Managing risk and exerting control: determining follow through with falls prevention

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Abstract

Purpose/Method: This study used in-depth interviews to explore the perspectives of nine older women who had not followed through with environmental modification recommendations to reduce their risk of falls in the home.

Results: It was found that the core concept of ‘exerting control’ provided an understanding of their experience following an occupational therapy home visit. Exerting control was a behavioural, cognitive and affective process whereby the women made decisions about whether or not to follow through with environmental modification recommendations based on their knowledge of environmental risks, perceptions of degree of risk, perceived ability to mediate these risks through behaviour and the degree of freedom she had in decision making. Exerting control meant that the women made daily choices about their home environment which increased or decreased the risk of falls with identified home hazards.

Conclusion: The findings suggest that, for some women, health professionals need to understand and work with the phenomenon of exerting control, in order to work with clients to reduce environmental hazards.

Introduction

The prevention of falls and recovery from them is a major focus for aged care.1 Environmental adaptation is one strategy which aims to reduce the risk of falls by identifying and eliminating fall related hazards to change the environment and increase safety features, while encouraging older people to self monitor and regulate safety features.2–4 Success of such interventions is dependent on older people accepting and following through with the health professionals’ recommendations. Occupational therapists have a particular interest in the daily activities, home and community environments of older people in which falls occur.5–6 A case-control study7 investigating hazards in the home and the risk of hip fracture, demonstrated that people with a known history of falls in the past year contributed to a substantial percentage (49%) of the total geriatric population receiving occupational therapy interventions. The study examines the perspectives of older women at risk of falls who received occupational therapy intervention. The interventions included recommendations and assistance regarding environmental adaptations to reduce home hazards related to falls and increase safety in the home. This study focuses on understanding what influences women not to follow these recommendations.

BACKGROUND

Preventative and rehabilitative strategies address risk factors for falls that have been identified through a number of epidemiological and clinical studies.8–10 These strategies include activities to enhance balance and strength; appropriate management of active illnesses; appropriate medication use and management; environmental assessment and modification; and encouraging older people to self monitor and self regulate behaviour which may be considered risky. Of these strategies, environmental assessment and modification along with behavioural prevention strategies are central concerns of occupational therapy.5, 10 Clemson5, 11 conducted a content analysis of the literature which demonstrated that a range of specific environmental factors contribute to falls. These factors include stairways, obstacles in traffic ways, reaching and climbing, lighting, flooring,
floor mats, footwear, pathways and railing. Occupational therapy home visits that focus on identifying and making adaptations to reduce these hazards have been shown to be effective in reducing falls for people that had recently fallen (Dr R. Cumming, personal communication, April 1998).

An issue identified in community preventative programmes in general including those for older adults is that recommendations are not always followed through and anecdotal evidence indicates that this can occur in preventive falls programmes. Gosselin et al. found that a small percentage (4%) of people did not follow the advice given for home modifications to improve independence. Ryan and Spellbring examined people implementing change following advice by nurses for falls prevention. They found the least changes occurred when the recommendation involved removal or relocation of objects, for example, removing scatter rugs or relocating furniture. The problem is that, even if sound recommendations are made to modify the environment to reduce the risk of falls, the older person does not necessarily implement these recommendations. An occupational therapist may, for example, recommend that an older person ‘lift up their mats,’ but these mats may never be moved, or may be replaced on the floor as soon as the therapist leaves. This issue is one of compliance, which is defined by Falvo as the extent to which the person follows through with health professional advice or recommendations. We have used the term ‘follow through’ rather than ‘compliance’ because, as Falvo argues, this more realistically places the emphasis on understanding clients’ needs and their roles as active participants in the process.

Following through with health professionals’ recommendations is a process that incorporates such factors as acceptance of risk and valuing the recommended change; exploration of alternatives; the ability and opportunity of the client to change; and the ease or difficulty in complying with the change. A number of studies relate to follow through by older people with treatment regimes such as medication, but there is a lack of studies which specifically explore follow through by older people with home modification recommendations for preventative reasons. There is evidence that the older adult does not tend to adapt housing in response to declining competence. Gosselin et al. examined factors which influence acceptance of home modifications and found that one important predictor of follow through was when the client recognizes that recommended modifications will assist daily activities. Gosselin et al. identified that the refusal to accept modifications was low (4%). However, as indicated by the higher incidence of refusal if the objective of the modification is preventive rather than for an immediate functional outcome.

