Standardized outcome Measures in Stroke Rehabilitation: A Study on Indian Subcontinent Physical Therapists' Perception and Adoption

Amjad Annethattil[a], P.C. Bhattacharyya[b], Manash Pratim Kashyap[c]

[a]Mpt (Advanced Physiotherapy in Neurology), Phd Scholar, Assam Down Town University, India
[b]Professor HOD, Department of Medicine and Academic Co-Coordinator, Down Town Hospital, Pguwahati, India
[c]North Eastern Regional Institute of Management, India

Abstract

An essential component of clinical care is evidence based practice. Outcome measures are the fundamental tools that are required to reflect the patient's current status. These tools measure functional change and routine participation over time. Physiotherapists are routinely encouraged to use outcome measures in daily practice. The use of standardized tests early in an episode of care provides the profession with an opportunity as an intervention to measure and establishes the baseline status of the patient/client, and allows the profession to quantify change in the patient's/client's functioning. Recent evidence-based practice initiatives have highlighted the need to use outcome measures, as they demonstrate that their use in clinical practice remains limited. Objective of this study was to determine the extent of the use of standardized outcome measures in stroke rehabilitation in India and Perceptions regarding their benefits and barriers to their uses

Method

Study Design: This was a cross sectional study. The sample size of the study was 901. The target population of the study was physiotherapist across the India.A literature review based English survey comprised of 40 questions was designed to explore participants self-reported perceived benefits and barriers of evidenced based practice and standardized outcome measures and issues or challenges facing in using outcome measures in stroke rehabilitation in India.Data were analysed using SPSS statistical software, version 21.0.

Result and conclusion

There was a significant different between Indian physiotherapist's skills in evidence based practice and usage of standardised outcome measures in stroke rehabilitation in India.The education system i.e. Literature of Stroke specific outcome measures in day to day practice, research related to stroke specific outcome measures, study of advance tools and techniques are found to be significant difference among the Zones

KEYWORDS - Stroke, Evidence based practice (EBP), Outcome measures, Physiotherapist (PT)

Introduction:

An essential component of clinical care is evidence based practice[1]. In order to implement an evidence based approach, we must first make an association between the available scientific evidence and link it to patient care in order to evaluate patient outcomes[2]. These outcome measures are the fundamental tools that are required to reflect the patient's current status. These tools measure functional change and routine participation over duration. Physiotherapists are routinely encouraged to use outcome measures in daily practice[3]

Looking back at the history of physical therapy, it is apparent how physical therapy has developed over time and emerged as an ever-growing profession that is forward thinking, ambitious, compassionate, and undaunted in its development[4]. From the battlefields of the world wars to direct access, physical therapy has become a scientific, evidence-based profession in line with other health care professions. As the profession developed it required a change in practice, so that it produced evidence through scientific research to justify its existence[5-6]. In a relatively short time, the profession rose to ever-changing challenges in health care and contributed a substantial amount of evidence which added to the body of knowledge of the profession.[6]

The advancement of this profession required the use of standardized instruments measuring various aspects of health status and conditions to be used by rehabilitation professionals for many years to come, and much has been written about the potential benefits of, and barriers to, the use of such measures in practice[7-8]. Another significant constituent of daily practice of physiotherapists is measuring outcomes which help in the direct management of individualized patient care and also in comparing the level of care and determining its effectiveness[8].

The use of standardized tests early in an episode of care provides the profession with an opportunity as an intervention to measure and establishes the baseline status of the patient/client, and allows the profession to quantify change in the patient's/client's functioning[9]. These outcome measures which are used in patient care, as part of intermittent re-examination, provide evidence around whether such predicted outcomes are being grasped. On completion of an episode of care, the physical therapy service will assess effectiveness by measuring the outcomes[10].

