Use of Outcome Measures in Physiotherapy Practice in Ireland from 1998 to 2003 and Comparison to Canadian Trends

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ABSTRACT

Purpose: The purposes of this study were to examine changes in the use of standardized outcome measures by practising physiotherapists in Ireland and to compare those trends to the results of a similar survey conducted previously in Canada.

Method: A survey methodology was employed. The review of practice occurred at two points in time. Senior clinical physiotherapists working with older people participated. Questions were asked about the use of standardized outcome measures, the nature and pattern of their use, and the level of confidence the respondents had in using such measures.

Results: The results chart the changes in practice over a 5-year period. Although there was an increase in the use of standardized outcome measures, the respondents acknowledged barriers to their systematic use in routine practice (e.g., lack of time, resources/administrative support). There was a lack of professional consensus on what instruments to use in general, as well as which to use for particular client groups. Concern was expressed that none of the available instruments met their clients' needs. Where possible and appropriate, comparison was made between the data from the 2003 Irish study and a survey of Canadian physiotherapists conducted in 1998.

Conclusion: This review of practice illustrates that changes that have occurred in Ireland in the use of standardized outcome measures are similar to those that have occurred in Canada, but barriers remain to their complete integration into clinical practice and clinical decision making.

Key Words: international comparison, older people, outcome measures, physiotherapy practice, rehabilitation

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RÉSUMÉ

Objectif : Cette étude a pour but d'examiner les changements dans l'utilisation des mesures de résultat standardisées par les physiothérapeutes en Irlande et de comparer ces tendances aux résultats d'un sondage similaire conduit précédemment au Canada.

Méthode : On a utilisé une méthodologie de sondage. L'examen de la pratique a eu lieu deux fois pendant la période d'essai. Des physiothérapeutes cliniques chevronnés qui travaillaient avec des personnes âgées ont participé. On leur a posé des questions sur l'emploi de mesures de résultat standardisées, sur la nature et le régime de leur emploi et sur le niveau de confiance que les répondants avaient dans l'utilisation de ces mesures.

Résultats : Les résultats enregistrent les changements dans la pratique sur une période de cinq (5) ans. Bien qu'il y ait eu une hausse de l'utilisation des mesures de résultat standardisées, les répondants ont reconnu des obstacles à leur emploi systématique dans la pratique régulière, p. ex., manque de temps, de ressources ou de soutien administratif. On n'a pu établir de consensus professionnel général sur les instruments à utiliser, et lequel utiliser pour certains groupes de clients particuliers. Le fait qu'aucun des instruments disponibles ne répondait aux besoins des clients suscitait de l'inquiétude. Lorsque cela a été possible et approprié, on a comparé les données de l'étude irlandaise de 2003 et celles d'une étude auprès de physiothérapeutes canadiens en 1998.

Conclusion : Cet examen de la pratique indique que les changements en Irlande à propos des mesures de résultat standardisées sont semblables à ceux qui se sont produits au Canada mais il se présente des obstacles à leur intégration complète dans la pratique clinique et dans le processus décisionnel clinique.

Mots clés : comparaison internationale, personnes âgées, mesures de résultat, exercice de la physiothérapie, réadaptation

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BACKGROUND

Physiotherapy practice has evolved significantly since the 1980s, when information about changes occurring as a result of intervention was not usually recorded or was described subjectively in terms of the patient's "getting better," "improving," or being discharged.¹ The need for standardized outcome measures has been widely advocated²⁻⁶ and has been articulated in a number of policy statements, including the Core Standards of Physiotherapy Practice of the European Region of the World Confederation for Physical Therapy (WCPT)⁷ and the definition of evidence-based practice of the Canadian Physiotherapy Association (CPA).⁸ The extent to which the use of standardized outcome measures has been operationalized in day-to-day practice, and the nature of such use, has been reviewed by a number of authors in Canada,^{9,10} the United States,¹¹ and Europe.¹²⁻¹⁶ During the 1990s, physiotherapists became more sensitized to the use of standardized outcome measures through local and national initiatives and the increased number of publications to support decision making through the use of such measures. Nonetheless, there is a lack of published information on how that practice has changed. To date, only one publication (from Canada) has reported on a comparative survey of practice.¹⁷

The primary purpose of the current survey, carried out in 2003, was to consider changes in physiotherapy practice in Ireland as they related to the use of standardized outcome measures by physiotherapists working in the area of rehabilitation of older people. Our second purpose was to compare our results to those of a similar comparative survey of practice conducted in Canada in 1998.

