = 0.037*			
Had a self-reported fall in the last 12 months	4.26 (2.16–8.41), <i>P</i> = 0.000*	5.32 (2.42–11.66), <i>P</i> = 0.000*		
Fracture since aged 60 years	3.15 (1.42–6.98), <i>P</i> = 0.005*			
Joint replacement		3.38 (1.47–7.76), <i>P</i> = 0.004*		
Visited general practitioner because of fall(s) in the last 12 months			4.09 (1.63–10.27), <i>P</i> = 0.003*	3.96 (1.57–10.03), <i>P</i> = 0.004*
Higher perception of risk of serious injury if falling in the next 12 months			1.49 (1.03–2.13), <i>P</i> = 0.033*	

OR, odds ratio; CI, confidence interval.

\**P* ≤ 0.05.

tioners if they had a history of anxiety or depression, arthritis, diabetes, sustained a previous fracture since aged 60 years, and if they had reported a fall or visited their general practitioners or other health professionals due to falls in the last 12 months, had higher perceived risks of falls in the next 12 months, had self-reported difficulty with using public transport and negotiating stairs. A similar set of factors were associated with initiation of discussion with general practitioners (Table 1).

Participants were more likely to have had a discussion about falls with other health professionals if they had a history of anxiety or depression, if they had reported a fall or visited their general practitioners or other health professionals due to falls in the last 12 months, had a higher self-perceived risk of serious injury from falling and reported difficulty with using public transport. Similar factors were associated with the initiation of discussion with other health professionals (Table 1).

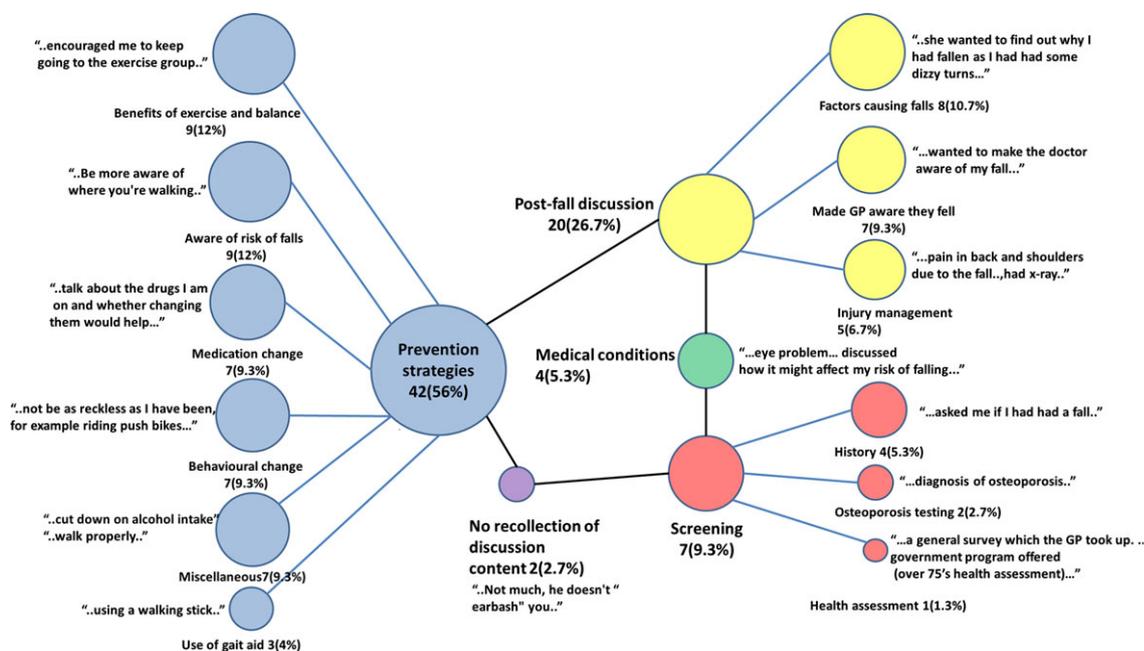
Multiple regression analysis demonstrated that participants were more likely to discuss falls with their general practitioners if they had history of anxiety or depression, diabetes, arthritis, fractures or if they had reported falling in the last 12 months. Participants were more likely to initiate a discussion with their general practitioners about falls if they had joint replacement or if they had reported falling in the last 12 months. Discussion with other health professionals about falls was independently associated with history of depression or anxiety, if participants visited their general practitioners because of a fall in the last 12 months or if they had a higher perception of a serious injury from falling in the next 12 months. Participants were more likely to initiate a discussion with other health professionals about falls if they had anxiety or depression or if they visited their general practitioners because of a self-reported fall in the last 12 months (Table 2). No significant

interaction effect was identified between plausible pairs of independent variables on the outcome variables of discussion or initiation of discussion with their general practitioners and other health professionals about falls (interaction effect analyses not shown).

