

Table S2 An example of an individual coding framework

This is a shortened version of the framework given as an example and does not include all the codes developed during the analyses.

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
About the person	<p><u>Demographics</u>: 70 year old, male</p> <p><u>Context</u>: Retired 3 years; light office work. Lives with wife; house and garden; stairs.</p> <p><u>Transport</u>: Drives.</p> <p><u>General health</u>: “not too bad”.</p> <p><u>Non-MSK health</u>: Hypertension; throat constriction causing swallowing issues.</p> <p><u>MSK health</u>: 30+ years ago stress-related back pain; 5+ years ago severe pain when shovelling snow, 10-week pain management course, settled over time.</p> <p><u>Physical history</u>: 30+ minutes/day. Swimming; cycling; daily exercise/stretching routine.</p> <p><u>Social history</u>: Rotary club.</p> <p><u>Interests</u>: Reading, writing, walking, travelling, gardening.</p>	<p><u>Context</u>: Unchanged.</p> <p><u>General health</u>: Worsened.</p> <p><u>Non-MSK health</u>: Progressive throat narrowing; limited to liquid food; major social impact on all social activities involving shared meals. Manipulation of his body during throat dilatation procedure, performed under general anaesthetic, “messes up my back” and takes ~3 weeks to recover physically.</p> <p><u>MSK health</u>: Presentation of back pain symptoms often coincides with increased throat narrowing, but unsure if these two health issues are related.</p>	<p><u>Context</u>: Unchanged.</p> <p><u>General health</u>: Major health incident.</p> <p><u>Main health concern</u>: Oesophagus constriction/feeding tube.</p> <p><u>Non-MSK health</u>: Severe oesophagus constriction, requiring external feeding tube: “My oesophagus shut down completely and I couldn’t even drink water ... They installed a balloon in my stomach and through this I could feed myself fortified drinks.”</p> <p>Ppt seemed in low mood during the interview.</p>	<p>Retired from light office work. Lives with wife; drives. Has general good health; had a history of regular light physical activity, and a small social network outside of the family unit. He experienced a major health incident over the previous 12 months, resulting in external feeding tube. This has had a major social impact, substantially limiting his involvement in his social network. Low mood evident at final interview.</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Current NC symptoms	<p><u>Symptoms:</u> 1^o: Pain, bilateral, buttocks, thighs, legs, and feet; 2^o: Balance: <i>“well, the balance is there but after a while I lose my balance and I start to become uncomfortable and sometimes I miss a step or something like that.”</i></p> <p><u>Presentation:</u> Pain triggered by prolonged standing, relieved by sitting: <i>“I can’t stand more than 5 minutes now, sometimes even that is a bit painful.”</i> Pain triggered when sitting directly after walking: <i>“The pain is not there when I am walking but when I sit down then the pain starts coming in the buttocks, along the thighs and down the legs, and it also affects my feet as well.”</i></p>	<p><u>Symptoms:</u> Pain initially reduced after doing exercises given at 1st PT session, then reappeared as severe pain: <i>“I don’t know why and how that pain came back. That is a mystery.”</i></p> <p>Pain has now decreased to an acceptable level: <i>“Occasionally mild pains are there but I am okay with that, I can live with that. But that severe pain is no longer there.”</i></p> <p><u>Presentation:</u> Pain triggered by prolonged standing (>5 minutes): <i>“Standing hasn’t changed much.”</i></p>	<p><u>Symptoms:</u> Intermittent back pain, lateral hip and buttock pain; reduced in frequency and intensity: <i>“But my back pain, the constant pain and the severe pain that I used to have is no longer there at the moment, so I’m happy to say that. However, it is not completely gone, and I get days, every now and again, when the pain comes back.”</i></p> <p><u>Presentation:</u> Pain triggered by sitting after walking; pain intensity positively correlated with walking duration: <i>“What happens is then the pain starts, not while I’m walking but after I have done my walk and I sit down. And the more I walk, the more severe the pain is when I sit down.”</i> Pain in thighs on waking in morning, prior to, and relieved by, micturition and defecation: <i>“... lately, before I get up in the morning, about half an hour or before that, I get the pain along my thighs, and I don’t know why. But once I go to the toilet and I pass water and do my business then it seems to ease off.”</i></p>	<p><u>Symptoms:</u> Consistently reported pain in back, buttocks, and thighs. Pain reduced in frequency and intensity over 12 months, to an acceptable level (Quote - Interview 3).</p> <p><u>Presentation:</u> Consistently reported pain-triggers of sitting after walking, with intensity related to walking duration (Quote - Interview 3).</p> <p>New presentation of pain when bladder and bowel are full (Quote - Interview 3).</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Impact of NC	<p>1. Pain-impaired Mobility = ‘Small world’. Pain-impaired movement has restricted ADLs, travelling, and socialising, thus reducing his physically and socially accessible environment: “... <i>because I can’t walk I am just housebound.