Irish occupational therapists use of evidenced-based falls prevention programmes

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Abstract

Purpose – As one ages, the risk of experiencing a fall increases and poses a number of serious consequences; 30 per cent of individuals over 65 years of age fall each year. Evidence-based falls prevention programmes demonstrate efficacy in reducing the rate and risk of falls among older adults, but their use in Irish occupational therapy practice is unknown. This study aims to investigate the implementation of falls prevention programmes by occupational therapists working with older adults in Ireland.

Design/methodology/approach – A cross-sectional survey was used to gather data on the use of falls prevention programmes among occupational therapists working with older adults in any clinical setting across Ireland. Purposeful, convenience and snowball sampling methods were used. The Association of Occupational Therapists of Ireland acted as a gatekeeper. Descriptive statistics and summative content analysis were used to analyse quantitative and qualitative data, respectively.

Findings – In all, 85 survey responses were analysed. Over 85 per cent of respondents reported "Never" using any of the evidence-based falls prevention programmes. The "OTAGO" Exercise Programme was the most "Frequently" used programme (9.5 per cent, $n = 7$); 29 respondents reported using "in-department" developed falls prevention programmes and 14 provided additional comments regarding current falls prevention practices in Ireland.

Originality/value – In the absence of Irish data on the subject, this study provides a benchmark to describe the use of evidence-based falls programmes by Irish occupational therapists with older adults.

Keywords Fall prevention programmes, Older adults, Evidence-based practice

Paper type Research paper

Introduction

In recent years, the life expectancy of Irish men and women has significantly increased, giving individuals greater opportunities for participation in a variety of occupations (Department of Health [DoH], 2013). The population of adults over the age of 65 living in Ireland is expected to increase to 1.1 million by 2030 (Economic and Social Research Institute [ESRI], 2017). A major risk associated with ageing is falling, with approximately 30

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per cent of those over the age of 65 experiencing a fall each year (World Health Organisation [WHO], 2007).

Applying the previous 30 per cent WHO (2004) statistic to the ESRI (2017) projections, by 2030 we can expect 330,000 older adults to experience a fall. This is a concerning figure for Ireland's future older adult population and health-care system, as the annual economic burden of falls and fractures is estimated to be €404m (Gannon *et al.*, 2008).

A "fall", according to the WHO (2007, p. 1), is defined as "inadvertently coming to rest on the ground, floor or other lower level, excluding intentional change in position to rest in furniture, wall or other objects". A fall can negatively impact an individual from both physical and psychological perspectives with possible consequences resulting from falls including increased fear of falling, functional decline and reduced activity participation, reduced quality of life, injury and possible mortality (National Institute for Health and Care Excellence [NICE], 2013).

Occupational therapists have unique skills in evaluating the multifactorial nature of falls and the subsequent negative consequences of a fall on older adult's occupational engagement (Leland *et al.*, 2012). This involves examining the transactional and interdependent relationship between the person, their environment and their occupations (American Association of Occupational Therapists [AOTA], 2014). Occupational therapists have a significant role to play due to their expertise in the field of enabling older adult's occupational engagement (Leland *et al.*, 2012). Hence, falls prevention is considered within the domain of occupational therapy practice (AOTA, 2014).

The Centers for Disease Control and Prevention (Stevens and Burns, 2015) suggest that there are several intervention programmes which are effective in preventing falls in older adults. Falls occur due to the complex interplay of both intrinsic (e.g. cognitive impairment, balance and instability issues and visual impairment) and extrinsic (e.g. home hazards, inadequate use of mobility aids and medication) risk factors (NICE, 2013). Programmes of a single nature are targeted on one specific falls risk factor, for example exercise interventions to increase strength and balance (Stevens and Burns, 2015). Whereas, multifactorial falls prevention programmes target multiple falls risk factors, for example strength and balance training alongside home modifications and medication management (Stevens and Burns, 2015). There is a range of evidence which supports both single and multifactorial falls prevention programmes. The NICE (2013) maintain and update evidence-based guidelines for health-care professionals and within their "Clinical Guideline 161: Falls in older people: assessing risk and prevention", it recommends that professionals take a multifactorial approach to falls prevention practices.

