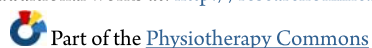


The impact of peer-led falls prevention education on community-dwelling older adults: A mixed methods evaluation

Linda Khong

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Chapter 7

Design and Development of a Peer-Led Falls Prevention Education Program: A Systematic Approach with Theoretical and Practical Considerations

This chapter is based on a manuscript submitted for publication and under peer review. What follows is presented as a version of the manuscript and modified to suit integration into the thesis.

Khong, L.A.M., Berlach, R. G., Hill, K. D., & Hill, A-M. Design and development of a theory-informed peer-led falls prevention education program to translate evidence into practice: A systematic approach.

7.1 Chapter Outline

This chapter describes the steps taken to develop the peer-led falls prevention education program (intervention) and includes an integration of the evidence from the literature review and the three studies (Study 1, 2 and 3 described in Chapter 4 to 6 respectively) introduced in Phase 1.

7.2 Abstract

The design and development of the program (Phase 2) is described in this chapter. The program, underpinned by a behaviour change theory, also incorporated key stakeholders' feedback and relevant adult learning principles (see Chapter 2, Chapter 4 and Chapter 5). A peer-led falls prevention presentation, a workshop to train new peer educators and the provision of supporting resources were developed. Older adult volunteers were recruited and trained as peer educators to deliver the presentation to older adult community groups. A participant questionnaire was developed to evaluate the outcomes of the presentation. Fidelity considerations were also addressed throughout the design and implementation of the program. The evaluation of the program, which was undertaken with a sample of community-dwelling older adults, will be presented in Chapter 8.

The steps in the program development provide a useful framework for other researchers involved in health education to consider, including utilising qualitative and quantitative data from key stakeholder groups to maximise feasibility and relevance to the target population.

7.3 Background

Research guidelines advocate the use of theory in designing and evaluating behaviour change interventions (Improved Clinical Effectiveness through Behavioural Research Group (ICEBeRG), 2006; Medical Research Council, 2000). Key reasons for this were that interventions are more likely to be effective if they target identified determinants of behaviour central and causal to behaviour change (Chapter 2 Section 2.5.1.2). Theory-based interventions demonstrate an explicit causal pathway and hence, facilitate an understanding of how the design of the intervention affects the determinants of the behaviour or outcomes (Improved Clinical Effectiveness through Behavioural Research Group (ICEBeRG), 2006; Michie et al., 2008). In addition, using theories to inform the design and development of health-related interventions can also facilitate reporting of findings, evaluation and replication of the intervention (Craig et al., 2008; Michie et al., 2008). In consultation with a community organisation who coordinates the peer education program, the decision was made to develop a new falls prevention peer education program that considered these key factors (behaviour change theories and adult learning principles) likely to impact on uptake and sustained behaviour change by older adults involved in the program.

The new contemporary education program was designed using the COM-B model because it translates concepts to practice as described in Chapter 2 Section 2.5.1.2. The Theoretical Domains Framework (Cane et al., 2012) is an expansion of the COM-B model's concepts. The Theoretical Domains Framework provides the mechanism of action known as "intervention function" (Michie et al., 2011, p. 6). Based on the Theoretical Domains Framework's intervention function chosen, behaviour change techniques (BCTs) can be identified and used in the implementation of the intervention (Abraham & Michie, 2008). These techniques are seen as specific strategies used in an intervention to promote change in behavioural determinants (Abraham & Michie, 2008).

The Theoretical Domains Framework design methodology has been successfully applied in other healthcare research studies including care of low back pain and management of the risk of falls by physiotherapists (French et al., 2012; Thomas & Mackintosh, 2014). The Theoretical Domains Framework researchers have proposed a four-step process to guide designing theory-based behavioural change

interventions (Michie et al., 2014). Briefly, the four-step process involves (1) identifying the behaviour change problem to be addressed, (2) assessing the problem, (3) forming possible solutions and applying these to the design and development of the program, and (4) evaluating the selected behaviour change intervention. These steps were used to guide the design, development, implementation and evaluation of the new peer-led falls prevention education program. During this process, the feedback from the studies conducted in Phase 1 of the research and adult learning principles (Merriam & Bierema, 2014) were incorporated. The education program was subsequently evaluated to examine its impact on older adults' beliefs, knowledge of falls and falls prevention, intention and motivation to change their behaviour in the area of falls prevention (described in Chapter 8).

7.4 Identifying the Problem: Older Adults' Low Level of Engagement in Recommended Falls Prevention Strategies (Step 1)

A review of the literature investigating the enablers and barriers to engagement and participation in falls prevention recommendations and programs by community-dwelling older adults was conducted, as presented in Chapter 2 Section 2.4.1. The problem identified was older adults' low levels of engagement in recommended falls prevention strategies. The target health behaviour was for community-dwelling older adults to initiate and develop a personal take home action plan for engaging in personally applicable evidence-based falls prevention strategies. This behaviour was chosen because it was considered a feasible and achievable target within the limitations of conducting a one hour peer group presentation. The selection of this target behaviour was also supported by findings from Phase 1 where the key stakeholders' feedback was obtained, in particular from the experts who reviewed the peer education presentation. The target audience was community-dwelling older adults aged 60 years and over.