</i>”</p> <p>1.1 Pain has restricted standing (not > 5 mins) and walking (not > 10-20 mins):</p> <p>1.1.1 Impacts writing: Indirectly affected his writing progress, as walking was his means of processing his ideas for his book: “<i>I mean a day like this I just like to get out and walk for miles, because I’m writing fiction so I need to think about things, and if I’m walking then I can think about it and do the exercises, but because I can’t walk I am just housebound and I can’t think while I’m walking because the pain starts coming, and that’s one of the biggest bug bear in my mind.</i>”</p> <p>1.1.2 Impacts holidays: “<i>I used to be fond of travelling as well but can’t do that much travelling either, because of the pain. And especially at the airport, airports these days as you know are, are cattle market, you have to wait and walk and stand for hours on end and I can’t do that anymore.</i>”</p>	<p>1. Pain-impaired mobility impacting writing. Walking has improved: “<i>It has improved, I cannot deny that.</i>” However, as walking duration is limited by pain, and concentration is focussed on safety, his walking is not at a level to facilitate his writing: “<i>Before, I used to walk for two or three hours, and when I am walking I can think through. But at the moment I concentrate so much on walking, that I don’t take the wrong step, fall down on the pavement or anything like that, you know, I can’t think of the novel. That, I have to sit down and sort of think at that time.</i>”</p>	<p>1. Pain-impaired Mobility = ‘Small world’.</p> <p>1.1. Impacts holidays, international: Pain has reduced the distance he now travels: “<i>It’s not the ideal situation, because it makes me little bit home bound and I cannot travel as freely as I would like to, long distance and things like that.</i>”</p> <p>1.2: Impacts travel locally: The need to frequently sit when walking impacts local outings: “<i>Especially in winter, there is no place to sit down because everything is wet or covered in snow. Or if I go for a longer walk then I have to make sure I know where the sitting down places are.</i>”</p> <p>2. Pain-impaired mobility impacting writing.</p> <p>Reduced walking has impacted writing; walking is used to process his ideas, with a duration of 1 hour necessary to facilitate this process: “<i>I think that means some walking continuously for about an hour. Because before I get into my walking/thinking mode I need about 10 minutes to build up the rhythm of my body, walking rhythm, and also the mind thinking rhythm. Because once you start walking you can’t immediately go into the thinking mode; it takes a few minutes to sort of</i></p>	<p>1. Pain-impaired Mobility = ‘Small world’.</p> <p>Pain-impaired mobility and function has reduced access to his physically and socially accessible environment, thus restricting his ADLs, hobbies, travelling, and socialising: “... <i>because I can’t walk I am just housebound.</i>”</p> <p>While RCs walking has improved over the course of the interviews, it has not returned to a level that is beneficial to his writing process (Quote - Interview 2).</p> <p>2. Impaired mobility = Dependence on others = Negative emotional health</p> <p>Pain-impaired mobility has led to a dependence on others for roles he once easily fulfilled himself, resulting in negative emotional states.</p>

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	<p>1.2 Pain-restricted load-bearing (lifting and climbing):</p> <p>1.2.1 Impacts gardening and home maintenance:</p> <p>1.2.2 Impacts Rotary Club: <i>“I wanted to do a lot more in the Rotary organisation, but it requires a lot of physical effort as well you know, organising an event and lifting things and going places, driving for miles, and I can’t do that and that makes me miserable to be honest you know, and I can’t play my part fully in the things that I want to do.”</i></p> <p>1.2.3 Impacts holidays (lifting suitcases)</p>		<p><i>settle down the brain, leave everything behind and say 'right ok, I’m walking now and I’m going to think about it'.”</i></p>	

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Impact of NC	<p>2. Pain-impaired mobility = Dependence on others</p> <p>2.1 Psychological impact on wife: <i>"But at the airport I don't take chances and at the airport I sit down in a wheelchair and be carted around by my wife in the wheelchair because airport when I, because it's not so much the walking but the standing in the queues, that is the most painful and that puts me off travelling, because at the airport ... Although that is psychologically not very good that you are being carted around by your wife, but that is because once I get there I don't want to spoil my holiday, you know, so that's why I take all of the precautions."</i></p> <p>2.2 Frustration: <i>"It frustrates me because I can't do the things that I want to do. Ah, and what is most annoying, I have to rely on other people, simple things like changing the bulb. Before I wouldn't even think about it, and now to get the ladder here, bring it in the house and to climb on it, it just puts me off and I don't do that."</i></p>			

