



NOVA

University of Newcastle Research Online

nova.newcastle.edu.au

James, Carole L.; Rusli, Norsyamimi; Broady, Timothy R.

"Carers and manual handling: Survey results".

Published in International Journal of Therapy & Rehabilitation Vol. 24, Issue 4, p. 146-154
(2017)

Available from: <http://dx.doi.org/10.12968/ijtr.2017.24.4.146>

This document is the Accepted Manuscript version of a Published Work that appeared in final form in International Journal of Therapy & Rehabilitation, copyright © MA Healthcare, after peer review and technical editing by the publisher. To access the final edited and published work see <https://doi.org/10.12968/ijtr.2017.24.4.146>.

Accessed from: <http://hdl.handle.net/1959.13/1353595>

Title: Carers and manual handling: Survey results

Category: Research

Authors: Carole L.James^{1a}, Norsyamimi Rusli^{1b}, Timothy R.Broady^{2a}

Affiliations:

¹School of Health Sciences, University of Newcastle, NSW, Australia

² Carers NSW, Sydney, NSW, Australia

Current Appointments:

^a Associate Professor, School of Health Sciences, University of Newcastle, NSW, Australia

^b Occupational Therapist, Malaysia

^c Senior Research and Development Officer, Carers NSW, Sydney, Australia.

Corresponding Author:

Carole James,

School of Health Sciences, University of Newcastle, University Drive, Callaghan, NSW 2308,
Australia.

Email: Carole.James@newcastle.edu.au

Tel: +61 2 49216632

Authorship:

All authors have made a substantial contribution to the study design, data collection and analysis and writing of the article.

Acknowledgements:

The authors wish to thank Carers NSW for their support and collaboration throughout the study.

The authors also would like to thank the cooperation of carers who voluntarily filled out the online survey.

Abstract

Background: There is limited literature specific to manual handling practices among informal carers, with most literature relating to nurses and paid carers. This study aimed to identify the current experiences and practices of informal carers in relation to manual handling and their perceived manual handling needs for this role.

Methods: A quantitative cross-sectional study design utilising an online questionnaire was used to survey informal carers who were members of Carers NSW. Seventy five returned surveys were eligible for inclusion. The data was analyzed with descriptive statistics using JMP software (version 10.0.0).

Findings: Respondents were predominantly female (74.7%), over 45 years of age (81.1%) and were on a pension (35.8%). Respondents carried out a variety of caring tasks; however used limited equipment and received active/interactive training (workshop and training from health professionals) more than passive training (written materials in brochures, books, internets and posters).

Conclusions: The study provides information on the manual handling experiences and practices of informal carers. The information can be used by health professionals to develop specific education programs or appropriate manual handling literature to assist informal carers with this role.

Keywords: caring tasks; equipment; informal care; manual handling, training

Key Points

- Carers have lack of knowledge and training in safe manual handling techniques.
- Carers have limited awareness and access to range of equipment to assist with manual handling tasks.
- Support services appears less available to carers from rural areas and alternative methods to access support system needs investigation.

Introduction

In Australia, care for those with medical conditions, mental illness, disabilities or who are frail aged may be cared for with formal assistance through funded organisations, or by informal carers, such as family or friends who provide unpaid care [1]. In 2012, approximately 2.7 million Australians were identified as informal carers, with 770,000 designated as primary care givers [1]. However, the proportion of both male and female carers in the population has declined slightly from 13% in 2003 to 12% in 2012 [1]. In Europe, the demands of informal care are increasing with the growing numbers of elderly people [2]. An important perspective on to the contemporary family care-giving role is that Western families are usually smaller and consist of fewer adults and children [2]. This means that the elderly are supported by smaller number of adults and have fewer older children to offer assistance [3]. More women than men tend to be carers (13% and 11% respectively), but gender differences exist in the age of the carer [1]. For example more men aged 65 years and above tend to be carers, with most of these providing care for their partner [1]. As the age of the carer increases, so too does the likelihood of the carer also having a disability as well. Approximately 12% of primary carers aged 65 years or more were found to have a severe or profound core activity limitation, in contrast with approximately 7% of younger primary carers [1].

Despite the large population of informal carers, relatively little is known about their experience of providing care, or their practices and needs in relation to manual handling [4]. Manual handling is integral to taking care of a person with a disability. It can be defined as any activity that requires the use of force exerted by a person to lift, carry, push, pull, or otherwise move, restrain or hold a person or equipment. Manual handling also refers to any awkward movement or posture such as repetitive bending, reaching and twisting [5]. A large proportion of daily activities performed by carers require manual handling, particularly

personal care tasks such as dressing, bathing and toileting and mobility and transportation tasks both within the home environment and the community [6, 7]. Time spent on providing care can significantly impact on carer's physical health and well-being. Informal caring can lead to deterioration in physical and psychological health, and sometimes can be stressful [8]. Practice guidelines for manual handling in caring related to paid carers and nursing care are available to prevent physical harm, although no equivalent guidelines appropriate for informal carers are available [9]. Musculoskeletal injuries are the most common physical injuries related to manual handling activities [10]. These injuries usually resulted from a series of specific tasks involving stress to the musculoskeletal systems. Injury can cost loss of skills, which may impact upon everyday activities including community engagement, work and any caring duties [11].

In a survey conducted by the Independent Living Centre of Western Australia [12] to explore the physical impact of caring for family members, many carers reported back injuries (sprains or strains) caused by manual handling tasks such as lifting, pushing, pulling and carrying. Injury of this type can limit a carer's ability to perform daily tasks, and to take recreation. The risk of injury associated with manual handling of people during the provision of care is prominent and may require ongoing management of manual handling tasks. These results were from unemployed carers living in metropolitan areas of Western Australia. Less is known about carers in other situations or locations. However, many Australian and international studies have suggested that caring tasks can be very demanding and may impact on carer's health and well-being [8, 13, 14].