Usage of outcome measures will provide a standardized approach and allow evaluating the accomplishment of physical therapy interventions.[9] there by providing a base for comparing outcomes related to different interventions approaches[9]. Standardized outcome measures (OMs) are an essential tool for evidence-based practice as they generate scores that quantify a patient's performance or health status based on standardized evaluation protocols.[10]

Recent evidence-based practice initiatives have highlighted the need to use outcome measures, as they demonstrate that their use in clinical practice remains limited[11]. Following a survey of Physical Therapists it is apparent that there are many associated factors and barriers for the use of outcome measures Such as time, constraints, difficulty in task completion, lack of resources, and lack of information regarding outcome

measures[2,3,4,12,13] There is also limited understanding of patient selection and application and where the best outcome measures has been reported to be a barrier in clinical practice.[3]

Objective

Objective of this study was to determine the extent of the use of standardized outcome measures in stroke rehabilitation in India and Perceptions regarding their benefits and barriers to their uses

Material and Methods:

Study Design: This was a cross sectional study. The sample size of the study was901. The target population of the study was physiotherapist across the India. Qualified physiotherapist with minimum of bachelor degree in physiotherapy working in stroke rehabilitation in physiotherapy clinics or Hospitals in India

The stratum of the study is as follows:

Zone	Sample Size
South	413
North	210
West	193
East	85

The potential physiotherapists were approached. The questionnaires are generated as web page with informed consent and purpose of study explained. The questionnaires also mailed to the working physiotherapist with the purpose, instruction and consent form including personal information, knowledge of outcome measures/evidence based practice, issues or challenges facing in using outcome measures, background and treatment Approaches

Survey Questionnaire

A literature review based English survey comprised of 40 questions was designed to explore participants self reported perceived benefits and barriers of evidenced based practice and standardized outcome measures and issues or challenges facing in using outcome measures in stroke rehabilitation in India

Data Analysis: Data were analyzed using SPSS statistical software, version 21.0. Descriptive statistics were done to determine response frequencies and percentages. The statistical test chi-square for categorical, ANOVA for different comparison of groups are applied for the study.

Results and Discussion:

Table: 1

Variable	South	North	West	East	p-Value
Gender					
Male	306 (52.9%)	115(19.9%)	107(18.5%)	50(8.7%)	-
Female	107(33.1%)	95(29.4%)	86 (26.6%)	35 (10.8%)	-
Experience (in Years)					
< 3	15 (31.9%)	17 (36.2%)	9 (19.1%)	6 (12.8%)	-
3 – 5	84 (46.7%)	61(33.9%)	19 (10.6%)	16(8.9%)	-
6-10	154 (47.1%)	73(22.3%)	67 (20.5%)	33 (10.1%)	-
11- 20	124 (53.9%)	34 (14.8%)	51 (22.2%)	21 (9.1%)	-
>20	36 (30.8%)	25 (21.4%)	47 (40.2%)	9 (7.7%)	-
Professional Qualification					
Bachelors	288 (50.4%)	107 (18.7%)	124 (21.7%)	52 (9.1%)	-
Masters	118 (39.3%)	90 (30.0%)	60 (20.0%)	32 (10.7%)	-
Ph.D	7 (23.3%)	13 (43.3%)	9 (30.0%)	1 (3.3%)	-
Number of strokespecific outcome measures known by PT's					
1-2	170(37.50%)	117(25.80%)	101(22.30%)	65(14.30%)	0.54
3-5	155(56.40%)	63(22.90%)	44(16%)	13(4.70%)	< 0.001
6-8	67(63.80%)	17(16.20%)	18(17.10%)	3(2.90%)	<0.001
9-11	20(36.40%)	9(16.40%)	22(40%)	4(7.30%)	<0.001
11 and above	71(7.70%)	4(30.80%)	8(61.50%)	0%	<0.001
Use of Outcome measure in Clinical Practice					
Very important	66(49.30%)	19(14.20%)	33(24.60%)	16(11.90%)	< 0.001
Important	161(37.40%)	113(26.20%)	100(23.20%)	57(13.20%)	< 0.001
Not important	139(55.80%)	57(22.90%)	43(17.30%)	10(4%)	< 0.001
Don't know	47(54%)	21(24.10%)	17(19.50%)	87(2.30%)	< 0.001
Zone wise criteria of selecting the outcome measure					
Completed Quickly	151(25.90%)	198(34%)	153(26.30%)	80(13.70%)	< 0.001
Easy for patient to understand & therapist to use	233(35.70%)	188(28.80%)	149(22.80%)	83(12.70%)	< 0.001
Easy for clinicians to understand/interpret meaning of score and changes in score	129(23.70%)	196(36%)	141(25.90%)	79(14.50%)	< 0.001
Shown to be valid and reliable	119(21.80%)	196(36%)	146(26.80%)	84(15.40%)	< 0.001
Most appropriate for the level of function	96(19.70%)	198(40.70%)	144(29.60%)	49(10.10%)	< 0.001