Single-natured exercise-based intervention programmes include the "OTAGO Exercise Programme" (OTAGO; Campbell *et al.*, 1997), the "Falls Management Exercise Programme" (FaME; Skelton *et al.*, 2005), the "Lifestyle Integrated Functional Exercise" approach (LifE; Clemson *et al.*, 2012) and "Tai-Chi" (Li *et al.*, 2005). Whereas, the "Stepping On" programme (Clemson *et al.*, 2004) is an example of a multifactorial falls prevention programme.

Literature review

Search strategy

A bibliographic search of articles published in English in peer-reviewed journals between 1990 and 2019 was conducted on EBSCOhost, ProQuest Nursing and Allied Health Source, Google Scholar and Cochrane databases between October 2015 and April 2019. Search terms used included "falls prevention" and "occupational therapy" and "current practices" and "older adult" or "community-dwelling older adult".

Single-natured exercise-based falls prevention programmes

A recent Cochrane systematic review found several exercise-based programmes that have been developed specifically to target falls prevention with community-dwelling older adults which has demonstrated sufficient evidence to support their use with older adults at risk of falls (Sherrington *et al.*, 2019). Based on 108 randomised controlled trials (RCTs) included in the review (23,407 older adults over the age of 76), Sherrington *et al.* (2019) concluded with high certainty of evidence that well-designed exercise programmes can reduce the rate of falls by 23 per cent and reduce the number of people experiencing one or more falls by 15 per cent. However, Sherrington *et al.* (2019) noted that several studies either had a high or unclear risk of bias (e.g. lack of blinding between researchers and participants) which may influence results. Furthermore, there was a lack of evidence regarding non-fall related outcomes, such as the effect of exercise on quality of life or on risk of hospital admission.

Ballinger and Brooks (2013) advocate that occupational therapists have an important role in the promotion of physical exercise in order to allow clients to engage in valued occupations, as this leads to the fulfilment of meaningful roles. There are several exercise programmes which have demonstrated effectiveness in reducing the rate of falls in older adults which occupational therapists have been involved in.

The "OTAGO exercise programme" (Campbell *et al.*, 1997) is an individually tailored programme that was originally designed to be carried out in a client's home by a physiotherapist or trained instructor. Park and Chang (2016) conducted a small study ($N = 8$) on the effectiveness of the "OTAGO" on the falls efficacy, quality of life and activities of daily living (ADLs) of older adults who had experienced a stroke. This was carried out by two occupational therapists alongside four exercise assistants in the USA. The study found statistically significant improvements with fear of falling, but non-significant results with quality of life and ADL functioning. However, Park and Chang's (2016) sample consisted of a small group ($N = 8$) of older adults who had experienced a stroke, potentially limiting the generalisability of the results to all community-dwelling older adults who are at risk of falling. Nevertheless, Thomas *et al.* (2010) have shown that the "OTAGO" reduces the risk of death and rate of falls in older adults living in the community by 35 per cent, while Carande-Kulis *et al.* (2015) conducted a cost-benefit analysis and concluded that the "OTAGO" provided positive net benefits. Hence, it may be beneficial to determine the use of the "OTAGO" by occupational therapists in Ireland as part of their falls prevention practice.

Skelton *et al.* (2005) developed the "Falls Management Exercise (FaME)", a graded home-based exercise programme which is based on the "OTAGO". Skelton *et al.* (2005) demonstrated that the "FaME" reduced the rate of falls by a third in a group of women over the age of 65 in the UK who had fallen more than three times in the last year after a 36 week intervention, while there was a 54 per cent reduction in the rate of falls after a 50-week follow up assessment. Occupational therapists, as well as physical therapists, can deliver the "FaME" following a five-day training programme in the UK which involves a practical exam, case study and theoretical paper (Stevens and Burns, 2015). Considering this training course is only available in the UK, it is unclear if occupational therapists practicing in Ireland have been trained in or are delivering the "FaME" within their practice with older adults.

One of the challenges to the effective use of exercise programmes is adherence (Ballinger and Brooks, 2013). In an attempt to improve adherence, the 'Lifestyle Integrated Functional Exercise ("LiFE") programme was developed by occupational therapists. The programme teaches older adults how to integrate strength and balance principles into valued

occupations and routines (Clemson *et al.*, 2012). The "LiFE" programme promotes engagement in occupations which is a core philosophy of occupational therapy, while simultaneously enhancing strength and balance to reduce the risk of falls (Clemson *et al.*, 2012). A randomised parallel trial comparing the effectiveness of the "LiFE" programme to a traditional exercise programme found that there was a 31 per cent decrease in the rate of falls among "LiFE" participants compared to the control group (Clemson *et al.*, 2012). This demonstrates the role occupational therapists play in implementing occupation-based exercise interventions (Stevens and Burns, 2015).