Provision of information and training for appropriate manual handling techniques to carers is necessary for risk management of their daily activities. Research has shown that a lack of knowledge of appropriate manual handling techniques increased the risk of injury in carers of bariatric (morbidly obese) patients [15]. Allen, Jackson, Marsden, and McLellan

identified that many carers lacked access to information of equipment available to assist with manual handling tasks [15, 16], which was also identified by Thomas et al [17]. Carers are often unaware of the range of products that can help in transferring a person [14, 18] and depend on their own strength and abilities to lift a person during caring tasks thus increasing the manual handling risks.

Previous studies indicated that some carers have been provided with information on appropriate manual handling techniques although they had limited opportunities to practice the skills with appropriate health professionals [19]. Provision of written advice and recommendations on manual handling by health professionals has been suggested to improve carers' knowledge and recall of health information [18, 20]. Nevertheless, carers have been shown to have difficulty transferring this knowledge into daily practice [21]. Provision of information alone is not considered an effective educational method and suggest that carers should be provided with opportunities to actively engage with educators and practice manual handling skills [22, 23].

Manual handling is a critical component for carers to perform their caring role. Injuries related to manual handling can limit the ability of the carer to perform daily tasks. However, little information exists regarding the manual handling practices of informal carers and they are often unaware of products or training that can assist with manual handling tasks.

This study aimed to identify 1) the current care practices performed by informal carers 2) tasks performed by informal carers requiring manual handling 3) types of support received by informal carers and 4) whether differences in caring practices existed by geographical location. This will provide information that may assist in developing carer's specific education, informing allied health disciplines about their experiences, manual handling needs and resources.

Methods

Research design

This research used a quantitative cross sectional study design to survey informal carers of adults about their experiences and perceptions of manual handling. Ethics approval for this study was provided by the University of Newcastle Human Research Ethics Committee (H- 2013-0037).

Data collection

Participants were eligible for this study if they were aged 18 years and above and identified as being an informal primary carer of at least one adult individual with a chronic illness or disability. For this study, informal primary carer was defined to potential participants as a family member, friend or significant other who provided unpaid caring services.

Participants were recruited through Carers NSW, an organisation for carers in New South Wales, Australia. Members of Carers NSW were invited to participate in this study through advertisements. An advertisement was placed in the Carers NSW e-news, bimonthly newsletter and on the NSW carer website inviting participation in an online survey. Carers NSW support groups were also contacted via email and asked to advertise the study to their members. There are approximately 4000 members of Carers NSW, although the number of eligible carers for this study is unknown.

Survey instrument

A commercial online survey tool (Survey-Monkey®) was used to collect data. This was considered the most expeditious method to target the large numbers of potential respondents, as well as a comparatively convenient and inexpensive method of collecting

data. Questions within the online survey were developed based on previously published studies about manual handling practices and aimed to understand the participants' manual handling practices, experiences and their needs in relation to manual handling. The survey included a mixture of categorical, open and closed response questions on participant demographics, the caring role undertaken by informal carers, their manual handling practices and training received, use of equipment and any needs relating manual handling. Seven point Likert scales were used they to determine perceptions of usefulness and importance of training on safe manual handling techniques. The survey was reviewed by experienced researchers at the University and NSW Carers prior to distribution.

Data analysis

Participants were asked to provide the postcode of the area in which they resided. This was categorised into metropolitan or regional/remote areas according to descriptors published by the Australian Bureau of Statistics [24]. Data was presented as descriptive statistics, with means \pm standard error of the mean (SEM), frequencies and percentages utilised. Chi squared (Fisher's exact) was used to compare-determine an association between categorical data, including demographic descriptors, assistance provided to carees and support received by carers. Those who did not complete the whole survey were not included in the final statistics. Demographic details obtained from incomplete entries were used to compare with those completing all questions. Data was analysed using Stata/IC13.1 [25]. Open ended questions were inductively coded into relevant and meaningful key themes, and categories [26].

Participant anonymity

Consent was implied on completion of the survey. No personal identifying information was provided to ensure anonymity.

Findings

Demographics

Seventy-seven NSW carers responded to the survey, with 61 participants completing all questions. There was no gender or geographical differences between those completing the whole survey and those with incomplete survey responses ($p=0.54$ and $p=0.77$ respectively), but those under the age of 45 years were less likely to complete the whole survey, compared to those aged 45 and over ($p<0.01$). Carers were predominantly female, aged 65 years or over and cared for a spouse (see Table 1). Further demographic details are presented in Table 1.

Significant differences were shown in employment status ($p=.01$) and carer duration between metropolitan and rural participants ($p=.03$). It is interesting to note that carers from Carers from regional or rural areas were more likely to be long-term carers (10+ years) and financially supported by a pension. Whereas carers from metropolitan areas were more likely to either work full-time, be self-employed, or be retired.

Insert table 1 about here

Caring tasks

A wide range of tasks were completed by carers including basic activities of daily living (ADL) such as personal care and transfers; and instrumental ADL such as cooking and community access (see Table 2). Preparation of food was the most common domestic activity reported ($n=54$, 89%) and assisting with dressing was the most common personal care activity ($n=44$, 72%). No difference was seen in the types of support offered to carers by geographic location (see Table 2), although this may be due to the small sample size. No regional or rural participants reported receiving support from carer support groups or support

networks. Figure 1 shows tasks performed by carers and tasks that were identified as involving manual handling.