7.5 Assessing the Problem (Step 2)

After the problem of older adults' low levels of engagement and uptake of falls prevention strategies and target behaviour (initiate and develop a personal take home action plan to engage in falls prevention strategies) were identified, the next step was to assess and identify what needs to change. Identifying what needs to change in the older adult or the environment is critical as these changes will be required to

achieve the desired change in behaviour. The “more accurate this analysis of the target behaviour, the more likely it is the intervention will change the behaviour” in the manner desired (Michie et al., 2014, p. 57).

The assessment of the problem consisted of gaining an understanding of why older adults might undertake a plan of action regarding falls prevention. Additionally, as part of this process, it was important to identify what enablers and barriers older adults faced if they attempted to develop a plan, and the potential mechanisms likely to motivate them to undertake this behaviour. Therefore, three studies (comprising Phase 1 of this research) were conducted to seek the views of key stakeholders. The studies explored (1) the perspectives of experienced peer educators about their role and the challenges they faced in presenting peer-led falls prevention education (Chapter 4) (Khong et al., 2015), (2) the views of community-dwelling older adults about their preferences in seeking and receiving falls prevention information (Chapter 5) (Bulsara et al., 2016; Khong et al., 2016), and (3) a critical review of the existing peer educators’ presentations was undertaken by a panel of experts to determine strengths and weaknesses to inform future program development (Chapter 6) (Khong, Berlach, Hill & Hill, in press).

A summary of the key findings from these studies and the reviewed literature was synthesised (Table 7.1). These findings identified a key potential mechanism that could facilitate engagement and uptake in falls prevention strategies, namely, that tailoring and personalising information fosters older adults’ perception of the personal relevance of falls prevention. Other findings indicated that emphasising the positive aspects and benefits of engaging in falls prevention could enhance receptivity of the information.

Table 7.1 Summary of Feedback from Key Stakeholders Conducted in Phase 1 and Literature Review.

Literature Review (Chapter 2)	Study 1 (Chapter 4) <i>Peer Educators' input</i>	Study 2 (Chapter 5) <i>Community Forum input</i>	Study 3 (Chapter 6) <i>Expert Review input</i>
Older adults do not find falls prevention personally relevant	Audience does not see personal relevance of falls prevention information	Foster personal relevance	Make information personally relevant
Information should be tailored	Peer educators reported a peer-to-peer connection with their audience	Messages should take a positive tone	Personalise falls prevention message with an action plan
Provide older adults with a rationale for learning about falls prevention	Peers can be a credible source to enhance engagement	Offer strategies that older adults prefer or find feasible	Improve the level of knowledge and motivation to engage in falls prevention
Older adults have better recall for positive stimuli	Peer educators require resources and support at the presentations	Use competent and trustworthy sources	Draw on older adults' prior experience with falling
Promote benefits and positive self-identity gained by participating in falls prevention strategies	Peer educators should receive training regarding delivering falls prevention presentations and receive feedback about their presentations	Peers can deliver message effectively if they are trained	Emphasise positive benefits of well-being and independence in preventing falls
Use a peer as a role model to impart the information		Deliver message with respect, empathy and with the time to listen	Presentations should be more interactive, and use multimedia resources
Use a variety of media to impart and share information			
Use good instructional design and pedagogical skills			
Provide information from a variety of sources besides doctor			

7.6 Forming Possible Solutions and Using These for the Design and Development of the Peer-led Falls Prevention Education Program (Step 3)

Synthesised findings enabled an understanding of why older adults might not see the personal relevance of falls prevention messages and the enablers and barriers they faced in changing the target health behaviour (initiate and develop a personal take home action plan to engage in falls prevention strategies). Progressing from Step 2, the construct central to facilitating the target behaviour identified was fostering a sense of the personal relevance of the falls prevention information provided within each older adult member in the audience. Hence, the peer-led falls prevention education program, underpinned by the COM-B model and its matrix of BCTs (Michie et al., 2011) was designed and developed with the central construct of fostering personal relevance of the information to achieve the target behaviour. Besides theoretical considerations, the final education program and the BCTs that were chosen were also based on feasibility considerations (Eccles, Grimshaw, Walker, Johnston, & Pitts, 2005). Therefore, the BCTs chosen focused on building individual or personal agency, instead of an external agency (such as transportation issues) given the constraints of the setting such as the short timeframe of one hour for each presentation in the community. The peer educators used BCTs such as role-modelling and verbal persuasion about their peer's capability (persuasion) during the presentations, which were viewed as a feasible and effective means of motivating the older adults to accept the personal relevance of the falls prevention messages provided.

7.6.1 Development of the peer-led falls prevention education program

An overview of the four-step process of designing the peer-led education program is shown in Figure 7.1. The program targeted community dwelling older adults who attended the peer-led falls prevention presentations in the Perth (Western Australia) metropolitan area. Subsequently, these findings were mapped against the falls prevention evidence, COM-B model, related BCTs and adult learning principles to design a contemporary peer-led falls prevention education program.