Following through with recommendations for environmental adaptation to reduce falls may be dependent on such factors as the client’s awareness of environmental hazards and current beliefs about falls. Factors such as denial of physical limitation arising from disability or the ageing process have also been implicated in case studies as potential barriers to follow through. Another factor suggested to account for lack of follow through is the method by which advice and offers of assistance are provided. Home visiting has been identified in a number of studies to be an important strategy in community health programmes with older people. Yet, little is known about follow through with recommendations from the perspective of the older person.

AIM OF STUDY

This study examines the experience of older women who have fallen or who are at risk of falls and have not followed through with some or all of home hazard reduction advice. Their viewpoint has not yet been documented, nor is it understood. It is proposed that understanding their experience will give some insight into factors and processes important in the follow through of home hazard reduction. The aim of the study is therefore to characterize the phenomenon of follow through from the older women’s point of view.

Method

A qualitative approach was used to explore the perceptions of older women regarding home hazard reduction and increasing home safety. Semi-structured in-depth interviews were conducted with nine older women.

PARTICIPANTS

The participants were referred to the occupational therapy department of a large metropolitan teaching hospital at Westmead, Sydney as inpatients or outpatients. Purposeful sampling was used to identify and locate older women at the study site who met the following inclusion criteria: (1) age 65 or more at the time of therapy intervention; (2) were living in the community; (3) had no significant cognitive impairment; (4) had received an occupational therapy home visit which included home safety advice to reduce the risk of falls; (5) were identified by the treating occupational
therapist as not having implemented one or more of the home hazard reductions identified by the therapist to be required to reduce the older person’s risk of falling; and (6) were willing to participate in the study as volunteers.

Twelve women were invited to participate over the 2 year study period and nine did so. Two people declined to participate and one person was unable to due to illness. The participant’s age ranged from 60 to 90 years with most between 75 and 85 years. There was a range of diagnoses including; osteoarthritis, macular degeneration, respiratory disease, hip fracture and previous falls. All but two lived alone, one lived with her daughter and the other with her husband. Eight of the women identified a relative they saw regularly. Functional mobility varied; four used a walking stick when outdoors and two used a frame or trolley. Seven of the nine women were housebound at the time of the interview. Dwellings also varied; houses, independent living units in a retirement village, apartment units, a duplex and a villa. The most recent contact with an occupational therapist prior to the interview varied from 2 weeks to 6 months.

They were all referred to occupational therapy for assessment of home management and/or home modifications. All but one reported a history of falls. Seven of the women reported that they had implemented some of the home modification recommendations, while two reported no changes. The number of recommendations not followed through varied from one to six, with an average of three. The recommendations included removing loose scatter rugs, relocating furniture, relocating cords from across the floor, varying techniques for transferring or mobilising in specific situations and installing grab rails.

The interviewers were two of the authors who were occupational therapists experienced in aged care. Two of the authors had previous experience in in-depth interviewing techniques and analysis and all three, prior to the study had participated in simulations, practice interviews, joint debriefings and critical reviews of each other’s interview technique using principles of ethnographic interviewing. One interviewer was treating two of the participants so they were interviewed by the alternate interviewer. Detailed coding and analysis of these two cases were conducted by the non-treating authors.

PROCEDURE

Participants were telephoned and the study purpose and procedure were explained with an opportunity to ask questions. They were then invited to participate in an in-depth interview at their home. An information sheet repeating the study purpose and procedure was given to each participant. Interviews ranged from 20 to 90 minutes with a mean time of 45 minutes. All the interviews were audio taped and transcribed with the participant’s consent. Ethical approval for involvement of the women was obtained from the participating area health service and all women signed consent forms. Investigators conducted the interviews in the tradition of ethnographic interviewing™ and used the procedures of in-depth interviewing outlined by Minichiello et al. An interview schedule™ was used as a guide, consisting of an opening statement ‘tell me about the occupational therapy visit’ and a number of loose ‘probe’ statements to open the topic for discussion™ as required. Probes were designed to elicit descriptive rather than analytic comments from participants, such as, ‘and since that (fall, situation, etc.)?’ or ‘tell me about (the mat, the time when, etc.)?’ In later interviews the schedule was used as an ‘aide-memoire’. At the conclusion of each interview subjects were asked to complete the Falls Efficacy Scale (FES),™ which measures perceived self-efficacy at avoiding falls during everyday activities of daily living. It was used in the analysis as a way of informing and strengthening the confidence we had in interpretations of data, by comparing the participant’s account with their formal ratings.

