Investigating the over-representation of older persons in do-it-yourself home maintenance injury and barriers to prevention

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Objective: To examine why older persons undertake high-risk do-it-yourself (DIY) home maintenance and under what circumstances, what constitutes acceptable low-risk alternatives to DIY, and to assess if alternatives are feasible in the current context.

Design: Exploratory qualitative study using focus-group methodology.

Setting and subjects: Fifteen focus groups were conducted, involving 118 persons aged 60 years and older, in two Melbourne communities. Participants resided locally, participated in local seniors groups, or received treatment for a DIY injury at one of two public hospitals serving these communities.

Results: Older persons' involvement in DIY ranged from necessity to choice. A number chose DIY for general fitness enhancement, satisfaction and pride in a job well done, and giving meaning and enjoyment to daily tasks. However, some older, frailer seniors were forced into DIY because of difficulties in choosing appropriate alternatives; lack of knowledge of some available resources and services; the challenge of accessing cost-effective and reliable private service providers; and fear of vulnerability to overcharging, overservicing or their personal security. Preferred DIY alternatives were local government providers, local paper advertised services, recommendations to private service providers and family, friends or neighbors. Lack of knowledge of other existing alternatives was an impediment to preventing DIY injury, or accessing DIY alternatives. A number of potentially feasible alternatives to DIY were identified from our review.

Conclusions: This research is an important first step in understanding issues facing community-dwelling seniors remaining at home, and provides a basis on which government agencies and other providers can develop services to meet increasing needs.

The world population is aging. The United Nations estimates that by 2050, the number of older persons worldwide will, for the first time in history, exceed the number of younger persons, and that persons aged over 60 years will represent 21% of global population, compared with only 10% in 2000.¹ This is a global phenomenon, with consequences for many facets of life, including health, healthcare, family composition, living arrangements, and housing.¹

As of June 2004, the number of Australians aged over 65 years reached 2.6 million, comprising 13% of the population, and the projected 2051 proportion is 24%.² Australian government policy encourages older Australians to live independently at home as long as possible, and outright home ownership is by far the most common tenure type within this population.³ Maintaining their home, however, can place older persons at risk of injury. When faced with home maintenance tasks, they have three broad choices: employ someone to do the task; ask family or friends for assistance; or "Do-It-Yourself" (DIY). Such DIY tasks range from seemingly simple tasks such as changing light bulbs, washing windows, gardening and lawn mowing, to more complex or demanding tasks such as roofing repairs, gutter cleaning, carpentry, or renovations. For older persons, even simple tasks become more complex and risky as age-related declines impact.

The Victorian population represents approximately 25% of the Australian population.⁴ Victorian injury surveillance data indicate that in 2005, there were 26 185 hospitalisations for home injury. Half were persons aged 60 years and older, and 10% occurred during unpaid work, including DIY. Additionally, six DIY injury-related fatalities are recorded in Victoria annually in this age group.⁵ Older Victorians are represented most prominently in ladder-related DIY injuries at all levels of severity, and gardening and saw-related injury hospitalizations.

Age-specific DIY hospitalization rates for July 2000 to June 2001 show that ladder falls in the 60–74 and 75+ age groups (22.1/100 000 and 24.3/100 000, respectively) are more than 2.5 times the all-age rate (8.7/100 000).⁵ Similarly, age-specific DIY injury hospitalization rates associated with powered lawn mowers and powered tools for persons aged 60–74 are approximately 1.5 times the all-age rates.⁵

Rising injury rates among older Victorians,⁶ and aging housing stock suggest that these rates will increase as the population ages. This problem is widespread in the developed world.

Surveillance data show that DIY injury patterns vary with age. The reasons older persons undertake DIY home maintenance may also differ. If the nature of the problem varies, so may the solutions. Many existing DIY injury solutions strongly emphasize use of personal protective equipment and ensuring safe and appropriate work practices. While applicable to all ages, the success of such solutions alone in solving older persons' DIY injuries is less clear. Evidence is lacking on why older persons undertake high-risk DIY activities, and what constitutes acceptable low-risk alternatives.

OBJECTIVE

This study aims to investigate why older persons undertake high-risk DIY maintenance activities; what constitutes low-risk alternatives; and whether these alternatives are feasible and acceptable in the Victorian context.

SETTING

The setting was the Cities of Monash and Greater Dandenong, suburbs of Melbourne, Victoria. While geographically close, the

Abbreviation: DIY, do-it-yourself

socio-economic and cultural profiles for the two areas are distinct.

Monash is one of Melbourne's most populous municipalities (total population 163 000) with 20% currently aged 65 years or older.⁷ An Index of Relative Socio-Economic Disadvantage ranks Monash 22nd out of 31 Melbourne Local Government Areas (LGAs).⁷ Home ownership is considerably higher than the Melbourne average. Thirty-six per cent of residents were born overseas,⁸ and 35% are predominantly non-English speakers.⁹

In Greater Dandenong (total population 133 000), 14% of the population is aged 65 years and older, and, like Monash, the population is aging. Greater Dandenong ranks first on the Index of Relative Socio-Economic Disadvantage for Melbourne LGAs.¹⁰ Home ownership is comparable with the Melbourne average. Fifty-four percent of residents were born overseas, and 55% predominantly speak a language other than English.¹⁰

METHODS

This qualitative study used focus groups to capture a range of experiences, attitudes, and opinions within the population of interest. A self-administered questionnaire collected patient demographics.

Ten key suggestions from focus groups on DIY alternatives were assessed against three predetermined criteria: (1) advantages and disadvantages; (2) feasibility; and (3) acceptability among study participants.

Eligible participants were aged 60 years and older, and resided in, or participated in, local seniors' groups in Monash or Greater Dandenong, or received treatment for a DIY injury at a public hospital serving these populations. Three subgroups were recruited selectively: (1) previously treated for a DIY injury; (2) non-injured participant in local seniors' group; and (3) non-injured users of local government home maintenance services (table 1). These sources were convenient but also purposive in that those using local government services may be older and frailer compared with those taking active part in community groups.

Patients treated for a DIY injury at study hospitals in the preceding 18 months received a letter from the Emergency Services Director inviting participation in one of three focus groups held at hospitals.

Staff at the Cities of Monash and Greater Dandenong identified potentially eligible clients of the local home-maintenance programmes, and invitation letters were sent. Interested participants were referred to the study team. Six focus groups, three in each area, were held during November and December 2004.

Local government stakeholders, on-line listings and personal referral identified local seniors' community groups. Four local groups recruited from their members: Association for Independent Retirees; Clayton Probus; Waverley Retirement Activities Group; and Springvale Senior Citizens. Five focus groups were held locally with these groups.

Participants were offered \$A40 to cover costs (travel, parking, taxis). Ethics approval was granted by the Human Ethics Committees at Southern Health and Monash University.

Instrument and data collection

Focus groups were conducted using open-ended themed questions that had been pretested in a 2001 pilot study.¹¹ The questions asked why older persons undertake DIY and what constitutes acceptable low-risk alternatives:

- What type of activities do you undertake and how frequently?
- How fit do you feel to undertake tasks?

- Have you been injured doing home maintenance in the past, and what were the repercussions of an injury?
- Why do you undertake DIY?
- What would make you stop doing DIY?
- Do family and friends assist with DIY?
- Would you be willing to pay for assistance with home maintenance?
- Where would you look for assistance with home maintenance?
- What DIY alternative services have you used, and have you been satisfied with the service?
- What are the most important factors in choosing an alternative to DIY?
- What is your best alternative to DIY?

Focus groups of 45–60 min duration were led by one researcher (KA or BF) with a second researcher taking notes supplementary to a digital voice recording. The group leaders have training and/or qualifications in qualitative research methods.

The study also assessed DIY alternatives identified in the focus groups for their acceptability and current feasibility using web-based searches and review of hard-copy resources.

Data analysis

Hawe *et al*'s broad four-step procedure (organizing, shaping, summarizing, and explaining) was used to guide data management.¹² Data from focus groups were fully transcribed by a professional transcription service. The transcriber had access to the researchers' supplementary notes to assist with accuracy.

Data coding and analysis was conducted using the six-step processes outlined by Gifford.¹³ Transcripts were read in full by two researchers to identify common patterns or threads. Issues were categorized, and data were sorted into broad themes using the developed coding categories.

RESULTS

Between November 2004 and March 2005, 118 (52 male; 66 female) community dwelling persons aged 60 years or older participated in one of 15 focus groups. The ratio of males to females was greater in the hospital-recruited group 16:7, compared with the local government service users group where females outnumbered males by 2:1.

Typical profiles of subgroup participants were:

- Hospital recruited: male; aged 60–69; living with another in a separate home
- Local Government service users: female; aged 70–79; equally likely to live with someone as alone; living mostly in a separate home, but 25% living in a flat or unit
- Local Community members: Equally male/female; aged 65–79; living with another in a separate home

Fifty-two percent of all participants had sustained a DIY-related injury that required medical treatment.

Why older persons undertake high-risk DIY maintenance activities

Some focus-group participants (17%) reported continuing DIY activities, particularly lawn mowing, to keep fit. Others reported that the pride and satisfaction gained in completing home-maintenance tasks was an incentive to DIY (10%). Common tasks undertaken were gutter cleaning, lawn mowing, gardening, toy making, changing light bulbs, painting, carpentry, chopping firewood, repairing structures—for example verandah, pruning, and car maintenance.

Table 1 Focus-group participants by recruitment method

	Non-injured subgroups	Injured subgroup
Source of participants	Local seniors' community groups	Residents who use local government subsidised and supplied home maintenance services
Recruitment method	Identified by local contacts; group leader approached by team researcher; study presented at next meeting and participants directly recruited	Letter from Emergency Department Director inviting participation in the study
Number of participants recruited	47	23

Participants reported that the first jobs to be relinquished were those that required working from a height—for example, cleaning guttering or roof maintenance, usually involving ladders.

The question “Why do you undertake DIY?” revealed four classes of respondents, distinguishable mainly by their attitudes to DIY. One group were keen to do DIY while they were able and were resistant to any suggestions of ceasing just because they were “older”. Group members were sometimes ex-tradesmen, or had safety-related backgrounds ($n = 6$). Another group lacked formal experience but were keen to undertake DIY to maintain independence and fitness. A third group were still keen to do what they could but realized that health concerns, age-related deteriorations, and property size impeded their continuing DIY ability. The final group had simply become unable to undertake their own home maintenance.

Participants were asked to rate their DIY experience from “choice” to “necessity”. Some viewed DIY as a simple choice, based on self-assessment of their task-specific ability. They used a tradesman for tasks beyond their expertise—for example, electrical repairs. These participants indicated that the main reasons they undertook DIY were: pride/satisfaction of doing the job themselves, because they enjoyed it and because it helped keep them fit.

Participants who viewed DIY as a necessity mostly considered the alternatives as too costly. Some 15% of participants

indicated that fixed incomes or pensions create financial barriers, real or perceived, to undertaking even minimal home safety improvements requiring an outside service provider and older persons may be forced to tackle maintenance jobs where they lack skill or physical capability.

Fear of allowing a stranger into one's home was another common concern. Many ensured they were not alone for scheduled visits of trades/handymen. Some purposely gave the impression that another person lived with them using, for example, a male answering machine message.

Reported catalysts for ceasing DIY included: fear of injury or physical consequence of doing too much ($n = 9$), changes in balance, stability and strength or slowing of reaction times ($n = 8$), increased consequence of medical conditions ($n = 5$), just plain commonsense ($n = 5$), diminished eyesight ($n = 3$), increasing frailness ($n = 2$), lack of confidence in their ability ($n = 2$) and increased use of medications ($n = 1$). They acknowledged the need to seek acceptable alternatives to DIY at this time.

What constitutes low-risk alternatives to DIY?

On considering their alternatives to DIY, where to seek alternatives and what factors would help them choose a paid service provider, participants most commonly identified family, friends or neighbors ($n = 23$), local community papers ($n = 19$), local government ($n = 8$), and recommended trades/handymen ($n = 8$) as sources.

Table 2 Demographic profile of focus-group participants by subgroup

	Hospital recruited group (n = 23)	Local Government service uses (n = 48)	Local Seniors' Community Group members (n = 47)	Total (n = 118)
	N (%)	N (%)	N (%)	N (%)
Age				
60–64	7 (30)	8 (16)	2 (4)	17 (14)
65–69	12 (52)	9 (19)	15 (32)	36 (31)
70–74	3 (13)	14 (29)	7 (15)	24 (20)
75–79	1 (4)	10 (21)	16 (34)	27 (23)
80+		6 (13)	4 (8)	10 (8)
Missing		1 (2)	3 (6)	4 (3)
Sex				
Male	16 (70)	15 (31)	21 (45)	52 (44)
Female	7 (30)	33 (69)	26 (55)	66 (56)
Current dwelling				
Separate house	20 (87)	33 (69)	43 (92)	96 (81)
Semidetached, row, or terrace house		2 (4)		2 (2)
Flat, unit, or apartment	2 (8)	13 (27)	4 (8)	19 (16)
Unspecified	1 (4)			1 (1)
Previous DIY injury				
Yes	19 (83)	21 (44)	21 (45)	61 (52)
No	4 (17)	26 (54)	25 (53)	55 (47)
Missing		1 (2)	1 (2)	2 (2)
Lives alone				
Yes	4 (17)	24 (50)	13 (28)	41 (35)
No	19 (83)	23 (48)	34 (72)	76 (64)
Missing		1 (2)		1 (1)

Across most of the 15 focus groups, word-of-mouth recommendation was suggested as the best way to find a skilled, honest, and reliable trades/handyman. Failing recommendations, the alternative was to use the local community newspaper to find a trades/handyman. Some had positive experiences using trades/handyman who advertised locally. Others were more sceptical about random selection from advertisements.

The main factors influencing choice of DIY alternative were: cost, including risk of being overcharged; reliability in doing the task and doing it well; security, especially for vulnerable older persons living alone; recommendation from another source; and the trades/handyman's general approach.

Are these DIY alternatives feasible and acceptable?

Our review of 10 key alternatives to DIY identified by the focus groups found that the most feasible alternatives were family/friends' assistance, recommendation of trades/handyman by family/friends, local advertising, and local government services (table 3).

Several novel options were highly acceptable to focus-group participants, though they may be resource-intensive, administratively complex, and therefore unfeasible. These included a volunteer force of retired tradesmen, and a council-run advisory service to recommend trades/handyman.

DISCUSSION

DIY home maintenance has several benefits for older persons. Participants reported pride and satisfaction in completing tasks themselves or using DIY to keep fit. However, as people age and health problems and functional impairments accumulate, the efforts involved in household maintenance become greater and more burdensome. Working from heights, particularly from ladders, becomes more dangerous with aging due to reduced flexibility and mobility, slower reaction time, and poorer balance.

Older Victorians continue to engage in unsafe DIY practices as a means of managing their home maintenance despite increasing challenges, particularly lessening physical abilities; limited access to, and uncertainty of, DIY alternatives; and limited ability to afford expensive assistance.

Local government was a commonly identified source of home-maintenance assistance among both current clients and others. Most existing clients of local government services were happy with the jobs provided and that services were reasonably priced. Non-clients had mixed reactions to the usefulness of local government in assisting with DIY alternatives they required. However, their knowledge of services provided may be limited and based on assumption.

Family, friends, or neighbors were commonly raised as DIY alternatives. However, enthusiasm for the practicalities of using

Table 3 Alternatives to DIY and summary of feasibility and acceptability to participants

Alternative to DIY	Feasibility in current setting	Acceptability to focus-group participants
Assistance of family and/or friends	Highly feasible for most in terms of availability and cost	High acceptability to most but some reluctance to ask for too much assistance, as it may be seen to threaten their independence or impinge on quality family time
Use of tradesmen recommended by word of mouth (friends, family)	Highly feasible in terms of safety, reliability and cost	High acceptability, most noted this as first alternative to DIY
Guidebook of services and entitlements re seniors' home maintenance	Limited feasibility; may become out of date quickly due to changing entitlements and professionals involved	Good acceptability as an easily accessible printed source of information
Local advertising (newspapers, letterbox flyers)	Highly feasible, many existing examples	Mixed acceptability; negative comments include: no guarantee of the job or the individual; time-consuming to find several quotes and; reluctance of local advertisers to take some jobs, eg, small jobs.
Home and Community Care Programmes (HACC) (funded by state/implemented by local government)	Highly feasible; HACC currently provides essential maintenance and supportive services to older Victorians living at home	Highly acceptable; first port of call for many; reported sense of trust; reliability and legitimacy in HACC provided services
Community Aged Care Packages (Federally funded care package to help older people to stay at home)	Highly feasible for those in declining health but not for the fitter seniors.	None of the focus-group participants was receiving an Aged Care package, and so this alternative was not discussed in detail
Advisory Services: council run (where seniors could be referred to an appropriate tradesman)	Not currently feasible; councils are unable to provide an advisory service of this type as it would be costly to establish and resource intensive and difficult given current levels of funding	Highly acceptable with the only concern being that councils would not guarantee the work.
Advisory Services: privately run (where seniors could be referred to a tradesman)	Highly feasible; commercial advisory services currently operate in Victoria	Highly acceptable; the concept was thoroughly endorsed in the focus groups, but knowledge of existing services was poor
Advisory service to recommend what repairs are required around the home	Highly feasible; a State government-sponsored scheme is in existence in Victoria, and free home inspections for older Victorians are undertaken by the Architects Association	Highly acceptable, but knowledge of the current scheme was poor among focus-group participants
Service for making complaints and advice on action	Highly feasible; complaint systems are currently in existence via Building Commission and Consumer Affairs Victoria	Raised as desirable in some focus groups but a simplified system would be preferable
Barter systems	Feasible; there are approximately 35 barter programmes (LETSystems) running locally across Victoria	Limited acceptability; discussed light-heartedly at one or two of the focus groups, but no great enthusiasm overall; there appeared to be no knowledge of existing barter systems
Community Services (services provided by individuals under community service orders)	Not currently feasible; this type of system would appear to be difficult to administer and monitor	Not acceptable to most; home/personal security was vital, particularly for women living alone
Volunteer groups of older tradesmen	Feasible on a small scale; such volunteer systems run well for local clubs running a service for a limited number of clients, but they are much more difficult to administer and run on a larger scale, eg, for a whole local government area	Good acceptability among focus-group participants, but there are concerns about the length of time it would take for a volunteer to become available and complete the task

unpaid alternatives vs a paid service provider was mixed. Some participants had family nearby who could help, come quickly when needed, or made dedicated time to assist. Others received similar assistance from neighbors and friends, sometimes in lieu of family not in close proximity. However, even when voluntary help was available, some seniors were disinclined to use it. Reasons included: willingness to still do DIY; doubts in helper's capabilities; inability or unwillingness to wait for provision of help; difficulty in negotiating their specific task; and not wanting to burden their children who are busy with their own families. Other participants were unable to access voluntary assistance, commonly because they did not have family, their family did not live nearby, or they were younger than their neighborhood or friends.

Choosing a tradesman is price-sensitive. "Cost is everything" was commonly heard among participants. Participants relayed fear among the older community regarding vulnerability to overcharging with quotations inflated for jobs not really wanted by service providers. Finding reliable tradesmen and trusting their willingness and ability was an important factor for participants.

Advice was perhaps the most valuable commodity sought by our participants—on what maintenance is required, on finding reliable tradesmen, and on appropriate action if unhappy with services received. We found evidence of models of current Victorian advisory services to address these needs. However, lack of knowledge and hence uptake appears to be a significant impediment to preventing DIY injury, or accessing DIY alternatives rather than lack of availability or feasibility of advisory services.

Two valuable pieces of information could assist the older community to either continue to conduct DIY at reduced risk or find suitable DIY alternatives. First, seniors need more information on high-risk DIY activities and strategies to avoid these. Second, they should receive information on suitable DIY alternatives.

While this research focuses on strategies by which individuals could reduce their DIY-related injury, a multifaceted approach has the most promise for broad community prevention. Cassell and Clapperton (2006) reviewed domestic ladder injuries finding that a combination of interventions was necessary to prevent interactions leading to ladder injury—for example, innovation in ladder accessories (attachment points on houses), design solutions to reduce the need for working at heights (gutter guards), ladder design changes (eg, slip minimisation), community education, training on safe ladder use and social measures to reduce ladder use by older persons for home maintenance.¹⁴ This current study aimed to understand the context for older persons DIY activities to underpin the types of social measures outlined by Cassell and Clapperton.

The recruitment methods provided a self-selected sample of volunteer participants; hence, some selection bias may be present towards persons interested in DIY. Use of three recruitment sources attempted to reduce potential bias. The study's limited funding meant that focus groups were conducted in English only. Victoria is a multicultural society, and both participant communities have large numbers of residents born overseas with varying English proficiencies. While, in several instances, we allowed accompanying family members as translators, this limitation probably discouraged others with limited English from participating. The subgroups of non-English speakers are clearly of interest, and further research in this area is recommended.

CONCLUSION

Injury is a serious yet preventable cause of morbidity and mortality with long-term burden of care costs to society and the

Key points

- Older persons are over-represented in serious DIY home maintenance injuries
- Despite the aging of populations, DIY injury among older persons is under-researched
- This is becoming an increasingly important injury issue for many developed nations
- Our results show that older persons undertake DIY activities for a sense of achievement, to keep fit, because of high costs of tradesmen, perceived vulnerability to exploitation, personal insecurity, lack of/or lack of knowledge of low-cost reliable alternatives
- Low-cost alternatives to DIY should be made increasingly accessible to older home owners, in keeping with government policies on aging in place

individual. DIY injury among older persons is an emerging issue that will increase as the population ages, if unchecked. This study aimed to understand the factors contributing to DIY injuries to older persons. It is the first step in identifying issues facing older Australians, government and service providers in designing and implementing suitable strategies to prevent DIY injuries among an older population. This is not simply a local problem; as the global population ages, these issues will be faced by many communities.

This project highlighted the complex decisions facing older persons in accepting the need to give up DIY, the difficulties in choosing appropriate alternatives, lack of knowledge of some resources and services currently available, and the challenge of accessing cost-effective and reliable private service providers.

It is important to acknowledge the benefits low-risk DIY activities can provide postretirement. DIY can enhance general fitness, provide satisfaction and pride in tasks and give meaning and enjoyment. Within the older population, we encourage these benefits but recommend that services be designed and made accessible for when DIY becomes burdensome or dangerous to older householders.

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LACUNAE

Big dose of medical change

In July, US newspaper *USA Today* published a list of what its medical staff regarded as some significant medical advances since 1982. Child safety was among the mainly medical developments, noting that US law-makers have become serious about protecting kids on the roads. Since 1993, 21 states and Washington DC, have passed laws requiring kids to wear bike helmets, which reduce the risk of serious brain injury by 85% according to the National Highway Safety Administration. And all states now require car seats for children, which cuts their risk of dying in an accident by more than half.

USA Today; <http://www.usatoday.com/news/top25-medical.htm>. Contributed by Fred Rivara.