METHODS

Participants

In 1998, all hospital departments of "age-related health care" or "medicine for the older person" in Ireland were identified. The individual senior physiotherapist associated with each department was invited to participate in a survey on the use of standardized measures and assessment in practice. "Senior physiotherapists" were defined as those with expertise in the speciality of rehabilitation of older people, as we believed that these individuals would be representative of the practice of physiotherapy for older people. Senior physiotherapists in 80% of all such physiotherapy departments in Ireland agreed to participate.

For the 2003 survey, the same departments of the senior physiotherapists who participated in the 1998 survey (those that still existed in 2003) were invited to participate in the follow-up survey. Once again, the

senior physiotherapist in each department was asked to participate and to report on her or his individual practice.

Because of changes in the structure of clinical services, two centres were no longer in a position to participate, since they no longer provided the appropriate services. Twenty centres were surveyed as part of the 2003 review of practice. Fifteen senior physiotherapists from those departments responded, representing a 75% response rate. Ethical approval for the study was obtained from the Joint Research Ethics Committee of St. James's and the Adelaide & Meath Hospitals.

Survey Instrument

The 1998 Irish survey, in the form of a structured interview, comprised four questions relating to a number of areas of physiotherapy measurement and practice. The questions addressed issues such as choice of standardized outcome measures, frustrations with current practice, and preferred requirements of standardized outcome measures. The definition used for standardized measurement was "a published measurement tool, designed for a specific purpose in a given population, with detailed instructions provided as to when and how it is to be administered and scored, interpretation of the scores and results of investigations of reliability and validity."¹⁸ The primary author (ES) conducted the interviews; questions were asked in a standardized manner. The methodology and results of the 1998 Irish survey have been published elsewhere.¹⁴

The 2003 Irish survey used a postal questionnaire containing questions on the use of standardized outcome measures, both generic and disease specific, and barriers to their use. The survey instrument contained the same definition of an "outcome measurement" used in the 1998 survey. For both generic domains of physiotherapy intervention (e.g., mobility, balance, gait disorders, fitness/exercise tolerance) and specific disorders (e.g., stroke, Parkinson disease), the survey instrument posed the question, "Do you use a published outcome measurement or one developed by your department?" The second question asked participants to identify what standardized outcome measures they used in practice for each one of the listed domains; a short list of outcome measures was given, and space was provided for others to be added by the respondents. The next question asked about the frequency of use of specific standardized outcome measures. The final section inquired about respondents' level of confidence in systematically using outcome measurement. Each participant was asked to rate his or her confidence from 0% (not at all confident) to 100% (totally confident) for 12 statements developed and employed by Kay et al. in their 1998 Canadian survey.¹⁷

Data Analysis

Data were gathered at two time points, first in 1998, from a sample of senior physiotherapists (by interview), and then in 2003 from similar representatives in all but two of the same centres (by postal questionnaire). Responses to the 2003 survey were anonymous. Descriptive statistics were calculated for all variables. In comparing proportions at the two survey time points, tests of two binomial proportions were used, with statistical significance at $p < 0.05$. Minitab Version 13 was used. In comparing reported barriers to the use of standardized outcome measures and level of confidence in their use between respondents from the Canadian 1998 survey and the Irish 2003 survey, only the responses from Canadian professional practice leaders were included, as they represented a more direct comparison to the senior physiotherapists who responded to the 2003 Irish survey.

RESULTS

Respondents

Of the 15 senior physiotherapists who responded to the 2003 Irish survey, the majority were degree

Figure 1 Use of standardized outcome measures in Ireland: 2003 versus 1998.

holders ($n = 13$). All worked in physiotherapy services that provided a combination of in-patient and outpatient care, acute care, and rehabilitation for older people in locations throughout Ireland. They were asked to respond about their personal professional practice.