Can be analyzed electronically	55(12.20%)	194(43.10%)	153(34.00%)	48(10.70%)	< 0.001
Useful for research	75(15.90%)	202(42.90%)	143(30.40%)	51(10.80%)	< 0.001
Do not know	42(42%)	3(3%)	4(4%)	51(51%)	< 0.001
Completed Quickly	151(25.90%)	198(34%)	153(26.30%)	80(13.70%)	< 0.001
Completion of outcome measure					
Sporadic depending on different factors such as time patient characteristics etc	187(86.20%)	2(0.90%)	13(6.00%)	15(6.90%)	0.001
Not routine or mandated	210(67.50%)	30(9.60%)	39(12.50%)	32(10.30%)	0.001
Routine for all patients but not mandated/required	14(4.60%)	174(56.90%)	89(29.10%)	29(9.50%)	0.001
Mandated required for all patients	2(3.00%)	4(6.00%)	52(77.60%)	9(13.40%)	0.001
Sporadic depending on different factors such as time patient characteristics etc	187(86.20%)	2(0.90%)	13(6.00%)	15(6.90%)	0.001
The type of outcome measure used					
One that required patients self report	1(1.80%)	7(12.70%)	10(18.20%)	37(67.30%)	0.001
One that observe patients performance	33(16.70%)	70(35.40%)	58(29.30%)	37(18.70%)	0.001
A combination of both	379(58.50%)	133(20.50%)	125(19.30%)	11(1.70%)	0.001

From the above table it is observed that 64.2% male and 35.8% female. In case of male, 52.9% 19.9%, 18.5% and 8.7% Physiotherapists (PT's) from South, North, West and East zone respectively. However, female PT's are most from the south zone i.e. 33.1% and 29.4%, 26.6% and 10.8% are from North, west and East zone respectively.

In case of less than 3 years Physiotherapy experience, 36.2% of the PT's from north followed by South (31.9%), West (19.1%) and East (12.8%). In between 3 to 5 years PT experience, 46.7%, 33.9%, 10.6% and 8.9% PT's are from south, North, West and East respectively. Again, between 6 to 10 years there are 47.1% PT's are from South where as 22.3%, 20.5% and 10.1% PT's from North, West and east respectively. Again it is seen that 11 to 20 years' experience PT's most from South zone (53.9%) then west zone has 22.2%. North zone and South Zone experience PT's are 14.8% and 9.1% respectively. In the category, experience more than 20 years, it is observed that 40.2% PT's from west zone where as 30.8% experience PT's are from South zone. North zone and east zone has 21.4% and 7.7% respectively.

Professional qualifications of PT's are broadly classified as bachelor, masters and Ph.D. In the category of bachelor, south zone has 50.4% while western zone has 21.7%. It is also seen that 21.7% and 18.7% PT's belong to west and north zone respectively. Post graduate PT's are mostly from South zone i.e. 39.3% while North zone have 30.0%. West and east zone have 20.0% and 10.75 respectively. In the stratum of Ph.D. it is studied that north zone have 43.3% PT's which is followed by west zone (30%), south zone (23.3%) and east zone (3.3%).