Insert table 2 about here

Insert figure 1 about here

Equipment used by carers

Twenty eight respondents (46%) reported using a range of equipment to assist in their caring tasks (see Figure 2), with rails being the most common. Carers also identified reasons as to why they did not use equipment, with non-availability of equipment the most frequent reason provided. Eighteen respondents (30%) reported to have received training in the use of equipment, with the training provided by health professions in most of these cases (n=17, 28%); equipment suppliers providing instruction in six cases (10%) and a brochure used in one instance (2%).

Insert figure 2 about here

Training and support services received by carers

Thirty-one respondents (51%) reported they had received information or training on manual handling, which was predominantly delivered by health professionals (n=21, 34%) or through workshops (n=15, 25%). The internet, books and posters were used less frequently (n=5, 8%; n=5, 8% and n=3, 5% respectively) (see Figure 3). Participants rated the usefulness of the training or information they received as 5.03 ± 0.31 (mean \pm SEM) on a Likert scale of 1-7 (not useful – very useful). However, 36 participants (59%) reported that they had experienced an injury related to manual handling, with 31 (51%) participants reporting that it was related to their caring duties. Participants rated the importance of education and training

related to manual handling as 6.45 ± 0.14 on a seven point Likert scale (not important – very important).

Insert figure 3 about here

Forty of the respondents added a comment to the final open ended question: *Any additional comments about your caring role you would like to share*. Two themes emerged from this data: Exhaustion and Support services.

The demanding role and impact upon the carer themselves was noted by many: *'gets tiring', 'draining emotionally', 'hard work and very draining', and 'it is exhausting'*.

Difficulties associated with support services, including accessing services were identified by many: *it is too hard to crack the shell surrounding supporting services to get'*; and *"help in this area is nearly impossible to organise'*. In relation to the caregiver, it was also noted that *'there is not enough help for the carers themselves'*. Others identified the importance of respite care: *'Respite is essential'* however difficulty accessing respite care was also noted: *'Respite is always difficult to obtain'*. Issues surrounding the use of professional carers were identified with the need for professional carers to work with the carer and the normal routine: *'When professional carers assist they need to be able to follow the procedures that work well for the caree to keep everyone safe'*. Other issues raised included the training of professional carers: *'they were poorly trained, particularly around using the hoist and objected to advice from me'*, and that carers did not feel the professional carers listened to them: *'not inclined to listen to the full time carer at handover'*.

Discussion

The aim of the study was to explore the experiences and practices of carers in relation to manual handling of carees and their perceived manual handling needs for this role. This study found that carers carried out a variety of caring tasks related to manual handling; however used limited equipment to assist with their caring activities, and received more active/interactive than passive training on manual handling and equipment. The results have added to the literature of carers profiles in NSW and suggests similarities with the broader population of both Australian and international carers.

Demographics

The main providers of care to children, parents, partners and to someone with a disability are female and in an older age group [27] which corresponds with the findings in this study where most respondents were female. Women's care giving is seen as essential in providing a backbone of support to the people in their care. They are often the predominant providers of informal care for family members and friends, frail older people and people with disabilities [28, 29]. A study by Bennett [28] found that women usually are more involved in providing intensive care giving activities than men who are likely to provide occasional practical assistance around the home. Intensive caregiving often comprises personal care such as washing, cooking, feeding, assisting communication and mobility, and is often associated with emotional stress, mental and physical health problems among carers. With the predominance of women in caring roles, it stands to reason that they are more likely to experience the health and well-being impacts of being a carer [12, 30].

The length of time that carers provide care for and the amount of time each day spent on providing care has highlighted that many carers perform heavy caring workloads [7, 31]. This is consistent with the findings in this study where most respondents had been caring for more than 10 years and spent more than 11 hours per day caring. There were more respondents from rural areas who reported caring for either 1-3 years or more than 10 years, than

metropolitan respondents. This difference between rural and metropolitan carers in relation to the length of time they had been caring may reflect the care options available to these individuals with less options for alternatives available in rural settings. Caregiving can be time-consuming and may involve a wide range of activities. It can be a day-in, day-out responsibility [31] that carers in this study reported was exhausting. These huge demands of the caring role can limit the time available for carers to fulfil other commitments such as paid work. Carers may have to make changes at work to accommodate caregiving, give up work or retire early. This may also explain the findings of this survey where most of the carers were on pension. Lost or reduced employment opportunities can undermine carers' career prospects and development as well as leading to financial implications [32]. Carers may experience diminished financial security, and an increased risk of poverty [33].

Type of support received

There are a range of support services available for carers to assist them in their role. This includes support groups and networks, counselling services, day programs, respite services and assistance with domestic and personal care tasks. However the difficulties accessing support services was found in this study, both in relation to the process (*too hard to crack the shell surrounding supporting services*) and in relation to organising support services in the local area. In this study a difference in what was available to metropolitan and regional/rural areas was also noted. There was however less respondents from regional/rural areas which may be due to lack of access to the internet to participate in the online survey. Of those that did respond from regional/rural areas, they reported less use of counselling services, support groups and support networks. Rural areas may not have the same amount or types of resources available to carers. This is consistent with the availability of health services where people living in rural areas have less options and access to services than those who live in metropolitan areas [34]. Another factor may be related to geographical location

and the time and cost associated with travelling long distances to access available services which may be prohibitive [35]. The development of sustainable services in regional/rural areas is difficult due to large distances and culturally diverse communities [36, 37]. These factors may explain the lack of access to services among carers who live in rural areas and needs further investigation and consideration for service provision and support of carers in rural communities.