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Emotional response to NC	<p>1. Frustration at dependence on wife and others: <i>"It frustrates me because I can't do the things that I want to do. Ah, and what is most annoying, I have to rely on other people, simple things like changing the bulb. Before I wouldn't even think about it, and now to get the ladder here, bring it in the house and to climb on it, it just puts me off and I don't do that."</i></p> <p>1.2. Frustration at impact his condition is having on his wife's lifestyle: <i>"For example we want to go on holiday or that was our plan before retiring, we worked very very hard both myself and my wife, we worked 7 days a week for nearly 20 years you know ... and we thought when we retired we would do a lot of travelling. And because I can't travel my wife can't travel and that frustrates me and makes me feel that I am not doing justice to her."</i></p> <p>2. Low mood at inability to contribute socially: <i>"It's very depressing, because I wanted to do a lot more in the Rotary organisation, but it requires a lot of physical effort as well you know, organising an event and lifting things and going places, driving for miles, and I can't do that and that makes me miserable to be honest you know, and I can't</i></p>	<p>1. Confident that severe pain will not return. RC is increasingly confident severe pain will not return as remission period lengthens: <i>"With this back problem I have had this sort of sessions where I feel good and then occasionally it comes back, but this time, for the last four or five weeks, I am feeling okay and I'm feeling more and more confident by the day."</i></p> <p>2. Fearful of treatment delays if pain returns. RC is fearful that should his symptoms reappear he will face treatment delays associated with NHS waiting lists: <i>"At the moment I am okay, right. My fear is if it comes again then sometimes the waiting time is so long."</i></p> <p>3. Fear-avoidant of returning to previous physical activities: RC would like to return to cycling, but is avoidant because of: 3.1. Previous cycling accident: <i>"That is one of the main reasons I haven't taken my bicycle out, you know, because if the pavements or the roads are wet or scattered with leaves I don't want to take the chance. Because when I was young I have fallen off my bicycle twice and once it cracked my skull and I had to have stitches, and I don't</i></p>	<p>1. Fear-avoidant of returning to previous physical activities: RC is fear-avoidant of certain activities that have previously caused increased pain, such as gardening: <i>"But I don't do gardening like I used to do before. For the fear of damaging or hurting my back, and things like that. Because I tried that in the past, and once I start doing something then I get carried away, and the next two days then I have to suffer, so I try and avoid it."</i></p> <p>2. Envy at others ability RC feels envious of people his age who are able to walk faster and further than him: <i>"I always tried [to improve walking], but it doesn't seem to be coming to the optimum level like I see people of my age walking a lot more than me. And I feel a bit envious of them."</i></p>	<p>RC begun the study with reduced emotional health, experiencing low mood at his inability to contribute socially, and frustration over the impact of his condition on aspects of his relationship with his wife (Quote - interview 1.1.2). As RCs pain improved over the course of the study he became confident the severe pain would not return. However, his previous experience with treatment delays in the NHS system has made him fear-avoidant of returning to activities that may cause stress to his back, such as cycling (Quote - Interview 2: 3.3.2) and gardening (Interview 3: 1). RC views his walking ability as sub-optimal for his age, and feels envious of his more mobile peers (Quote - Interview 3: 2).</p>

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	<p><i>play my part fully in the things that I want to do."</i>3. Negative association of walking aids with age and disabilityWill not use walking aid to manage balance issues: <i>"I don't like them [laughs]. Vanity. I just suppose ... It looks like you are an old man you know, or a disabled person. And my mum is nearly 90 and she still doesn't use a walking stick."</i></p>	<p><i>want to go through that again."</i>3.2. Lack of confidence, due to back not feeling strong enough for this activity: <i>"Now I wanted to try cycling but, because of the weather and I haven't got enough courage yet to start riding the bicycle, just in case I mess it up again, so what I am doing is I'm playing it very cautiously and I will only do when I feel that I am strong enough or my back is strong enough to take a little bit more stress. I don't want to give it too much stress and get into trouble again."</i></p>		

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Current mobility	<p>1. Walking:</p> <p>1.1 Continuous walking duration 10-20 minutes: <i>“Walking I can manage 10-15, on a good day up to 20 minutes, but then after walking that distance when I sit down the pain comes.”</i></p> <p>1.2 Daily walking duration 30 minutes, often split into multiple shorter walks.</p> <p>2. Balance:</p> <p>1.1 Loses balance after sustained walking: <i>“my balance is not quite ... well, the balance is there but after a while I lose my balance and I start to become uncomfortable and sometimes I miss a step or something like that.”</i></p> <p>3. Negotiating obstacles:</p> <p>Pain and balance issues are negatively impacting RC’s ability to negotiate stairs: <i>“Pain, balance, and the stability you know. So if there are no handrails then I have to think twice of climbing the stairs, and coming down.”</i></p>	<p>1. Walking:</p> <p>1.1 Continuous walking duration: Up to 30 minutes: <i>“Standing hasn’t changed much, but walking has definitely improved, and I can walk twenty, twenty-five minutes, or occasionally even thirty minutes if I don’t walk very fast and if I walk at a gentle sort of pace.”</i></p> <p>2. Balance:</p> <p>2.1 Stability is an issue. Balance has improved, but is still an issue: <i>“Balance is a little bit better than what it was, yeah..... It’s just the steadiness of my legs ... When I am walking I have to keep looking straight ahead, and if I turn to the side and I’m still walking then it becomes a little bit shaky. When I’m walking I have to face in the direction that I am walking.”</i></p> <p>2.2 Concentration required. RC needs to concentrate on his walking to maintain safety and stability: <i>“... I concentrate so much on walking, that I don’t take the wrong step, fall down on the pavement or anything like that, you know.”</i></p> <p>3. Negotiating obstacles:</p> <p>RC is able to negotiate steps, but</p>	<p>1. Walking:</p> <p>1.1 Continuous walking duration:</p> <p>1.1.1. Current duration: RC describes increased walking duration, yet the stated duration is shorter than at Interview 2: <i>“Because these are summer months I am able to walk a lot more than I was able to do previously. But again it depends, on some days if the pain is severe because of one reason or the other then it is a little bit slow or less, and if I’m feeling good then I can manage 15, 20 minutes, even slightly longer than that. So that is also quite encouraging.”</i></p> <p>1.1.2. Satisfaction with current duration: RC is not overly satisfied with his walking (<i>“I would say 6 out of 10.”</i>), and would like to increase it to one hour continuous walking: <i>“That would be very good, but I think that means some walking continuously for about an hour.”</i></p> <p>1.2 Improvement in gait: RC notes improved walking gait, due to reduced pain and stiffness: <i>“I think I can more comfortably walk without the pain. And my legs feel less stiff. The movement is sort of easy, whereas previously I used to get stiff joints and stiff legs, and I could feel that I was walking.”</i></p> <p>1.3. Limited by pain</p> <p>1.3.1. Duration limited by pain on</p>	<p>1. Walking.</p> <p>RC consistently presents walking as the primary mobility issue across the course of the study. RC is encouraged by improvements in both his continual and total daily walking duration, and in his walking gait, over the course of the study (Quote - Interview 3: 1.1.1). This is at odds with interview data, which suggests his walking duration has actually remained at a consistent level from Interview 1 to Interview 3.</p> <p>RC would like to improve both walking duration and speed, but is limited by pain presenting both when walking and directly on rest following a walk.</p> <p>2. Balance and stability.</p> <p>RCs balance and stability comes across as less problematic over the course of the study, with only steep declines raised as an issue (Quote - Interview 2: 3).</p>

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		<p>walking downhill is problematic due to stability issues: <i>"I mean, walking down a steep hill is still a problem. But steps is not a major problem but if it's a really steep downhill then, without the support it is a little bit shaky."</i></p>	<p>sitting after walking: Primary limitation on walking duration is pain on sitting after walking, with pain intensity positively correlated with walking duration: <i>"What happens is then the pain starts, not while I'm walking but after I have done my walk and I sit down. And the more I walk, the more severe the pain is when I sit down."</i></p> <p>1.3.2. Speed limited by pain on walking: Gait speed is pain-dependent: <i>"But again it depends, on some days if the pain is severe because of one reason or the other then it is a little bit slow or less, and if I'm feeling good then I can manage 15, 20 minutes, even slightly longer than that."</i></p>	

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Current activity	<p>1. Walking Physical activity limited to short duration walking: <i>“Walking I can manage 10-15, on a good day up to 20 minutes, but then after walking that distance when I sit down the pain comes.”</i></p>	<p>1. Walking 1.1 Daily walking routine: <i>“Yes, walking I try and do almost every day. At least, either two sessions of ten, fifteen minutes or one session of twenty-five minutes.”</i> 1.2. Targeting increased walking duration over broader range of activities: <i>“So I’m concentrating just slowly increasing my walking durations. Slowly.”</i> 2. Daily exercise routine 2.1. Follows pre-established routine: RC has a pre-established weekly exercise routine; exercising for 5-20 minutes, 5 days per week: <i>“the stretching and that kind of exercises that I do, sort of yoga type, that is for about ten to twenty minutes, depending on how I am feeling in the morning when I get up ... I try and do it five days out of seven. I take a break on Monday and Thursday, just to give the body a little bit of a rest.”</i> 2.2. Doesn’t feel the need for additional exercises: <i>“I don’t want to do any new exercises at the moment, because whatever I am doing I think is enough.”</i></p>	<p>1. Maintaining constant activity RC likes to stay physically and mentally active: <i>“I like to keep myself occupied, if not physically then at least mentally, if I keep myself occupied then that is better.”</i> 1.1. Physical activity: 1.1.1 Inside home: RC keeps mobile in and around the house on an hourly basis: <i>“But during the day time I tend to get up every one hour or so, and make myself cup of tea, just go in the garden, come back again. So I move around, climb staircase upstairs for no apparent reason, and come down again, about 10 times a day.”</i> 1.1.2. Outside home: RC walks up to 30 minutes per day spread over one or two walks: <i>“... if I do 20-30 minute walk then I will do it once. Or else I do two 15-minute walks.”