In relation to tai-chi, Sherrington *et al.* (2019) found high-certainty evidence for tai-chi reducing the number of people experiencing a fall by 20 per cent (using 8 studies, 2677 participants, rate ratio 0.80, confidence interval 0.70 to 0.91). Li *et al.* (2005) conducted an effectiveness study comparing tai-chi exercises with stretching only exercises with a group of inactive adults over the age of 70 in the USA. Older adults in the tai-chi group were found to have a 55 per cent decrease in falls compared to those in the stretching only group (Li *et al.*, 2005). Those delivering the programme were experienced tai-chi instructors, although it is unclear if any instructors were occupational therapists.

Multifactorial falls prevention programmes

In comparison to the above single-natured exercise-based falls prevention programmes, multifactorial falls prevention programmes target several intrinsic and extrinsic risk factors simultaneously and have been recommended by the NICE (2013) guidelines. Leland *et al.* (2012) conducted a systematic review of the evidence for occupational therapy involvement with multifactorial interventions, environmental modifications and exercise-based interventions. In relation to multifactorial interventions, Leland *et al.* (2012) found five RCTs with large sample sizes ranging from 310-397 older adults, one of which was conducted in Australia by an occupational therapist which used a multifactorial intervention, the "Stepping On" programme (Clemson *et al.*, 2004). All studies demonstrated effectiveness in reducing falls risk, except for one study in which the occupational therapist's role consisted only of functional assessments and environmental modifications.

The "Stepping On" programme is a community-based multifactorial falls prevention programme, designed in part by occupational therapists (Clemson *et al.*, 2004). It aims to reduce falls, encourage behaviour change and improve falls self-efficacy. The programme focuses on falls risks, home hazard identification, exercise, community safety, footwear, medication management, mobility and vision, with a home visit and a three-month follow-up session. An RCT conducted with 310 older adults over 70 who had fallen in the previous year found a 30 per cent reduction in falls using the "Stepping On" programme (Clemson *et al.*, 2004). Carande-Kulis *et al.* (2015) also found the programme to provide positive net benefits, emphasising the cost-effectiveness of the "Stepping On" programme in practice.

However, despite a range of available evidence-based programmes, it remains unknown which programmes are being selected and implemented by occupational therapists in Ireland which raises multiple concerns. As therapists strive to meet high standards of professionalism and public protection, it is essential to provide interventions that are both effective and efficient. Use of evidence-based interventions benefits the client who will be more invested in and satisfied with a programme when they know there is a point to their treatment. Furthermore, third-party stakeholders are more likely to value and fund a service which uses interventions supported by research. Thus, the aim of this study was to identify current use of evidence-based practices among Irish occupational therapists which could inform and enhance future practice. The current research paper includes data compiled from

a larger research project which aimed to investigate the overall falls assessment and intervention practices of occupational therapists in Ireland.

Methodology

Research design and instrumentation

Ethical approval was obtained from the Research Ethics Committee of the School of Medicine in Trinity College Dublin. To achieve the aims of the study, descriptive cross-sectional survey was selected as the most appropriate method to collect an overall picture of current practice from a potentially large population in both a time and cost effective manner (Watson and Coombes, 2009). This approach allowed the researchers to capture occupational therapy practice at one point in time regardless of grade or level of involvement with falls prevention to provide an overall picture of the current use of falls prevention programmes in Ireland. The survey maintained respondent anonymity as it did not ask respondents to disclose confidential information and was developed and electronically distributed using SurveyMonkey Inc.©.

A structured survey was created based on current published literature and by consulting with professionals working in the subject field. The survey included four sections: "Demographics", "Assessments", "Interventions", and "Guidelines and Education". For the purposes of this paper which focussed on intervention practices, the section on "Assessments" will not be discussed. Demographic questions related to qualification, staff grade, years in practice, practice setting, age band of clients and involvement with other team members. Participants were asked to rate their frequency of use of named evidence-based falls prevention programmes using a five-point Likert-style scale (e.g. "Never", "Rarely", "Sometimes", "Frequently", "Always").' Respondents were also provided with the opportunity to describe any falls prevention programmes which were developed within their practice setting (hereafter referred to as "in-department" falls prevention programmes). At the end of "Section Four: Guidelines and Education", respondents were provided with an open-ended question asking about their comments on current falls prevention practices in Ireland.

