Psychology of Sport & Exercise xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Psychology of Sport & Exercise

journal homepage: www.elsevier.com/locate/psychsport

A longitudinal examination of leisure time physical activity following amputation in England

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ARTICLE INFO

Keywords:
Qualitative
Generalizability
Rigour
Policy
Sport
Exercise

ABSTRACT

Objectives: There is a significant body of research on leisure time physical activity (LTPA) among people with physical disabilities. Yet, while this data set has been informative in identifying the social-relational factors that affect LTPA across disability groups, there is now a demand for context- and population-specific studies to provide a more nuanced understanding to better inform decision-makers and service-providers. This original study is the first to examine the barriers, facilitators, and benefits of LTPA among people with an amputation in England.

Methods: Multi-method, longitudinal research design (from April 2014 to May 2016). Participants were recruited using maximum-variation and criterion-based purposeful sampling. Data collection included two focus groups (> 4hrs), fieldwork observations (> 225hrs), and 44 formal interviews (> 50hrs). Practical strategies used to support or evidence the study's quality in terms of its credibility, rigour, generalizability, and significance included author self-reflexivity, member reflections from participants, and external reflections with key stakeholders before seeking publication. This large qualitative dataset was rigorously analysed using inductive thematic analysis.

Results: Ten themes were identified: personal wellbeing, social wellbeing, physical wellbeing, inspiration, self-presentation, experience of LTPA, knowledge of LTPA, environment, organisational functioning, and miscellaneous.

Conclusions: This article makes a novel and significant contribution to research by revealing the dynamic and relational nature of barriers, facilitators, and benefits. Practical implications for LTPA policies and practices are considered through a social ecological lens (i.e., intrapersonal, interpersonal, institutional, community, and policy).

1. Introduction

Between the 1st April 2007 and the 31st March 2010 there were 34,109 lower limb amputations in England, with the most prevalent cause being diabetes (Holman, Young, & Jeffcoate, 2012). Public Health England (2016) reported that there are 140 diabetes-related amputations per week. Yet, while the reduction of amputations is a major priority in England (see Healthier You: The NHS Diabetes Prevention Programme), the well-being of people with an amputation is also of critical importance. From a psychosocial perspective, there are numerous challenges for people following an amputation: threatened identity (Senra, Oliveira, Leal, & Vieira, 2011), elevated depression and anxiety (Horgan & MacLachlan, 2004), decreased social functioning from being in a 'stigmatised' group in society (Murray & Forshaw, 2013), and overall, a poorer quality of life (Sinha & Van Den Heuvel, 2011). One strategy that has been shown to enable people with an amputation to adjust to these challenges is being physically active (Bragaru, Dekker, Geertzen, & Dijkstra, 2011). Yet, many people with an amputation in England do not participate in sufficient physical activity to achieve health benefits, and more barriers than facilitators exist when striving to adopt and maintain a physically active lifestyle (Deans, Burns, McGarry, Murray, & Mutrie, 2012).

The United Nations Convention on the Rights of Persons with Disabilities (2006) enshrines the rights of disabled people to participate in recreational, leisure, and sport activities on an equal basis with others. However, people with an amputation face a plethora of barriers that prevent them from living an active life (Bragaru et al., 2013; Couture, Caron, & Desrosiers, 2010; Gallagher, O'Donovan, Doyle, &

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https://doi.org/10.1016/j.psychsport.2017.11.005
Received 30 June 2017; Received in revised form 7 November 2017; Accepted 7 November 2017
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Desmond, 2011; Kars, Hofman, Geertzen, Pepping, & Dekker, 2009). In Canada, Couture et al. (2010) identified that leisure activities decreased following amputation due to personal (e.g., functional constraints, affective constraints) and external constraints such as lack of accessibility (e.g., architectural barriers, transportation problems). The authors also reported in their results, "… many individuals stated that weather conditions were the main constraint on leisure participation following a lower limb amputation. In Canada, winter conditions include walking on ice and snow" (p. 61). In comparison, Bragaru et al. (2013) conducted a study in The Netherlands and identified other barriers. These were psychological factors such as self-presentation concerns, fear of injury, and feeling dependent on others. Other barriers included physical factors such as co-morbidities and phantom pain, and low social acceptance from abled-bodied individuals. Taken together, these findings demonstrate barriers to participation are not only intrapersonal (e.g., affect, phantom pain) and interpersonal (e.g., attitudes of others), but also contextual and prevalent in the environment (e.g., weather, architecture, transportation).

This original study aims to examine the barriers, facilitators and benefits of leisure time physical activity (LTPA) among people with an amputation in England. LTPA is defined as physical activity an individual engages in during their free time (Martin Ginis et al., 2011). Consistent with Williams, Smith, and Papathomas (2014), barriers are defined as reasons why people do not participate in LTPA, discontinue LTPA or negative experiences of LTPA. Benefits are positive responses and perceived advantages from participation in LTPA, whereas facilitators are factors that allow people to participate in LTPA. Yet, considering there is a sizable body of research on LTPA among people with physical disabilities (Martin Ginis, Ma, Latimer-Cheung, &Rimmer, 2016), do we really need yet another study on the factors that impact LTPA? From our perspective, it is a resounding *yes*. Our rationale is threefold. First, there is limited amputation-specific research. Indeed, Martin Ginis et al. (2016, p. 492) reported in their systematic review of review articles of LTPA in people with physical disabilities, "… it is important to acknowledge that some disability groups were more strongly represented in our synthesis than others (e.g., five reviews involving persons with spinal cord injury versus one review involving prosthetic users)." This study seeks to address this imbalance. Although previous researchers have included people with an amputation within their samples, Deans et al. (2012) reported that this approach makes it challenging to extrapolate data from specific disability groups.

Second, there is a dearth of amputation-specific research on LTPA conducted in England. To provide LTPA guidelines for decision-makers and service-providers, they need to be context-specific (e.g., England) and co-constructed with the intended user. Indeed, 'top down' approaches to health care design led by government initiatives have been criticised for undervaluing the exploration of genuine needs and problems (Jun, Morrison, & Clarkson, 2014). Therefore, it is critical that individuals with amputations become active-partners in informing policy, which aligns with the United Kingdom's (UK) National Health Service's (NHS) vision for person-centred care (NHS England, 2014). Third, the methodological choice by researchers examining LTPA in people with an amputation has been cross-sectional. Following a systematic review of research on individuals with an amputation and sports participation, Bragaru et al. (2011) reported, "The findings from this review should be interpreted cautiously because few studies had high methodological value" (p. 737). Heeding recommendations for longitudinal research (Horgan & MacLachlan, 2004) and rigorous qualitative research (Smith & McGannon, 2017), this study aimed to provide an original and rigorous account of LTPA among people with an amputation in England.

2. Method

2.1. Philosophical beliefs and sampling

This study was underpinned by interpretivism; that is, ontological relativism (i.e., reality is multiple, created, and mind-dependent) and epistemological constructivism (i.e., knowledge is constructed and subjective). Following procedural ethical approval from the University Ethics Committee, participants were recruited through maximum-variation and criterion-based purposeful sampling strategies (Sparkes & Smith, 2014). Maximum variation sampling was chosen to enhance the study's scope and represent the views of a diverse demographic across England. Characteristics accounted for were age, sex, time since surgery, type of amputation, and geographical regions (i.e., North-East, Yorkshire and Humberside, North-West, East-Midlands, West-Midlands, East of England, London, South East, and South-West). Criterion-based sampling was used to recruit participants who were aged 18 years and over and had an amputation. Potential participants enlisted on a charity's database of people with an amputation in England were asked if they would participate by sending them an email, which stated, "This study aims to understand the physical activity experiences among people with an amputation in England. What gets in the way of participation? What helps participation? What are you experiences of physical activity?" If an email recipient was interested in participating, they were requested to email one of the co-authors who would tell them about the study and what participation would likely entail.

A total of 22 participants were recruited; 14 were female and eight were male. The mean-age of the sample was 42 years (SD = 10 years). The participants reported a range of lower-limb amputations (i.e., congenital, acquired, transfemoral, transtibial, unilateral, and bilateral), and participated in diverse types of sport and exercise (e.g., badminton, volleyball, basketball, tennis, running, swimming, cycling, skiing) and hobbies (e.g., play with children, gardening, photography, carpentry, church bell-ringing, walking). Two participants reported having no interests in LTPA from the outset of the study. On average, participants were five years' post-surgery (SD = 8 years). No individuals with upper-limb amputations accepted our invitation to participate. The sample was diverse in income and employment status.

2.2. Data collection

Data was collected over 26 months using multiple qualitative methods to enhance the study's scope and construct a more nuanced understanding. Recognising that our sample of participants had experienced a significant event and that initial reflections on LTPA might induce emotive experiences, we elected to use focus groups as our first method of data collection. Focus groups have been shown to encourage disclosure and elicit a wide variety of different views (Krueger & Casey, 2000). We had also yet to develop sufficient rapport with our participants and the use of focus groups has been suggested to allow for safety in numbers (Connelly & Peltzer, 2016); meaning that participants only need to contribute to the conversation when they feel able. Two focus groups were conducted (11 participants in each group), resulting in > 4-h of data. Three questions were used to stimulate discussion: "What does physical activity *mean* to you?", "What *hinders* your participation in physical activity?" and "What *helps* your participation in physical activity?" Each author conducted one focus group and facilitated the discussion using curiosity-driven follow-up questions (Sparkes & Smith, 2014). Both were recorded and transcribed verbatim.

Following the focus groups, observations and informal-unstructured interviews were conducted at an annual two-day sporting event, which was organised by the same charity from whom the participants were recruited. The aim of our observations and interviews was to provide a contextual understanding of the participants' actions, interactions, and emotions, as well as further nurture the researcher-participant relationship that had been developed during the focus groups (Sparkes &

Smith, 2014). Our participants were *not* registered at the event at the outset of this study, nor were they expected to attend the event from being a participant. Attending this event provided the opportunity for individuals to participate in a range of sports (e.g., sitting volleyball, wheelchair basketball, swimming, archery). Our role during these observations shifted on a continuum from complete observer (e.g., sitting and observing what was happening), observer as participant (e.g., helping with the overall organisation of the event) to participant as observer (e.g., participating in the activities if there were unequal teams or if someone needed a partner) as and when the conditions allowed. Opportunities also arose whilst observing to have informal-unstructured conversations with the participants (e.g., on the sidelines if they needed a rest or at the café), which helped to build rapport and elaborate or gain clarification of observational data. Through these informal conversations, we were also able to learn how the participants made sense of, or attached meaning to, context and situations in which they found themselves. Observations and informal conversations were recorded in situ or later that day using field notes, which were transcribed and elaborated upon that evening in our research logs. Both researchers attended this annual sporting event another two times, leading to 48-h of observational data. Seventeen participants attended the first event, 20 the second, and 19 the third.

Over the next 24 months, we spent time with our participants by observing them in their own environments and going about their daily lives (e.g., leisure centres, homes, lunch breaks), as well as contacting them via email and Skype. This enabled us to explore the participants' social life in process and what it *meant* for the participants in the context of their lives. This led to over 180-h of observation data, which were recorded using field notes. During this time, we felt sufficient rapport had been developed with our participants. This rapport could be evidenced through discussion of sensitive topics, sharing of stories, using and reciprocating 'banter', and physical touch (e.g., hugs, high fives). We then invited them to take part in semi-structured interviews at a time and place chosen by them. Indeed, Connelly and Peltzer (2016) reported the importance of developing rapport with participants to encourage participation in the interview process. The semi-structured nature of the interviews allowed participants the freedom to discuss stories and experiences important to them, but also gave the opportunity to focus on areas of interest emanating from the other qualitative methods (Sparkes & Smith, 2014). Questions included, "Can you describe a recent experience of physical activity?" and "What role does physical activity have in your life?" Elaboration and clarification probes were used to elicit more information and ensure understanding. Each participant was interviewed twice; 44 interviews in total, resulting in > 50-h of interview data. Interviews were recorded and transcribed verbatim.

2.3. Data analysis

The large qualitative data set was subjected to a rigorous inductive thematic analysis (Braun, Clarke, & Weate, 2016). Initially, the first author familiarised himself with the data. This involved transcribing the data and repeat reading of the transcripts. Data from each qualitative method was accounted for and treated equally; meaning that no one method was not deemed more credible than another. Next, initial codes were identified by highlighting interesting features across the entire data. Data relevant to each code was then collated and combined to form an overarching theme, which involved thinking about the relationship between codes, between themes, and between difference levels of themes (e.g., overarching themes and subthemes). The themes were then reviewed in relation to the coded extracts, the entire data set, and the overall story they tell about the participants' experiences. This resulted in 10 themes that were refined, defined and named: personal wellbeing, social wellbeing, physical wellbeing, inspiration, self-presentation, experience of LTPA, knowledge of LTPA, environment, organisational functioning, and miscellaneous. Finally, producing the report involved ensuring the write up provided a concise, coherent, logical, non-repetitive, and interesting account of the data, with vivid, compelling extract examples.

Guided by a relativist approach for judging the rigor of qualitative research (Sparkes & Smith, 2014), we invite the reader to consider six quality indicators. First, *Worthiness of the Topic*: Is the research topic relevant, timely, significant, and interesting? Second, *Rich Rigour*: Can the study be marked by rich complexity? Are there enough data to support its claims? Did the researchers spend enough time gathering interesting and significant data? Is the context and sample appropriate given the goals of the study? Third, *Credibility*: Does the data provide an in-depth illustration that explicates culturally situated meaning and abundant concrete detail? Is this study trustworthy enough to act on and make decisions to inform LTPA policies and practices? Fourth, *Significant Contribution and Meaningful Coherence*: Has the study achieved its aim? Do the methods and procedures used align with the study's intended aim? Does the study make a novel contribution to knowledge? Does the study meaningfully interconnect literature, findings, and interpretations? Does the study provide meaningful practical recommendations? Finally, *Generalizability*: Do the study's findings resonate with the reader's own experiences, events they have observed or heard about, or people with whom they have spoken with? Are the findings transferable to other populations or contexts? Do the findings generalise to established concepts and theories? These questions are posed to encourage the reader to think with the results, not just about them.

To assist the reader's responses to these questions and to move beyond *potential* claims of quality indicators, six practical strategies were also drawn upon to support or *evidence* the study's credibility, rigour, generalizability, and significance (Smith & McGannon, 2017; Smith, 2017). The first was the use of multiple methods, which Tracy (2010) reported promotes *rigour* by helping to generate a more nuanced understanding of the subject matter. Throughout data collection, the authors continually reflected on the integration of methods and how such integration will provide for and substantiate meaningful and significant claims (Williams, 2017). The second strategy used during data collection was author self-reflexivity (i.e., written diaries), which was critical towards understanding how the authors (e.g., social class, ethnicity, gender, able-bodied) were impacting on the data collection process. Self-reflexivity is reported to be one of the most celebrated practices of qualitative research (Tracy, 2010). Aligned with being reflexive, the authors also acted as 'critical friends' to one another during collection and analysis (Sparkes & Smith, 2014). Specifically, the first author presented his interpretations of the data on a regular basis to the co-author who provided a theoretical sounding board to encourage reflection upon, and exploration of, alternative explanations and interpretations as they were identified in relation to the data.

The fourth practice, thick descriptions (i.e., interview quotations) within a well-crafted report, was used to provide the reader with direct evidence to reflect upon and make connections with their own lives or the lives of others. This practice has not only been suggested to be one of the most important means of achieving *credibility* (Tracy, 2010), but also to enhance specific types of *generalizability* (e.g., naturalistic generalizability, transferability; Smith, 2017). Fifth, member reflections (i.e., participants) on our analytical interpretations were sought to enhance the study's *rigour* (Smith & McGannon, 2017). This involved sharing and dialoguing with the participants about the study's findings, which led to additional data and insights that helped to co-construct more well-rounded themes (Connelly & Peltzer, 2016). The final practice involved inviting responses to our findings from key stakeholders before seeking publication to gain a sense of generalizability (Smith, 2017). We refer to this strategy as *external reflections*. Specifically, identified themes were presented to or shared with (e.g., email) several audiences. That is, people with amputations who did not participate, staff who work with amputees (e.g., health care professionals), peers at the authors academic institutions (i.e., internal conferences), and

external colleagues at an international academic conference (i.e., 5th International Conference Qualitative Research in Sport and Exercise). These audiences reported that the findings overlapped with their experiences, the experiences of others, and/or with established concepts (e.g., well-being; Keyes, 1998; Ryff & Keyes, 1995) or theories (e.g., Thomas's [2007] social-relational model of disability). These accounts provide evidence for naturalistic, concept, and theoretical generalization (Smith, 2017).

3. Results

3.1. Personal wellbeing

This theme consists of Subjective (SWB) and Psychological (PWB) Wellbeing. SWB encompasses life satisfaction and happiness, whereas PWB reflects human development and existential challenges in life. Particularly following discharge from hospital where there were more 'bad' than 'good' days, low SWB was identified as barrier that led to negative LTPA experiences. Bad days were synonymous with feeling isolated, depressed, fearful, hopeless, embarrassed, unhappy, suicidal, fragile, weak, self-conscious, unconfident, and unattractive. On certain occasions, however, these feeling states were identified to motivate some participants. One participant expressed how low SWB acted as both a barrier and facilitator:

> **Interviewer**: So, feeling negative got in the way of physical activity?
>
> **Participant**: Yeah [silence]. When I looked in the mirror, I didn't know who was there anymore. Everything changed. I didn't even recognise anything about my life. None of it is how I wanted it to be. I just thought my life was over. It's negativity that breeds more negativity into you. And then everything starts getting more shit because you feel shit. It was just so horrible. When does this stop? I couldn't find the thing that would make me go the other way. For a long while I couldn't speak to anyone about anything. There didn't seem much point. I'd given up with the leg, life, doing stuff. Why did it matter? Nothing seemed to matter. I felt so awful. And so [pause] suicidal.
>
> **Interviewer**: Thank-you for sharing that. Sounds like it was an incredibly tough time for you. Did anything help you go the other way?
>
> **Participant**: I had got to the point where things were as shit as they possibly could be, so I was like, right, I will go along to [physical activity event]. What's lovely is when you do touch rock bottom you think there's only one way to go.

Reaching 'rock bottom' and feeling frustrated, isolated, and unconfident motivated the participants to engage in LTPA. On the other hand, the participants were also motivated by the desire to experience high SWB; they wanted feelings of confidence, self-worth, pleasure, happiness, fun, and life satisfaction. One participant reported:

> It [LTPA] increases my morale. I'm prone to feeling a bit down and a bit depressed, and it really does lift me. People often talk about disabled people having half a life. If you feel good about yourself, then you are not having half a life. If only other amputees would give it ago. I'm not talking about being an 'athlete'. But if they went for a walk every day for half an hour it'll really impact their well-being. It affects mine.

Benefits of LTPA on SWB were having more good days and less bad days, reduced fears and anxieties about LTPA, and life satisfaction. One participant reported how she felt running for the first time since her amputation, "The best feeling in the world! I'm unstoppable now! I can't even explain it. I can't stop smiling." Another described her experience of coming home following a physical activity event:

> I walked back into my house and my husband was like, you are back! Not only in, yes, you are back, but metaphorically you are back! This person has finally come back in the room. It was amazing to feel that way. It was such a lovely feeling. I'm back. I think when you get lost for long enough you think you are not coming back. You can't see a light. It's totally all consuming. Fundamentally, nothing has changed, but I feel different.

However, monitoring these benefits over time revealed that they are temporary, which provided a reason to discontinue or re-engage in physical activity.

Low PWB also affected LTPA. That is, individuals were less likely to engage in LTPA post-discharge from hospital if they were more influenced by societal pressures to feel and act in certain ways, unaware of the opportunities in the surrounding environment, and unable to manage their everyday affairs. The latter is illustrated in the following quote:

> **Participant**: I was surrounded by a team of people in hospital who were telling you that you're amazing. You can do this, you can do that! And then you go home and BANG! [slaps hands]. Shit! I'm fucked! I have two little kids. It's like hitting something in the fast way on the motorway, and being spun around the wrong way. And then all traffic keeps moving and you are facing in the wrong way in the traffic.
>
> **Interviewer**: How did you manage with two little kids?
>
> **Participant**: My kids did my head in; they were fighting like cat and dog. I couldn't cope with the kids, let alone do anything for myself like exercise. I couldn't cope with the fact that everything takes four times the length of time that it used to do. "Mum where's this?" Normally, you'll just run around. "It's there! Come on! Shoes on!" Now, you're 80 years old. Everything pretty much went tits up.

Over time, additional decreases in PWB were identified, including a sense of personal stagnation, fewer close relationships, lacking meaning in life, and feeling dissatisfied with self, which further impacted LTPA. One participant reflected on being labelled disabled:

> **Participant**: I don't want to be disabled. I've just thought of this; you've just made me think of this. Say you recommended that I go to disabled tennis, I would be going, "I don't want to be disabled." I can't go to the abled-bodied because I'm not able-bodied. I'm in a Catch-22 [silence] The thing is, I don't really like the D-word.
>
> **Interviewer**: What is it about the D-word?
>
> **Participant**: I don't know. I think it's kind of weak. I don't know, I don't like the idea.
>
> **Interviewer**: Weak you say?
>
> **Participant**: You're making me think. I don't know. It's a deep question. I haven't addressed it, even though I think I have. I haven't addressed the fact that I'm disabled. I've come to terms with it, I get on, but I probably haven't properly. I don't really like that word. What does it mean? I don't like it. It makes me different. I don't want to be different. I just want to be the same as everyone else. I just want to just fit in. To just be.

Low PWB was also identified to facilitate LTPA, together with the motive to obtain and maintain high PWB. That is, participants wanted to be (or were) independent, resist societal pressures, manage their environment, maximise the opportunities available to them, realise their potential and continue to grow, remain open to new life experiences, and develop and maintain positive relationships with others. One participant reported in terms of resisting societal pressures, "I can't live *my* life thinking what others will think. It's *my* life and this is how *I* want to live *my* life. And *I'm* going to live *my* life. Regardless, if I've got two prostheses or not." In terms of managing one's environment, one

participant said: “I use the stairs. Is there a lift? Yes. But sometimes the lift won't work. So, I'll go up the stairs when the lift is working. Why? Because there's going to come a time when that lift isn't working.”

Benefits to PWB from LTPA were identified to take longer to nurture and were more enduring than SWB. Benefits included having a hopeful outlook on life, sense of purpose in life, independence, understanding of self, ability to manage one's environment, and positive relations with others. One participant expressed how LTPA can be life changing:

> You've lost a quarter of your body, but you feel like you lose 80% of the possibilities in life. Something like this [physical activity event] is life changing. There are just so many more possibilities than you ever thought there would be. I can't do this, I can't do that. You spent so much time trying to get back to who you were, and this event says, you may be not be able to get back to who you were but look at all these amazing things you can do and can go on to achieve. It opens the gate to any other ideas you had in mind that you thought you couldn't do; it's just amazing. You realise that you are capable of so much more than you thought you were.

3.2. Social wellbeing

Social Wellbeing (Social WB) is concerned with one's circumstances and functioning in society. Low socialWB was identified over time to be a barrier to LTPA from a macro and micro perspective. Macro regarding low perceived support from central and local government, a north-south of England divide in terms LTPA promotion, and negative attitudes and unrealistic expectations from the public. One participant expressed:

> **Participant**: How many disabled MPs [members of parliament] are there? Everybody goes on about black MPs or women MPs. How many disabled MPs are there? That's not right. How are we truly represented? Sorry, I can't help but get passionate about it. It just drives me mad that people don't appreciate it's not like a normal operation. It doesn't stop when you get discharged. You are not all better. If the government wants disabled people to get active, they need to budget for it.
>
> **Interviewer**: Do you feel it's solely down to budgeting?
>
> **Participant**: It's not just funding, it's listening. The people with expertise and knowledge don't have a voice and that's part of the problem. Local authorities are not listening, they just think putting a leg on someone's stump is going to make them active. It doesn't work like that. What they need to do is listen.

This lack of representation was further reinforced in terms of how government policies (i.e., Personal Independence Payment, Employment and Support Allowance) impacted LTPA and failed meet the participants’ needs, and shaped who they think they are and who they think they can become. The following quote illustrates how the benefit system in England has the capacity to act in ways that guide and inform actions and future possibilities:

> When you try and go for a benefit it's all about telling people how shit your life is. It's not trying to see the best in things. To get anything, you have got to paint your blackest picture of your blackest day in your blackest hour! And then you begin to live it. And then you think, how can I be applying for a benefit that says I am not allowed to climb hills or go on a bike again. Because if I get this benefit I can't walk the length of myself! Is that what I'm setting up for myself?

As well as the oppression felt from government, participants reported it from the public too. They were reported to hold negative attitudes towards disability and unrealistic expectations. One participant expressed, “They think being an amputee is easy because they've seen the Paralympics. What they don't understand is if you weren't an Olympian before you're not going to be after.” Another participant reported how, “People look at you like you're a freak show or people don't want to see or mention it [amputation]; it's either the ‘white elephant in the room’ or ‘Come along children, move on.’”

Taking a micro perceptive, participants reported social exclusion from local sporting spaces and a lack of social integration amongst amputees within their local community. One participant reported, “I'm the only amputee in the south-east of England! Well, that's what it feels like. Everything happens in and around London. We all don't live in London.” Examples of social exclusion from sport include getting dropped from able-bodied sports teams (e.g., others were afraid they would hurt themselves), being given a wider berth (e.g., able-bodied swimmers moving to a lane further away), overhearing people talking about them (e.g., locker rooms), and having to ask for a key to use the toilet.

SocialWB facilitators included government schemes (e.g., active lifestyles), becoming or being a parent, social acceptance and integration, and contributing to the amputee community. For example, being a parent motivated the participants to engage in LTPA because they wanted to do what an able-bodied parent could do and lead by example:

> I'd spent a lot of time in and out of hospital. I wasn't exercising a lot and I put on a fair bit of ‘timber’ [weight]. Looking back, it didn't bother me. Then the Mrs got pregnant, and suddenly, it's like, quite a big milestone. I saw a picture of myself, and I just thought what are you doing? You didn't grow up with a fat dad and I didn't want my son to grow up with the fat dad. I've got to set a good example. I want to run around the park with him. So, I changed my diet and got a personal trainer. The weight started coming off. If my son hadn't have come along, I probably would still be a fat lad now.

Participants were also motivated to be accepted by the public and strived to feel integrated within their local community, which was a benefit of LTPA. For example, one participant reported, “What encourages me to participate is my community. At the swimming pool, we are totally accepted. During coffee afterwards, people are coming up and saying good to see you. But that's taken time to develop.” For others, it was about feeling connected to other amputees in the wider community: “My motive is to connect with other amputees, because in your day-to-day life you don't. Where I live, I don't know any amputees who live close by. So, for me, it's all about making those connections and feeling part of a tribe.”

3.3. Physical wellbeing

This theme has six subthemes: amputation, co-morbidities, strength and conditioning, prosthesis fit, physical side-effects, and body-self relationship. Specific examples of barriers include one's amputation (e.g., amputation itself, severity, stage of healing), physical- and secondary-health conditions (e.g., residual and phantom pain, infections, bodily control, epilepsy, blindness, diabetes, arthritis), lack of strength and fitness (e.g., inability to transfer), and a poorly fitting prosthesis: “One barrier that I can't really deal with is a bad fitting socket. You just can't function. If your socket is too big then you hit the bottom and put pressure on the nerves and bones. If your socket is too tight, you get negative pressure, where the suction is pulling on the base.” Physical side effects of LTPA were also reported as a barrier: “Physical activity takes so much strength, and you feel every ache and pain. I never used to have any aches and pains. I used to just jump out of bed.” Finally, regarding one's body-self relationship, this reflected a loss of one's able-bodied identity, a struggle to accept a new body and identity, and frustrations with current abilities:

> I couldn't get my head around the fact that I couldn't physically remove myself from the problem. And I still feel like that. And that's what hard to come to terms with. Every time I go to do something, in my head I can do it. In my head, I can run. In my dreams, I can run.

> Then I turn to someone and I say, "Bugger me! Look at this. I'm having a breakthrough moment!" And then you wake up. Argh! You've lived for all these years with two legs, so it's really hard to make that mental readjustment.

Despite these barriers, participants were motivated to engage in LTPA to increase and maintain mobility later in life, avoid the health risks of being inactive, and maintain weight to avoid having to have their prothesis adjusted. These motives led to benefits from engaging in LTPA such as improved strength, mobility, fitness, balance, health, and pain relief, which further facilitated participation in LTPA. These benefits were either transient (e.g., pain relief) or more enduring (e.g., weight management). One participant reported, "Physical activity helps with my pain; it stretches me out and helps my circulation. Like now, you can see I'm utterly horrible looking. When I came out of the pool earlier that would have been pink. I retain that circulation for some time after swimming." A final benefit was to reintegrate one's body-self relationship, which reflected being more self-compassionate of their bodies, possessing an ability to listen to and understand the messages their body was sending them, and how their prostheses had become a component of self:

> They are *my* legs. They are *not* an accessory. I put them on in the morning, they come them off at night. I think it's a psychological thing. I look at it as like, the more you wear them, the more you accept them and your body starts to accept them. When I looked down now, I see my legs. I'm in charge of my legs. My legs are not in charge of me. But I can only do that by trying to be as active as a possibly can.

3.4. Inspiration

This theme encompasses being inspired and inspiring others. Being inspired facilitated LTPA and included looking up to others who have achieved challenging feats (e.g., climbing renowned mountains) and heights in sport (e.g., Paralympians), are more independent and less reliant on others, and are more established and knowledgeable amputees. Further, inspiration came from looking down to others who are less able yet still living an active life (e.g., inactive bilateral amputee observing an active quadruple amputee), observing others with a positive attitude who see the glass half full, witnessing others who are more authentic, and observing others who represent another way of living life as an amputee. One participant expressed how she felt observing what she perceived as a stronger, more independent female:

> Looking at her. She looked gorgeous. She looked amazing. Where did she get her clothes? The whole look. I didn't look at her in anyway and think how weird or freaky or strange. I just thought, she looks incredibly beautiful. She looked strong. I was full of admiration for her. I was inspired. It gave me a new feeling. I thought, oh right, there are other ways to approach this [points at prosthesis] rather than trying to hide it

On the other hand, some participants reported that inspiring individuals fostered unrealistic expectations of what can be achieved as an amputee and thus acted as a barrier to LTPA. One participant reported, "Why do I want to see someone who's bloody amazing? How's that going to help me? It'll make me feel even shitter than I already do. I'm a miserable failure. He's superman." This was especially the case in situations when the potential source of inspiration was younger, had fewer commitments (e.g., no children), had a less severe amputation, and had access to more resources (e.g., social, physical, and financial capital). One participant expressed, "People look at Paralympians and think I'm never going to achieve that. You can cross a line, where you alienate them. By somebody being *too good*."

Over time, being inspired transformed into wanted to inspire others. That is, to be a role model in the amputee community and/or an ambassador for a brand of prosthetic or charity. Yet, being an inspirational figure in the amputee community was also found to be a barrier to LTPA. Participants reported experiencing burnout from always having to tell their inspiring story, smile and put on a positive persona, and continually listen to other people's negative stories. One participant reported, "It's tiring. Telling the same old story. I need a break from it. I need to start focusing on my own life." Other participants also reported how you can only be a source of inspiration for so long; after a while someone else will come along, people will get bored of your story, or you simply cannot do anymore:

> When I had my limb fitted, I learnt how to walk. Then I learnt how to run. Then I learnt wheelchair basketball. Then I was the first amputee to be on [television show]. I was on a high. I was going up and up. But, I reached a point that I couldn't go up any further. And there was a drop. I fell down. I thought I wasn't achieving as much anymore. I wasn't doing my best anymore. Everyone was saying you're doing so well, and suddenly, they stopped because they are bored with what I was doing.

3.5. Self-presentation

This theme comprised engagement and disengagement strategies, which reflected how the participants presented themselves. Disengagement strategies were a barrier to LTPA and included covering one's prosthesis in public, spending more time in one's own home, not engaging with public (e.g., no eye contact, closed body language, superficial conversations), and not challenging disabilism. One participant expressed, "I wore trousers instead of shorts. I actually wore two pairs of trousers to hide my leg. It was quite deformed. I did everything I could to try and hide it. I even stopped playing sports, because I didn't want people to see." Yet, these strategies also facilitated participation. For example, it was suggested that having an ability to 'turn a blind eye' to negative perceptions enabled them to lead an active life:

> This is how I look at it: Fuck them [public]. I approach it on the basis that there's absolutely nothing wrong with me. So, there's no need for anyone to comment. I'm not disabled. I just find doing exercise a bit more difficult than others. Forget about your disability; think about your ability. Focus on what you can do rather than what you can't.

Engagement strategies also facilitated LTPA. These included engaging body language (e.g., smiling, head-up, shoulder-back, eye-contact), showing one's prosthesis, humour, and encouraging conversation. One participant expressed, "I don't care what people say me about me doing exercise. Doesn't bother me. I'll make a joke of it and try and engage them – in particular, children, I don't want them to be afraid." Another engagement strategy reported was to start the conversation with others themselves:

> If we want the public's attitude to change, only we can change it. And the more people that are up for it; strength in numbers. For me, I find it's good to plan ahead. What I find that works is '*feel, felt, and found*'. "I'd rather be dead?" someone would say. "Thanks for sharing how you *feel"*, I would reply. "I *felt* that way for a little time myself. But I've *found* with community support, you can rise above the challenge. It's amazing what you can do in life. Don't you agree?" That person who said I'd rather be dead, "Yeah, that's a good point. It's brilliant the way you've managed". Then all of a sudden, they are wanting to know rather than judging me on their own terms.

3.6. Experience of LTPA

This theme reflects pre- and post-amputation experiences of LTPA. Prior experiences were a barrier in that they developed negative attitudes towards sport, positive attitudes towards and experiences of able-

bodied sport, and led to specific critical incidents (e.g., incident that caused the amputation, previous sporting injuries). For example, “For some people, going back to something they were good at before can be really disheartening. So, for me, it's good to try sports I wasn't doing before so I have nothing to compare it to. You can only ever achieve.” Another participant reflected on a critical incident:

> The biggest challenge for me was learning to cycle. Stupid thing is I fell off a bike by when I had two legs and this haunts me. I can remember being on my bike, clipping into those stupid buggery things [cleats], cycling round the car park and, wallop! I forgot how to get them off! I hit the deck. This was all in my head, playing over and over again. If I fall with two legs, how am I going to manage it with one?

Post-amputation experiences of LTPA that acted as barriers were competing with able-bodied (e.g., “I can't keep up with them”), losing or failing, and a dislike for disability sport. One participant reported, “If I'm honest, wheelchair sport should be left to wheelchair users. I'm not knocking anyone, it's just my own opinion that's all.” The social climate (i.e., competitive, intimidating, unfair) was also reported as a barrier:

> I've just been swimming and it was a gala. There was no teaching to improve your swimming. It was just races, and for a bilateral above knee amputee to race against a single below knee amputee, it's just not on really. I was despondent, and left after the first race. I thought that was a bit crap really. It's not about coming in last, I didn't have a problem about that. I wanted a bit of instruction, a bit of help. If it's all going to be about races, at least pair me with someone equivalent to race against.

Yet, pre-and-post-amputation experiences also facilitated LTPA. Prior experiences benefited by developing one's athletic identity and motor skills, which facilitated the transition to LTPA post-amputation. For example, participants reported continuing LTPA post-amputation even if they did *not* enjoy it: “When I go skiing I think I'm not sure I'm enjoying this, but I think for me it's a part of my identity. With skiing, I want to go skiing because it's something I, it might sound stupid but I want to be able to say, ‘I'm a skier’”.

In terms of post-amputation experiences that facilitated LTPA, participants reported experiencing unfamiliar cultures (e.g., competing in different countries) and positive social climates, which they characterised by being welcoming, friendly, non-judgemental, inclusive, autonomous, and moderately competitive. In turn, this provided them with a sense of normative activity, mastery, discovery, relatedness, encouragement, freedom, and fun. One participant expressed, “I find that when you're doing sport, in my head, you forget you're an amputee. You just feel normal, if there is such a word.” Another reported, “Everybody's an amputee. They're not going to judge you. You feel totally at ease to have a go yourself. The guards are down.” Over time, these positive experiences led to the development of physically active identities (e.g., ongoing engagement in LTPA, a personal trainer/gym instructor). Finally, post-amputation experiences were also reported to be a validating experience, especially for one's independence and masculinity. Indeed, some participants wanted to minimise the difference between themselves and their able-bodied counterparts, and athletic contexts provided a way of doing this. However, this had its downsides. For example, “A lot of men want to do more than their able-bodied counterparts; they want to prove that they can do more. That's a great thing, but as a slight negative as well. It can't be like that constantly. That's bonkers. To put yourself under such pressure. To climb Mount Everest, swim the ocean, all in a week! You've got to be realistic.”

3.7. Knowledge of LTPA

This theme encompasses lacking knowledge, disseminating knowledge, and desire for and obtaining knowledge. Participants reported lacking knowledge about what is LTPA, what is ‘good’ and ‘bad’ LTPA, what LTPA they would enjoy, and how to lead an active life. Further, they reported that institutions (e.g., hospitals, charities, and limb-centres) and others (e.g., Health Care Professionals [HCP], gym instructors, coaches) either lacked LTPA knowledge and resources (e.g., opportunities, barriers, facilitators, benefits, how to tailor exercises for amputees, advise on the ‘right’ equipment to use) and/or that knowledge was disseminated in a patronising manner or devoid of care and compassion. One participant expressed her general practitioner's lack of knowledge of LTPA:

> I went to see my GP, and she said are you still taking anti-depressants? No actually. *Why*? *Why* not? *When* did you stop? I stopped taking them day I came home from the event. *Why* did you do a thing like that? I never felt the medication was the answer. I felt what I needed was some support. And I found that now. So, I don't need them anymore. And have you felt *worse* since you stopped taking them? No, thanks for asking, I've felt much better! I said to her, while we are at it can you write me a referral for active lifestyles. Shouldn't you cut back on that? She said snappishly. Okay, thank-you! This is why I feel shit all the time because of people like you!

On the other hand, the desire for knowledge facilitated the participants' engagement in LTPA, together with other people's ability to disseminate knowledge effectively. Knowledge was obtained from websites (e.g., Sport England, National Disability Sports Organisations, Twitter, Facebook), physical activity events, interaction with peers, and self-discovery. Yet, having the knowledge is one thing, but how to disseminate this knowledge in an empathetic, caring and non-judgemental way is another:

> I didn't like tennis before. You get a bit sweaty. But I recently tried tennis and I enjoyed it. Not because I was good at it, but because the coaches were so brilliant. When someone says, “You are doing so well”, it often comes across as patronising. But, they came across, so, they had such a brilliant way about them. I thought, they made me really enjoy it, the fact that they were saying all the right things, without sounding patronising. They made me feel good. It's a fine line. Some people have got it and some people haven't. And they had it.

3.8. Environment

This theme encompassed the physical and social environment. Physical environment refers to the resources to engage in LTPA (e.g., personal and communal spaces, clubs, equipment, transport). Participants reported either having a lack of resources, not being able to use equipment because it had not been adapted for disabilities or was too expensive, or not being able to access certain spaces due to the physical restrictions (e.g., no ramp, door too small for a wheelchair). One participant expressed, “What I hate with a lot of gyms is that they call themselves accessible and all-inclusive. Just because you've got a ramp outside doesn't make you accessible.” The distance to travel was another barrier and the mode of transport (e.g. unreliable buses, competing with prams). One participant reported the challenges of going swimming, “If I want to go swimming I have to book a taxi which isn't cheap or use local community transport. But, if I do that, I'm restricted Monday to Friday 9 to 5, and only two journeys a week.”

Social environment refers to who people know and the support provided by them. A barrier to LTPA was a lack of and withdrawal of social capital and inappropriate support, which included overprotective others, having a network that does not know how to help them engage in LTPA, and people letting them down. For example, while participants reported developing a network of amputees within hospital, there was no resources to maintain these relationships post-discharge. On the other hand, the desire to meet amputees and engage with others in the

local community and receiving appropriate support helped facilitate LTPA. Yet, such support was often difficult to find: “At my limb centre, there are 70 and 80 year olds. It's all very nice speaking to older people, don't get me wrong, but I wanted to meet people who had full-time jobs, who had families, and who were trying to juggle everything.” As a result, many turned to social media to develop social networks (e.g., Facebook, Twitter). These online networks motivated the participants to engage in LTPA from reading stories and seeing the progress made by others. It also provided them with the opportunity to build or extend their social support network with others who have expertise in LTPA across the world, it allowed them to access and share information and resources, and it offered a place to discuss and overcome barriers to LTPA. However, not everyone was equally adept at using and engaging with social media.

Support received by participants that facilitated LTPA included listening, esteem, and tangible support. For example, participants reported acts of kindness: “There was a recent amputee, and I wanted to get him here [physical activity event]. I paid for him and picked him up, because he doesn't drive and he gets quite isolated.” Other effective types of support were emotional support and emotional challenge (i.e., challenging one's attitudes, values, and actions). This support came from friends, family, gym instructors, pool attendants, hospital staff, and people on social media, but largely from fellow amputees:

> I started bawling my head off! The funny thing after bawling my head off was how incredibly nice everybody was afterwards. And how incredibly supportive it was. I haven't cried a lot about it [amputation] at all. But what was different about it was being able to cry in front of people who when they said this is going to get better, for the first time, I believed them. Because they've been there. Friends can say to you it's going to be all right, I'm sure things will get better. Or I feel really bad for you. None of that makes me feel any better. I needed somebody who had been there to say I have felt exactly like you feel and I'm 2 years, 3 years, 15 years down the line. And, when they said that I'm going to be fine, it makes me want to bawl because I believe them.

Benefits of LTPA were social bonding (e.g., making friends and contacts), which led to feelings of solidarity, realising that they are not alone (e.g., perceived support), and incidental learning (e.g., sharing stories, putting one's life into perspective, finding one's voice, comparing prostheses, how to deal with blisters). One participant expressed: “It's like an antenatal group, where you all have kids the same age. It's the same sort of thing where you've got the same thing in common. Somebody will say they're having a problem with their prosthesis; ‘Have you tried this?’, ‘Have you tried that?’”

3.9. Organisational functioning

This theme consists of three subthemes: agenda, communication, and capital. A barrier to LTPA was reported to be the *performance* agenda by governing bodies in sport and charities in their vision, mission, and aims. This included more emphasis on national and international major sporting events, participating in Paralympic sports, the importance of winning, and competing in organised sports. As a result, participants felt there was a binary relationship between performance and well-being, with greater emphasis typically placed on performance. One participant expressed, “I try and persuade governing bodies to realise that it’s not all about performance. Everybody should fit in somewhere. They run events but they're for the very good people which deters others.” Yet, while a performance agenda intimidated some participants, it motivated others: “A lot of people don't like the emphasis on competition. But, I've got such a competitive nature. I just love competing!”

When governing bodies and charities did include well-being within their agenda, it was reported to prevent alienating certain demographics (e.g., subgroups of men and women, individuals without a sporting background, people with a less competitive nature, and certain physical conditions). Here, the emphasis was more on social benefits, health and fitness, mastery, enjoyment, and pleasure. One participant who organised charity events in her leisure time reported how she focused on encouraging women:

> There's a lot of people out there who are on the cusp of coming to [physical activity events], but are afraid. We often don't normally get very many women, and we've been working hard to get more women. Women do come for the sport, but perhaps more so for the social interaction. So, I sent a message a couple of weeks before the event saying, “Forget about the sports, just think about your general health and fitness. Come and meet other amputees in a similar position to you. Come and share your stories and experiences. Learn from each other.” Just by having a softer friendlier message seems to have engaged them and increased our number of women attendees.

Communication was a second subtheme that prevented and encouraged LTPA, which encompassed rhetoric and lines of communication between and within organisations and with the amputee community. Indeed, rhetoric used by governing bodies and charities was reported to deter or encourage participation. One participant expressed how the name of a charity influenced their engagement: “Limbless Association. Limb‘less’ Association. It's a bit of a negative, isn't it? So, you're already starting from a negative starting point. It didn't feel right. And then Limb‘Power’ came on the scene. Okay then! That's a bit more like it. Let's go”. No or poor lines of communication between and within governing bodies, charities, and limb centres were also reported as a barrier, together with limited opportunity for patient or member feedback, a lack of marketing material to raise awareness in the amputee community, and lies or broken promises.

The final subtheme is social and financial capital. Participants reported that disability charities rely on volunteers, having loyal and reciprocal relationships with its members, income generation (e.g., fundraising, grants), and financial donations. Where volunteers and finances were available, these were reported to facilitate participation in LTPA through, for example, hosting regional and local events. However, without access to social and financial capital (e.g., poor leadership, volunteers who are not loyal or reliable, unsuccessful grant applications), charities are hampered in the opportunities they could provide their members:

> The problem that we've got is that we haven't got many employed staff. And I can only do so much. So, we're trying to grow the charity, so we can do more. At the moment, we only run two main events a year. So, members have to wait another year for an engagement opportunity. But some people are literally waiting for the next event. We haven't got that continuation. They are waiting for us to put something else on, because they feel comfortable in this environment. And I would like to do more, but I can't without the funding and the staff.