Caring tasks

A variety of tasks were identified, in this study as being a part of the carer's role. This is consistent with Family Caregiver Alliance [7] that carers carried out different tasks related to looking after the care recipient. However, in this study manual handling was identified as being a component of some of these tasks but not all, and this varied between participants. This may be related to a carers understanding of what constitutes manual handling or the amount of assistance the carer needed to provide their caree with some tasks such as walking assistance or dressing requiring less physical assistance.

Preparing food and cooking were the most commonly reported tasks completed by carers in this study. This corresponds to Australian Bureau of Statistics [38] data that identifies housework and meal preparation as commonly provided by carers. In this study these tasks were not identified as requiring manual handling by respondents however, many food and cooking tasks do involve manual handling and require the application of safe manual handling principles such as when reaching for low items in kitchen storage or lifting and carrying cooking pots and pans [39]. It is important for carers to practice safe manual handling techniques while performing caring activities to reduce the risk of manual handling injuries. This finding may indicate that carers have a lack of knowledge of what manual handling is and were not aware of the importance of manual handling for caring activities.

This finding is also supported by Cowley and Legget [16] and Thomas et al [17] which stated that carers have lack of knowledge on appropriate manual handling techniques which then may lead to an increased risk of injuring themselves.

Equipment used by carers

A high proportion of carers in this study identified using grab rails to assist with caring tasks. Grab rails function to provide support, balance and assist with transfers [40]. They are also used to assist with preserving sit-to stand ability for individuals with limited capacity, therefore improving their ability to live independently. Grab rails are commonly seen in the community such as in toilets for the disabled and therefore the general population is exposed to the existence of such equipment. Respondents in this study reported using grab rails more than other equipment such as hoists, slings, sliding boards and sliding sheets. This may be due to respondents in this study having a greater awareness of grab rails and how they can assist with transfers; the individual they care for may not require other equipment or they may have limited knowledge of the range of equipment available to assist with their caring tasks. This study also found that the availability of equipment, or lack of, was the main reason respondents indicated they did not use equipment. Carers limited access to the range of equipment and therefore limited selection of appropriate equipment has been previously identified [17, 41]. This limited awareness and access to the range of equipment may also be related to a lack of referral for equipment prescription by a health professional [42]. Health professionals assist in identifying appropriate equipment needed by the carer and the caree as part of a thorough clinical assessment. Equipment prescription by health professionals can increase carer's awareness on the type of appropriate equipment needed [12].

The time involved in using equipment is noted as a negative consequence of equipment use as Ostenjo, Carlberg and Vollestad [43] stated the use of equipment can take a

longer time to prepare and require more effort to be effectively implemented. However, the process of using equipment can become quicker and easier with appropriate training and practice [42]. In this study respondents indicated that equipment takes a longer time to use. This may be because they were unfamiliar with the equipment; because the equipment is unsuitable for the task; or may be associated with lack of knowledge (and training) on how to operate the equipment. These factors may result in carers having difficulties in using equipment for their daily caring activities [14, 42, 44].

A number of respondents reported equipment was too expensive to purchase. Long-term benefits can result from investing in manual handling equipment particularly through the reduced risks of injury and associated costs of health services for carers [45]. Respondents in this study may not be aware of these long-term benefits. Despite the benefits of equipment use, most of the respondents in this study, as with most carers in Australia and other countries [32, 33], are on a pension and therefore may have limited funding to purchase manual handling equipment. Thus, it is important for carers to be well informed about appropriate equipment, and to make the right choices when purchasing equipment, which is supported by the findings of Thomas et al.[46]. There are payments and services to help carers with the cost of purchasing appropriate equipment. In the Australian context for example, a national disability insurance scheme has been established to provide funded support for people with permanent or significant disability, their family and carers. In fact, in the global context, there are scheme and programs available in many countries to provide support services, aids and equipment to people with disability [47].

Training (Manual handling and equipment)

Training in relation to manual handling or the use of equipment received by respondents in this study included active/interactive training (workshop and training from

health professionals) and passive training (written materials). Rinds [21] stated that manual handling training should have clear guidelines for carers, especially material used in training. There is evidence that a more effective training strategy to educate carers about manual handling is to ensure that they have an opportunity to develop the skills required and includes opportunities to observe and practice each skill during training [19, 48]. Retsas and Pinikahana [49] also suggest equipment training should emphasize proper body mechanics that involves implementing correct postures when performing manual handling tasks to avoid risk of injury.

Limitations

The study provides evidence of current practices of manual handling among carers and their perceived needs in relation to manual handling in the caring role. Some limitations of this study should be mentioned. The response rate was poor with a small sample thus findings may not be representative of the broader community of informal carers. Participants were also accessed via NSW carers services, which may have excluded carers who were not members of the organisation. Also, respondents in this study were limited to New South Wales, Australia therefore findings may not be extended and generalized to informal carers in other geographical areas. The use of an online survey may be a limitation in that not all carers may have access to the internet, which may be one reason there were less respondents from rural/regional areas. Another consideration is that only those interested responded to the survey which creates some volunteer bias to this sample.

Conclusion

This study explored the manual handling experiences and practices among carers and their perceived needs in relation to manual handling. The profile of NSW informal carers included mainly females in the caring role, carers over the age of 45 years and those on a

pension, which is consistent with profiles documented in other countries. A variety of caring tasks were identified to include manual handling, however there was a lack of knowledge of manual handling and limited equipment was being used to support these tasks. Health professionals can use this information to identify strategies to address carer's needs and to provide relevant information on available equipment, and how to use equipment, as well as manual handling. Development of carer's specific information on manual handling, manual handling equipment prescription and equipment use is recommended.

