Critical Appraisal On The Clinical Reasoning For A Complex Patient On Their Self-Management Of Their Condition

Appendix 1. A table depicting a patient relevant and clinical details and history of the condition they are dealing with.

PATIENT NAME	**ANGELA CLARK (PSEUDONYM)**
AGE	52
PRESENTING CONDITION	Left sided MCA CVA presenting with symptoms of; - Reduced right knee flexion/extension strength. - Reduced right hip abduction/extension - Vestibular-Occular reflex dysfunction causing dizziness and unsteadiness during walking. - A reduction in vision (now wears glasses) and dynamic acuity deficits making reading small print challenging due to some double vision (diplopia) on eye movements.
HISTORY OF PRESENTING CONDITION	1 month ago, Mrs Clark was at home when she suffered a small stroke whilst cooking dinner, she was admitted to hospital where she was diagnosed with a stroke on the left hemisphere. She was in hospital for 2 weeks before she was discharged. She has since been referred to physiotherapy to see what physiotherapy can offer. She is able to walk short distances with 1 elbow crutch currently but finds she gets fatigued quickly and although she hasn't fallen, she has had a couple of near misses due to getting tiredness and feels unsteady due to dizziness, especially when moving her head when standing and walking. Doctor mentioned an increased risk of second stroke which has prompted a fear of this occurring.
PAST MEDICAL HISTORY	High Blood Pressure (found out after stroke) High Cholesterol (found out after stroke) Smoker (10 a day)
DRUG HISTORY	Amlodipine Atorvastatin
SOCIAL HISTORY	- Lives in a 2-story house (14 steps) with husband and son (16 years) - Works as an HCA at a local community hospital, she would like to get back to work as soon as possible, she has already been in contact with them and they have stated they would accommodate her gradual return to work through altering her role as required. - She occasionally went to the gym and would occasionally walk the dog with her husband when she wasn't at work (often did 12-hour shifts to help meet the demands of the hospital needs).
PATIENT GOALS/EXPECTATIONS OF TREATMENT	- Return to work as soon as practically possible. - Walking without elbow crutches without fatigue. - Reduce dizziness during standing and walking. - Would like information on lifestyle changes to reduce the risk of a secondary stroke occurring due to fear of second stroke (very motivated).
ADDITIONAL	Mrs Clark currently walks with a Trendelenburg gait in addition to walking on a slightly bent knee due to lack of strength. Mrs Clark is very motivated to get things sorted and get back to where she was to be able to return to work and have not to be held back by the symptoms she currently has.

Word Count: 1991

Introduction

Mrs Clark presented with symptoms, such as; reduced knee flexion and extension strength, balance issues due to the vestibular system and a concern of a second stroke occurring as mentioned in appendix 1. Therefore, a tailored leaflet was constructed to meet all of Mrs Clarks individual needs to meet her goals and expectations throughout her physiotherapy journey.

Leaflet

A leaflet was developed for Mrs Clark, this method of information was selected in conjunction with the patients own thoughts, she finds that a leaflet is a familiar method of obtaining useful bitesize information which she is accustom to due to her work as a healthcare assistant (HCA). In addition to this, the literature suggests this is a useful method of educating patients on their conditions, in conjunction with assisting them manage their condition more efficiently and independently (1).

Font size had to be thought about in detail due to Mrs Clark's visual deficits, she has since been to the opticians where she was prescribed reading glasses and is now able to read smaller print, however, Mrs Clark is still having double vision symptoms causing reading difficulties and still has issues with small print. Therefore, font size was considered within the lines of the literature which concluded that a font size of 9-12 (2) or 12-16 (3) is acceptable, however, there is evidence to suggest that font sizes above 12 can lead to readability issues and cause formatting changes leading to further readability issues (2), therefore a font size of 12 would be acceptable for Mrs Clark which she agreed with.

Font type was also considered during the development of Mrs Clarks leaflet, choosing the right font will allow for easier readability and comprehension of the information included. 'Arial' font was selected due to this being an effective font for patient education and patient preference (4). Font colour and background was taken into account to ensure increased readability, black font with warm colours, i.e. yellow, orange or peach which has been found to improved readability levels and to avoid bold colours such as; blue's, green's and red's (5). The language throughout can include some forms of technical phrases due to Mrs Clarks healthcare background, in addition to familiarity and good comprehension with exercises which are included within this leaflet.