It is observed that, 37.50% south zone PT's are known "1-2" number of stroke specific outcome measures. However, north zone 25.80% and west zone 22.30% and only 14.30% in east zone. In case of "3-5" number of outcome measures, it is seen that 56.40% PT's are familiar with outcome measures from south zone. It is observed that 22.90%, 16% and 4.70% PT knows the outcome measures from north, west and east zone respectively. Again from the table, it is observed that 63.80%, 16.20%, 17.10% and 2.90% PT's knows well the outcome measures between 6 and 8 from south, north, west and east respectively. In case of outcome measures "9-11" the number of stroke specific outcome measures 36.40%, 16.40%, 40% and 7.30% known by PT,s from south, north, west and east zone respectively. From the above table it is seen that 61.50% PT's from west zone know the number of outcomes in 11 and more. Whereas it is followed by north zone (30.80%), south zone (7.70%) and east zone (0%) respectively. Again it is seen that in all the cases it is found to be significant since p value is less than 0.05.

Out of total 49.30% South zone PT's are accepting that the use of outcome measures in stroke rehabilitation is very important where as north, west and east consider 14.20%, 24.60% and 11.90% respectively. It is found to be significant at 5% level of significance.

Zone wise criteria for selecting the outcome measures, completed quickly, easy for patient to understand and therapist to use,easy for clinicians to understand/interpret the meaning of score and changes in score, shown to be valid and reliable, most appropriate for the level of function, can be analyzed electronically, useful for research and completed quickly found to be significant at 5% level of significance.

The completion of outcome measuressporadic depending on different factors such as time, patient characteristics etc, not routine or mandated, routine for all patients but not mandated/required, mandated required for all patients, sporadic depending on different factors such as time patient characteristics etc are zone wise found to be significant at 5% level of significant.

The type of outcome measure usedPT's in different zones under study found to be significant at 5% level of significance. The most used zone is 67.30% is east zone in case of one that requires patients self-report. In case of type one that observe patients performance most used zone is northie. 35.40%. While used of a combination of both is used by south zone is 58.50%.

Table 2

Variable	South	North	West	East	p-Value
Physiotherapist should measure the outcome of their treatment					
Strongly disagree	0(0%)	3(50%)	1(16.70%)	2(33.30%)	<0.001
Disagree	0%	18(43.90%)	15(36.60%0	8(19.50%)	
Neutral	18(13.70%)	47(35.90%)	46(35.10%)	20(15.30%)	
Agree	101(32.70%)	98(31.70%)	77(24.90%)	33(10.70%)	
Strongly Agree	294(71.00%)	44(10.60%)	54(13.00%)	22(5.30%)	
Clinical outcome measure enables to get a better understanding of your patient progress					
Strongly disagree	0%	0%	0.00%	0.00%	< 0.001
Disagree	3%	37.50%	32.50%	27.50%	
Neutral	8.30%	49.60%	29.80%	12.40%	
Agree	35.30%	27.50%	25.20%	12.00%	
Strongly Agree	68.30%	11.70%	15.40%	4.70%	
If I had more time I would be using outcome measure					
Strongly disagree	377(48%)	176(22%)	159(20.10%)	79(10.00%)	< 0.001
Disagree	34(37%)	29(31.20%)	24(25.80%)	6(6.50%)	
Neutral	2(11.80%)	5(29.40%)	10(58.80%)	0.00%	
I do not know more about clinical outcome measure					
Strongly disagree	148(26%)	179(32%)	165(29.20%)	74(13.10%)	< 0.001
Disagree	259(81%)	27(8.40%)	23(7.20%)	11(3.40%)	
Neutral	4(36.40%)	4(36.40%)	3(27.30%)	0.00%	
Agree	2(50.00%)	0.00%	2(50.00%)	0.00%	
There is no need to change the way we always asses patients					
Strongly disagree	287(41%)	182(26%)	165(23.40%)	72(10.20%)	< 0.001
Disagree	119(65%)	28(15.20%)	24(13.00%)	13(7.10%)	
Neutral	7(70.00%)	0(0.00%)	3(30.00%)	0(0.00%)	
Agree	0(0.00%)	0(0.00%)	1(100%)	0(0.00%)	
The use of outcome measure could be helpful in justifying ongoing treatment					
Strongly disagree	1(10.00%)	3(30.00%)	4(40.00%)	2(20.00%)	< 0.001
Disagree	2(5.90%)	12(35.30%)	13(38.20%)	7(20.60%)	
Neutral	35(20.60%)	67(39.40%)	45(26.50%)	23(13.50%)	
Agree	141(42%)	70(20.80%)	88(26.20%)	37(11%)	
Strongly Agree	234(66.70%)	58(16.50%)	43(12.30%)	16(4.60%)	
Outcome measure are helpful in directing plan of care					
Strongly disagree	0	0	6(75%)	2(25%)	< 0.001
Disagree	3(8.60%)	14(40%)	12(34.30%)	6(17.10%)	
Neutral	29(19.70%)	45(30.60%)	52(35.40%)	21(14.30%)	
Agree	148(43.40%)	81(23.80%)	75(22%)	37(10.90%)	
Strongly Agree	233(63%)	70(18.90%)	48(13%)	19(5.10%)	
Outcome measure will enhance communication with physicians and other providers					
Strongly disagree	0	2(13.3)	9(60%)	4(27%)	< 0.001
Disagree	3(7.00%)	15(35%)	18(41.90%)	7(16.30%)	
Neutral	42(24.00%)	55(31.40%)	53(30.30%)	25(14.30%)	