</i> 1.2. Mental activity: Daily routine of research, reading, and writing: <i>“I like to keep myself occupied, if not physically then at least mentally, if I keep myself occupied then that is better. And there is two things that keep me occupied; one is my stocks and shares, which I just look and waste time on it, and the other thing is I read and I try and write something, so that keeps me mentally occupied.”</i></p>	<p>RC likes to keep physically and mentally active. Over the course of the study he consistently references engaging in two types of physical activity: a pre-established home exercise routine, and a walking routine. RC mentions subtle changes in both of these activities over the course of the study: 1. Regarding walking, RC establishes a consistent daily walking routine, with a targeted focus of increasing his walking duration. 2. Regarding home exercise, RC begins to integrate more exercise into his daily activities, such as using the staircase as a form of exercise equipment (Quote - Interview 3: 1.1.1).</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Activities stopped due to NC	<p>1. Pain-impaired mobility has stopped travel activities: 1.1. International travel: <i>"I mean I have relations in [country] which have been calling us for a long time. But now when I think about going to [country] I just don't want to do it."</i>1.2. Local travel: <i>"I'm a member of Rotary Club. So again we used to go on holidays on the coach but even that became very painful. So any holidays in a group or things like that I try and avoid them, unless they are suitable for, I don't like to use the word 'disabled' but you know with limited mobility."</i>2. Pain-impaired movement has stopped hobbies:2.1. Gardening: <i>"I mean I used to love gardening but I can't do that either."</i></p>	<p>1. Range of physical activities: RC had recently bought a new bike, but stopped cycling due to back pain and a lack of confidence. He would like to return to cycling again; however, he currently doesn't feel his back is strong enough for this activity.</p>	<p>1. Range of physical activities: Has consistently stated his intention to resume swimming and cycling in the summer. While he feels capable of doing these activities in terms of his back condition, he is concerned they may be too strenuous while he has a feeding tube inserted: <i>"My whole programme was upset a little bit, because this summer I had high hopes of doing a lot of other things, to improve my back and things like that, but with this balloon sticking from my stomach I can't even go swimming or cycling. Cycling might be a bit too strenuous. Although I have been told that people do go swimming with this type of tube, but I don't want to take that chance."</i>2. Pain-impaired mobility has stopped travel activities: Local travel: RC avoids travelling to certain areas now: <i>"But I do worry about, say if I have to do somewhere by car, say for example even if I go to London, to travel underground, and that is the only way you can travel in London really, but that is very very difficult for me. I don't, well I can't bring myself round to doing that sort of thing."</i></p>	<p>RC entered the study with established pain-impaired mobility restrictions impacting his local and wider environment. These included a loss of engagement in international travel with his wife, local social travel with his Rotary Club, and physical activities for enjoyment (cycling, swimming, gardening). (Quote - Interview 3: 2). No further activities have been stopped over the course of the study. RC's primary barrier to re-engaging with travel restrictions remains his pain-impaired mobility. The primary barrier to re-engaging with physical activities has now changed, and is due to a recent, unrelated health event which has resulted in an external feeding tube. (Quote - Interview 3: 1).</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Activities reduced due to NC	<p>1. Accessing local environment. Pain-impacted mobility has reduced the scope of how far he can walk: <i>“Walking I can manage 10-15, on a good day up to 20 minutes, but then after walking that distance when I sit down the pain comes.”</i></p> <p>2. Writing. Pain-impacted mobility has indirectly affected his writing progress, as walking was his means of processing his ideas for his book: <i>“I mean a day like this I just like to get out and walk for miles, because I’m writing fiction so I need to think about things, and if I’m walking then I can think about it and do the exercises, but because I can’t walk I am just housebound and I can’t think while I’m walking because the pain starts coming, and that’s one of the biggest bug bear in my mind.”</i></p>	<p>1. Writing. Focus of walking has shifted from a way of processing his thoughts for writing his novel, to maintaining safety to prevent falling: <i>“Before, I used to walk for two or three hours, and when I am walking I can think through. But at the moment I concentrate so much on walking, that I don’t take the wrong step, fall down on the pavement or anything like that, you know, I can’t think of the novel.”</i></p>	<p>1. Accessing local environment. While walking has improved since Interview 1, it is still reduced in duration and speed compared to pre-NC levels: <i>“I always tried [to improve walking], but it doesn’t seem to be coming to the optimum level like I see people of my age walking a lot more than me. And I feel a bit envious of them.”</i></p> <p>2. Writing. Writing progress has reduced, as he is not able to walk long enough to process his writing thoughts: <i>“Because before I get into my walking/thinking mode I need about 10 minutes to build up the rhythm of my body, walking rhythm, and also the mind thinking rhythm. Because once you start walking you can’t immediately go into the thinking mode; it takes a few minutes to sort of settle down the brain, leave everything behind and say ‘right ok, I’m walking now and I’m going to think about it’.”</i></p>	<p>Pain-impaired mobility has consistently restricted RCs access to his local environment, through limiting the duration and pace of his walking.</p> <p>As a direct result of walking restrictions RCs writing has been impacted. He is currently writing a novel, and purposely used his walking time to process his ideas. Now, due to both restricted walking duration and the requirement to focus on his gait when walking, he is no longer able to use his walking time for his writing purposes. (Quote - Interview 2, or Interview 3:2).</p>

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Current adaptations to NC	<p>1. Adaptations to home environment</p> <p>1.1. Equipment. Handrails installed at various locations inside and outside his house, in response to pain and stability issues negotiating stairs: <i>“So handrail at the front, the gate, because that is another problem, I mean walking is not a problem but climbing, putting step onto higher level. And then I had to install another handrail on the staircase, and I try and avoid staircases or steep steps ... So if there are no handrails then I have to think twice of climbing the stairs, and coming down.”</i></p> <p>1.2. Redistribution of gardening duties. RC’s wife now does the basic garden maintenance, and they hire someone to do the heavier work: <i>“... my wife is very active and she’s full of energy, so she does all the gardening and everything, she takes care of it, so that is a saving grace. And the other thing that we do, the hard bits that I used to do before, cutting the hedge and things like that, that sort of thing is done by, we get people to come and do it.”</i></p> <p>2. Adaptations to travel</p> <p>Despite declining walking aids in daily life, RC uses a wheelchair at</p>	<p>1. Behavioural adaptations to activity</p> <p>1.1. Reduced exercise intensity: RC has now developed a more gentle approach to exercise, which he thinks may have contributed to relieving his pain: <i>“So what I have found now is if I do it gently, and keep it in a position, I think that probably has released the nerve that was being pinched and was giving me the pain. That is my theory. Whether I’m right or wrong, I don’t know.”</i></p> <p>1.2. Adopted graded activity approach: Following advice from BOOST physiotherapist, RC is using a graded activity approach to increasing his walking distance: <i>“So I’m concentrating just slowly increasing my walking durations. Slowly.”</i></p> <p>1.3. Adopted pain management routine: Following advice from BOOST physiotherapist, RC is resting when his pain flares up, then recommencing activity when it settles: <i>“Apart from the occasional session that I get, you know, then I get the pain again and then I rest, and once I rest then I start to feel better and then I start again and then I have to build it up gradually to more</i></p>	<p>1. Behavioural adaptations to activity</p> <p>1.1. Adopted graded activity approach: RC tries to walk for 30 minutes a day, and will split this into multiple shorter walks if pain prevents a longer walk: <i>“More or less the same as before, but because it being summer months I get out, if I do 20-30 minute walk then I will do it once. Or else I do two 15-minute walks.”</i></p> <p>1.2. Targeted walking environments</p> <p>1.2.1. Route planning to include resting places: RC needs to be able to sit down when out walking. Accordingly, he plans, and avoids, walking routes based on the availability of seating: <i>“Basically I have to sit down somewhere. In some places I can sit down, and there are sometimes places, like if you’re travelling in the underground in London. I had one incident when I had to go to London, I had to travel in the underground and that was quite painful.”</i></p> <p>1.2.2. Route planning to include activity challenges: RC plans his routes to include some hills, with the intent of building up his leg muscles: <i>“I mean if I’m climbing a hill, which is always what I try to do a little bit of it as well, I deliberately choose a route where there is downhill and uphill, and fortunately in my area there is enough of that. So I do both of them, just to</i></p>	<p>RC had made several adaptations to his home environment and ADLs prior to commencing the study, including installation of handrails to help with negotiating steps in and around the home, redistribution of household duties, and travel adaptations.</p> <p>Over the course of the study, RC additionally made several sustained behavioural adaptations to his pre-existing walking and exercise routine, in both content and intensity:</p> <ol style="list-style-type: none"> 1. He integrated the two BOOST flexion exercises into his daily exercises, and lessened the intensity of his stretches, based on a premise that a more gentle approach may be less harmful to his physical well-being (Quote - Interview 2: 1.1). 2. He adopted a graded activity approach to increase his walking duration (Interview 2 - 1.2). 3. He adopted a routine to manage pain flare-ups (Quote - Interview 2: 1.3). 4. He adapted his walking routes to include options for both resting if needed, and for challenging his walking if able (Quote - Interview 3: 1.2.1 and 1.2.2).