Changes in Practice

Figure 1 illustrates the difference in the reported use of standardized outcome measures by Irish physiotherapists between 1998 and 2003. Percentages were used to enable comparison across the two time points. Marked differences in practice were noted in the use of standardized outcome measures for all aspects of physiotherapy intervention. The differences were significant for the use of outcome measures for mobility, balance, gait, and Parkinson disease ($p < 0.002$). For each of these aspects of physiotherapy, several standardized outcome measures were listed in the survey instrument, following which space was provided for the respondent to add measures not on the list. Table 1 gives details of the standardized outcome measures used in various domains. In addition to the results shown in the table, the Rivermead Mobility Index,¹⁹ the Functional Ambulation Category,²⁰ the Barthel Index,²¹ and the Six Minute Distance Test²² were reported as being used by individual physiotherapists (6.7%) for people with mobility problems. Individual physiotherapists indicated also that they used the Motricity Index,²³ the Rivermead Mobility Index,¹⁹ and range of motion to pain for their patients with stroke.

Patterns of Practice

In addition to ascertaining whether and what types of standardized outcome measures were used, a question was posed to identify the pattern and frequency of use of these measures. Figure 2 illustrates the results of this question for the most commonly used standardized

Table 1 Standardized Outcome Measures used by Irish Physiotherapists in 2003: Percentage and Number of Users

To Measure Problems with Mobility	To Measure Problems with Balance	To Measure Gait Disorders	To Measure Exercise Tolerance	To Measure People with Stroke	To Measure People with Parkinson Disease
Elderly Mobility Scale: 86.7% ($n = 13$)	Berg Balance Scale: 73.3% ($n = 11$)	POMA-G 60% ($n = 9$)	Six-minute distance test: 33.3% ($n = 5$)	Motor Assessment Scale: 60% ($n = 9$)	Webster Scale: 13.3% ($n = 2$)
Timed Up & Go: 40% ($n = 6$)	Functional Reach: 80% ($n = 12$)		Shuttle test: 13.3% ($n = 2$)	Motor Club Assessment: 6.7% ($n = 1$)	Hoehn & Yahr: 26.6% ($n = 4$)
POMA-G: 73.3% ($n = 11$)	POMA-B: 66.7% ($n = 10$)		Borg Rate of Perceived Exertion: 33.3% ($n = 5$)		Uniform Parkinson's Disease Rating Scale: 6.7% ($n = 1$)
	Falls Efficacy Scale: 26.7% ($n = 4$)		Visual analogue scale for exertion/fatigue: 40% ($n = 6$)		

POMA-B, POMA-G = Performance Oriented Mobility Assessment, Balance and Gait sub-scales

Figure 2 Frequency and pattern of use of standardized outcome measures. BBS = Berg Balance Scale; EMS = Elderly Mobility Scale; FES = Falls Efficacy Scale; FR = Functional Reach; MAS = Motor Assessment Scale;

Figure 3 Barriers to use of standardized outcome measures: Canada and Ireland (Canadian data from Kay et al.¹⁷).

outcome measures. Although the majority of respondents used standardized outcome measures at admission and discharge (or more frequently), some reported using such measures only at admission.

Reported Barriers to Use of Standardized Outcome Measures

Participants were asked to identify any barriers that existed to their use of standardized outcome measures with multiple answers allowed. Consequently, the percentages in Figure 3, which identify the frequency with which various barriers were reported, exceed 100. Figure 3 compares responses on the 2003 Irish survey to responses to a similar question asked by Kay et al. in the Canadian survey.¹⁷

Level of Confidence in the Use of Standardized Outcome Measures

To enable comparison of practice in Ireland and Canada, each participant was asked to rate his or her level of confidence from 0% (not at all confident) to 100% (totally confident) for 12 statements, which were identical to those employed by Kay et al. in their 1998 Canadian survey.¹⁷ Table 2 outlines the mean percentage (SD) and minimum and maximum values for the 2003 Irish survey and the 1998 Canadian survey. Results of the Irish survey suggest that respondents are confident that there is a clear purpose for using standardized outcome measures but less confident about what to do with the information (mean = 75%, SD = 26%, range: 0–100%). At an operational level, they know what to measure for their client groups, how to administer and score the relevant standardized outcome measures, and how to track progress. For these activities, the mean confidence reported was 70–85% (SD = 8–12%). Confidence was less absolute when it came to using the standardized outcome measures scores listed on the questionnaire in a meaningful way (statements 9 and 10) and in the area of knowledge about measurement properties (statements 2 and 3).