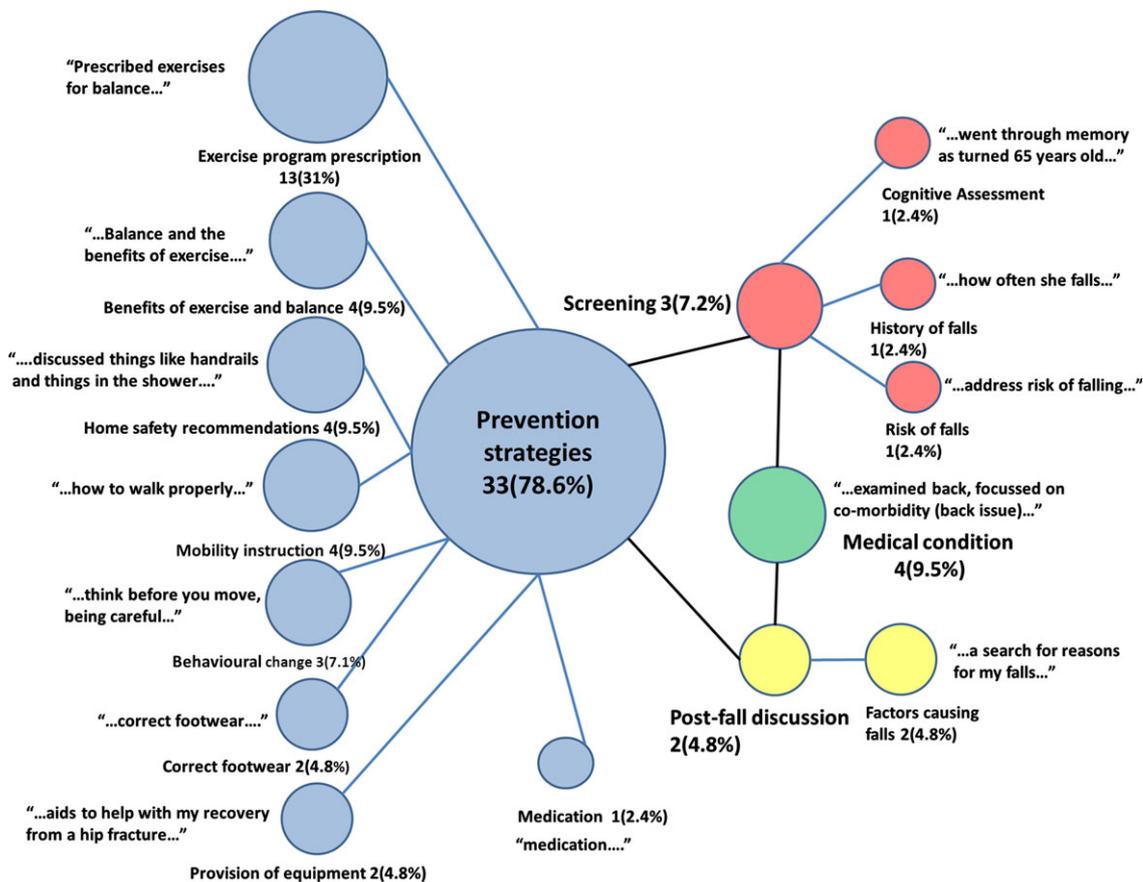
Participants who reported having had a discussion with their general practitioners about falls ( $n = 55$ ) were asked to recall and described what was discussed. Their responses were coded into 75 'comments'. These comments were classified into five major categories which were divided into subcategories (Fig. 2). The five categories were (1) prevention strategies, describing a range of recommendations that were reportedly given by general practitioners to prevent falls, (2) post-fall discussion, which described the contents of discussion between general practitioners and participants after they have fallen, (3) screening, describing checking for general health and history of falls, (4) medical conditions, which pertained to discussion of how certain medical conditions may contribute to the risk of falls and (5) no recollection of discussion content. There were 42 comments (56%) made on prevention