Future research may include a bigger sample from a larger geographical area, considering carers in other age groups and those providing care to children. This would provide additional information on carer's experiences of manual handling and allow greater comparison of differences between carers from metropolitan and rural areas. Research to evaluate any carer's specific education program is recommended.

Conflict of interest

The authors report there is no conflict of interest.

References

Table 1. Participant demographics and type of support received by locations

	Total	Metropolitan	Rural	P value
	% (n)	% (n)	% (n)	
Total	100 (61)	72.1 (44)	27.9 (17)	
Demographic descriptors				
Gender (Female)	72.1 (44)	68.2 (30)	82.4 (14)	0.35
Age of care(years)				0.13
18-44	13.1 (8)	9.1 (4)	23.5 (4)	
45-54	27.9 (17)	25.0 (11)	35.3 (6)	
55-64	27.9 (17)	27.3 (12)	29.4 (5)	
65+	31.2 (19)	38.6 (17)	11.8 (2)	
Relationship carer/caree				0.97
Adult child	21.3 (13)	22.7 (10)	17.6 (3)	

Friend	3.3 (2)	4.6 (2)	0.0 (0)	
Parent	24.6 (15)	22.7 (10)	29.4 (5)	
Sibling	4.9 (3)	4.6 (2)	5.9 (1)	
Spouse	45.9 (28)	45.5 (20)	47.1 (8)	
Employment status				0.01*
Employed full-time	13.1 (8)	13.6 (6)	11.8 (2)	
Employed part-time	9.8 (6)	4.6 (2)	23.5 (4)	
Self-employed	4.9 (3)	6.8 (3)	0.0 (0)	
On pension	37.7 (23)	30.0 (13)	58.8 (10)	
Retired	23.0 (14)	30.0 (13)	5.9 (1)	
Unemployed	11.5 (7)	15.9 (7)	0.0 (0)	
Carer duration (years)				0.03*
< 1	1.6 (1)	2.3 (1)	0.0 (0)	
1-3	14.8 (9)	9.1 (4)	29.4 (5)	
4-6	21.3 (13)	27.3 (12)	5.9 (1)	
7-9	11.5 (7)	15.9 (7)	0.0 (0)	
10+	50.8 (31)	45.5 (20)	64.7 (11)	
Hours per day spent on caring				0.59
0-3	18.0 (11)	20.5 (9)	11.8 (2)	
4-10	27.9 (17)	29.6 (13)	23.5 (4)	
11-24	54.1 (33)	50.0 (22)	64.7 (11)	
Age of carer (years)				0.07
18-44	29.5 (18)	25.0 (11)	41.2 (7)	
45-54	9.8 (6)	9.1 (4)	11.8 (2)	
55-64	18.0 (11)	13.6 (7)	29.4 (5)	
65+	42.6 (26)	52.3 (23)	17.7 (3)	

Note: P-Values represent results from Chi-squared test (Fisher's exact). *=statistical significance of <.05.

Table 2: Types of assistance provided to carers and sup

	Total	Metropolitan	Rural	P value
	% (n)	% (n)	% (n)	
Types of assistance provided to carers				
Personal care	77.1 (47)	70.5 (31)	88.9 (18)	0.20
Toileting transfers	39.3 (24)	41.9 (18)	33.3 (6)	0.58
Toileting assistance	49.2 (30)	44.2 (19)	61.1 (11)	0.27
Dressing	72.1 (44)	72.1 (31)	72.2 (13)	1.00
Showering	54.1 (33)	51.2 (22)	61.1 (11)	0.58
Wheelchair assistance	52.5 (32)	48.8 (21)	61.1 (11)	0.41
Assistance with walking	55.7 (34)	55.8 (24)	55.6 (10)	1.00
Bed transfers	41.1 (25)	39.5 (17)	44.4 (8)	0.78
Sleeping (positioning / medication monitoring)	50.8 (31)	51.2 (22)	50.0 (9)	1.00
Domestic care	86.9 (53)	83.7 (36)	94.4 (17)	0.42
Cooking	88.5 (54)	86.1 (37)	94.4 (17)	0.67
Preparing food	85.3 (52)	83.7 (36)	88.9 (16)	0.71
Community access	72.1 (44)	69.8 (30)	77.8 (14)	0.76

Type of support received by carers				
Assistance with domestic tasks (cleaning, cooking, shopping)	32.8 (20)	36.4 (16)	23.5 (4)	0.38
Assistance with personal care tasks	34.4 (21)	38.6 (17)	23.5 (4)	0.37
Carers support group	11.5 (7)	15.9 (7)	0.0 (0)	0.18
Counselling	8.2 (5)	8.2 (5)	0.0 (0)	0.31
Day programs	19.7 (12)	18.2 (8)	23.5 (4)	0.72
Respite for carer	29.5 (18)	31.8 (14)	23.5 (4)	0.76
Support networks	9.8 (6)	13.6 (6)	0.0 (0)	0.17

Note: P-Values represent results from Chi-squared test (Fisher's exact). *=statistical significance of <.05.