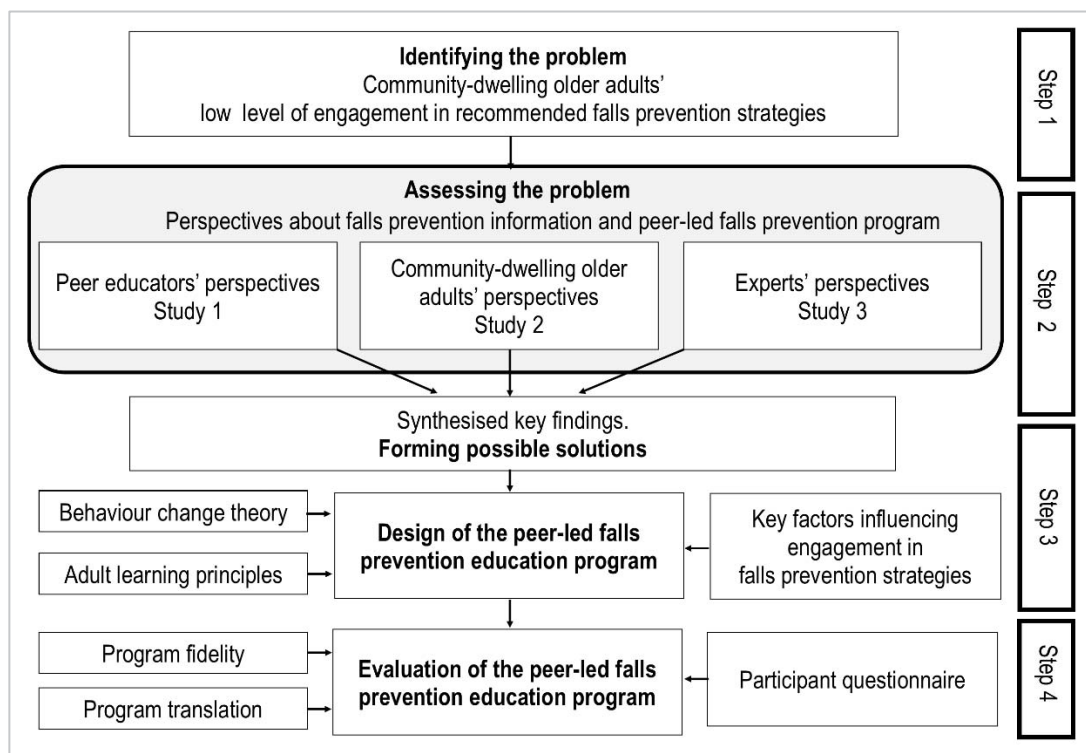


Figure 7.1 Overview of the Process Used to Design the Peer-Led Falls Prevention Education Program

The program was designed and developed in collaboration with a community organisation (Chapter 3 Section 3.4.1). The program consisted of (i) a workshop to train new peer educators to deliver the new presentation (ii) the provision of supporting resources and (iii) a new contemporary peer-led falls prevention presentation. These are discussed in the next section of this chapter.

7.6.2 Development, content and structure of the workshop to train new peer educators

A two-day workshop was subsequently designed and developed to train the newly recruited peer educators. The purpose of conducting the workshop was (i) to equip the peer educators with falls and falls prevention knowledge and the pedagogical skills to engage with their peers positively, and (ii) to train the new peer educators to deliver the contemporary peer-led falls prevention presentations to groups of community dwelling older adults.

Adults aged 60 years and over were recruited as volunteer peer educators as part of the development of the peer education program. This was done through advertising on the local university radio network, which has a dedicated older adult

audience. Six new volunteers were recruited, who then completed the peer education training workshop. However, two were subsequently unavailable to deliver the presentation during the research period and two felt uncomfortable to commence presenting immediately during the research period.

Training for the new peer educators was facilitated by the community engagement officer and research team over two days. The considerations for the structure and duration of the training workshop included ICCWA's capacity to provide training, the volunteers' availability and the effect of ageing on learning. Module 1 of the workshop (5 hours) was conducted on the first day by the community engagement officer. The objectives of Module 1 were for the new peer educators to gain an understanding of the nature of falls in the community, the risk factors for falling, and the evidence-based strategies for managing those risk factors. Module 2 (4 hours) was delivered on the second day by the research team. It consisted of introducing the theory of learning styles, relevant adult learning principles and BCTs. Skills for effectively delivering presentations were also imparted. The learning objectives (Module 2) for the new peer educators were to:

- Develop an awareness of learning styles
- Describe the basic concepts and principles of adult learning
- Apply relevant adult learning principles in delivering the falls prevention presentations
- Describe and identify the relevant BCTs to foster a change in behaviour during the falls prevention presentation
- Integrate the relevant BCTs into the falls prevention presentations

During the workshop, the role of peer educators was stated explicitly and explained. This included their role in facilitating the learning of their peers, being role models in the area of falls prevention, and encouraging the uptake of falls prevention strategies by their peers. The new peer educators were advised to emphasise the positive benefits of preventing falls when they conducted the presentations. Importantly, to foster personal relevance of the falls prevention message, the peer educators were trained to deliver the presentation in an interactive manner that encouraged each peer to tailor the information learned by setting personalised goals and completing their own take home action plan at the end of the presentation.

7.6.3 Resources developed for use by the facilitator of the workshop

A facilitator instruction manual (presented in full in Appendix O.1) with corresponding presentation slides (Appendix O.2) and teaching aids was developed as a resource to support Module 2 of the workshop. The teaching aids included flip-charts, activity sheets, a learning style questionnaire, and online video links to provide relevant multimedia learning platforms. The workshop included five activities that were designed to draw on the new peer educators' own experience during the learning process in an interactive manner. The activities were purposefully sequenced and information was scaffolded using appropriate pedagogical strategies for teaching adult learners as described in Chapter 2 Section 2.5.1.3. The five activities focused on:

1. **Creating a supportive learning environment:** this included icebreaker activities that aimed to promote a comfortable learning environment for the volunteers and to develop their self-confidence as a peer educator. For example, working in pairs, each volunteer would report one attribute that they thought would make their partner a successful peer educator
2. **Learning styles:** this included completing a Visual Aural Read Kinesthetic (VARK) learning style questionnaire (Fleming, 2008) and a facilitated group discussion. This activity aimed to assist the peer educators to appreciate different preferences in learning styles and to consider how presentations should optimise learning, by varying the presentation format to reflect different learning preferences
3. **Adult learning:** this included watching an online video that aimed to impart information to the peer educators about relevant adult learning principles. This activity also included discussion about how incorporating these principles into their presentations could enhance their peer-to-peer connection and facilitate active learning by the older adults in the audience
4. **BCTs:** this included online videos to encourage the volunteers to reflect on the underlying concepts of health behaviour change. This activity aimed to introduce the behaviour change theory, highlighting concepts about capability, opportunity and motivation from the COM-B model. The discussion focused on fostering behaviour change in the audience by integrating relevant BCTs into the presentations
5. **Presentation skills and mock practice:** this included watching a video of the presentation with training prompts (described in the following section). This activity aimed to demonstrate presentation skills that could positively engage their peers and allow the peer educators to practice applying these skills during a mock practice session

7.6.4 Resources developed for self-directed learning by the peer educators

In addition to the training workshop, additional resources for the peer educators were developed to provide self-directed learning opportunities after the workshop. An online video with training prompts (<https://youtu.be/7Y2gFZIT5RA>) was created which could be viewed multiple times by the peer educators. It displayed an experienced university falls prevention educator modelling the contemporary falls prevention presentation to a live audience. The video demonstrated the feasibility of achieving the aims of the presentation (details in the Guidebook in Appendix P) and delivering the information in an interactive and engaging manner, within the one hour timeframe.

Each new peer educator received a presentation guidebook (Appendix P) that included the information imparted during the workshop and the teaching plan for delivering the presentation. Eight activities following the structure of the presentation and the learning objectives were also detailed in the guidebook. Each activity provided the peer educator with a step-by-step script for delivering the relevant section of the presentation and outlined their teaching activities for each section. These were to:

- Provide the designated content regarding epidemiology, risk factors for falls and information about falls prevention
- Raise awareness and recognition about why falls prevention is important and personally relevant
- Establish themselves as a credible source of information and as a role model
- Communicate and facilitate a positive self-identity and mindset regarding falls prevention
- List and describe feasible falls prevention strategies and explain how these strategies can minimise risk of falls, maintain independence and enhance healthy ageing
- Provide access to resources (e.g. ICCWA falls prevention hotline and information)
- Encourage peers in the audience to develop a personal take home action plan to minimise their own risk of falling
- Share personal anecdotes and information to address and foster self-efficacy regarding healthy ageing and falls prevention

Following the workshop, opportunities for the new peer educators to practise delivering the contemporary falls prevention presentations were organised. Each new peer educator conducted initial falls prevention presentations to groups of older adults, with support from the community engagement officer. A buddy system was also used as a means of support for the new peer educator to learn and receive feedback as they practised delivering the presentation (Lamb, Lane, & Aldous, 2013). Furthermore, a self-reflection report (Bennett, Rolheiser, & Stevahn, 1991) and a fidelity checklist (Bellg et al., 2004) provided opportunity to facilitate self-directed learning and to ensure program fidelity respectively. Program fidelity will be discussed in Section 7.8.1.

Figure 7.2 summarises the process undertaken to train new peer educators and the resources that supported their acquisition of knowledge and skills, culminating in them delivering the contemporary falls prevention education program.