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
	<p>airports, to enable him access to holidays: <i>“But at the airport I don’t take chances and at the airport I sit down in a wheelchair and be carted around by my wife in the wheelchair because airport when I, because it’s not so much the walking but the standing in the queues, that is the most painful and that puts me off travelling ... Although that is psychologically not very good that you are being carted around by your wife, but that is because once I get there I don’t want to spoil my holiday, you know, so that’s why I take all of the precautions.”</i></p>	<p><i>and more.”</i></p> <p>2. Adaptations to writing <i>RC has adapted his writing regime to accommodate his decreased walking duration and increased concentration required to walk safely. He now processes his writing ideas when seated in his office: “Before, I used to walk for two or three hours, and when I am walking I can think through. But at the moment I concentrate so much on walking, that I don’t take the wrong step, fall down on the pavement or anything like that, you know, I can’t think of the novel. That, I have to sit down and sort of think at that time.”</i></p>	<p><i>build up my muscles. Because walking straight has got a different, I think [laughs]; I’m trying to bring my own theories in.”</i></p> <p>1.3. Seasonal adaptations to walking RC adapts his walking routes in winter, to enable him to find somewhere dry to sit: <i>“Especially in winter, there is no place to sit down because everything is wet or covered in snow.”</i></p>	<p>RC adapted his writing routine, to enable him to continue productive writing within the constraints of his mobility restrictions (Quote - Interview 2: 2).</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Attendance at BOOST intervention - BPA	No information.	<p>RC was discharged after two sessions. He experienced severe pain after discharge, but was advised by the physiotherapist to rest, rather than to come in for another treatment session: <i>“I went for one session with them and they told me to do one or two exercises, and then I felt really good. But then I developed severe pain again, and then I phoned them and they said, ‘We are not quite sure whether you should come back to us or whether you ...’ And they said, ‘Well try and rest for a few days’, which I did. And then after that I felt better, and after that I haven’t had any further contact from them.”</i></p>	No further information.	<p>RC attended two treatment sessions. Treatment log indicates he was prescribed three exercises; however, he only refers to receiving two: lying and seated flexion.</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Adherence to BOOST exercises	<p>RC is committed to adhering to the prescribed exercises, and anticipates that pain may initially be exacerbated: <i>“Yes, I mean this time with the help of [hospital] if they can show me the right type of exercises to do then I will be very happy with that and I will try and do that ... I am very open, in fact I would love that some physiotherapist can sort of say to me, ‘Look, do these exercises’, although it may be painful for a little while and it might improve, as long as it’s a gradual build-up and not make me totally, you know, I would really love that.”</i></p>	<p>1. Integrated BOOST exercises into pre-established exercise routine. RC has modified his existing exercise regime to include some of the BOOST exercises: <i>“I was doing quite a few exercises and they said, ‘Don’t do any of these things, just concentrate on these two things that we are telling you to do.’ So I said, ‘Okay, I will do it.’ Then I felt good, and then the pain came back, and they said, ‘Rest’, so I rested. And then, you know, it got better. But then I started doing my own exercises which I was doing previously, and since then I’m still feeling good at the moment”.</i></p> <p>2. Will continue to use as a form of symptom improvement RC continues to maintain a regular exercise routine, incorporating some of the BOOST exercises, as it may prevent the need for surgery: <i>“I will definitely keep it up; I cannot afford not to do it. Because I’m feeling a bit better than before, and I’m determined to keep it. Because I don’t necessarily want to go the surgery route, and if this is helping me I’m going to continue with it, no matter what happens.”</i></p>	<p>1. Integrated BOOST exercises into pre-established exercise routine. RC spends around 10-20 minutes every day doing a mixture of his own and BOOST exercises: <i>“0-20 minutes, depending on some days I’m not feeling well and I do just about 10 minutes. And the day I’m feeling good I do up to 20 minutes.”</i></p>	<p>RC integrated the two BOOST flexion exercises into his pre-existing exercise routine. He continues to engage in this routine on a regular basis (5/week), both as a form of symptom management, and prevention of symptom progression to the need for surgery (Quote - Interview 2:2).</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