Transcripts were analysed using methods described by Strauss and Corbin™ of bracketing and identifying themes and concepts in the data. Both thematic coding™ and reflective methods™ of analysis were used to develop themes to increasingly abstract levels, so as to identify the categories and core concept in the data. Each researcher read all of the transcripts and listened to at least several of the tapes. Analysis continued over a period of time during which team meetings occurred in which to review data and codes, conduct critiques and share reflections and views. Codes and themes were developed and discussed over a period of months as the interviews progressed.™ Coding involved examining the data collected from the interviews and field notes in great detail (line by line in the first few interviews, and later paragraph by paragraph). The purpose of this phase of coding was to fracture and explain the data in terms of behaviours and processes.™ Instances of data were given tentative code labels. As data collection and analysis proceeded, these tentative labels were revised and data reviewed for similarities and differences. Concepts were explored in terms of their properties and dimensions™ and further refined. The data was returned to on several occasions by reading or listening to the whole transcripts as a way of keeping the textual data whole and aiding in reflection.
Findings

Eight conceptual categories emerged which described the perspectives of these older women who did not follow through with home hazard reduction advice. They were:

- Her knowledge of environmental risks for falls;
- Fall and injury history and fear of falling;
- The individuals meaning of home;
- Options and validating options;
- Self efficacy;
- The degree of freedom she perceived she had in decision making about her home or parts of her home;
- Her perceptions of her level of risk in relation to environmental hazards; and
- Her ability to mediate these risks through behaviour.

These conceptual categories are described and a core concept that seemed to underpin these women’s experiences of managing risk is presented. This core concept is described as the women ‘exerting control’ which related to all the eight categories and influenced their perceptions of risk and their management of risk.

Knowledge of Risks

Knowledge of environmental risks for falls tended to be related to past experience. For instance, one woman had experienced a fall stumbling at stairs and at changes of level. This contributed to her belief that stairs and other changes of level presented potential fall situations. Another woman talked of how, ‘In my family home, we had linoleum in the country, therefore there were always mats. I don’t remember anyone falling over them, I really don’t.’ This reinforced her view that mats were not a hazard. She had agreed to remove some mats and replace another as her mobility had deteriorated, however these were described as the therapist’s decision and not hers — what she had done was make a decision to allow it to happen.

For all of the women environmental risks were perceived to be object specific. They determined what was and was not a challenging or risky environment. One of the women believed falls were to do with heights or changes of level. Another woman attributed falls to her shoes, but this specific risk was coupled with her behaviour. ‘You know how the shoes are slippery underneath, I must have sort of caught on that and ended up on my face.’ and she added, ‘I don’t lift my feet up all the time.’ She perceived that her potential fall risk in this situation was due to the slipperiness of the soles of her shoes in addition to some inconsistencies in her gait. Past experience and identification of specific environ-

mental factors thus provided a knowledge of risks which influenced decisions regarding home modification.

Fall Injury History and Fear of Falling

Past fall experiences, injurious falls, or stumbles could shake confidence but also contribute to the selection of safety strategies. Only a few of the women talked about a fear of falling and this tended to be coupled with a description of avoidance strategies. One person talked about being ‘afraid to go out by myself because I never know when I’m going to stumble. I mean even here across the grass is bumpy and lumpy, I mean its not a nice green lawn.’ and to avoid this she was consequently housebound. She said, ‘But I don’t know if I’m going to spend the rest of my life sitting about doing nothing.’ Another lady had a past fear of falls in the bath that was addressed by her removal of the bath.

Meaning of Home

Sometimes aspects of the home were valued in terms of their function and sometimes they were valued in terms of their symbolic and particular meaning. The purpose and symbolic meaning of aspects of the environment were both important issues that influenced follow through. Several persons expressed strong feelings about mats being removed because of either their functional significance (‘I must have the mat there it is cold’ or ‘because it gets muddy out there’) or symbolic meaning (a connection was expressed by one woman of her present home with childhood memories, ‘clinging to the old fashioned way of having mats in front of chairs.’) In another example, the woman felt that a rail would interfere with the functional use of space in the small toilet area and this contributed to her not accepting the rail.

Options and Validating Options

Options suggested by the occupational therapist or others for risk management were either followed through or not. Such decisions were justified through experiences, both past and present. Some people reflected about how they were sometimes validated through experience, for instance, using the bathroom rail everyday or the mat not contributing to being a slipping or tripping hazard. As one lady who had put back the mat after the therapist left said, ‘well I thought there was a possibility [the mat was a hazard] but then when I tried it afterwards and I could see that it wasn’t going to, well, it doesn’t move very much, I was quite confident that I could manage’.
A few of the women expressed how the cost of equipment either validated the worthiness of the equipment or implied a wasted resource when the equipment was not used. They perceived it as either ‘worthwhile’ or a ‘mistake’.

SELF EFFICACY

Self efficacy was an important component of managing day to day activities. Self efficacy is defined as the person’s belief about their degree of competency to perform specific behaviours. All of the women were able to express confidence and lack of confidence related to specific situations. This was reflected in their ratings of the FES which supported and verified comments in the interviews. One person described confidence in some situations as varying from day to day depending on her physical state. For some women various activities were avoided and all developed strategies to feel they were exerting control in many everyday activities and situations. As one lady described her confidence in negotiating her home environment, despite her previous falls and her poor functional vision due to macular degeneration, ‘I mean I can move around, well I have to have a light on at night but in the day I can move because I know the place you know, I mean nothing shifts I know where everything is I mean I don’t see if anything is dusty or dirty, I rely on the help …’ and, after discussing how she deals with the dusting, she continues, ‘well at night time I put all the lights on and I’ve got two lights in the bedroom one by my bed one in the middle of the room, well usually the lights outside light up the bathroom and I pull the blinds up and that makes the room very light and I can see, anyway I know where everything is, I don’t often get up in the night, its usually early in the morning, about 4 or 5’. The light was discussed with some ambivalence — there was still an underlying belief in her abilities to negotiate the environment because of its familiarity. Her FES ratings reflected this confidence. She rated ‘walking around the house’ and ‘answering the door or telephone’ as her highest level of self efficacy, though conservatively at 7/10.

DEGREE OF FREEDOM

The degree of freedom the women perceived they had in decision making about their home or parts of their home also influenced follow through with advice to reduce risk. There was a common theme of self reliance for all these women and a strong sense of independence in decisions for most of them, though in two cases other family members in some ways influenced their decisions. When the women needed to consider the desires or demands of others in making decisions about changing the environment to reduce risk of falls, these decisions were less easily made.

Self reliance is illustrated by one woman who was explicitly proud of the way in which she had solved problems and found solutions herself. Importantly, she ‘owned’ the strategies she used to minimize risk. She said, ‘I had the brainwave’ when describing solutions. When the occupational therapist was involved, the extent to which she could ‘own’ the idea seemed an important part of whether a strategy was viewed as important and whether a recommendation was accepted and followed through. For example, she had a rail installed in her previous home for her husband. This had enabled her to decide where and why she needed a rail in her current home prior to the therapist visit. She owned the idea and presented options to the therapist instead of the other way around. She felt in a position to discuss where the rail should be placed because options came from her and she had the freedom to act. Other suggestions from the therapist that did not have this sense of ownership were not followed through. She says, ‘they decided that the mat upstairs was in the road but I’m afraid I’ve left it there’. As well as influencing the perceived degree of freedom and decision making about home hazards, the influence of family and significant others was important in terms of the extent to which the women felt free to decide, were interdependent with others or relied on others in their lives. When others were central to their decision making the sense of control and independence was still important.