Survey validity was increased by piloting (Watson and Coombes, 2009) the survey with a senior occupational therapist in a General Rehabilitation Unit for clients over 65. Minor changes were made to layout and phrasing of questions following the pilot. The data generated from the pilot survey was not included in the overall data collected in the study in order to protect the confidentiality of this therapist.

Sampling procedures

Purposeful sampling (Watson and Coombes, 2009) was used to obtain the target population of qualified occupational therapists currently practising in Ireland at any grade, in any setting or geographical location who work with clients over the age of 65 with any condition. Those therapists who were practising abroad, not actively practising or not working with adults over the age of 65 in Ireland were excluded from the sample.

The Association of Occupational Therapists of Ireland (AOTI) was used as a gatekeeper to conveniently access the target population and to distribute the survey. Snowball sampling increased the potential sample size as respondents were asked to forward on the survey link to other therapists who would meet the inclusion criteria (Watson and Coombes, 2009). Due to these sampling methods, it was impossible to establish the number of therapists who received the survey, limiting the ability to calculate the percentage response rate.

Data collection

AOTI electronically distributed the survey link to the target population in May 2016 along with a participant information leaflet which allowed respondents to make an informed decision about partaking in the study. AOTI re-distributed the survey link two weeks after this initial invitation, and the survey remained open until the end of July 2016. Consent was assumed based on a returned completed survey. Post data collection, raw data was downloaded from SurveyMonkey Inc.© and stored on password-protected computers.

Data analysis

Quantitative data was inputted manually into Statistical Package for the Social Sciences version 22 (SPSS, IBP Corp, Armonk, NY) for Mac by three of the researchers to increase inter-rater reliability of the data. Missing cases were inputted as "99" in SPSS. These cases were excluded from all analyses, therefore providing "valid percentages" for each survey question and varying response rates for each question. Descriptive statistics (e.g. frequencies and cross-tabulations) were used to analyse the quantitative data, which provided a summary of the sample.

The qualitative data generated through the open-ended survey questions was analysed using summative content analysis which involves identifying and quantifying the use of particular content (Hsieh and Shannon, 2005). Summative content analysis is said to be quantitative in nature if the analysis is focussed on the frequency of the content usage (Kondracki and Wellman, 2002). The data was analysed and coded independently by three of the researchers in order to increase the rigour of the qualitative results. The researchers agreed on common codes and subsequent themes which were used to count and quantify the content of the comments (Kondracki and Wellman, 2002).

Results

Demographics

A total of 89 respondents completed and returned the surveys online. Four surveys were excluded as they provided insufficient data for analysis. Hence, 85 respondents' surveys were included in the sample ($N = 85$).

In relation to practice setting, the respondents were able to select more than one setting, resulting in 120 responses to this question. The majority of the sample worked in Physical Primary/Community Care settings ($n = 42$, 35 per cent) (Figure 1).

The sample consisted of mainly Senior Grade ($n = 44$, 51.8 per cent) and Basic Grade ($n = 35$, 41.2 per cent) occupational therapists, with a small proportion practising as a Manager ($n = 4$, 4.7 per cent) or Clinical Specialist ($n = 2$, 2.4 per cent). In relation to years of experience working as an occupational therapist, the majority of the sample had 6-10 years of experience ($n = 26$, 30.6 per cent) (Figure 2).

Evidence-based falls prevention programmes

As respondents were asked about the frequency of use of several evidence-based falls prevention programmes related to their area of practice, the response rate (n values) per question varies. According to Table I, between 85.1 per cent (OTAGO; $n = 63$) and 97.1 per cent (Tai Chi; $n = 66$) of respondents respectively answered "Never" in relation to their use of each of these evidence-based falls prevention programmes. The "OTAGO" was answered by the largest number of respondents ($N = 74$), with 9.5 per cent ($n = 7$) reporting using this falls prevention programme "Frequently". This is followed by the "Stepping On" programme which was used "Frequently" by 7.1 per cent ($n = 5$) of 70 respondents. "FaME" and "LiFE" were used "Frequently" by three of 69 and one of 61 respondents, respectively.