Leaflet Content

Information/Education on Lifestyle Changes

Mrs Clark was told by the doctor her risk of another stroke occurring had increased, but had not offered her much information in regards to reducing this risk of this occurring. The first part of the leaflet offers lifestyle change suggestions she can make, the primary reason of the inclusion of this was to help reduce Mrs Clarks anxieties through information and making her more aware. Education around treatment and the success it can have is an effective strategy for reducing a patients anxieties (6), this literature can be reinforced, which has shown information can reduce anxiety and depression symptoms in stroke patients, however, this information is based primarily on vascular risk following a stroke and through a multi-disciplinary approach (7), therefore this must be taken into consideration. Further literature has alluded that the information for patients should be tailored for each individual patient which can enhance self-efficacy, and although this literature had limitations such as; a small sample size and a lack of psychometric outcome measures allowing for a more detailed understanding patient subjective information (8). The clinical implications of this literature falls in line with previous literature in this area (6)(7) detailing the importance of information for patients for self-efficacy and anxiety reductions. This was important to achieve as Mrs Clark wanted more onus over what she could do to help herself, and as a result of this information, believed she had more control over her condition, and was better equipped to make the lifestyle changes as a result reducing anxieties further.

Pictures

The exercises in the leaflet are in picture format with minimal writing due to Mrs Clark preferring visual cue in regards to the exercises due to familiarity with the movements, and her husband is willing to lend a hand with his understanding and exercise knowledge. In addition to this, literature has suggested that information in the form of pictures is a quick and effective way to portray information and to pass on knowledge (9).

Home Exercise Programme Inclusion

Strength Training

Mrs Clark's leaflet content had a focus on strength training due to her 3/5 muscle strength on her right side for her knee extensors/flexors and hip abductors causing gait abnormalities and reduced exercise tolerance. In addition to this, Mrs Clark stated an interest in going to the gym with her husband as he does this, therefore, the exercises included can all be completed within

a gym. Strength training has a positive relationship with gait performance following a stroke, in addition to this, the focus of strength training should be on the strength impairments for the intervention to be optimal (10), therefore the same process was adapted for Mrs Clark.

Exercise selection was decided following guidelines within the literature, the inclusion of a knee extension exercise was included due high EMG activity, meaning that it will target the desired muscle groups effectively (11), in addition to this, a study by Flansbjer et al. (12) emphasised that a protocol of knee extension and flexion exercises improved gait performance in stroke patients. This study examined gait through different outcome measures which assessed functionality, walking speed and to a point, walking endurance using the 6 Minute Walk Test (6MWT). Although this gives an insight to walking endurance, in reality, an individual will walk for much longer, although it is worth remembering that the 6MWT is considered highly valid and reliable to assess functional status (13). Also, the sample size for this study was relatively small which may affect the statistical power of this study and with an intervention duration of only 10 weeks, the treatment protocol could be questioned due to literature suggesting most of the recovery following a cerebrovascular accident occurs with the first 6 months (14), therefore, a longer duration intervention would be more clinically relevant in the case of Mrs Clark, however, a longitudinal study was carried out on the long term benefits of this intervention and concluded that individuals maintained the benefits from the strength training (15) portraying high clinical status for this intervention. However, a limitation within the study that was highlighted by the author which alluded to the fact that the subject group were all relatively young with a mean age of 61 years, though, in the case of Mrs Clark, this is very relevant as she falls into a similar age bracket to the testing group making it more relatable to Mrs Clark.