Despite one woman valuing her ability at being self reliant, she had a feeling that her daughter should be doing more for her. Consequently, some decisions about environmental change were based solely on the daughter’s desires and demands rather than her own. For example, she did not use the shower chair because it was in the way of the daughter, the only other person still living at home. ‘If nobody’s home I can’t get the chair into the shower, I find it, well, you can’t leave it there all the time when there’s other people in the house’. She had stated it was a falls risk to go without a chair but in some way the daughters needs and usage of the area, or perhaps her lack of approval for change, were important considerations for the older woman’s actions.

LEVEL OF RISK IN ENVIRONMENTAL HAZARDS

An important notion arising in the interview data was how the extent of risk varied on a continuum. This continuum tended to relate to specific environmental
hazards. One case illustrated a continuum of risk relating to specific environmental hazards. Stairs were the key aspect of one woman’s continuum. She started with a story about stairs and returned to stair events throughout the interview. At one end of the continuum she was particularly concerned about stairs in public places. In the middle of the continuum of ‘stairs risk,’ were smaller stairs at the back entrance and at the other end of the continuum were the stairs at home (including a spiral staircase) which were not viewed as a risk. This was in spite of a serious fall when she first moved into the home that resulted in her being admitted to hospital. The continuum was between public and home stairs and the dimension of concern was the familiarity of the stairs at home, therefore, she perceived lower risk at home. She felt more confident in the home by using strategies which gave her a sense of minimising risk and exerting control. For example, she perceived herself as ‘taking more care’ in a particular section of the spiral staircase which lowered her risk. She states the risk as ‘instead of going round near the wall I think we have the tendency to sort of cut the corner where there’s only a small amount of the step’. She continued with a description of the risk and then described her strategy. She said, ‘but then you get used to it. You walk round the wider part then you can’t fall’. In addition, other stairs in the house and things she did with stairs were also considered safe such as use of a firm step ladder with rubber tips. She also felt she could mediate the hazards at the high risk end of her continuum through behaviour such as ‘being careful’. Consequently, she would still engage in risky behaviour in specific situations. Hurrying to the phone, for example, she sometimes stumbled on the back stairs. She said, ‘I have tripped a few times but not fallen, just there a small step. You don’t lift your boot high enough or the bottom of your shoe just catches. You don’t actually fall but you shake yourself up’. She also perceived herself as moving back into a more active lifestyle in the future which included climbing ladders to do home maintenance tasks — which would have extended the ‘safer’ end of her continuum of risk regarding steps and stairs.

The continuum of risk regarding stairs and steps was significant in terms of the way in which she responded to advice from the occupational therapist regarding environment changes to reduce falls. The occupational therapist made home visit recommendations about immediate mobility concerns following hip fracture and about minimising tripping hazards like mats. However, she did not focus on stairs and steps. The recommendations were not focused on the broader view of the continuum of risk that the older woman had conceptualized which related to more vigorous activities such as climbing and reaching. Consequently, the occupational therapist’s recommendations had little meaning for the older woman and were not followed through.

**Behaviour and level of risk**

A woman’s perceptions of her level of risk of falling was based on her beliefs about what constituted a challenging environment, her understanding of her own intrinsic factors and her perception of behavioural means to minimize risk of falls. The degree or level of perceived risk varied amongst the women depending on these factors.

The woman’s description of a continuum of risk around steps and stairs, serves to illustrate the way in which most of the women identified environmental risks but talked about their ability to mediate the environmental risk through behaviour. This was their way of contributing to a safe environment to prevent falls and minimize risk. One woman, for example, thought that heights or changes of level were only a problem when associated with rushing and not paying attention. This meant that when the therapist spoke about a particular back step, a hazard when walking, it was not part of her perception of what could cause a fall as she felt she could lower the risk by ‘safe’ behaviours. ‘It’s alright to run on the grass but then when you get onto the landing you can slip if your feet are damp. So I’m always wary of running too fast along there so I usually have the window open so I can hear the phone’. In addition to this, she felt she had good awareness of her condition, for example, her strength and balance, so she could judge the environmental hazard and her behaviour to mediate it in relation to her intrinsic abilities. Her perceived level of risk was thus determined by her consideration of the specific hazard in relation to intrinsic factors and her behaviours.

Behavioural control was the most prominent and recurrent theme. It was discussed in terms of familiarity and predictability of the environment, avoidance of hazards and having strategies in place such as ‘moving slowly’ and ‘care’ in environments with identified risk. All the women identified instances when their own strategies to minimize risk were inconsistently applied. For example, one woman described ‘moving slowly’ over the back steps, and at other times she would rush to get the telephone, even though she knew the steps were a risk and that rushing was hazardous.

**Core concept: exerting control**

A core concept emerged which seemed to explain each of these eight conceptual categories. It was found that ‘exerting control’ explained whether or not an older
woman would follow through with environmental modification advice by the occupational therapist to reduce her risk of falls. Exerting control was a behavioural, cognitive and affective process whereby the older woman made decisions about changing or maintaining her home environment. These decisions were based on, or influenced by, such factors as her perceptions of the level of risk and her ability to mediate these risks through behaviour. In addition, exerting control could be influenced by such factors as the older woman’s knowledge of environmental risk, past fall history, the personal meanings of aspects of the home environment, options, her sense of self-efficacy in certain situations and the degree of freedom she perceived she had in decision making about her home or parts of her home. The consequence of exerting control was that the older woman made daily choices about the home environment that increased or decreased her risk of falls with identified home hazards.

One woman’s experience further illustrates the process. Mrs Cox (pseudonym), who is 90 years old, lives alone in a small block of units. On one hand Mrs Cox made decisions relating to changes in her bathing situation from that recommended by therapists and she did not pursue environmental changes to a hazardous join in her carpet in the hallway. On the other hand, she accepted a chair raise and a trolley. The following illustrates the factors that influenced these actions and how exerting control underpinned her perceptions of risk and her management of risk.

Mrs Cox’s knowledge of environmental risks for falls came from her experience of the last fall on hard impact flooring that had led to her recent hospitalization. Her meaning of falls related to intrinsic factors that for her were pain and weakness. She said, ‘the pain shocked my leg and I fell’. Therefore, she perceived that falls were beyond her personal control and there was an element of chance, as she says, ‘it happens when it happens’.

While she felt intrinsic factors were the major factor in the risk of falling she still expressed an ability to mediate these risks through behaviour. Environmental control was achieved though organizing her physical environment in risk areas and in particular, behavioural strategies relating to ‘taking care’ and slowing down. For example, she said, ‘I don’t rush quickly, I know I can’t’. The trolley she used between the lounge and kitchen was risky because of her balance. But, she said, ‘I take my balance properly’ and ‘my weak leg, I don’t lift this one up off the carpet’. Although perceived as risky it was appraised as safe because of behavioural control and also a sense of familiarity. She described a specific strategy she worked out for getting on and off her chair, of how she could control a fall to an extent because she is conscious that if she falls she will land on a cushion. She said, ‘Now I do make sure that I get up, I am poised, I get my legs apart properly and I don’t try to walk on them till I feel I am safe on them’.

She also organized her kitchen with a stool and described how she would use this for support to avoid falling on the sink. She said, ‘I would prefer to hurt myself on one of those chairs than the sink. The sink is hard’.

She highly valued solving problems and generating solutions on her own. For example, she decided to cease home care and worked out a way of independently bathing in the kitchen. The dismissal of home care was emphasized as her decision and the story revolved around her assertiveness. Like the other women we interviewed, her ownership of solutions and decisions was very important to her in a way that expressed her sense of control of her home and her everyday activities. In turn it validated her ability to be as safe as possible. ‘Since I had that fall out there I am not that confident, but I am still, I take good care’.

Mrs Cox, like some others we interviewed, had a restricted environment. She was housebound to the extent that a neighbour came in each evening to help her to bed. She stays within her small unit all day every day with no view to the outside world. Her life revolved around the inside of her unit and for long periods during the day, she was in just one room. It was important for her to be in control of this home environment. Rubenstein halls of environmental centralization which occurs with a person who is disabled and homebound when the living space becomes increasingly concentrated in small living zones and how shifts in personal meaning can evolve with this change in living experience. Mrs Cox had her chair oriented towards the television, her only view of the outside world. A second chair was carefully placed for her visitors. These were her caregivers and her other major contact with the outside world. As things were not easily found or reached, important items of daily living were situated in and around her chair and the spaces she mostly sat and moved in. Her individual meaning of home contributed to her decision-making about new objects in her home—these included aids and safety equipment. The trolley and a chair raise were accepted. She says, ‘They were nacky (nifty). I had my moneys worth out of them’. She validated the trolley by her perceptions of safe use of the trolley despite its risk. It seemed to provide her with an increased sense of control over her diminishing environmental space.

