Title: What Do Physiotherapists Do in Stroke Rehabilitation? A Focus Group Discussion

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Abstract

Background: There are many techniques used for rehabilitation after stroke, and physiotherapists use them eclectically. However, some of the techniques are more effective than others.

Objectives: The objective of the study was to determine what techniques physiotherapists in Kano mostly use for stroke rehabilitation.

Method: Focused group discussions were carried out with 2 separate groups using a prepared interview guide consisting of 7 items.

Results: The result of the study showed that physiotherapists used a combination of techniques for stroke rehabilitation consisting mostly of the Bobath and Bruunstrom techniques.

Conclusion: The techniques physiotherapists use for stroke rehabilitation in Kano vary. However, the choice of a particular technique may not be evidence based, but rather from personal preference, experience of the therapists and relevant presentations of the patients.

Key words: Physiotherapy, rehabilitation, stroke, focus group discussion, and evidence-based practice

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Introduction

Physiotherapists are health professionals involved in the rehabilitation of stroke patients. They use a number of different approaches for the above purpose, such as neurodevelopmental treatment (NDT), Bruunstrom, constraint-induced movement therapy (Wolf et al., 2006) and repetitive functional task practice (French et al., 2008). These approaches are variously adopted according to personal choices (Pollock et al., 2007; Khan et al., 2012; Tyson et al., 2009) and common practice in the country (Paci, 2003). However, the specific aims of the approaches fall under 3 categories: remediation, compensation and motor learning (Jette et al., 2005). Remediation has the main goal of improving impairment through the use of techniques such as neuromuscular facilitation, sensory stimulation and resistive training. Compensation focuses on the use of the unaffected side to achieve independence in activities of daily living (ADL). Motor control focuses on task-specific training that simulates real-life conditions to regain functional independence.

Some of the techniques for stroke rehabilitation are known to be superior in terms of effectiveness compared to others (French et al., 2008; Wolf et al., 2006). Additionally, many of these techniques lack detail and clarity of their protocols (Pomeroy & Tallis, 2000a). Studies with poor detail in the protocol are difficult to reproduce and adopt in real world clinical settings. Furthermore, stroke rehabilitation requires high repetition of tasks for motor learning (Birkinmiere et al., 2010; Abdullahi & Shehu, 2014), and this may require hours of rehabilitation per session and/or per day. Thus, practicing the techniques with high quality of evidence of effectiveness is very important for patients, therapists and other caregivers. Unfortunately, physiotherapists still use techniques for stroke rehabilitation eclectically (Jette et al., 2005). As such, to clearly state what physiotherapists do in stroke rehabilitation is difficult. Even in the

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literature, studies exploring what physiotherapists do in stroke rehabilitation using qualitative designs are very rare (Lennon & Ashburn, 2000; Natarajan et al., 2008). The aim of this study is to determine what physiotherapists do in stroke rehabilitation, using a focus group discussion.

Methods

Study Design: The study had a qualitative research design employing focus group discussion.

Participant selection: The population of this study was qualified physiotherapists in Kano state who were involved in stroke rehabilitation for at least the past two years. The participants were recruited from the two tertiary hospitals of the state (Murtala Muhammad Specialist Hospital and Muhammad Abdullahi Wase Specialist Hospital) using the convenience sampling technique. Only 12 physiotherapists out of the 39 that were screened fulfilled the criteria, as shown in Figure 1

Ethical review and consent: Ethical approval for this study was obtained from Kano State Hospitals Management Board prior to the study, and informed consent was sought and obtained from the participants prior to the commencement of the study.

Data collection: The data collection instruments of this study were a demographic data sheet, focus group discussion interview guide**,** a voice recorder, consent form**,** paper and pen**.** The two hospitals used in the study each made up a separate focus group; Murtala Muhammad Specialists Hospital formed focus group discussion A (FGA) and Abdullahi Wase Specialists Hospital formed focus group discussion B (FGB).

Each group had consisted of 6 physiotherapists, which is the number shown by Kitzinger in 1995 that can form a focus group discussion.