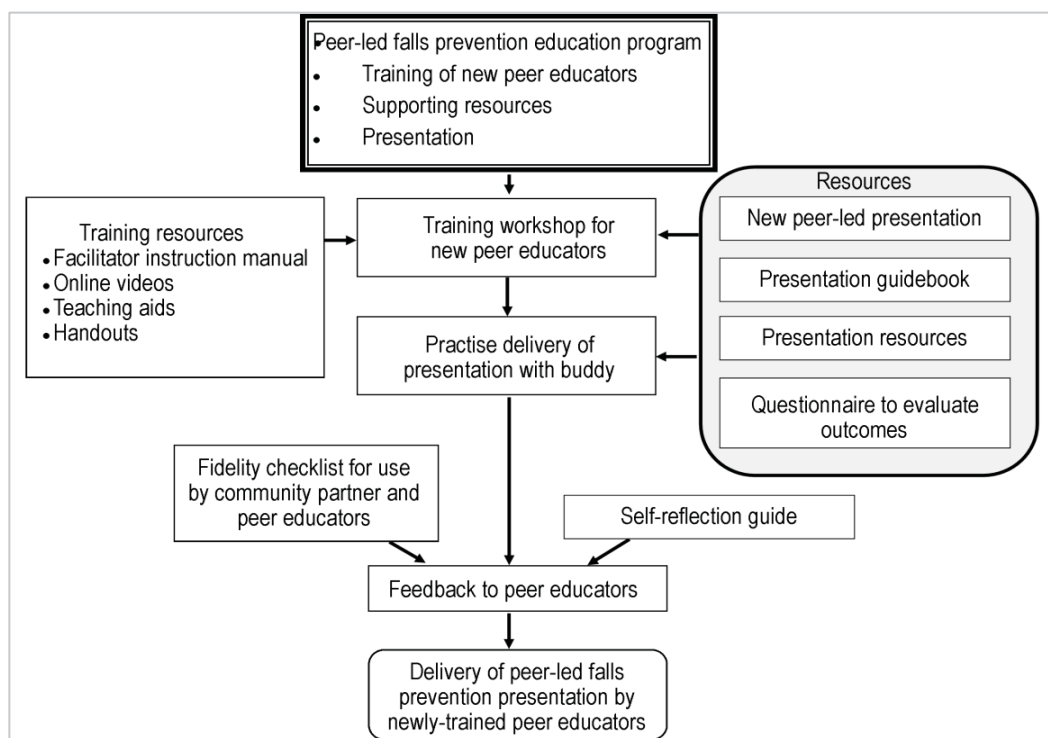


Figure 7.2 Process Undertaken to Train New Peer Educators to Deliver Peer-Led Falls Prevention Education Program

7.6.5 Development of the peer-led falls prevention presentation

A contemporary one hour peer-led falls prevention presentation for community-dwelling older adults was designed and developed to be delivered by the newly trained peer educators. This one hour timeframe was pre-determined by the preference of the community groups and by the community organisation's capacity to

provide volunteers. While Figure 7.1 shows the conceptual input into the design of the presentation, Table 7.2 illustrates how the design and development of the structure and content of the presentation was mapped against the framework of the behaviour change concepts, corresponding intervention functions and related BCTs (Michie et al., 2014; Michie et al., 2008; Michie et al., 2011).

Table 7.2 also summarises how the key evidence-based barriers identified in the literature and relevant adult learning principles (Merriam & Bierema, 2014) were incorporated into the design of the presentation. For example, one of the perceived barriers is some older adults' belief that they are not at risk of falls and therefore consider that falls prevention information is of limited personal relevance. This can be reflected as low levels of capability (knowledge about falls and falls prevention) and motivation according to the COM-B model. The corresponding intervention function such as education could be applied to facilitate motivation and knowledge. In order to achieve this function, BCTs indicate the need to provide information to show how common falling is, the risk factors for falls and consequences that can occur from falls. The structure of the presentation was carefully sequenced to scaffold new knowledge with the support of resources such as DVDs. The teaching objectives of conducting the presentation were to:

- Raise the older adult's self-belief that taking measures to reduce their risk of falls would be useful
- Provide knowledge about falls and falls prevention strategies
- Enhance the skills and self-confidence of the older adults about falls prevention
- Raise motivation, and the intention to engage in falls prevention strategies amongst the older adults

The peer educator commenced the presentation by providing the facts about falls and falls prevention (factual knowledge), which aimed to raise awareness and understanding of falls as a relevant problem, progressing to providing the steps to reduce the risk of falling (procedural knowledge). Finally, consolidating all that was learned towards application (conceptual knowledge) to engaging in falls prevention strategies including completing a personal take home action plan (Merriam & Bierema, 2014). The teaching plan for the presentation is described in detail in the guidebook (Appendix P).

Table 7.2 Mapping of the Theoretical Frameworks and Adult Learning Principles to Address Identified Barriers to Engagement in Falls Prevention

Identified Barriers^a	Behavioural Change Concepts^b	Intervention Function^c Dimension	Behaviour Change Technique^d Dimension	Application of adult learning principles to all categories
1 Belief that falling will not happen to me	Motivation Knowledge	Education ePersuasion Modelling	Information about social, environmental and emotional consequences of falling-relevance of falls prevention Using a credible source Role-modelling	Assess older adults' current expectations by drawing on their experience with falling To engender a connection between the peer educator and their peers Scaffold learning by starting with initial introduction to prevalence of falls and progressing to management of falls risks in several stages Use demonstration, pictures, video, or checklists as learning aids during presentation to impart information
2 Belief that falls prevention is a threat to self-identity Belief that falls prevention is not socially acceptable	Opportunity Motivation Social identity Social influences	Enablement ePersuasion Modelling	Social comparison Framing/Reframing perspectives Using a credible source	

Identified Barriers^a	Behavioural Change Concepts^b	Intervention Function^c Dimension	Behaviour Change Technique^d Dimension	Application of adult learning principles to all categories
3 Unfamiliar with term 'falls prevention' and low awareness of falls prevention Lack of knowledge about falls prevention Falling is an inevitable part of ageing and beyond personal control	Capability Knowledge Intentions Goals	Training Enablement	Instruction on how to perform falls prevention strategies Demonstration about feasible/relevant falls prevention strategies or anecdotes by role-model (peer educator) Problem-solving to overcome barriers Action planning Goal-setting Pros and cons (weigh up benefits and costs in engaging in falls prevention)	Presentation to provide knowledge but also to cultivate the skills, foster self-efficacy and to influence positive attitudes towards falls-related behaviour Be explicit about the positive benefits of falls prevention including maintaining independence Using peer educators to share positive personal anecdotes relating to falls prevention that older adult peers can also relate to. To facilitate a positive self-identity and foster self-efficacy Tailor the falls information to meet the goals of the older adult and build on their experience of falls prevention Provide access to resource e.g. hotline, information sheet as adults are self-directed learners Develop a personal take home action plan
4 Lacking skills or self-confidence to engage and practice falls prevention	Skills Foster self-confidence	Modelling ^e Persuasion	Information about emotional consequences of falling Verbal persuasion about one's capabilities Focus on past success Using a credible source	

^aEvidence-based barriers identified in the literature

Behavioural change concepts: These are concepts derived from the COM-B model and Theoretical Domains Framework

^cIntervention function: Term used to describe mechanisms of action based on Theoretical Domains Framework

^dBehaviour change technique: Specific strategies used in the program to promote change in the falls prevention behaviour

^ePersuasion: verbal persuasion about their peer's capability

7.7 Evaluating the Selected Behaviour Change Intervention (Peer-led Falls Prevention Education Program) (Step 4)

Following from Steps 1 to 3, the final step (Step 4) in developing the education program was to develop a method of evaluating the audience's response to the peer-led falls prevention presentation. Considerations regarding program fidelity and structure in reporting the evaluation of the program were also addressed.

7.7.1 Questionnaire outcome measures

A purpose-developed semi-structured questionnaire (De Vaus, 2014; Guyatt, Jaeschke, Feeny, & Patrick, 1996) was designed to evaluate the effectiveness of the peer-led falls prevention presentation. Older adults who attended the presentation were invited to participate in the research and those who were interested in participating provided written informed consent. They were asked to complete the participant questionnaire before the delivery of the falls prevention presentation (Appendix N.1) and after the presentation (Appendix N.2). A follow-up questionnaire (Appendix N.3) was mailed to each participant one month after the presentation to determine the older adults' sustained response to the presentation. Considerations regarding the design and administration of the questionnaire are described in detail in Section 3.5.4 and Section 8.4.6 respectively.

The questionnaire design was based on concepts of behaviour change studies that evaluated health behaviour change using the selected theoretical framework (Cane et al., 2012; Hill et al., 2009; Huijg, Gebhardt, Crone, Dusseldorp, & Pesseau, 2014; Huijg, Gebhardt, Dusseldorp, et al., 2014). The design, choice of appropriate outcome measures, and constructs of the questionnaire were guided by these health behaviour studies. The outcomes that were evaluated were community-dwelling older adults' level of beliefs and knowledge about falls prevention and their motivation and intention to engage in falls prevention strategies after attending the presentation compared to prior to the presentation.

The questionnaire was divided into three sections. The first section comprised seven item statements relating to four outcome measures. These were closed-item statements rated on a five-point Likert response scale format (ranging left

to right from Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree). The four outcomes were:

1. Beliefs about falling and falls prevention
 - For me, taking measures to reduce my risk of falling would be useful (Item 1)
 - Most people whose opinion I value approve of me taking measures to reduce my risk of falling (Item 2)
2. Levels of knowledge about falls prevention
 - I am aware of the measures needed to reduce my risk of falling (Item 3)
 - I am confident that if I wanted to, I could reduce my risk of falling (Item 5)
3. Motivation to reduce risk of falling by engaging in falls prevention strategies
 - I feel positive about reducing my overall risk of falling (Item 4)
4. Intention and a plan to undertake falls prevention strategies
 - In the next month, I intend to take measures to reduce falls or my risk of falling (Item 6)
 - I have a clear plan of how I will take measures to reduce falls or my risk of falling (Item 7)

The second section of the questionnaire consisted of an open-ended question. The question asked each older adult participant in the audience to list up to three measures they could take in the next month that could help them avoid or minimise their risk of falls. The final section of the questionnaire was designed to collect socio-demographic information (age, gender, socio-economic status), health status indicators (self-rated health, number of prescribed medications taken per day, falls-related history) and if they had previously discussed falling or received falls prevention information from a health professional. Participants' indicators of mobility (use of walking aid inside and outside of the house and ambulatory capacity) were also captured.

7.7.2 Establishing validity and reliability of the questionnaire

Figure 7.3 summarises the steps undertaken to establish the validity and reliability of the Participant Questionnaire.

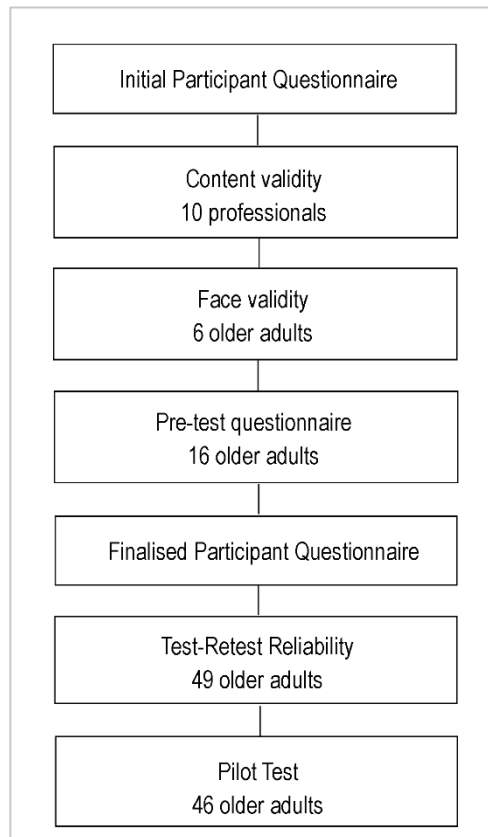


Figure 7.3 Steps Taken to Establish Validity and Reliability of the Proposed Research Outcome Questionnaire

Ten academic and health professionals with questionnaire design experience were invited to evaluate the questionnaire’s content validity. The community engagement officer and two of their experienced volunteer peer educators also provided feedback about the item statement wording to improve the clarity of the questionnaire.

A further six community-dwelling older adults, with a similar profile to the target sample, were invited to complete the questionnaire to establish face validity and to provide further feedback about the comprehension of the item statements and ease in completing the questionnaire. Finally, pre-testing of the revised questionnaire was conducted with 16 older adults from two community-based groups. They were invited to pre-test the questionnaire as a whole to evaluate the ease of administration and to identify any further issues that might be perceived. The instructions pertinent to the post-presentation and one month follow-up questionnaires were modified in terms of wording of the questionnaire items.

7.7.3 Test-retest reliability of the questionnaire

A convenience sample was used to conduct the test-retest reliability of the participant questionnaire, with members of an older adults' walking group (n=49). To test consistency of the older adults' responses, the questionnaire was administered twice, two days' apart within the same week. For an estimated reliability index of 0.8, with an alpha level of 5% and power of 80%, a sample size of 46 participants was required (Walter, Eliasziw, & Donner, 1998). Test-retest reliability was assessed by both Kappa and ICC. The Kappa measure of agreement statistic was used to assess percentage agreement between the first and second occasion that the questionnaire was administered. The Kappa statistic measured the "extent which agreement across the categories is greater than that expected by chance" (Rothwell, 2000, p. 828). Kappa agreement scores were established at "0.21-0.40 fair; 0.41-0.60 moderate; 0.61-0.80 substantial; 0.81-0.99 almost perfect" (Landis & Koch, 1977, p. 165). Test-retest reliability of the mean score of questionnaire items was determined using ICC (two-way random model) for the seven item statements. The ICC measured the variability among the participants' mean scores across the item statements on the first occasion (test) in comparison with the variability of their mean scores on their repeat second occasion (retest). ICC values "above 0.75 were considered indicative of good agreement and those below 0.75 of poor to moderate agreement" (Portney & Watkins, 2009, p. 595). Results showed that there was moderate to substantial agreement across items (Kappa range: .585 to .765). Percentage agreement ranged from 73.5% to 87.8% across the two occasions. The ICC for the participants' mean scores between test-retest occasions was 0.877, considered a good level of agreement. The results demonstrated that the questionnaire was stable across the two test occasions.

7.7.4 Pilot trial of the questionnaire

A pilot trial to examine the procedure in completing the questionnaire across three points of time was conducted with two groups of older adults (n=46) who attended the existing education program's presentations. Each participant completed the questionnaire before and after the presentation, as well as one month after the presentation. The format of the questionnaire and instructions for the data collection process were revised based upon their feedback to facilitate accurate administration of the questionnaire over time.

7.8 Other Considerations

7.8.1 Program fidelity

Fidelity of a program is the extent to which the program is “implemented as intended” (Moncher & Prinz, 1991, p. 247) and is integral to the interpretation and generalisation of its findings (Nigg, Allegrante, & Ory, 2002). The description of program fidelity includes the “methodological strategies used to monitor and enhance the reliability and validity of behavioural intentions” (Borrelli et al., 2005, p. S52; Nigg et al., 2002).

Considerations for the fidelity of the peer-led falls prevention education program were monitored at five points of the research. They were 1) study design; 2) training provided for the peer educators; 3) delivery of the presentation; 4) receipt of the education by the older adult participants; and 5) enactment (Bellg et al., 2004; Borrelli, 2011; Moncher & Prinz, 1991; Resnick et al., 2005). Following established research principles (Borrelli, 2011; Moncher & Prinz, 1991; Resnick et al., 2005), a description of recommendations, drawn from the literature to enhance program fidelity, is described in Table 7.3. The program’s fidelity checklist (Appendix Q), that evaluated the program components identified by the research team as critical for an effective presentation, was also produced for the community organisation and the peer educators to utilise.