Central to Mrs Cox’s perceptions on risk management was the extent to which she was able to exert control over her perceived risk. Mrs Cox felt that falls were essentially
beyond her personal control but that despite her weakness, pain and poor mobility she exerted control that she perceived reduced the potential injury from falls and these were both environmental and behavioural. She also exerted control because of the predictability of her familiar home environment and the behavioural strategies she used as a result.

Mrs Cox, like the other women we interviewed, described a phenomenon of exerting control and the extent of perceived control was influenced by such factors as perception of risk, meanings attributed to the home environment and behavioural strategies employed to mediate risk. Exerting control was a behavioural, cognitive and affective process whereby she made decisions about changing or maintaining her home environment. The consequence of exerting control was that she made daily choices about the home environment that both increased and decreased her risk of falls with identified home hazards.

**Discussion**

The analysis of interviews with these women presented an empirically based understanding of the experience of older people who had fallen or were at risk of falling, who then received advice by an occupational therapist. The description and explanation raised a number of issues that have implications for practice when the focus is to prevent falls.

Adequate evaluation of potential fall hazards in the home and developing observation skills for environmental hazards are important, but the focus needs to broaden. Therapist recommendations need to attend to both the person’s perceived risk and the professional’s evaluation of risk. The data suggested that these were not always the same. Understanding the perception of risk and evaluating the clients’ meaning of falls and their appraisal of risk and safety are essential to evaluating risk, making sound recommendations and working with clients to achieve the goals.

Understanding different perceptions of risk and what it means to the person may suggest differing intervention objectives. Speechley and Tinetti suggested that there were different patterns of risk for those who were frail, those who led active and vigorous lives and those who were transitional between the two groups. They suggested that the type of environmental risk factor would vary across these three groups. Understanding these stories in context provides a view of individual perceptions of risk. These perceptions can be partially explained by knowing different patterns of falling. If a person views herself as transitional but moving in the future to a more active life style then the intervention should also focus on preventative strategies for appropriate potential risk situations. In a number of instances our data suggested that the health professional was not always addressing similar concerns to the client. This also suggests that a broad knowledge of the range of risk factors for different patterns of fallers is important as well as listening skills to understand the persons’ perception of risk.

Personal meanings attributed to aspects of the environment influenced the women’s decisions about follow through with some recommendations. Some objects had other purposes or meanings that weighted more highly than the appraisal of these objects as contributing to falls or prevention of falls. Csikszentmihalyi and Rochberg-Halton and Rubinstein have contributed to understanding how the home environment can have particular meanings and symbolism at a variety of levels. Situating interventions within the context of meaning for the person could enhance falls risk management, particularly by exploring options.

Family and significant others can influence decision making in terms of the degree of control the person perceives she has. The influence of significant others can act as a barrier to follow through or as facilitators in risk management and falls prevention. Silverton and Tideiksaar provide some examples, similar to the data, where the influence of significant others had a direct effect on whether or not people followed through with environmental strategies for falls risk management. In the findings ‘significant others’ included both those living at home with the person and those who acted in a caregiving role from a distance. Spencer prefers the concept of interdependence rather than dependence as it realistically describes how peoples’ lives are interconnected. This notion of interdependence suggests that goals can be best achieved by being aware of how relationships with others influences the person’s choices within their home environment.

The results of the study indicate that people’s appraisal of risk, considering alternatives and competing goals, and how actions are validated or not validated over time, are sometimes influential in decision making. Viewing decision making as a process that incorporates a number of stages suggests it can be influenced by a number of factors. That at any stage of the decision making process the action can be discarded until it is actually implemented. It would be worthwhile to explore how the decision making process could be utilised to help facilitate appropriate goal setting.