DISCUSSION

Use of Standardized Outcome Measures

There was an increase in the extent to which standardized outcome measures were used by physiotherapists working with older people in Ireland between 1998 and 2003. This increase was mirrored by an increase in the range of standardized outcome measures employed. All participants (100%) now use standardized outcome measures in assessing mobility and balance, compared to 30–50% in 1998. Two different methods of data gathering were employed—a structured interview in 1998¹⁴ and a postal questionnaire in 2003. The former was considered more appropriate in 1998, since the use of standardized outcome measures in physiotherapy practice was still in its early stages and this method of retrieval of information enabled any confusion about terms to be clarified; it was used also in an attempt to optimize the participation rate. The two different data-gathering methods may have contributed to the differences in practice reported, and this represents a limitation of the present study. However, to minimize the impact of the two different methods, the definition of standardized outcome measures and the questions addressing the use of standardized outcome measures in physiotherapy intervention were identical in both surveys. The participation rates in the Irish surveys (88% in 1998 and 75% in 2003) are good, although it is possible that those

Table 2 Percentage of Perceived Confidence in the Use of Standardized Outcome Measures by Irish and Canadian Physiotherapists*

	<i>Ireland (2003)</i> Mean% (SD%, min.–max.%)	<i>Canada* (1998)</i> Mean% (SD%, min.–max.%)
1. Knowing whether suitable measures are available	72 (15.7, 40–90)	73 (21.7, 40–100)
2. Knowing enough about reliability & validity to choose the best measure	58 (23, 20–90)	64.5 (20.4, 20–90)
3. Knowing about scale construction to develop own	25 (23, 0–70)	29.5 (21.4, 0–80)
4. Knowing what to measure for my clients group (s)	83 (11, 60–100)	77.5 (23.1, 0–100)
5. Knowing how to administer in a standardized way	83 (12, 60–100)	75 (18.2, 30–100)
6. Knowing how to score measures	85 (8, 70–100)	75.5 (18.8, 30–90)
7. Knowing what to do with the score	73 (26, 0–100)	70 (22.9, 10–90)
8. Knowing how to track clients' progress	81 (11, 60–100)	73 (22, 10–100)
9. Knowing how to link information from outcome measures to other information	69 (21, 30–90)	52 (22.4, 10–90)
10. Knowing how to compare scores to baseline levels across clients	61 (28, 10–100)	54.8 (22.3, 10–90)
11. Overall having a clear purpose for measurement	89 (11, 70–100)	77.5 (23.4, 10–100)
12. Overall knowing what to do with information	75 (26, 0–100)	68.5 (23.9, 10–90)

*Canadian data from Kay et al.¹⁷

therapists who did not respond were not using standardized outcome measures, resulting in some bias in the findings.

To date, only one other survey of practice at two different time points has been reported in the literature.¹⁷ Because of the contradictory nature of standardized outcome measure responses in that study, the authors concluded that it is difficult to identify “whether or not overall use of client outcome measures in clinical practice has increased since the early 1990’s.” Nevertheless, the same authors also employed a focus-group methodology in five Toronto centres, the results of which suggest that the idea of using outcome measures as an intrinsic part of physiotherapy practice had become widely accepted by 2002.²⁴ This increase in use of standardized outcome measures in Canada is not considered to be unique to physiotherapy but, rather, reflects the broad restructuring of the health care system in the 1990s, similar to two national health strategies that have been introduced in Ireland since the 1990s. Both strategies include accountability and quality of service, and both have resulted in a greater focus on measurement of results in physiotherapy practice. The results of the 1998 Irish survey were consistent with those of other such surveys in the 1990s. In reporting on practice in Canada, Cole et al.¹⁸ noted that although 50% of physiotherapists reported using standardized outcome measures, 20% identified only one instrument. In a survey of practice of Scottish occupational therapists and physiotherapists in 1992, Chesson et al.¹³ reported that 44% of physiotherapists used standardized outcome

measures, although their methodology was slightly different from that of the Canadian survey.