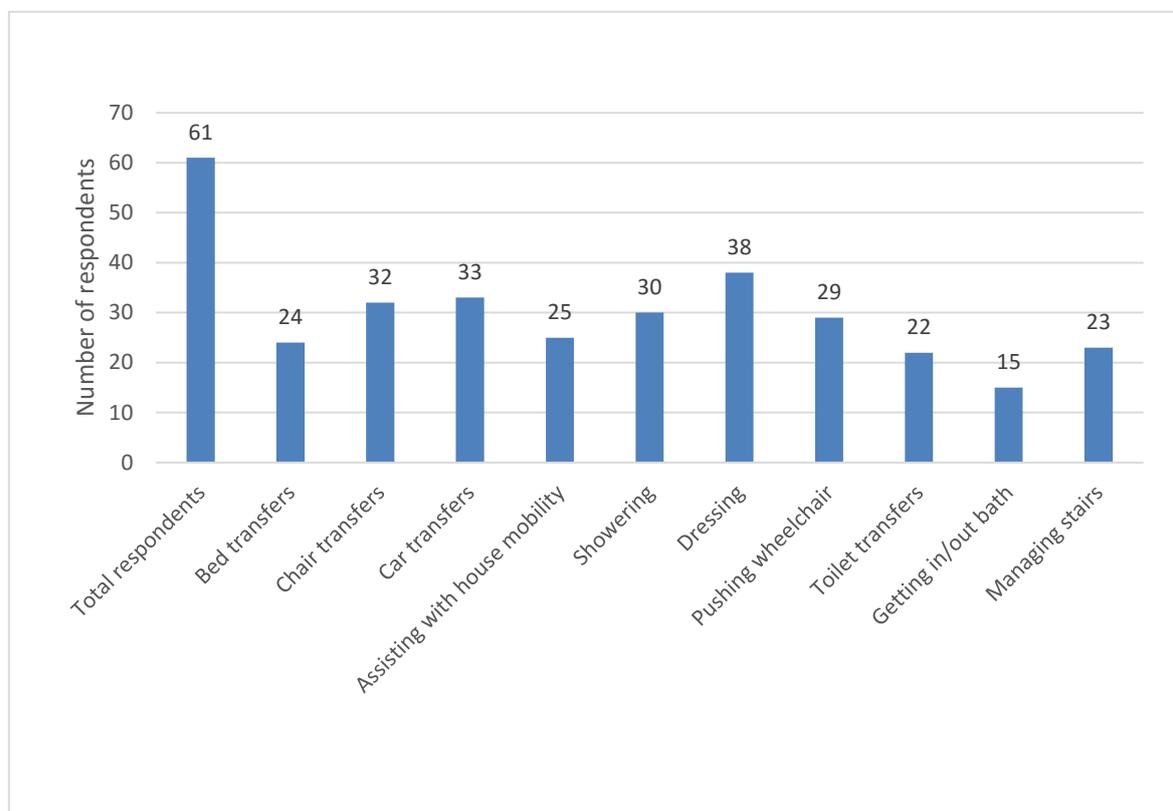


Figure 1. Caring tasks

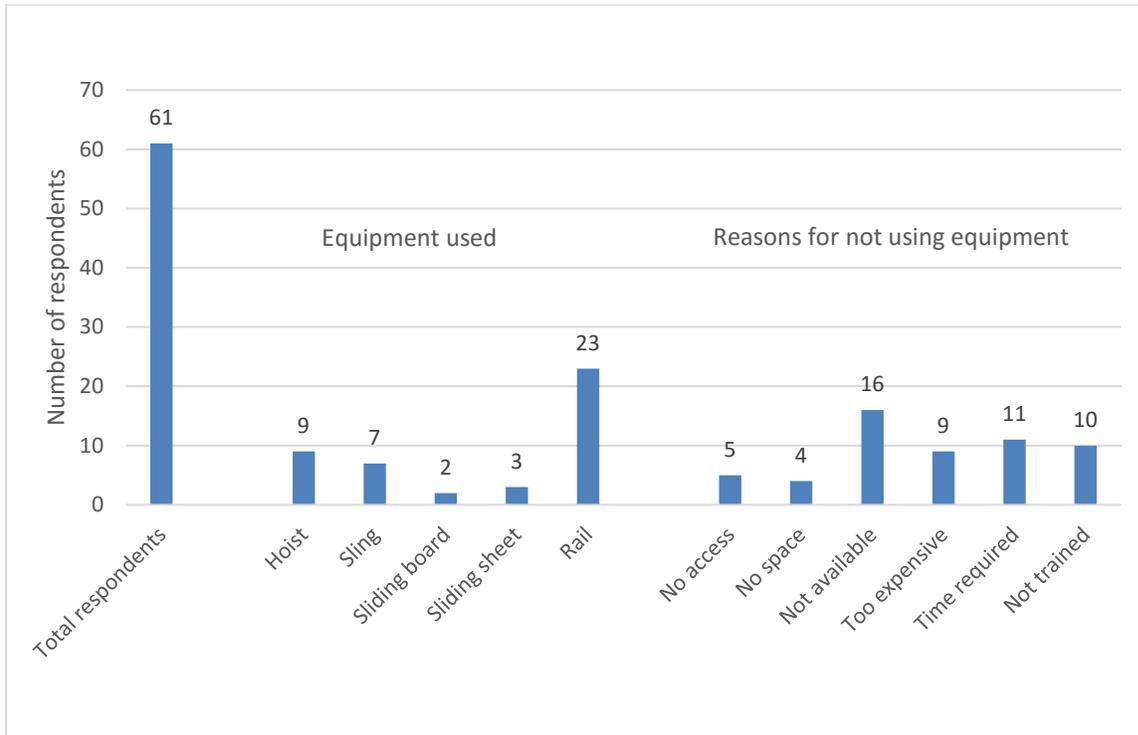


Figure 2. Type of equipment

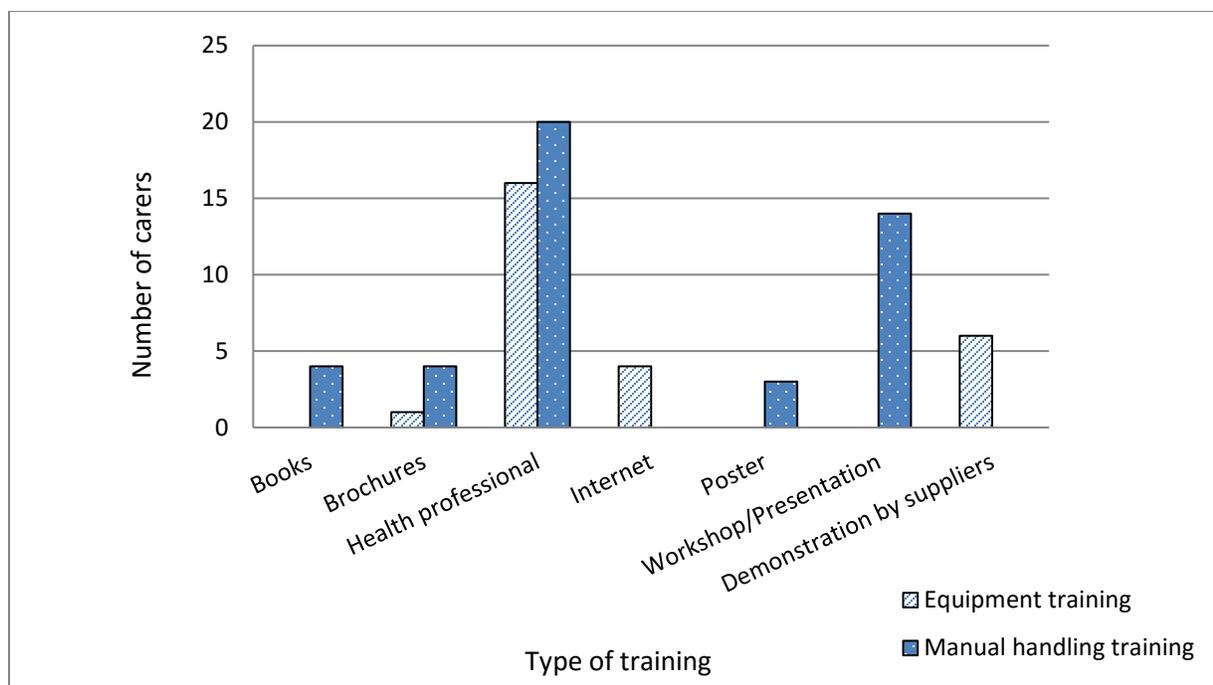


Figure 3. Training (Manual handling and equipment)

References

1. Australian Institute of Health and Welfare, *Australia's welfare 2015. Australia's welfare series no. 12. Cat. no. AUS 189*. 2015, AIHW: Canberra.
2. Cummins, R.A., *The subjective well-being of people caring for a family member with a severe disability at home: a review*. *Journal of Intellectual & Developmental Disability*, 2001. **26**(1): p. 83-100.
3. Bonsang, E., *Does informal care from children to their elderly parents substitute for formal care in Europe?* *Journal of Health Economics*, 2009. **28**: p. 143-154.
4. Pickard, L., et al., *Relying on informal care in the new century? Informal care for elderly people in England to 2031*. *Ageing and Society*, 2000. **20**(6): p. 745-772.
5. Cheung, Z., et al., *Ergonomic guidelines for manual material handling*. 2007, California Department of Industrial Relations California.
6. Adams, A., *Best practice guidelines for manual handling risk management in disability and community care*. 2006, Department of Human Services NSW: Sydney, Australia.
7. Family Caregiver Alliance. *Factsheet: Selected caregiver statistics*. 2012 November 2012 [cited 2013 19 September]; Available from: http://www.caregiver.org/caregiver/jsp/content_node.jsp?nodeid=439.

8. Buyck, J.F., et al., *Informal caregiving and self-reported mental and physical health: results from the Gazel Cohort Study*. Am J Public Health, 2011. **101**(10): p. 1971-9.
9. WorkCover NSW, *Manual handling guide for nurses*. 2006, WorkCover NSW Health and Community Services Industry Reference Group: Gosford, Australia.
10. Bunker, E.M., *Guide to managing musculoskeletal injuries in the health care industry*, in *Guide to managing OHS risks in the health care industry*, C. Myhew and C. Peterson, Editors. 2005, CCH Australia Limited: Sydney, Australia. p. 101-120.
11. Griffiths, H., *Manual handling risk management: critical care beds and support systems*. Nurs Stand, 2006. **20**(32): p. 45-53.
12. Independent Living Centre of WA (Inc), *Family carers and the physical impact of caring – injury and prevention. Research Report Executive Summary*. 2006, Government of Western Australia: Western Australia.
13. Essue, B.M., et al., *Informal care and the self-management partnership: implications for Australian health policy and practice*. Aust Health Rev, 2010. **34**(4): p. 414-22.
14. Davey, C., et al., *Falling in Parkinson's disease: the impact on informal caregivers*. Disabil Rehabil, 2004. **26**(23): p. 1360-6.
15. Allen, R., et al., *Transferring people safely with manual handling equipment*. Clin Rehabil, 2002. **16**(3): p. 329-37.
16. Cowley, S.P. and S. Leggett, *Manual handling risks associated with the care, treatment and transportation of bariatric patients and clients in Australia*. Int J Nurs Pract, 2010. **16**(3): p. 262-7.
17. Thomas, K., T.R. Broady, and C.L. James, *Exploring Manual Handling Practices by Informal Carers: The Experiences of Two Carers*. International Journal of Therapy and Rehabilitation, Accepted for publication August 2015.
18. O'Brien, M., et al., *The need for support services for family carers of people with motor neurone disease (MND): views of current and former family caregivers a qualitative study*. Disability and Rehabilitation, 2013. **34**(3): p. 247-256.
19. Gustafsson, L., et al., *Information provision to clients with stroke and their carers: self-reported practices of occupational therapists*. Aust Occup Ther J, 2010. **57**(3): p. 190-6.
20. Lorenz, E.P., S.E. Lavender, and G.B.J. Andersson, *Determining what should be taught during life-training instruction*. Physiotherapy Theory and Practice, 2002. **18**(175-191).
21. Rinds, G., *Exploring recent developments in manual handling*. Nursing and Residential Care, 2009. **11**(6): p. 312-315.
22. National Stroke Foundation, *Clinical guidelines for stroke management 2010*. 2010: Melbourne, Australia.
23. Hermans, V., G. De Preter, and T. Verschueren, *Training in manual material handling: what is going on in the field?* Work, 2012. **41 Suppl 1**: p. 588-91.
24. Australian Bureau of Statistics, *1270055006C190 Postcode 2012 to Remoteness Area 2011*. 2013: Canberra.
25. StataCorp LP, *Stata/IC 13.1 for Windows*. 2014, StataCorp LP: College Station, Texas USA.
26. Bowling, A., *Research methods in health: investigating health and health services*. 2nd edition ed. 2002, Great Britain: Open University Press.
27. Australian Bureau of Statistics, *4430.0 -Disability, ageing and carers, Australia: Summary of findings 2012*. 2013, Commonwealth of Australia: Canberra, Australia.
28. Bennett, E., *The caring sandwich: Caring for young and old – the price women pay*, A.W.s. Coalition, Editor. 2005: Deakin, Australia.
29. Esplen, E. *Gender and care: Overview report*. 2009.

30. Eker, L. and E.H. Tuzun, *An evaluation of quality of life of mothers of children with cerebral palsy*. *Disabil Rehabil*, 2004. **26**(23): p. 1354-9.
31. Reinhard, S.C., et al., *Supporting Family Caregivers in Providing Care*, in *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, R.G. Hughes, Editor. 2008, Agency for Healthcare Research and Quality: Rockville (MD). p. 341-404.
32. Bittman, M., et al., *Making the invisible visible: The life and time(s) of informal caregivers*, in *Family time: The social organization of care*, N. Folbre and M. Bittman, Editors. 2004, Routledge: New York. p. 69-89.
33. Van Houtven, C.H., N.B. Coe, and M.M. Skira, *The effect of informal care on work and wages*. *J Health Econ*, 2013. **32**(1): p. 240-52.
34. Dunbabin, J.S. and L. Levitt, *Rural origin and rural medical exposure: Their impact on the rural and remote medical workforce in Australia*. *Rural and Remote Health*, 2003. **3**: p. 1-17.
35. Arcury, T.A., et al., *The effects of geography and spatial behavior on health care utilization among the residents of a rural region*. *Health Serv Res*, 2005. **40**(1): p. 135-55.
36. Strasser, R., *Rural health around the world: challenges and solutions*. *Fam Pract*, 2003. **20**(4): p. 457-63.
37. Battye, K.M. and K. McTaggart, *Development of a model for sustainable delivery of outreach allied health services to remote north-west Queensland, Australia*. *Rural Remote Health*, 2003. **3**(3): p. 194.
38. Australian Bureau of Statistics, *Disability, ageing and carers, Australia: summary of findings, 2012: 4430.0* 2013, Author: Canberra, Australia.
39. Fasoli, S.E., *Restoring competence for homemaker and parent roles*, in *Occupational therapy for physical dysfunction*, M.V. Radomski and C.A.T. Latham, Editors. 2008, Lippincott Williams and Wilkins: Philadelphia. p. 854-874.
40. O'Meara, D.M. and R.M. Smith, *Differences between grab rail position and orientation during the assisted sit-to-stand for able-bodied older adults*. *Journal of Applied Biomechanics*, 2005. **21**(1): p. 57-71.
41. Hampton, S., *The appropriate use of equipments for moving and handling patients*. *International Journal of Therapy and Rehabilitation*, 2005. **12**(9): p. 416-420.
42. Disabled Living Foundation. *Choosing an overhead hoist*. 2006; Available from: http://www.dlf.org.uk/factsheets/Choosing_an_overhead_hoist_sponsored_0.pdf.
43. Ostenjo, S., E. Carlberg, and N. Vollestad, *The use and impact of assistive devices and other environmental modifications on everyday activities and care in young children with cerebral palsy*. *Disability and Rehabilitation*, 2005. **27**(14): p. 849-861.
44. Lynch, R.M. and A. Freund, *Short-term efficacy of back injury intervention project for patient care providers at one hospital*. *American Industrial Hygiene Association Journal*, 2000. **61**(2): p. 290-294.
45. Spiegel, J., et al., *Implementing a resident lifting system in an extended care hospital. Demonstrating cost-benefit*. *AAOHN J*, 2002. **50**(3): p. 128-34.
46. Thomas, K., T. Broady, and C. James, *Exploring manual handling practices by informal carers: the experiences of two carers*. *International Journal of Therapy and Rehabilitation*, (in press).
47. United Nations, *Keeping the promise: realizing the Millennium Development Goals for persons with disabilities towards 2015 and beyond*
- 2010.
48. Foster, A.M., et al., *Encouraging family engagement in the rehabilitation process: a rehabilitation provider's development of support strategies for family members of people with traumatic brain injury*. *Disabil Rehabil*, 2012. **34**(22): p. 1855-62.

49. Retsas, A. and J. Pinikahana, *Manual handling activities and injuries among nurses: an Australian hospital study*. *Journal of Advanced Nursing*, 2000. **31**(4): p. 875-883.