Agree	128(41.20%)	82(26.40%)	69(22%)	32(10.30%)	
Strongly Agree	240(67%)	56(15.70%)	44(12%)	17(4.80%)	
Outcome measure will increase the efficiency of examination					
Strongly disagree	1(11.10%)	3(33.30%)	2(22%)	3(33%)	
Disagree	6(13.30%)	12(27%)	15(33.30%)	12(26.70%)	
Neutral	30(18.40%)	46(28.20%)	60(36.80%)	27(16.60%)	
Agree	148(44.20%)	89(26.60%)	71(21%)	27(8.10%)	
Strongly Agree	228(65%)	60(17.20%)	45(13%)	16(4.60%)	< 0.001
Informed about clinical practice guideline	409(56.50%)	113(15.60%)	157(21.70%)	45(6.20%)	< 0.001

Most of the physiotherapist from south zone i.e. 71% strongly agrees that physiotherapist should measure the outcome of their treatment and it is found to be significant at 5% level of significance. Again it is seen that most of PT's from south zone i.e. 68.30% strongly believe that clinical outcome measure enables to get a better understanding of patient progress and found to be significant. The south zone PT's are 48% which is most strongly disagree with that PT's are taking more time in using outcome measure. In this case also zone wise significant difference found at 5% level of significance. It is also seen that 32% PT's from north zone strongly disagree with that they do not know more about clinical outcome measure. It is also found that 41% from south PT's agreed that there is need to change the way they asses patients. 66.70% and 63% PT's from south zone are strongly agree that the use of outcome measure could be helpful in justifying ongoing treatment and outcome measures are also helpful in directing plan of care respectively. Again from the table, it is seen that 67% and 65% PT's from south zone strongly agree that outcome measure will enhance communication with physicians and will increase the efficiency of examination respectively.

Conclusion

- There is a significant difference between Indian physiotherapist's skills and knowledge of evidence-based practice and the extent of the use of standardized outcome measures in stroke rehabilitation in India, the education system; the practice settings and the environments are different from place to place. There is neither a standardized of practice in stroke rehabilitation nor a unified stroke protocol or guidelines.
- South zone physiotherapist (PT's) was accepting that the use of outcome measures in stroke rehabilitation is very important.The types of outcome measures used byPT's in different zone under study found to be significant at 5% level of significance. Most of the physiotherapist from south zone i.e. 71% strongly agrees that physiotherapist should measure the outcome of their treatment and it is found to be significant at 5% level of significance. Again it is seen that most of PT's from south zone i.e. 68.30% strongly believe that clinical outcome measure enables to get a better understanding of patient progress and is found to be significant.

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