The data showed that each woman had varying feelings of efficacy that she clearly related to expectations.
about behaviours in particular situations. Self-efficacy has been shown to be a powerful predictor of behaviours in certain situations and can be a tool to initiate health behaviour change. Using strategies to enhance self-efficacy have been shown to have potential when working in the area of falls risk management.

A key finding in this study is that the notion of ‘control’ is important to consider in intervention. Control has been recognized as an integral concept in motivational theory and has been found to be relevant in explaining such phenomena as cultural differences in decision making about nursing homes. For the participants, a sense of control over events and situations in their lives was integral to how they managed risk and enhanced personal feelings of efficacy and safety. Rotter, and later, Levenson conceptualized locus of control as being either internal (the person believes their control over events in their lives arises from themselves) or external, that is, from powerful others or from chance. The phenomenon of exerting control for the participants generally appeared to be similar to persons displaying an internal locus of control. However, for some there were elements of external control as falls in some situations were perceived to be due to chance. Rogers suggested that for older persons control may be both multidimensional and domain specific. For some of the participants the dimensions of predictability and familiarity reflected ways of controlling situations. These ways could also explain why change or adaptation was less likely in some situations.

The study contributes to the literature by describing the perspective of older women who engage in a behavioural, cognitive and affective process of exerting control to make decisions about modifying their home environment to reduce risk of falls. This finding is consistent with the Cooper and Hasselkus model of environmental control, which was based on a qualitative study involving interviews of people with a disability living independently. They demonstrated that issues of control underpinned all aspects that contributed to independence. Safety was one of these aspects and decisions about safety were influenced by the person’s need to balance risk and safety strategies in achieving self-reliance in particular activities or situations.

Using intervention strategies that actively address the core process of ‘exerting control’ could thus maximize the likelihood of follow through. This means understanding the process of exerting control and taking this into account when exploring risk reduction options and follow through issues. Lau suggested using different messages aimed at changing behaviour which differentiates people who internalize and those who externalize control. For instance, a message aimed at controlling a health risk like Jacobs and Lau’s (cited in Lau 1988, pp.59–60) ‘Don’t press your luck,’ which was aimed at people who perceive that a hazard is to do with chance. Thus, the way recommendations are phrased can be the determining factor. There is some suggestion that internally controlled people would benefit most from individualized learning and the opportunity of self-evaluation. Whereas, persons with a higher tendency to external control learn to become instrumental in their lives through participation with others in controlling events important to them.

The participants demonstrated that people mediate risk by employing various behavioural and environmental strategies. These result in feelings of control, safety and apparent increased safety. On the other hand, there may be an underlying element of over-confidence. This may be similar to ‘optimism bias’ described in research into driver behaviour. Optimism bias refers to a tendency to be excessively and unrealistically optimistic and over-confident when judging the degree of personal risk associated with various events or situations. It is suggested that optimism bias is related to the person’s perceived control of the event. That is, if one feels very much in control then one is likely to be more optimistic about the outcome. Further investigation of perceptions of risk are indicated to help understand the extent to which such phenomenon exist and how they may affect the older persons approaches to risk management.

Conclusion

This study shows how the need for ownership of ideas and exerting control within the context of an individual’s environment and life experiences strongly influences acceptance and follow through of recommendations. The interviews suggested that for these women a therapist-client relationship that promotes joint decision-making and negotiation would be more likely to result in change. Above all, options and choice are important for successfully addressing barriers to environmental change.

While we explored those views of a small sample of women who had not followed through with recommendations it would also be valuable to understand the extent that exerting control plays in decision making for men and for those people who largely accept advice. The study focused on falls and environmental interventions which was a primary focus of the occupational therapy home visit for these women. These findings may also have implications for enacting advice about other falls
intervention strategies such as exercise and medication management. The findings from this small sample have indicated that a number of preventive approaches need attention. We recommend further work be done in this area and the study be replicated with a broader sample and from a cultural perspective.

This study presented factors involved in an older person’s follow through of home modification advice by an occupational therapist. It described and explained the experience in terms of the concept of ‘exerting control’. Unless health professionals can work with the phenomenon of ‘exerting control’ they will have little or no impact because they are not targeting the core process when making recommendations or intervening to reduce risk of falls. By understanding this concept health professionals can work better with older people to prevent falls.

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