In the 2003 Irish survey, use of standardized outcome measures had increased, but uptake was lower for certain disease-specific measures. For example, one-third of therapists do not use a standardized method of measurement for stroke or Parkinson’s disease, although it should be noted that the Berg Balance Scale,²⁵ albeit not a disease-specific measure, was reported as commonly used by respondents and has been well tested in people with stroke. While the prevalence of Parkinson disease in Ireland is not known, the European prevalence is estimated to be 1.6 per 1,000.²⁶ Stroke is reported to be the leading cause of acquired physical disability in adults, with prevalence increasing with age.²⁷ Torenbeek et al.¹⁶ report that 75% of their survey respondents, all of whom worked in stroke rehabilitation, used standardized outcome measures.

Gait disorders, problems with exercise tolerance, and a need for improved fitness are common in older people, yet only a small proportion of physiotherapists employ standardized instruments to measure these parameters. This is notable because one of the barriers to achieving functional independence noted by physiotherapists who participated in another part of this research work was the area of fitness/deconditioning.²⁸ The standardized outcome measures available to measure exercise tolerance that are appropriate for use with older people with functional limitations are limited, however, which may explain why one-third of participants do not use them.

Range of Standardized Outcome Measures used in Practice

The range of standardized instruments employed has increased since 1998. In the case of mobility, the most common instrument remains the Elderly Mobility Scale.²⁹ With respect to balance, the two most commonly used tests are now the Performance-Oriented Mobility Assessment (Balance sub-scale)³⁰ (POMA-B) and the Berg Balance Scale.²⁵ Falls efficacy, self-reported confidence in carrying out activities without falling, is used by 27% of respondents, reflecting the aspiration to capture the impact of falling that is beyond physical capabilities. The POMA Gait sub-scale (POMA-G) was the only standardized method that participants reported using for gait analysis. In stroke rehabilitation, three stroke-specific instruments are used: the Motor Assessment Scale,³¹ the Motor Club Assessment,³² and the Motricity Index.²³ The Hoehn & Yahr³³ staging reported by 26.6% of respondents is designed for use in persons with Parkinson disease, but it is not designed to measure change in response to physiotherapy treatment. Of the three standardized outcome measures reported to be used in Parkinson disease, the Unified Parkinson's Disease rating scale³⁴ is the only one that has a structure suitable for physiotherapy intervention.

Nature of the Use of Standardized Outcome Measures

In the 1998 Irish survey, the questions sought to identify whether standardized outcome measures were being utilised by physiotherapists. At that time, as a result of developments within the profession and of external trends in the health service, incorporating standardized outcome measures into practice was considered desirable. The 1998 survey simply asked, "Are standardized outcome measures being used?"; it did not ask how such measures were being incorporated into practice. The results of the 2003 Irish survey demonstrate that the majority of standardized outcome measures employed are used at admission and discharge, and sometimes more frequently. Depending on the outcome measure in question, between 10% and 20% of respondents reported using standardized outcome measures at admission only. The drop-off in the use of standardized outcome measures from admission to discharge is less than that reported in other literature, although Turner et al. employed a different data-gathering method:^{12,15} they used retrospective chart retrieval and the measures related specifically to impairment (i.e., pain, muscle strength, and joint range of motion). The drop-off in the use of standardized outcome measures from admission to discharge was from 21% to 2.5% for pain, from 64% to 10% for muscle strength, and from 64% to 30% for range of motion. This drop in the use of standardized outcome measures over the course of a treatment cycle was also reported by Kirkness

and Korner-Bitensky¹⁰ and Kay et al.,¹⁷ which suggests that while standardized outcome measures are used as part of physiotherapy management, the information they yield has yet to be fully incorporated into practice and decision making.

Frustrations and Barriers

In the 1998 Irish survey, participants were asked to identify any frustrations they experienced with their current method of measurement, whether standardized or not. The responses revealed two main themes: issues with the measurement instruments or methods and operational issues. The former includes responses describing frustrations with objectivity, standardization, sensitivity, and repeatability; the latter suggests that time and staffing were barriers to the use of standardized outcome measures. The 2003 survey explored in more detail barriers to the use of standardized outcome measures. Time remained a significant issue, and problems that could be described as "local" were lack of administrative support and resources. For 20% of respondents, no outcome measures were perceived to meet their clients' needs. This is notable because a large variety of outcome measures designed for use with older people in a variety of settings exist, so it is possible that the perception of none meeting the needs of clients may reflect a lack of knowledge of appropriate outcome measures. While the mean level of confidence reported in "knowing whether suitable measures are available" was 72%, levels of confidence ranged from 40% to 90%.

When these results are compared to those from professional practice leaders in Canada (including all areas of practice), time appears to be a universal obstacle to the use of standardized outcome measures. Discussing the use of time in their focus groups, Huijbregts et al.²⁴ report that Canadian therapists clearly identified time factors as relating to identification of a suitable measure, its administration and scoring, and interpretation of the results. Physiotherapists in the 1998 Canadian survey also noted that use of standardized outcome measures was enhanced when there was an organizational mandate to use them and when expertise and support were available at departmental levels. These results identify the need to investigate methods that minimize the time issues associated with the use of standardized outcome measures. Novel software solutions that aid in the interpretation of individual patient scores and are linked to the specific measurement properties of the standardized outcome measures being employed could be developed, and professional consensus on suggested standardized outcome measures for use in specific client groups could be developed in areas of common practice, with international application.

Level of Confidence in Using Standardized Outcome Measures

Our results suggest that Irish physiotherapists working with older people are confident that there is a clear purpose for standardized outcome measures in practice but less confident about what to do with the resulting information. At an operational level, they know what to measure for their client groups, how to administer and score the relevant outcome measures, and how to track progress; confidence is lower when it comes to using the generated scores in a meaningful way (statements 9 and 10) and in the area of knowledge about measurement properties (statements 2 and 3). This may reflect the fact that there are few continuing professional development courses in Ireland on the use of standardized outcome measures in practice and, until recently, no such modules were included in undergraduate curricula.

Furthermore, unlike the CPA, the Irish Society of Chartered Physiotherapists has not engaged in any strategic exercise to optimize the systematic use of standardized outcome measures in practice. In addition, this may also reflect the lack of an outcomes database to gather and use the output of standardized outcome measures at local and national levels. Torenbeek et al. note that in the five European countries included in their study, statistical use of outcomes data after they are gathered (in cases of stroke and low back pain) occurred in 17% to 90% of cases, with Ireland reporting the lowest level.¹⁶ Given the difference in the attributes of the respondents (rehabilitation of older people in Ireland versus all aspects of physiotherapy practice in Canada), there appears to be little difference between the levels of confidence reported.

Limitations

The results and comparisons made in this study should be considered in the context of a number of limitations. Three different sampling methods were used in the four surveys; hence, direct comparisons may be limited between countries, and between time frames in Ireland. In addition, while each study sampled the same centres at two different points in time, the samples are independent, since there may have been differences in the respondents.

CONCLUSION

The results of the survey carried out in Ireland in 2003 suggest that change has been occurring in the practice of physiotherapy measurement by senior physiotherapists working with older people. This review of practice has occurred in parallel with reviews of practice in physiotherapy in Canada, the United Kingdom, and the United States; an increase in the activities of some professional organizations throughout the world to optimize

the systematic use of standardized outcome measures in routine practice; and a recognition by professional organizations in Europe that *best practice* requires the use of "a published, standardized, valid, reliable and responsive outcome measure."⁷

The review in Ireland focused on one specific area of physiotherapy practice relating to people over the age of 65, and the results cannot be generalized beyond this area. Nevertheless, it is likely, given national demands for increased accountability within health care services and the recognition in our profession that outcomes must be quantified, that systematic use of standardized outcome measures is increasing in practice in general.

Results of these surveys of Irish physiotherapists, combined with findings from other studies, suggest that some barriers may be internationally common in physiotherapy practice and that operational solutions, such as those that assist the day-to-day use of standardized outcome measures in clinical decision making, may have international application. Our findings also highlight the need for professional consensus on the use of standardized outcome measures as another possible solution to augment the use of outcome measures that could lend itself to collaborations, perhaps in the context of the World Confederation for Physical Therapy.

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