strategies, which was spread evenly into six subcategories with talking about the benefits of exercise and importance of balance as a subcategory. Post-fall discussion (20 comments, 26.7%) was divided into three even subcategories with injury management as a subcategory. Seven comments (9.3%) of the category of screening were divided into three subcategories with the most frequent discussions on the history of falls. Four comments (5.3%) were made on risk of falls relating to the category of medical conditions.

Thirty-six of the 38 participants who reported discussion of falls with other health professionals gave responses on what was discussed. There were 42 comments made, and they were divided into four major categories consisting of subcategories (Fig. 3); (1) prevention strategies, (2) medical conditions, (3) screening and (4) post-fall discussion. There were 33 comments (78.6%) made on the category of prevention strategies in which exercise programme prescription was the predominant subcategory of the recommendations recalled by the older adults. Few comments were made on category (2) to (4) in the content of



**Figure 2** Topics of falls discussion with general practitioners (number of comments and percentages) (Black lines linked categories of topic of falls discussion, blue lines linked subcategories from a category).



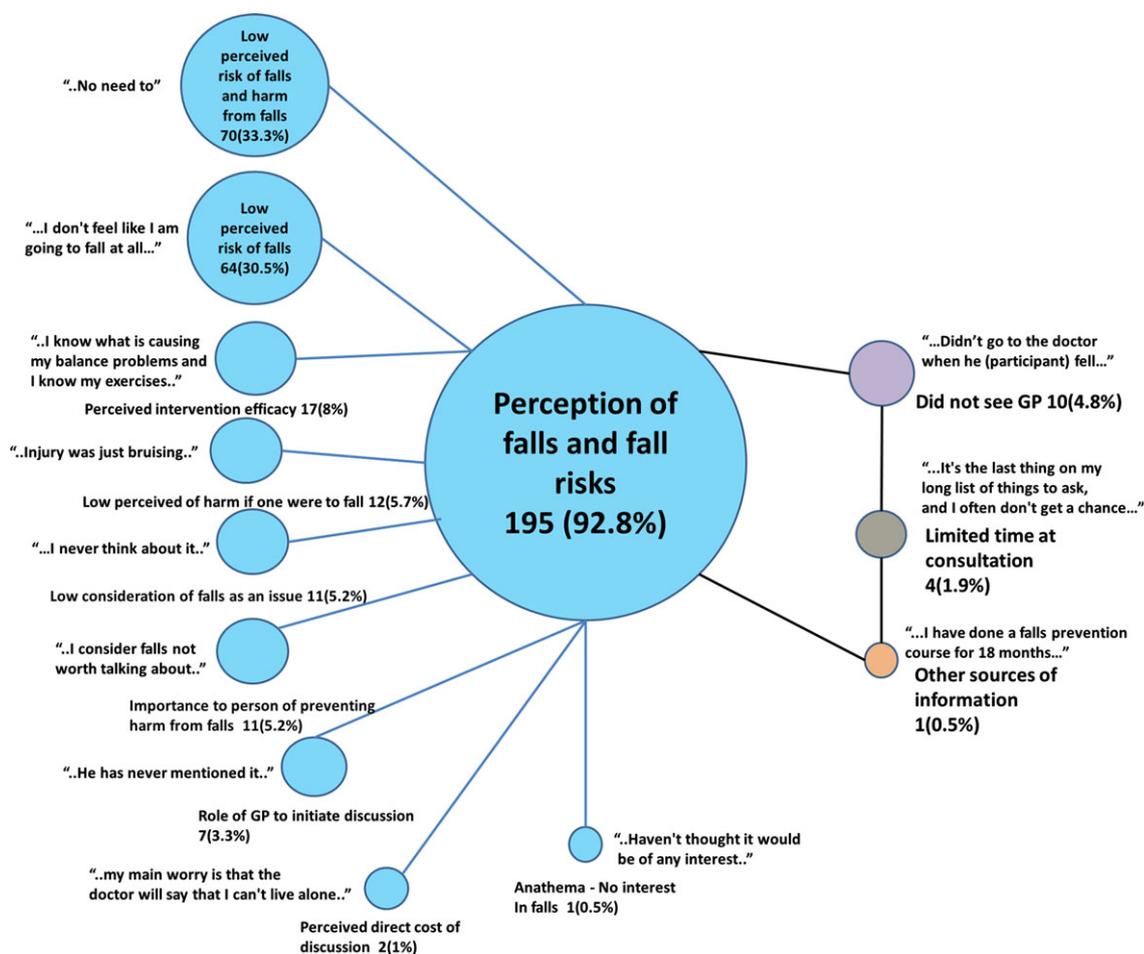
**Figure 3** Topics of falls discussion with other health professionals (number of comments and percentages) (Black lines linked categories of topic of falls discussion, blue lines linked subcategories from a category).