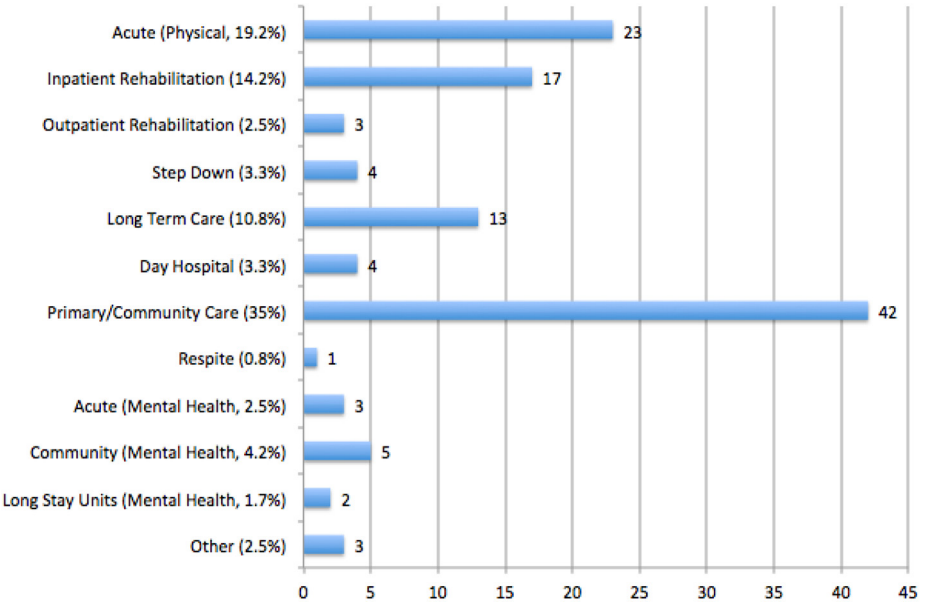

Figure 1.
Respondent's practice setting

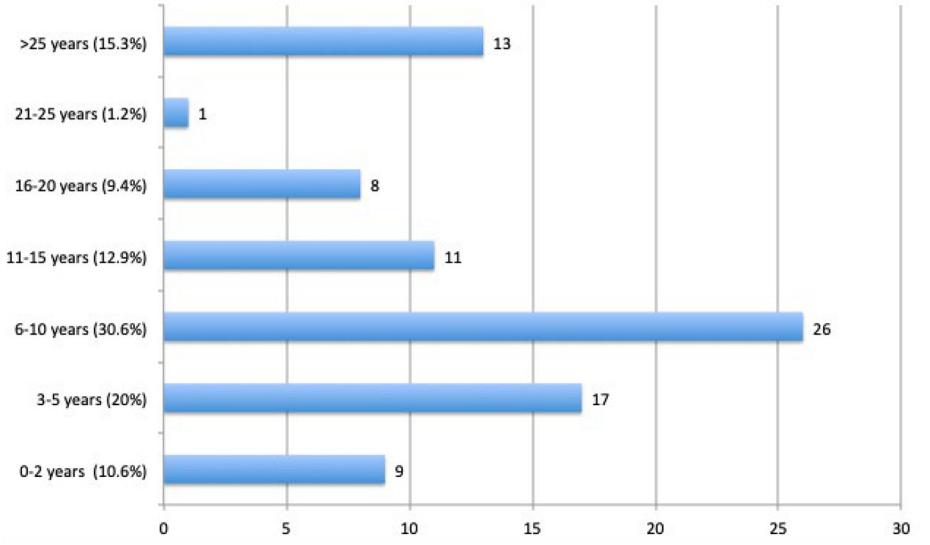

Figure 2.
Number of years of experience as an occupational therapist

"Tai-Chi" had the largest number of respondents reporting "Never" using this programme (97.1 per cent, $n = 66$).

"In-Department" developed falls prevention programmes

Table II displays the results of the summative content analysis of the respondent's comments on "in-department" developed falls prevention programmes; 29 respondents

provided answers for this question overall. The content was analysed, coded and themed by three researchers. Overall theme frequencies are represented by *N* and subsequent code frequencies for those themes represented by *n*. Percentages are calculated per theme, using the response rate for that theme only. Some respondents may have provided comments which met more than one code per theme, and hence the *n* values vary per question. Therefore, the "valid percentage" is presented for each theme.

Respondent's comments on current falls prevention practices

Table III displays the results of the summative content analysis of the respondent's comments on current falls prevention practices in Ireland; 14 respondents provided answers

Table I.
Raw data: frequency of use – evidence-based intervention programmes

Intervention name:	(n)	Always	Frequently	Sometimes	Rarely	Never
OTAGO Exercise Programme (Campbell *et al.*, 1997)	74 (100%)	0 (0%)	7 (9.5%)	2 (2.7%)	2 (2.7%)	63 (85.1%)
Lifestyle Integrated Functional Exercise ([LiFE]; Clemson *et al.*, 2012)	68 (100%)	0 (0%)	1 (1.5%)	3 (4.4%)	3 (4.4%)	61 (89.7%)
Falls Management Exercise ([FaME]; Skelton *et al.*, 2005)	69 (100%)	0 (0%)	3 (4.3%)	4 (5.8%)	2 (2.9%)	60 (87.0%)
Tai Chi (Li *et al.*, 2005)	68 (100%)	0 (0%)	0 (0%)	1 (1.5%)	1 (1.5%)	66 (97.1%)
Stepping On Programme (Clemson *et al.*, 2004)	70 (100%)	0 (0%)	5 (7.1%)	3 (4.3%)	1 (1.4%)	61 (87.1%)

Table II.
"In-Department" developed falls prevention programmes (*N* = 29)

Code	Frequency (*n*)	(%)
Theme 1: Occupational therapy Specific Involvement (*N* = 16)		
Home Assessment	5	31.25
Education	11	68.75
Theme 2: Multidisciplinary Team Involvement (N = 29)		
Occupational therapist and once off session from a "Physio/Dietician"	1	3.44
Joint occupational therapist and physiotherapist	9	31.03
Occupational therapist and physiotherapist with the addition of "guest speakers" 1)"Public Health Nurse (PHN) and Opthamologist", 2)"Dietitian, Community group representation, Pharmacist, Psychologist" 3)"MDT members"	3	10.34
Physiotherapy with occupational therapy involvement for one session	4	13.79
Multidisciplinary team	7	24.18
Not specified	5	17.24
Theme 3: Evidence-Based Programmes which Informed the "In-department" Developed Programmes (N = 5)		
"Stepping On" programme	2	40.00
"OTAGO"– only implemented by physiotherapy	3	60.00
Theme 4: Programme structure (N = 29)		
Did not specify duration	15	51.72
Six weeks	8	27.59
Eight Weeks	2	6.90
Between five and nine sessions	4	16.00
Sessions lasting for two hours	6	20.70

Code	Frequency (n)	Valid (%)	Example quotes
Theme 1: Current Practice ($N = 6$)			
Current occupational therapy practice	6	100	"Advice, changes of practices and aids are put in place to reduce the risk of falls but again the reassessment tools are not administered therefore no outcome measures/statistics are gathered"
Developments in practice	3	50.00	"Developing FRAC intervention regarding falls in Cork"
Structure of occupational therapy services in Ireland	1	16.67	"feel dissatisfied by the lack of community follow-up, interventions, services etc"
Theme 2: Restrictions to Falls Prevention Practice ($N = 5$)			
Waiting lists and time constraints	2	40.00	"when referring to the community, wait lists are so long" "time constraints"
Limited resources	1	20.00	"busy acute settings it is very difficult to implement in stretched resources"
Lack of knowledge of best practice	1	20.00	Respondents not feeling "fully up to date on best practice"
MDT attitude towards falls risk	1	20.00	"often MDT concerns re falls is more disabling than clients concerns and abilities"
Theme 3: Recommendations for Future Practice ($N = 4$)			
Standardised practice	2	50.00	"something everyone working with clients over 65 years should be engaged in" "Requires standardisation"
Occupation focussed practice	1	25.00	"occupation focussed not medical model"
The creation of a special advisory group on falls	1	25.00	"national multidisciplinary special interest group to share resources, develop practice"

Table III. Respondent's comments on current falls prevention practices (N = 14)

for this question overall. The content was analysed, coded and themed by three researchers. Overall theme frequencies are represented by *N* and subsequent code frequencies for those theme represented by *n*. Percentages are calculated per theme, using the response rate for that theme only. Some respondents may have provided comments which met more than one code per theme, and hence the *n* values vary per question. Therefore, the "valid percentage" is presented for each theme.

Discussion

This study contributes to the knowledge base regarding the implementation of evidence-based falls prevention programmes within an Irish context, an under-researched area within occupational therapy literature both nationally and internationally. The study found that the majority of therapists (over 85 per cent of respondents) are not using evidence-based interventions routinely to support their practice. This is a striking finding considering the emphasis placed on the need for evidence-based practice and the financial burden falls and fractures place on the Irish health-care system annually (Gannon *et al.*, 2008). Implementing evidence-based practices such as these falls prevention programmes not only impact client outcomes and quality of life (Bennett and Bennett, 2000), but furthermore provides

justification for the value of the occupational therapy profession (Illott *et al.*, 2006) within the Irish health-care system.

Possible reasons for these results should be considered. Firstly, it must be acknowledged that all of these programmes were developed internationally in Australia (Clemson *et al.*, 2004; Clemson *et al.*, 2012), New Zealand (Campbell *et al.*, 1997), UK (Skelton *et al.*, 2005) and the USA (Li *et al.*, 2005). The cultural and institutional structure of the health-care system within Ireland may not be reflective of the health-care systems in which these studies were developed, possibly impacting their implementation in an Irish setting by Irish occupational therapists. However, there is also limited literature pertaining to the implementation of these programmes within their country of origin, posing a difficulty in determining how Irish practice compares to international practice.

Moreover, as these programmes were developed internationally, the costs and logistics of accessing the training for these programmes could pose a barrier for occupational therapists in Ireland, particularly in the current health-care climate of stretched resources. However, this issue of cost is not an isolated issue for Irish occupational therapists. A study conducted in the USA stated that a high cost of education workshops was a barrier to attend necessary courses (MacEwan Dysart, and Tomlin, 2002). Furthermore, the "FaME" is an example of a programme which requires a five-day training course conducted in the UK to become an instructor who can deliver the programme (Stevens and Burns, 2015). Hence, limited access to training courses of these internationally-developed programmes in Ireland may therefore be contributing to the lack of their use in current occupational therapy practice.

In relation to practice setting, although the majority of the sample reported working in Primary/Community Care (n = 42, 35 per cent), it is concerning to find that these evidence-based falls prevention programmes, which demonstrate evidence with community-dwelling older adults, were largely underused. On the other hand, 19.2 per cent (n = 23) of the sample reported working in the Acute Physical setting, which may pose limitations to the feasibility for their use within the parameters of this setting. It is interesting to note the recent Cochrane review which evaluated the intervention practices for reducing falls in the acute setting (Cameron *et al.*, 2018). The review did not report the use of evidence-based falls prevention programmes within the acute setting and found uncertain evidence for interventions such as additional physiotherapy, using bed sensor alarms and multifactorial intervention which targeted two or more risk factors (Cameron *et al.*, 2018). Considering this lack of use of the evidence-based programmes, it could be argued that there is a need to develop Irish setting-specific evidence-based falls prevention programmes in order to increase the uptake and usability of these programmes throughout the Irish health-care system.

However, through the respondent's comments on current falls prevention practices in Ireland, it was highlighted that these evidence-based programmes are difficult to implement due to time constraints, stretched resources, caseload demands, lack of knowledge and deficiencies in the continuum of care between services within the Irish health-care system. These institutional barriers are not unique to Ireland. A recent scoping review in developed countries found that barriers to implementing evidence-based practice with community-dwelling older adults included time restraints and organisational aspects (Juckett, and Robinson, 2018). Furthermore, Donnelly *et al.*'s (2016b) survey of Canadian occupational therapists (N = 52) found that time/workload was a barrier to practice identified by 36.5 per cent (n = 19) of respondents. Many of these barriers contribute to the deficiency in the care continuum between services within the Irish health-care system, such as difficulty with follow-up when older adults transition from acute settings to the community, as reflected in the respondent's comments on current falls prevention practices in Ireland. This supports

the findings from Elliot and Leland's (2018) systematic review of the effectiveness of occupational therapy falls prevention intervention with older adults in the community, which emphasises the need for improved integration of the care continuum in order to optimise client outcomes between services.

The results of the survey indicate that current fall prevention practices "requires standardisation" and that it should be kept "occupation focussed not medical model". One opportunity for occupational therapists to implement a more standardised and occupation-focussed practice would be in relation to exercise-based programmes. For example, 9.5 per cent (n = 7) of the sample reported using the "OTAGO" programme frequently in comparison to the rarely used "LiFE" exercise programme which is more occupation-based. This finding highlights the potential scope for therapists to implement occupation-based falls interventions that are more aligned with the professions core philosophy of occupational engagement (Fisher, 2013), while also maintaining occupational therapist's responsibility to implement evidence-based practices.

This study found that efforts are being made to implement some of these evidence-based programmes for setting-specific needs. For example, in relation to "in-department" developed falls prevention programmes, two respondents reported using the "Stepping On" while two respondents reported adapting it for the clients in their practice setting. However, adapting evidence-based programmes compromises the accountability and fidelity of these programmes (Stevens and Burns, 2015).

It is clear that the lack of use of evidence-based falls prevention programmes needs to be analysed further as the feasibility of implementing them in the Irish context is limited. Although all therapists seek the best outcomes for their clients, the institutional barriers which exist hinders the implementation of evidence-based practice. Therefore, there is an urgent need to contextualise research of evidence-based falls prevention programmes into practice in Ireland to ensure that programmes are suitably tailored to meet the needs of clients, while also being deliverable within the parameters of the Irish health-care system. Strengthening collaboration between universities, professional occupational therapy associations and regulatory bodies can support this cause (Donnelly *et al.*, 2016a). Universities promote education and research which informs evidence-based practice, while professional regulatory bodies uphold the ethical standards of practice in order to maintain public protection (Donnelly *et al.*, 2016a). However, although advocating for and evaluating further implementation of existing evidence-based falls prevention programmes within Ireland is important, it is essential that future Irish research focuses on the relevance of evidence-based falls prevention programmes to the realities of the Irish health-care system, with the possibility of developing programmes specific to the needs of various practice settings in Ireland.

Conclusions

At present, there is a substantial amount of evidence to support the use of evidence-based falls prevention programmes from both a client-outcome perspective and from the perspective of quality assurance within occupational therapy practice. However, this study found that there is infrequent use of these internationally developed evidence-based falls prevention programmes by occupational therapists in Ireland. Furthermore, setting-specific barriers experienced by occupational therapists within the Irish health-care system may hinder the feasibility of using these programmes within different contexts. In conclusion, there is a need to further contextualise and develop programmes which are appropriate to the needs of clients and usable by occupational therapists within the parameters of the Irish health-care system.

Limitations of the study

Due to the sampling methods used by the researchers (i.e. purposeful, convenience and snowball sampling) respondents may not be representative of the entire population of occupational therapists who work with older adults in Ireland, potentially limiting the generalisability of the results of this study (Watson and Coombes, 2009). As the responses to the qualitative questions were small, this limits the interpretation of these results. Furthermore, although an electronic survey was deemed the most efficient method for collecting the research data, it is acknowledged that self-report measures pose a risk of social desirability bias in which respondents may provide socially favourable answers to questions (Fisher, 1993).

Implications for future study

It is acknowledged that the majority of the published literature pertaining to evidence-based falls prevention practice is situated in an international context. Hence, it may be beneficial to examine how Irish occupational therapy falls prevention practice compares to the practice of occupational therapists internationally. It would be beneficial to conduct a more in-depth exploration into the challenges faced by occupational therapists in implementing evidence-based programmes and their perspectives on programmes which could potentially be developed within the barriers identified within various settings to inform necessary changes in future practice. In addition, there is a need to evaluate the effectiveness of adapted programmes in order to determine if they are successful in reducing the rate of falls.

Implications for practice

Going forward, it is evident that practitioners and researchers in Ireland need to work in collaboration to ensure that future falls prevention programmes are standardised and implementable within specific settings in the Irish health-care system. These programmes would need to be developed through strong partnerships between practicing therapists and researchers, trialled within the realities of different practice settings and validated through the use of recognised outcome measures. In conjunction with this, it is critical that occupational therapists within Ireland continuously strive to implement occupation-focussed evidence-based practice in light of the barriers within the current health-care system.

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