Table 7.3 Fidelity Considerations and Application for the Peer-Led Falls Prevention Education Program

Component of Fidelity	Definition and description modified for this study	Fidelity Plan for the program	To be completed or managed by:
Design	Study design intended to ensure that a study can adequately test its hypotheses in relation to the underlying theory	Evaluation of a new peer-led falls prevention education program A peer-to-group new falls prevention education program compared to an existing program. Underpinned by the COM-B model	Research Team

Component of Fidelity	Definition and description modified for this study	Fidelity Plan for the program	To be completed or managed by:
Training	Assessment and ongoing evaluation of training of peer educators to ensure they have been satisfactorily trained to deliver the intervention to participants	Use of a standardised guidebook Use of a facilitator instruction manual, presentation slides and teaching aids Accommodate learner differences Role-play during the training workshop	Research Team and Community Organisation
Delivery	Fidelity processes that monitor the intervention is delivered as intended	Observation of presentation delivery by an independent person Application of the after presentation fidelity checklist Ensure adherence to protocol (content, dose and process) To manage any deviations with pertinent peer educator Correction of any observed problems in delivery of the presentation Use of buddy system to provide support and feedback Use of the peer educator's self-reflection report	Research Team Community Organisation Peer Educator
Receipt	Assessment of the presentation to ensure that the information presented has been understood by the older adults	Ensured written material provided have appropriate health literacy for older adults Information provided utilised multiple formats (verbal, video, written) Feedback from peer educators after their presentations Evaluate response by research team during research (participant questionnaire across three points of time) Evaluate response by community organisation for ongoing presentations using participant questionnaire after the research concluded	Research Team Community Organisation
Enactment	Assessment of the participants' engagement and uptake of falls prevention strategies	Questionnaire outcomes, for example, level of intention	Research Team Community Organisation (subsequent program delivery after research conclusion)

7.8.2 Structure in reporting the program

Finally, consideration was given to reporting the intervention for future evaluation and translation. The education program was mapped using the template for intervention description and replication (TIDieR) checklist (Hoffmann et al., 2014). This checklist is recommended for use when reporting interventions to ensure other researchers can assess the relevance of the interventions and for potential replication of the research (Hoffmann et al., 2014). The completed checklist is presented in Table 7.4.

Table 7.4 Reporting of the Education Program Using the Template for Intervention Description and Replication (TIDieR) (Hoffman et al., 2014)

Elements of Checklist	Applied in the study
Precise name that describes intervention	Can peer education improve beliefs, knowledge, motivation and intention to engage in falls prevention amongst community-dwelling older adults?
Why: Describe any theory essential to the intervention	COM-B model was used to guide the design, delivery and evaluation of the intervention. Relevant adult learning principles were integrated into the education program
What (materials): Describe any physical or informational materials used in the intervention (in delivery or for providers)	Resources for training new peer educators in the workshop and for delivery of the presentation such as facilitator instructional manual and resources, a training video, peer educator guidebook, a fidelity checklist, and evaluative questionnaire were described
What (procedures): Describe each of the procedures, activities, and/or processes used in the intervention	Recruitment of new volunteer peer educators, training of educators, peer educators delivered presentations and the steps taken to train new peer educators were described
Who provided: The intervention provider. Describe their background and any specific training given	The community organisation and community engagement officer were described. The recruitment of new volunteers and the steps taken to train new peer educators were described
How: Describe the modes of delivery. When and how much	One-off one hour presentation by a peer educator to a group format. The workshop (Module 1 and 2) to train peer educators was conducted over two days
Where: Describe the type(s) of location(s) where the intervention occurred	The presentations were conducted to groups of older adults in the community that meet on a social-basis. These are generally held at venues in the community such as community centres

Elements of Checklist	Applied in the study
Tailoring: If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when and how	Presentation format allowed for tailoring by individual participant with personal take home action plan
Modifications: If the intervention was modified during the course of the study, describe the changes (what, why, when, and how)	Each community site had varying access to multimedia facilities. Butchers' paper or posters were alternative media when a DVD player was not available
How well (planned): If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them	A fidelity checklist was developed for use by the peer educator and the community engagement officer to evaluate the presentations (Appendix Q). The fidelity checklist was described in Table 7.3
How well (actual): If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned	All the presentations were delivered by trained peer educators, feedback was given to the peer educator after each presentation, resources such as online video and guidebook were available self-directed learning, a questionnaire completed by participants assessed their responses to the presentation

7.9 Summary of Chapter

This chapter has illustrated the steps taken to design and develop a contemporary peer-led falls prevention education program. A workshop to train the peer educators who delivered the presentations, learning resources to support the program, a peer-led presentation and a questionnaire to evaluate the presentation were developed. Consideration was given to fidelity. The program was subsequently delivered and evaluated (described in Chapter 8).