discussion with other health professionals. Figures 2 and 3 highlighted the differences in the nature of comments between discussions held with general practitioners and discussions with other health professionals. For example, in the category of prevention strategies, discussions with general practitioners were spread across a range of areas, whereas for the other health professionals, there was a heavy weighting towards the prescription of an exercise programme for the prevention of falls, consistent with physiotherapy being the dominant health profession. It was evident that other health professionals gave a much higher proportion of evidence-based prevention strategies than general practitioners as recalled by the participants.<sup>19</sup>

There were 191 participants who responded to the survey item of why they did not discuss

falls with their general practitioners. Participants made 210 comments which were coded into four broad categories of barriers: (1) perception of falls and fall risks, which described the perceived risk of falls and risk of harm from falls by the participants, (2) did not see their general practitioners at the time of the fall, (3) limited time at consultation to discuss falls, and (4) were receiving other sources of information (Fig. 4). The category of perception of falls and fall risks (195 comments, 92.8%) was divided into subcategories in which a substantial percentage of the comments made were on low perceived risk of falls and harm from falls. Categories (2) to (4) were the minority barriers reported in discussions of falls with their general practitioners.

Participants ( $n = 209$ ) responded to the survey item of why they did not discuss falls with



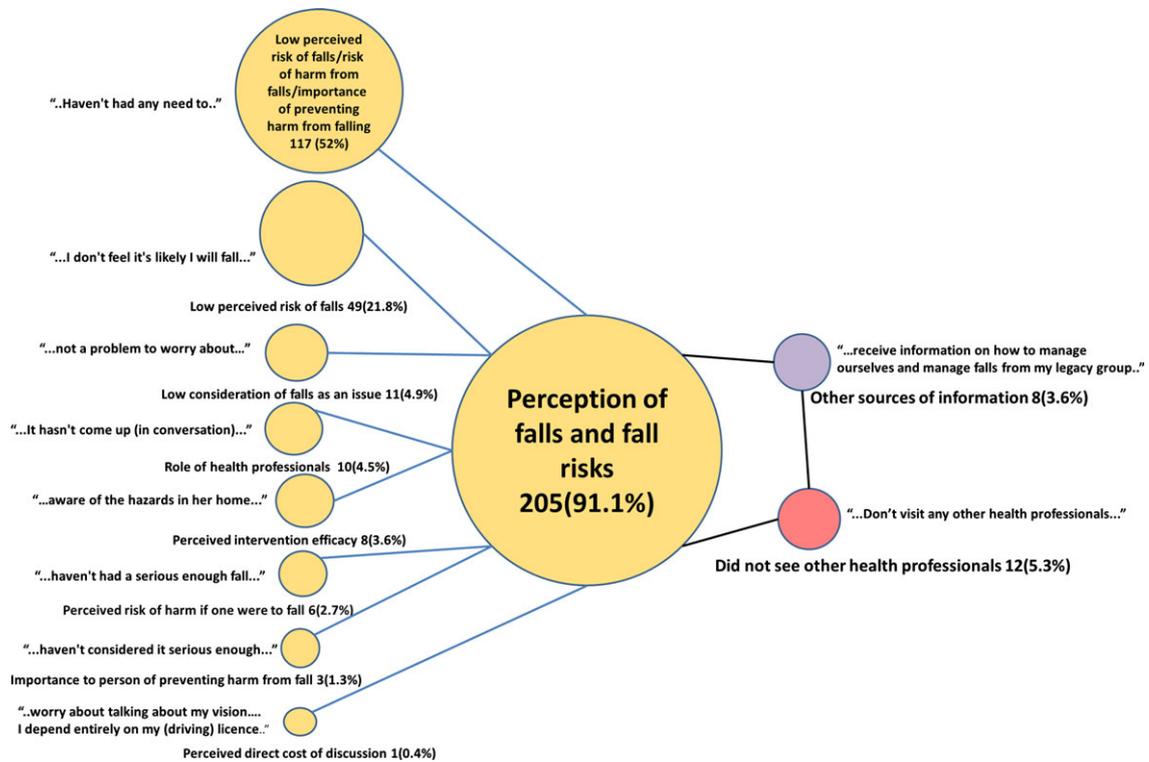
**Figure 4** Barriers to discussing falls with general practitioners (number of comments and percentages) (Black lines linked categories of barriers to falls discussion, blue lines linked subcategories from a category).