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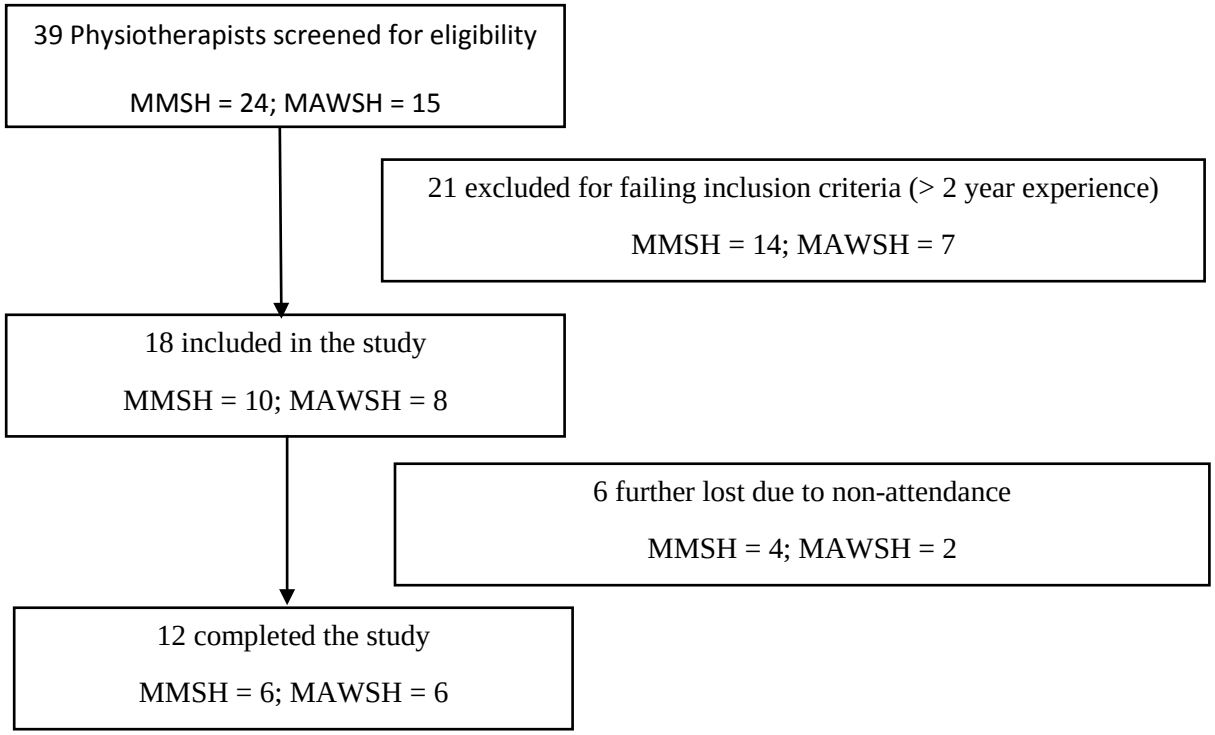
Figure 1: ***Study flow chart showing the recruitment of participants***



Key: MMSH: Murtala Muhammad Specialist Hospital; MAWSH: Muhammad Abdullahi Wase Specialist Hospital

The participants' demographic information was obtained using the demographic data sheet as presented in Table 1. The participants were then interviewed on the method they use frequently in motor and balance rehabilitation as indicated in the focus group discussion interview guide that had been prepared in advance. The focus group discussions were moderated by one of the researchers (YYA). A trained research assistant recorded the discussions using a voice recorder at the same time a second assistant captured the discussions in written format (acted as the note-taker). The discussions were timed by a third assistant using a stop watch; the discussion lasted 40 minutes for each group.