Hip strength was another area of focus for Mrs Clark with 3/5 right hip abduction and 3/5 hip extension, therefore, the inclusion of hip strengthening exercise was essential for her. Exercise choice was selected based on Mrs Clarks requirements of wanting to be able to do exercises at the gym, and that will help achieve the patient's main goal (See Table 1). A study by Dubey, Karthikbabu and Mohan (16) assessed pelvic and hip strengthening in stroke patients and reported functional benefits in walking speed. However, the method in which the participants completed the intervention has less practical implications, examples of this would be; patients having to come in to complete the intervention, this takes away self-efficacy over an individual's rehabilitation which has been found to reduce adherence to treatment (17), and in the case of Mrs Clark and the wider population, this may have less clinical value. In addition to this, the intervention consisted of 13 exercises which may cause poor adherence to treatment making it hard to replicate in practice. However, there are findings here which suggests that utilising hip related strengthening exercises can remedy gait parameters. The

inclusion of side lying abduction and wall squats were selected due to there high EMG activation of the gluteal muscles allowing adequate targeting of the aforementioned weakened hip movements (18), however, side lying hip abduction was adapted into standing as Mrs Clark did not want to have to get up and down from the floor.

Cardiovascular Exercise

Cycling and treadmill walking was included due to cardiovascular exercise benefits for people who have suffered a stroke (19)(20)(21). Cycling was one example which was included due to a RCT concluding cycling has benefits on cardiovascular fitness in stroke patients (22), however, this is worth mentioning that the study was conducted on chronic stroke patients rather than acute/sub-acute which would have been more transferrable for Mrs Clark. However a systematic review and meta-analysis by Stoller et al. (20) concluded that stroke survivors during the sub-acute stage may benefit from cardiovascular exercise which may again improve cardiovascular fitness and walking distance, and as a result, will help Mrs Clark achieve her walking based goals as mentioned in table 1.

Exercise Progression

As Mrs Clarks ability to complete these exercises improve, the leaflet states exercises will be monitored on the patients RPE score. Literature has suggested that an RPE score appears promising for as a valid and reliable measure for assessing for exertional fatigue in chronic stroke patients (23), however, this is chronic stroke patients and less is known about its effects on acute stroke patients such as Mrs Clark. However, Haddad et al. (24) concluded that the RPE scale has good reliability and validity across different age groups and different activities suggesting that this is a useful strategy for Mrs Clark to know when to progress her exercises via increased load, repetitions or sets and when to give her new exercises to meet the patient's needs, and as a result of this will increase self-efficacy over treatment (25), therefore, the use of RPE scoring was used with these considerations in mind.

Eye Gaze Stability

Mrs Clark's stability deficits and dynamic acuity issues have been addressed with the inclusion of eye gaze stability exercises to help remedy these symptoms. Hall et al. (26) concluded that a gaze stability home exercise programme can result in reductions of dizziness and vestibular deficits in an elderly population, however the population was healthy with no co-morbidities, therefore, may not be as effective in stroke patients. Bhardwaj and Wats (27) reiterates this similar conclusions, but again this was in an healthy elderly population. Although, a further study by Mitsutake at al. (28) has concluded eye gaze stability exercises can elicit postural control improvements in stroke patients, however, only short term benefits were assessed in

this study, therefore, further research is required to analyse the long term benefits of eye gaze stability. Further literature can reinforce the aforementioned literature concluding postural control benefits in stroke patients (29) supplementing previous research that eye gaze stability exercises can benefit Mrs Clark. The patient can progress these exercises as the leaflet suggests, which means she has increased ownership over her treatment where she can be guided by the physiotherapist but can progress as she feels able to which has been proven to increase adherence to treatment through self-efficacy (25).

In conclusion, this leaflet has been tailored to Mrs Clark's individual needs from the font to the content. Also, with the patient suggesting she wanted a quick and easily accessible information tool she could take with her and access wherever she was which could remind of the little things she could do to help herself, in addition to this, the leaflet is something she can take to the gym and this will give her direction and clarity about what to do and once she has grown out of these exercises she can discuss with a personal trainer at the gym to help progress her exercise programme in line with the exercises from the leaflet. And lastly, the effectiveness of this leaflet will be monitored through Mrs Clark's outcomes, patient satisfaction and her own opinions on the effectiveness of the content for her own individual rehabilitation needs which will be monitored constantly through her physiotherapy journey.

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Appendix 2:

This is a screenshot taken to show approval for the use of the RPE scale used in my leaflet: