

Supplementary table 7 Unifying themes, sub-themes, and example quotes

Theme 1: Engagement	
Enhancing emotional wellbeing and resilience	<p>‘The purpose of the exercise is to benefit me. Try to hold on to what you have. If walking becomes a bit easier, then everything else follows suit—every transition, every task. It would be a dream to walk five metres on my own. That would be extraordinary. You know, it's just so important to me that I can still stand, to manage normal daily life.’ ID34</p> <p>‘Alternatively, you could say you can approach the exercise programme in stages. For instance, if I’m feeling physically well today, I’ll engage in more physical training. You can break it down into sections that you can mix and match. On a good day, you do more; on a bad day, you focus more on mental exercises and relaxation. It allows for variation.’ ID56</p> <p>‘Engaging in numerous breathing exercises with music would be beneficial for stress, as they help calm you down and steady your heartbeat. I believe mental health is simply very important.’ ID65</p> <p>‘I would suggest that any movement or choice of movements should be appropriate and generally aligned with moving to a rhythm, as rhythm is the key element. If you can't always match the exact tempo, you can at least practice mentally or at a slower pace. It's perfectly okay if you can't maintain the tempo, but the idea is to push yourself, to train at the edge of your comfort zone, rather than staying within it. You might think, "Yes, that's where I want to go," in a positive way. The concept is not to perform movements freely, but with a beat.’ ID48</p> <p>‘Eventually, the flow comes, and somehow, at some point, the feeling of happiness follows—like "woohoo!" (demonstrates with a big upward movement of the arms). And if it's still fun, if I know it's good for me, then...’ ID22</p>
Desired exercise types	<p>‘... you might start with strength training and then move on to endurance exercises, rather than beginning with relaxation. Suggestions like these can help guide you. It's also important to know the typical duration for training sessions.’ ID50</p> <p>‘Performing the exercises correctly is very important (...). Even small mistakes should be addressed, perhaps with visual aids like pictures, as they are often easier to understand. You also need to consider the pace, as people with MS can vary greatly in their symptoms and abilities. Some may have more ability with their hands, while others may have more capability with their feet, so it's crucial to be able to adjust the speed accordingly.’ ID67</p> <p>‘It would be interesting to include exercises that reflect everyday life. Many daily tasks can be quite tough, like vacuuming or cooking, so it’s important for me to integrate elements from these situations into the training.’ ID49</p> <p>‘I used to participate in Zumba classes within a small group, and I really enjoyed it. The music was very appealing, and being part of a small group was even more motivating, as doing activities together can really boost enthusiasm.’ ID61</p>

	<p>‘In general, I prefer training in a group setting because you can learn so much from others.’ ID43</p> <p>‘I find that exercising in a group is even more motivating. Practicing alone in a room is quite different from doing it with others. When I'm in a group, there’s more encouragement, and I feel like I have to keep going because everyone else is still working hard too.’ ID58</p> <p>‘I like doing activities that require me to multitask, like walking while turning my head at the same time. Exercises like that are beneficial.’ ID42</p>
Preferred exercise programme design	<p>‘I think the best approach is to do what's good for you personally, but it's important to have some information on how things should ideally be done. While it might be difficult to define precisely, having a guideline would help you know if you're close to the norm, if you're doing too little and need to improve, or if you're overexerted from doing too much. You might feel exhausted because you're pushing yourself too hard or exercising intensely because you're capable of it. Having a way to gauge yourself would be beneficial.’ ID53</p> <p>‘Instructions should be very simple and not complicated. Avoid lengthy explanations; just keep them brief and to the point. That would be preferable.’ ID23</p> <p>‘In my experience, you can never make exercise explanations too simple. It's better to present them in a way that's easy to understand, ensuring you know how to do them correctly. If there's someone available to guide you, that would be great.’ ID27</p> <p>‘From my perspective, the MuSic Moves programme isn't just about exercising to get fit. It’s more about developing body awareness, feeling more confident, and possibly regaining balance. It’s about overall well-being.’ ID60</p> <p>‘I make it a point to participate in every exercise session, and we’ve documented everything. I'm really determined to stay active for as long as possible. As long as I can, I keep driving with the S. and it’s also great for my mobility. I want to maintain my stability for as long as I can.’ ID34</p> <p>‘It would also be helpful to gradually increase the difficulty. Start very slowly and then adjust the tempo as you go. Increasing the speed could be beneficial.’ ID26</p> <p>‘I think it would be a good idea to offer different difficulty levels for each exercise in a video. For example, have an easy video for the basic exercise, and if that's still too challenging, provide an even simpler option.’ ID64</p>
Expert-led and personalised evaluation and exercises	<p>‘As a physiotherapist, I believe it's essential to perform cardiovascular checks with my patients before starting any exercises. A simple questionnaire helps assess their cardiovascular health, ensuring safety and identifying potential risks. This proactive approach encourages patients to take an active role in their rehabilitation. By understanding each patient's unique cardiovascular status, I can tailor exercise programmes to be both safe and effective, maximising benefits while</p>

	<p>minimising the risk of overexertion. Additionally, this initial assessment fosters open communication, allowing patients to express any concerns and building trust in our therapeutic relationship.’ ID65</p> <p>‘It might be helpful to categorise the videos into different groups. For example, have videos specifically for people in wheelchairs and others for those who can walk longer distances without any issues. This way, it's easier to figure out which video to choose. For instance, if a video is labeled for those in a wheelchair but mentions an exercise as "very difficult," I can immediately assess whether it’s appropriate for me or not.’ ID51</p> <p>‘If you're just considering the level of difficulty, you can adjust that on your own. But if it's about tackling new challenges or restrictions, I believe expert guidance would be essential. For example, if someone in a wheelchair wants to strengthen their legs despite having no leg strength, I imagine that would be quite challenging without professional help.’ ID63</p> <p>‘Even though it might be complicated and time-consuming, I’d appreciate having a training session. If possible, a Zoom meeting with a real person would be great, and access to a library of reading materials or tutorials at home, including explanatory videos.’ ID56</p> <p>‘After my recent relapse, I've come to really appreciate how my physiotherapist focuses on individualised and specific rehabilitation. It reassures me to know that my unique needs and challenges are understood and addressed. This personalised attention ensures that each exercise and therapy session is tailored specifically to what I need at this stage of my recovery. This approach not only helps me improve physically but also boosts my confidence and keeps me motivated to stay committed to my rehabilitation journey. I value the expert guidance, the careful monitoring of my progress, and the adjustments made to my plan based on my condition. It's comforting to feel supported and to know that I am not navigating this process alone.’ ID42</p> <p>‘There's also the question of whether we are watching a pre-recorded video or if someone is performing the exercises live in real-time. I find those recorded videos a bit unengaging, but I’d enjoy a session with a live person doing the exercises with me.’ ID29</p> <p>‘And somehow, just get straight to the point without any delay. Start with a cheerful "Good morning," a welcome greeting, and maybe even have a likable person leading the session.’ ID27</p>
Theme 2: Ease	

Exercise environment and regimen parameters	<p>‘For me, a scenic background is not essential as the exercise itself is my main focus. Recording the exercises in a neutral space is adequate. While chairs or everyday objects can still be incorporated, I find a neutral setting more appealing as it allows me to concentrate solely on the exercise.’ ID48</p> <p>‘I think it would be great if videos incorporated everyday items, as I don't have the money or equipment at home. Using things like two full water bottles or a backpack filled with books would be cool. Just using items you already have at home and incorporating them into the exercises works well.’ ID66</p> <p>‘If possible, it would be best to perform most exercises using just your body rather than many aids, since aids can complicate things. Many people don't have special equipment, and those who do tend to use simple items. A bottle of mineral water can be used for weightlifting, for example, so it would be helpful to provide a few tips like that.’ ID69</p> <p>‘What really helps me is having an overview of how long the session will last. In a video, for example, I find it important to have a progress bar at the top showing how much time is left and how much longer I need to keep going. Knowing this allows me to motivate myself, like saying "OK, I can manage another 10 seconds." If another 5 minutes remain, I know when to take a break. Having that orientation, or generally knowing how much longer the workout will take, has always been helpful for me.’ ID62</p> <p>‘A basic programme with a warm-up and cool-down is great, but I really like the idea of a modular system. If there is a modular system, it would be great if the videos were about half an hour long. That way, you can combine them depending on your motivation and fitness level.’ ID21</p> <p>‘I prefer working out once or twice a week for about an hour each time, as it makes the session more worthwhile. It's always challenging to break it up into shorter sessions. For my consistency, it helps to have a fixed appointment once a week at the same time for about an hour.’ ID37</p> <p>You need to rest between exercises to ensure the next exercise is manageable and can be continued effectively.’ (ID24)</p>
Adressing diverse symptoms and needs in pwMS	<p>‘I've been thinking that I want to train my pelvic floor. I feel that being physically fitter would make everyday tasks like grocery shopping easier. Shopping can be overwhelming because there are so many sensory distractions, but if I didn’t have to focus so much on my balance and turning around, I might find it much easier to get things done. That would be a nice improvement!’ ID39</p> <p>‘I believe we need specific videos for balance exercises or stretching routines.’ ID69</p> <p>‘I also want the exercises to be shown in detail and customised to my needs. I know I can’t do everything, and the same goes for others. For instance, someone in a wheelchair will have even more limitations than I do.’ ID23</p>

	<p>‘You need exercises for sitting, standing, and lying down. It’s good to incorporate breaks for anyone who can’t stand for long or needs a rest. Everyone has their own limitations; some people may feel dizzy when they try to do things while standing, so it’s important to have variations.’ ID58</p> <p>‘I believe that exercises aimed at improving perception are really important. It’s essential to learn how to connect better with your body and be more aware of how you’re feeling at the moment. This way, you can identify what you should be working on and where your weaknesses lie.’ ID69</p> <p>‘As someone living with chronic pain, I find that exercising really helps manage my pain, and I’ve noticed that I sleep better at night. I usually struggle to sleep for about three or four hours each night. When I stay active, it makes a huge difference, and I experience less pain. If I go three or four days without exercising, the pain comes back intensely. For example, I do activities like cycling and gait training, which I fit into my daily routine when I walk my dog. Exercise is essential for me.’ ID64</p> <p>‘It would be great to have exercises designed for everyone, including those who have difficulty standing. Lots of arm movements that both wheelchair users and those who can walk can do would be really beneficial.’ ID30</p> <p>‘It varies based on individual needs and goals. A basic programme that can be adjusted for different severity levels would be ideal. Flexibility is crucial to accommodate varying support needs and challenges.’ (ID61)</p>
<b>Theme 3: Autonomy</b>	
Utilisation and accessibility of technology and digital resources for exercise	<p>‘I really enjoyed doing online gymnastics with Sarah because she provided clear guidance. The exercises were demonstrated, and she participated the whole time. It’s great because you can replay the video if you’re unsure about something or feel like you might be doing it wrong. The instructions are really helpful.’ ID66</p> <p>‘I’ve also done exercises on YouTube, mainly focusing on yoga.’ ID43</p> <p>‘Nowadays, I’m quite active on YouTube, where I watch videos and follow various exercises. This format would be great for a movement training programme that incorporates music, which I would really enjoy. Having accessible content with clear instructions is particularly beneficial for those with MS, as it allows us to engage at our own pace.’ ID39</p> <p>‘An app would be fantastic—I’d really like that. It would also be beneficial to have contacts, not just the app, but people who can provide advice, especially when getting started or at the beginning of the exercises.’ ID21</p> <p>‘The programme needs to be customisable, with a level that feels manageable and doesn’t discourage you before you even start. It would be ideal to have short video segments, about 1 to 2 minutes each, so you can take breaks. The</p>

	<p>instructions should be calm but clear, with different variations available, and it should be accessible via an app or online.’ ID28</p> <p>‘For this to become something sustainable, an app would be necessary, though I understand that creating such an app could be technically challenging. It's important especially for users with MS to have something user-friendly and engaging.’ ID55</p> <p>‘I think all these suggestions could be technically challenging for me. It would be great if there were one programme or app that did everything. However, if it becomes too complex, it would be helpful to have a contact person who can customise the training for you using different modules. They could also create subtitles for the training videos or anything else you might need. But that could be time-consuming since you'd need someone who has the time to dedicate to it.’ ID20</p>
Ensuring safety in exercise	<p>‘For certain exercises, especially if you're not feeling very fit, it's a good idea to have an armchair in front of you to hold onto. You can rest or sit down and even do some exercises while seated.’ ID51</p> <p>‘For those who are less mobile, it's important to have someone with them to ensure safety and prevent accidents like falling. Having a mat might also be helpful so that if you do fall, it’s a softer landing.’ ID63</p> <p>‘I believe it's crucial to mention in the exercise instructions that you should find something sturdy to hold onto for support.’ ID40</p> <p>‘It's important for me to listen to my body, to assess how I'm feeling today and what I'm capable of doing. I need to accept my limits and choose easier exercises if necessary, recognising when I can't push myself further.’ ID28</p>
Empowering personal choice and self-directed participation in exercise	<p>‘I prefer to do my training at my own pace, depending on how I’m feeling that day. I don’t mind if there are other people around while we’re all working out. I enjoy chatting with them between exercises, but I don’t feel the need to do the same exercises as everyone else. If someone is putting together an exercise programme for people with MS, I think it’s important to consider different levels of ability. For example, someone who uses a wheelchair will have different needs compared to someone who has just been diagnosed and is still fully functional. So, it's crucial to create training programmes that cater to each person’s individual situation.’ ID56</p> <p>‘You just have to know for yourself how far you can go.’ ID22</p> <p>‘Understanding the available areas of exercise and being able to combine them on your own is valuable. You can select different types of music, for example, or perhaps even choose additional music. It would be necessary to explain how this works, along with providing suggestions on how to structure your routine.’ ID50</p>

	<p>‘Again, it comes down to listening to my body, how it's feeling today, what is doable, yes. And then doing something lighter.’ ID40</p> <p>‘So, having some kind of benchmark to know what would be good, and then being able to assess oneself.’ ID63</p>
<b>Theme 4: Musical meaning</b>	
Integration of music in exercise	<p>‘If there's something active like strength or endurance training, I would prefer the music to be louder. For activities that require concentration, such as balancing, focusing on posture, the music should stay in the background. That's what we usually do in our current training, and while it's okay, I think there's room for improvement.’ ID67</p> <p>‘I often find it challenging to select music that appeals to everyone and doesn't distract from the instructions. I've noticed this issue in fitness centres when workout videos play, and the music sometimes overpowers the guidance. It's tough to find a balance where the music complements the exercises and what's being said.’ ID51</p> <p>‘For sensitivity exercises, having the music in the background is appropriate. But for strengthening exercises, I would bring the music to the forefront, just like with endurance training.’ ID45</p> <p>‘I would also ensure that there are songs with different tempos, allowing people to choose how fast or slow they want to train. For relaxation or sensitivity exercises, it's important to use calm music.’ ID30</p>
Cultural and individual influences on exercise music	<p>‘It's important to consider cultural backgrounds when selecting music because musical genres and instruments can vary greatly. This diversity needs to be kept in mind.’ ID60</p> <p>‘If I'm already tired and feeling a bit foggy, it would be better to do the exercises without music to avoid overexertion. This allows me to go a bit slower or do fewer repetitions, accounting for how I'm feeling that day. If I'm determined to exercise but really shouldn't push myself too much, five minutes with music could be overwhelming.’ ID54</p> <p>‘It might be interesting to combine exercises with memory tasks through music, like singing along or incorporating rhythms that require memorisation.’ ID19</p> <p>‘If you can use your own playlist, that might address the difficulty of catering to different tastes. If music is included, it should be calming, as most people appreciate soothing music. Overall, creating a universally appealing choice is difficult.’ ID50</p> <p>‘Quiet doesn't mean silence; it could mean having a soundtrack or atmospheric sounds. The music or sounds should help calm the mind and promote self-awareness and bodily awareness.’ ID54</p> <p>‘It would be lovely to include elements of nature, like trees in the background or the sound of birds chirping and a babbling brook. Natural sounds can add to the calming effect.’ ID20</p>

	<p>‘I think sticking to popular music that appeals to the masses is a safe bet, like radio music which includes pop or R&amp;B. Avoid focusing solely on specific genres like classical, punk, or rock, because they're not universally liked. If someone isn't satisfied, they can mute the provided music and play their own.’ ID24</p> <p>‘I listen to a wide range of music thanks to my studies and experience as a diverse musician. Although I don't typically listen to folk or pop music, I enjoy heavy metal and various styles from jazz and classical to African and Chinese pop. My taste is quite extensive and diverse.’ ID60</p>
Musical elements in exercise	<p>‘I would integrate music into the exercises as a beat generator rather than just background music. It should be a combination because the more stimulating it is, the more it helps performance by engaging the brain.’ ID63</p> <p>‘You could use specific chords or rhythmic elements for certain exercises, like for the feet, arms, or torso. This would help people remember the exercises or recognise what's coming next by saying, "Oh, this rhythm means this exercise is coming up.”’ ID64</p> <p>‘I can't specify a musical genre, but it's important to have a consistent rhythm in the music with no changes, so the exercises can be adapted accordingly.’ ID43</p> <p>‘I would prefer purely rhythmic music without singers—just the instruments providing the rhythm in the background. That's my initial thought. I'm not sure if that approach would work, but it's an idea.’ ID22</p> <p>‘In a group setting, using mainstream music might appeal to younger people, but generally, instrumental music is better because it's universal and easy to understand. Personally, I don't like mainstream music; it would be annoying if the same catchy song were played repeatedly during sessions. I'd prefer instrumental music that could be adjusted for different age groups.’ ID55</p>
The motivational impact of music on exercise	<p>‘It's great to have the option to choose your own music since it depends on your mood and the activity you're doing, which isn't always the same.’ ID37</p> <p>‘I love listening to my favourite music, like indie rock, while exercising. It needs to be dynamic, with a great beat and fun, which is my favourite type of music to move to.’ ID26</p> <p>‘For me, the choice of music varies with my mood. Generally, I prefer positive music that makes exercising enjoyable and motivating.’ ID70</p> <p>‘I really enjoy dancing. I love it so much that I don't even perceive it as exercise; it just feels beautiful and effortless.’ ID65</p> <p>‘Coming from a dance background, I think a dance fitness video with simple, fun moves would be ideal. I'm all about rhythm, so it's important the exercises match the music. Doing exercises off-beat is tough for me!’ ID51</p>



	<p>‘Music is an integral part of my life, and I truly believe it has the power to elevate my experiences to a higher level. I can easily envision an exercise programme that incorporates carefully chosen music, transforming the workout into a richer, more profound experience. Music doesn't just enhance physical activity; it can transport you to a different state of being—one that's filled with increased motivation and enthusiasm. When you're truly engaged, the exercise feels deeper and more rewarding. The beauty of exercising with music is that it makes everything feel easier and more enjoyable. When enthusiasm is in the mix, every task seems simpler, and the results are often more successful. Music has the unique ability to spark this enthusiasm, inviting you to push further and achieve more. While it may seem obvious, having music accompany your workouts can actually be a game-changer, making the whole process more immersive and effective. It's important to recognise how music can profoundly influence your exercise experience. When I share this kind of music-filled programme, I want the participant to feel that it resonates on a deeper level, pushing them beyond their usual limits. I find great joy in the idea that music not only helps me complete my workouts but also allows me to do so with genuine joy. This approach is wonderful because it transforms movement from a mere mechanical task into something that deeply engages the human system.’ ID22</p>
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MS, multiple sclerosis