<p>Content of BOOST intervention</p>	<p>Education:</p> <p>1.1. What exercises are appropriate: RC is hoping to be provided information on which exercises are best to manage his conditions: <i>“Yes, I would like a physiotherapist to say, 'Look, this is the problem. Do it this way, and do it that way'. Or even on walking or even on standing.”</i></p> <p>1.2. Why these exercises are appropriate: RC would like to be educated about the exercises on the biomechanics of how the exercises are helping to manage his condition: how to best manage his condition: RC is a ‘curious’ person, and would also like to receive information on his condition and exercises, such as which specific muscles each exercise is targeting: <i>“By doing this which muscle is going to get better and which not”.</i></p>	<p>1. Nothing new. RC found the BOOST physiotherapy was no different to previous physiotherapy: <i>“To be honest, I don’t think it was any different from anywhere else would ... It wasn’t any different to going to any other physiotherapy or anything like that.”</i></p> <p>2. Insufficient treatment. RC did not consider the sessions as sufficient treatment for his condition: <i>“But as far as going there, I only had a couple of sessions with them and that’s about it really; it wasn’t any proper sort of treatment or guidance or anything like that.”</i></p> <p>3. Insufficient prescription. RC felt the treatment was lacking in both content and follow-up: <i>“Whether it was enough or not, I don’t know. I don’t think so, to be honest, no, there wasn’t enough exercises or follow-up or anything like that.”</i></p>	<p>No information.</p>	<p>RC found the BOOST treatment was routine and did not provide him with sufficient information or exercises for self-managing his condition (Quote - Interview 2: 3).</p>

Category	Interview 1	Interview 2	Interview 3	LONGITUDINAL SUMMARY
Effectiveness of BOOST exercises	<p>1. Unsure but open mind RC is unsure how effective exercises will be due to past experience of PT, but is open to trying them: <i>"I keep an open mind. I don't want to say that I'm 100% confident because I've gone through that cycle kind of thing in lots of different walks of life, you know, so I can't be sure until I have tried it out. But I definitely would like to give it a proper trial and see what happens and if it helps then wonderful."</i></p>	<p>1. Unsure if pain improvement is BOOST-related Although RC has noticed an improvement in his pain, he repeatedly emphasised that he is unsure if this is related to the exercises or not: Quote 1: <i>"It has improved, I cannot deny that. What I would like to emphasise is whether it is because of the session that I had with them or it just has happened because something has gone right, or altered that pressure, the nerve was pressured or whatever, that somehow or the other has been released at the moment, or that's what I feel."</i></p> <p>Quote 2: <i>"But as far as the physical exercises and everything else is concerned, apart from just one exercise [forward flexion] I don't know whether BOOST has helped any further with that or not."</i></p>	<p>1. Unsure if pain improvement is BOOST-related. While RC has noted some symptom improvement since joining BOOST, he is unsure whether it is due to treatment received as part of the study: <i>"Whether those two exercises have helped, because I must have had a pinched nerve somewhere and it was released or something, I don't know. But it has made a difference, whether it is because of the BOOST trial or whatever I am not 100% sure."</i></p> <p>2. Further PT will not be effective Although his walking has improved since beginning BOOST, RC does not see the potential for further improving through physiotherapy: <i>"But as far as the exercises are concerned, I don't think that the physiotherapist can do much more."</i> He will pursue other options instead: <i>"Some sort of massaging. Or people have mentioned, you know the chiropractic's and people who manipulate muscles and things like that. That sort, and some sort of massaging along the back spine, and things like that."</i></p>	<p>RC is unsure if improvements in pain and walking are related to the BOOST treatment (Quote - Interview3: 1). As such, he does not see the use of further physiotherapy for treatment of his condition, and will look to other avenues instead, such as massage (Quote - Interview 3: 2).</p>