other health professionals. There were 225 comments provided, and they were classified into three broad categories of barriers: (1) perception of falls and fall risks, (2) did not see other health professionals and (3) had other sources of information (Fig. 5). The category of perception of falls and fall risks (205 comments, 91.1%) was divided into subcategories with the majority of comments made by participants that ‘there is no need’ indicating a possible mix of low perceived risk of falls, low perceived risk of harm from falls and low importance of preventing harm from falling as the main barrier. Categories (2) and (3) were minority barriers reported in discussions of falls with other health professionals. Figures 4 and 5 showed the similarities across the

spread of subcategories from the category of perception of falls and fall risks as the major barriers to discussion of falls with their general practitioners and other health professionals.

### Discussion

Our study identified that approximately three in 10 older adults discussed the issue of falls with a health-care provider (either a general practitioner and/or other health professional) over the past year; however, only one in two fallers discussed the problem of falls with any health professional. When one considers that one in four of the discussions with a general practitioner focused upon ‘post-fall discussion’,



**Figure 5** Barriers to discussing falls with other health professionals (comments and percentages) (Black lines linked categories of barriers to falls discussion, blue lines linked subcategories from a category).

it is clear that there are many older adults who were at risk of falls but did not discuss falls prevention prior to a fall occurring.

About half of the participants who discussed falls with general practitioners did not recall receiving falls prevention recommendations and a quarter received advice of questionable value, such as to ‘be careful’, ‘slow down’ and ‘be aware of the environment’. This was in contrast with about half of the participants who discussed falls with other health professionals (mainly physiotherapists) and received advice to engage in exercise to prevent falls. Advice such as ‘be careful’ is not supported by current research and is a behavioural strategy readily employed by older adults without health professional intervention.<sup>8</sup> This type of advice may be problematic because it may reinforce the common response of older adults to curtail their physical activity which can further increase their fall risks over time. Also, raising awareness may not be effective without relevant follow-up action facilitated by health-care

providers.<sup>20</sup> This suggests that either general practitioners are not often providing evidence-based falls prevention information to older adults or that it is being provided in a way that older adults do not recall receiving it. Older adults were more likely to talk with their general practitioners about falls if they had chronic medical conditions, for example, arthritis and diabetes. As many other chronic medical conditions including coronary heart disease and stroke, and polypharmacy are also associated with falls,<sup>21</sup> consideration should be given to inclusion of opportunistic and routine discussion with older patients about falls when they present with a history of chronic medical conditions or polypharmacy.

Previous investigators have found that medical practitioners lacked awareness in addressing falls risk factors in geriatric patients and would only do so when patients expressed concerns about falls.<sup>22</sup> Barriers also exist for health-care providers who do not see their role in prevention when the injury is more often the

usual focus of their intervention.<sup>23</sup> Older people often lack initiative to discuss falls due to the reluctance to voice their concerns about falls,<sup>7</sup> and they did not see themselves at risk of falling.<sup>24,25</sup> Our findings concur with these and other studies that showed older people consulted their general practitioners primarily when they were concerned about falling.<sup>26</sup> Studies also showed they were more inclined to participate in falls prevention activities if their health-care providers recommended them.<sup>27,28</sup> Therefore, it appears highly beneficial for health-care providers to actively discuss falls prevention with older adults.