Table 1: Characteristics of the focus group participants

Participants:	Age	Gender:	Years of experience	Qualification
A1	29	Female	4	B. PT
A2	28	Male	5	MSc. PT
A3	35	Male	2	B. PT
A4	25	Female	2.5	B. PT
A5	_	Female	2	B. PT
A6	34	Female	7	BSc. PT
B1	_	Female	8	BSc. PT
B2	31	Female	8	BSc. PT MSc. Exercise physiology
B3	_	Female	2.5	B. PT
B4	_	Female	3	B. PT
B5	_	Female	3	B. PT
B6	27	Male	2	B. PT

Key: A= Focus Group A; B= Focus Group B; B.PT= Bachelor of Physiotherapy; Msc= Master of Science

Data analysis: The data generated from the focus group discussions were transcribed and analyzed using thematic analysis. Audio tapes were first transcribed, and the transcripts were reviewed for accuracy. The researchers and the note-taker analyzed the transcripts independently. Themes were identified by the researchers by reading and re-reading the transcripts. Interpretations made by the researchers were then compared and discussed until agreements were reached. The themes that emerged in FGA were compared with those arising from FGB, and similar themes were noted and recorded.

Results

Results of the questions discussed:

Question 1: The concept of stroke and stroke rehabilitation

All the participants in FGA and FGB agreed that stroke is caused by cessation of blood supply to a part of the brain leading to neurological deficit. They also agreed that stroke rehabilitation is all about restoring the stroke patients back to their normal or near normal conditions.

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"*As we all know the definition of stroke, Stroke is the sudden neurological deficit caused by focal vascular lesion to the brain, affecting various parts of the brain, various blood supply to the brain which can be ischemic or hemorrhagic. Also, the extent of the neurological deficit ranges from mild deficit to gross affectation. It can affect motor sensory, perceptual, etc*." A6

"*What I understand by stroke is …ammm… cerebrovascular accident cause by cessation of blood supply. It can be ischemic or hemorrhagic affecting various part of the brain. Presentation can be contra-lateral…Stroke last for more than 24hrs…*"B2

"*Having understood the definition of stroke as the neurological affectation, rehabilitation is being able to return those affectations to their normal function within the limitation of the damage that has already been done"* A4

"Stroke rehabilitation is the wide aspects of treatment approaches aimed at bringing back the optimal functional level of individual using different approaches, goals and different school of thoughts depending on the extent of affectation, every patient is specific. It is not generalized" A5

"*…And then rehabilitation is how you go about trying to reintegrating that patient back into the society, making him independent in activities of daily living by using what we have in physio departments and what we give them as home program*" B2

Question 2: Treatment approaches employed by physiotherapists in stroke rehabilitation

When the clinicians were asked which treatment approach they use in stroke rehabilitation, their responses varied. Among the various techniques mentioned were: Bobath/neurodevelopmental techniques, Brunnstrom/ proprioceptive neuromuscular facilitation (PNF), conventional therapy and task-oriented training. But the Bobath and Brunnstrom techniques were more popular among

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Kano physiotherapists. Some participants did not mention any of the above approaches but described named interventions they usually give for the clinical presentations of the stroke patients. These include: passive mobilization, soft tissue manipulation (STM), the use of electrical modalities, positioning, weight-bearing exercises, standing re-education and bridging exercises. It appears from the participants' responses that they mostly base their choice of treatment techniques on the patient's presentation.

"I *usually use Bobath in stroke rehabilitation…"*A5

"*I use Brunnstrom recovery stage…*"A3

*"…To me, combination (therapy) is the best…"*A2

"Some use Bobath…" B1

"…Honestly sometimes we just treat patient according to their presentation…It doesn't have to be Bobath…it doesn't have to be Brunnstrom. We only treat as the patient presents. The ultimate thing is to see patient walking about independently and to minimize complications as much as possible" B2

"*We are using Brunnstrom recovery stage. We treat according to the stage of the patient…*" B4

"…Sometimes in the flaccid stage, you know the power is zero, you can give STM…the patient sometimes has shoulder pain, you radiate with infrared then you passively mobilize" …B3

"*As patient is regaining power, you give functional activities, depending on the power…there is a stage you give assisted active exercises…stage 3…no matter how little power the patient has you now assist him…"*B2

"*We can use weight bearing exercises too in the flaccid stage for the upper limb…*"B3

"*And then suspension for the lower limb…You ask the patient to sit on high surface and then be swinging the lower limbs. It also assists...then mat exercises such as rolling and bridging exercises…we also use elevation to prevent oedema''….*B2

*"Sitting re-education if the patient cannot sit"…*B6

*"Positioning is also important…we shouldn't let the patient lie on the affected side…then standing re-education from stage 3"*B3

*"…At stage of spasticity, you can use passive stretching to break the stiffness and adhesion in the joint. You can also incorporate task-oriented training if the patient can do it to break the synergy…"*B6

Question 3: Treatment approach mostly used

When asked which treatment approach they mostly use, all participants in FGA preferred the combination therapy, while participants in FGB varied. Some preferred the Bobath technique, others preferred the Brunnstrom technique, and the majority treat patients based on presentation. It appears from the participants' responses that they mostly based their choice of treatment techniques on the patient's presentation.

"*We mostly use the combination method – conventional method*"…A6

"*The combined method*"… A1

"*Ok I go for Bruunstrom. Depending on the stage of the patient that will determine what kind of treatment I will give…"*B2

*"Yes, I usually use Bobath. But I combine the two Bruunstrom and Bobath in some cases…"*B6

It is difficult to conclude based on these answers that Bruunstrom and Bobath are the most commonly used.

Question 4: Should physiotherapists restrict themselves to a named treatment approach?

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All the participants agreed that clinicians should not restrict themselves to a named treatment approach but rather should make use of combination therapy. Therefore, a physiotherapist should have knowledge of all the approaches.

"*Combination therapy, not only the neurological approaches but also orthopedic principle as some of the patients presents with orthopedic complications. So everything is important. A physiotherapist should have the knowledge of all approaches to apply in accordance to patient's need*"…A2

"No, we should use combination therapy."….B6

Question 5: The effectiveness and evidence of the various treatment approaches

Participants in both groups agreed that the treatment techniques are effective but did not specify exactly by name which technique(s) is/are effective. A few among them expressed that there is limitation in the sense that there is no particular approach that if you give this, you will get that, and this depends on how one uses the technique. Participants in both groups agreed that physiotherapy is more effective when it is started early. Only one participant in FGA mentioned something about evidence concerning the efficacy of conventional therapy over PNF in a study they recently conducted.

"*It is effective. The only limitation is that there is no direct prediction as it is with so many neurological cases. There is no particular approach that can give assurance that if you give this you will get this. So this is the only limitation. Yes…it is effective*"…..A5

"*Yes, all of them are effective. Depends on how one used it. If you use a particular approach and you said this is the reason…I think it is supposed to give you the maximum output. We did a research on the conventional method and PNF. At the end what we got was that the conventional method was better than the PNF in terms of improving spasticity*."….A2

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"…*That depends on time and quality of service given to the stroke patient…the earlier the patient starts recovery, the better the prognosis…"*B2

"*Yes if you give a patient strengthening exercise and that patient does it diligently, you will see magical results…"*B2

"*Depending on the duration of the stroke, recovery is better in the first three to six months after stroke. After that, the patient attains a plateau…It is better for the patient to get intensive physiotherapy early"*…..B6

Question 6: How much rehabilitation is needed?

Almost all the participants could not tell how much rehabilitation is needed for complete recovery. According to them, the amount of rehabilitation needed by a stroke patient depends on the extent of the lesion in the brain, the recovery stage of the patient and how soon a patient is reported for rehabilitation.

"*This is very difficult for us, it can't even be defined*"…A1

"*It depends on individual and recovery stage of the patient*"….A4

"*Even if we assess the extent of affectation, we cannot really ascertain the dose of rehabilitation an individual needs*"……A5

"I think there shouldn't be a line because, one, it depends on the patients presentation, how fast the patient recovers and compliance in carrying out home programs…I think there shouldn't be a specific time. That depends on presentation."…..…B2

Question 7: Prognosis

Participants stated that prognosis is usually good in the first six months after stroke. However, prognosis is poor if a stroke patient has no reasonable grasp after 4 weeks post stroke.

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"*What I know is after 4 weeks of stroke and there is no reasonable grasp, patient has poor prognosis…Patients with cortical affectation have better chances than those with subcortical affectation.*" …..A2

*"I think what we all know is that in a normal recovery after 6 months that is when we have maximum recovery. Anything after 6 months, it is coming with minimal, very slow and gradual…There are predictors we can see within the first few weeks of stroke that can suggest recovery. It is when we put these together that we can give a clear cut and say after this session, you can recover and then we discharge…No, we cannot guarantee that…"*A2

"It is very difficult. You just have to try and explain to the patient the situation"……A4

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Discussion

The treatment approaches adopted by physiotherapists vary widely depending on several factors. In order to understand the current clinical practices used for rehabilitating patients with stroke, we conducted focus group discussions among physiotherapists in Kano state. We attempted to address the issues surrounding what physiotherapists do in stroke rehabilitation.

From the results of this study, physiotherapists seem to adopt combined techniques and principles of different approaches in their current practice. This study concurred with a previous study (Jette et al., 2005) that reported the use of eclectic techniques in stroke rehabilitation in the United States. Although, unlike the present study, data were collected from patients who may not have been able to fully describe some of the physiotherapy interventions, similar findings were seen in both studies. Thus, these studies provide more evidence that physiotherapists combine different techniques in stroke rehabilitation. Combining many techniques may be resource consuming and not cost-effective, especially in the present study setting where patients pay for the cost of their healthcare.

There was also a general agreement among participants that physiotherapists should not restrict themselves to a named treatment technique. The participants believe that physiotherapists should have knowledge of all approaches used in stroke rehabilitation since combining different techniques is the best. Pollock et al., (2007) also implored that physiotherapists have been urged more recently to avoid the use of single, named approaches and to select clearly defined and described techniques and task-specific treatments. Thus, evidence should be the guiding principle for selecting a particular technique.

Many different techniques, such as the Bobath/NDT and Brunnstrom/ PNF, are well documented in the literature. Studies (Luke et al., 2004; Lennon et al., 2006; Wolf et al., 2006; Pomeroy &

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Tallis, 2000b; Tyson et al., 2007) indicated that these techniques are not more effective than others. In fact, the current literature (French et al., 2008; Wolf et al., 2006) put task-specific training in terms of effectiveness in stroke rehabilitation above all other techniques. However, we found that the Bobath/NDT and the Brunnstrom/PNF techniques were the most popular treatment approaches used in stroke rehabilitation by physiotherapists in Kano. Natarajan et al. (2008) in a regional survey in Kansas, United States similarly reported that 93% and 85% of physiotherapists and occupational therapists use both Bobath and Brunnstrom techniques for stroke rehabilitation. Some prominent treatment techniques were not mentioned by any of the therapists. For example, constraint induced movement therapy (CIMT), despite the strong evidence supporting its effectiveness (Wolf et al., 2006; Dromerick et al., 2009), was not mentioned. This could be a lack of keeping abreast of the current literature (Natarajan et al., 2008). Our study also revealed gaps in the provision of rehabilitation to stroke patients in Kano as the issue of dose (how much rehabilitation is needed) is still not very clear to the therapists. In previous studies (Abdullahi & Shehu, 2014; Abdullahi & Mohammed, 2014; Birkinmiere et al., 2010), high repetition of task practice was reported to be important for motor recovery. Additionally, regarding knowledge of the evidence for a particular technique they practice, only a few among the participants expressed (in their own words) that, *"there is limitation in the sense that there is no particular approach that 'if you give this, you will get that' and this depends on how one uses the technique"* (Participant A5) and "*Yes, all of them are effective. Depends on how one used it. If you use a particular approach and you said this is the reason…I think it is supposed to give you the maximum output. We did a research on the conventional method and PNF. At the end what we got was that the conventional method was better than the PNF in terms of improving spasticity*." (Participant A2). Lack of knowledge of evidence for

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effectiveness of a particular technique could be a hindrance to adopting evidence-based practice by clinicians (Akinbo et al., 2008; Oxam & Feightner, 1994).

Conclusion

Physiotherapists differ in the techniques they use in stroke rehabilitation. However, a number of them use a combination of techniques. The use of the techniques appears to be more of a personal preference, a result of their own experience and the patients' presentations rather than being evidence-based. The findings of this study have both clinical and research implications. There is an utmost need to make physiotherapists focus on the use of techniques with the best available evidence base. The research implication is that other qualitative research designs, such as ethnography, which involves observing what therapists do, are needed.

Conflict of interest: None declared

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