A novel finding from our study was that the psychological problem of depression/anxiety (considered as a single item in the survey) was an independent factor consistently associated with initiation of discussion and having a discussion about falls with their health-care providers. Health anxiety has been linked to increased information-seeking behaviour which seemed to be substantiated in the context of initiating or having a discussion about falls.<sup>29,30</sup> Depression is a risk factor for falls and conversely having falls predisposes older adults to depression.<sup>31</sup> Thus, it is possible that our observation that depression/anxiety enhanced the likelihood of a discussion taking place may in fact be mediated by these people having more falls. We investigated this in our regression analyses through examination of interaction terms, which indicated that depression/anxiety enhanced the likelihood of a discussion taking place independent of falls history and that no significant interactions were identified between these factors. Another finding of interest was that males and females were similar in their propensity to discuss falls with health professionals. This is in contrast with a recent population-based study in the United States which showed female fallers were 1.2 times more likely than male fallers to talk with health-care providers about falls.<sup>32</sup> The study recruited 12 000 older adults who had medical insurance and had fallen in the previous year. However, the effect size reported in this study is similar to ours for discussion with

general practitioners, but we were unable to demonstrate a significant result possibly due to our smaller sample size.

The high frequency of exercise prescription for falls prevention amongst other health professionals that were not apparent for general practitioners highlighted the relevance of referral by general practitioners to address risk factors for which they have less management expertise.<sup>33,34</sup> Linked pathways and referral systems between evidence-based community fall interventions and general practices would enhance falls prevention practice.<sup>35</sup>

A challenge is presented to health-care providers when dealing with older adults' perceptions of risk of falls and risk of harm from falling. Our qualitative data showed that low self-perception of risk was a major barrier to discussion with health-care providers about falls. It suggests that great sensitivity is required when discussing the issue of falls with older people. Alternative sources of information such as senior citizen clubs should not be viewed as a barrier to discussion about falls with health-care providers, rather it should be encouraged as it may help patients understand their condition and hence participate more effectively in discussion with their health-care providers<sup>36</sup> and ultimately to undertake falls prevention actions.

Potential limitations such as participant response bias may affect the generalizability of our findings as people who have a problem of falling may be more willing to participate in this type of survey. Also participants who had a chronic medical condition may relate to their health-care provider differently. Our survey may have too few participants to establish the associations between our variables of interest and whether older people discuss falls with their health-care providers. The grouping of anxiety and depression as a single comorbidity item in the survey hindered the examination of anxiety or depression alone on discussions with health-care providers.

There is a need to develop a conceptual model to explain the likelihood of older adults to discuss falls prevention with their health-

care providers. Our study has highlighted the concepts of threat appraisal (perception of risk of falls and risk of harm from falling), cues to action (had a reported fall), perceived cost of having a discussion (consequences of losing independence), importance of preventing harm from fall and perceived falls prevention intervention efficacy. These are within the main conceptual framework of Day *et al.*<sup>18</sup> Other barriers to discussion about falls (low interest in the topic, had other sources of information or did not see their health-care provider at the time of fall), perception of the role of health-care provider to discuss with them about falls and personal characteristics (having certain chronic diseases) could be incorporated into the future model. Further research is also needed to gain perspectives from health-care providers in order to complete this model.

## Conclusion

Older adults and those who fell have relatively low frequency of discussions with their health-care providers about falls and falls prevention. Given the importance of advice from health-care providers for older person's participation in falls interventions, it could be significantly advanced by having routine discussions, an increased emphasis on evidence-based falls prevention advice and follow-up action during consultations, particularly general practitioners. Future surveys with more participants would be useful to establish the predictors of falls information seeking by older adults. The perspectives of health-care providers in the discussion of falls need to be explored in order to complete this model of information exchange on falls prevention.

## Acknowledgement

We acknowledge Victorian Department of Health for its support and research assistants who collected data for the baseline and follow-up surveys. Professor Caroline Finch (University of Ballarat) contributed to the conception and design of the baseline survey.

## Funding

This work was supported by National Health and Medical Research Council, Australia (project ID 546282) in partnership with the Victorian Department of Health, Australia.

## Conflict of interest

No conflicts of interest have been declared.

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