3.10. Miscellaneous

The data presented here does not cohere together meaningfully; therefore, this ‘theme’ has been labelled miscellaneous. It includes social class and employment status, which both impacted on what activities were available to the participants, as well as the participants' own personal lives and resources (e.g., financial, psychological characteristics). Barriers included life events (e.g., moving to a new house, changing job, relationship breakdowns), inadequate finances, perceiving oneself as a lazy person, being unwilling to give things a go, and a perceived lack of time or a block of time (e.g., demanding job, busy social and family life, and adopting multiple roles). One participant said, “It's difficult to come back from London in time to play badminton. Life gets in the way. I might choose to go out with friends. To do something with the Mrs. As you know, the whole adoption process has

taken time. And, any free time I have, I just want to play with him [son].” However, this participant reflected a year later, “I now play badminton once a week. I've adjusted my work. It's fully integrated into my routine now.” The ability to effectively manage one's time facilitated LTPA, together with having an ability to motivate oneself, set meaningful goals, control one's thoughts and feelings, laugh at oneself, be proactive and have a ‘go-getter’ and resilience mindset, a willingness to try things, and other life circumstances (e.g., owning a dog). One participant reported, “For me, it's doing something when you don't want to do it. That is motivation. Motivation is not always doing something because you like it. It's getting your arse out of bed, and doing it. I don't really want to do this. But I'm going to do it anyway.”

4. Discussion

This original study is the first to examine the factors that impact LTPA participation among people with an amputation in England. It provides a rigorous foundation for a ‘bottom up’ approach for LTPA promotion, which aligns with the NHS's vision for person-centred care (NHS England, 2014). Findings make a novel and significant contribution to literature in at least six important ways. First, barriers, facilitators and benefits operate at various levels of influence in England. Although the intrapersonal themes identified (e.g., personal well-being) resonate with research in other countries such as Canada (Couture et al., 2010), United States (Pasek & Schkade, 1996), and The Netherlands (Bragaru et al., 2013), novel themes that operate at different levels in England include knowledge of individuals in organisations (e.g., HCP's in NHS hospitals lacking LTPA knowledge), relationships among organisations (e.g., poor communication between charities and limb centres), and UK Government policies such as the Personal Independence Payment and Employment and Support Allowance. Second, factors that impact LTPA in England were identified to be diverse, dynamic, and fluid over time. Therefore, rather than treating barriers, facilitators, and benefits as independent and static, decision-makers and service-providers in England (e.g., Department for Culture, Media, and Sport; Sport England; English Federation of Disability Sport; National Disability Sports Organisations) should account for the complex and dynamic interplay between people and their environments over time. Indeed, Williams, Ma, and Martin Ginis's (2017) meta-synthesis of physical activity interventions for people with physical impairments identified *diversity* to be a critical component. From our findings, diversity in intervention design is not only important from an interpersonal perspective (i.e., needs across individuals), but also from an intrapersonal perspective (i.e., needs over time).

A third way this study extends previous research is that only benefits of LTPA have been reported (Bragaru et al., 2011). Yet, while this study also identified benefits, negative experiences of LTPA were also reported. Therefore, decision-makers and service-providers in England must take a more critical approach to LTPA promotion. Fourth, this study extends previous research by identifying novel themes such as organisational agenda, rhetoric, government representation, and body-self relationship. For example, although amputee-specific research highlights how personal and physical factors impact LTPA (for a review, see Deans et al., 2012), the role of physical activity on one's body-self relationship has not yet been identified. This and other novel themes open new areas of research. Fifth, findings highlight the role of the Internet in helping to access and disseminate LTPA knowledge and develop social capital. Therefore, decision-makers and service-providers should consider how to use the Internet effectively in its policies and practices (cf. Bundon & Hurd Clarke, 2015). Finally, Bragaru et al. (2011) questioned the methodological rigour of previous research due the over reliance on cross-sectional or ‘snap-shot’ research designs. By using a multi-method, longitudinal approach in this study we have raised the standard of evidence and provided a more nuanced understanding of LTPA among people with an amputation in England. Future researchers are encouraged to utilise this methodological design. For example, it would of interest to examine LTPA experiences over time for people with upper-limb amputations.

Based on these empirical findings, how can LTPA become the norm rather than the exception among people with an amputation in England? Drawing on Martin Ginis et al's. (2016) recent work that demonstrates how Sallis et al.’s (1985) social ecological model could be used to organise factors that affect LTPA, the impact of our findings will be discussed across five levels: intrapersonal, interpersonal, institutional, community, and policy. From an intrapersonal perspective, findings suggest personal and physical wellbeing, experiences of LTPA (e.g., identity formation), and personal resources (e.g., self-regulation) affect LTPA participation (and vice versa). For example, while pain was identified to be a barrier to LTPA (e.g., phantom, residual), LTPA was shown to reduce perceived pain and motivate participation. Understanding the relationships between factors when promoting LTPA is of critical importance. Alongside greater awareness of LTPA, our findings also suggest the role of self-regulation strategies. These strategies can be informed by psychological frameworks including behaviorism (e.g., nudges to engage in LTPA), cognitivism (e.g., reframing beliefs regarding LTPA), humanism (e.g., self-exploration of one's identity), and acceptance and commitment therapy (e.g., mindfulness). Yet, while self-regulation is important, our findings demonstrate that LTPA promotion goes beyond personal agency. Indeed, a concern with focusing at an intrapersonal perspective is that it promotes a neoliberal health role (Smith & Perrier, 2014), which calls on the individual to be a responsible citizen who must personally take care of his or her own health by participating in LTPA. This perspective ignores social responsibility, which can be problematic for people with an amputation who face barriers at an interpersonal, institutional, community, and policy level.

Taking an interpersonal perspective, socialWB (e.g., psycho-emotional disabilism), inspiration (e.g., inspired, inspiring others), social support (e.g., emotional, informational), and interpersonal skills (e.g., compassion, care) were identified to impact LTPA. For example, the attitudes of others can pose a barrier to LTPA, which aligns with Thomas's (2007) social-relational model. That is, society can hurt people on a personal level through expressions of negative attitudes, insensitive comments, and unsupportive behaviours. This psycho-emotional disabilism can affect one's sense of self and limit what people believe they can accomplish and become. Given its profound impact, the prevention and/or alleviation of psycho-emotional disabilism must be accounted for in LTPA promotion. As well as taking active steps to prevent disabilism, Bragaru et al. (2013) recommended stigma management training for people with an amputation. Our findings outline several self-presentation strategies that could be used in training stigma management that were found to combat negative stereotypes and attitudes. Another strategy would be for organisations to build social support networks to facilitate peer-support (Marzen-Groller & Bartman, 2005). This could be done face-to-face or online (Bundon & Hurd Clarke, 2015). However, it is important to recognise that people who identify themselves as role models can experience burnout and support exchanges can be negative too. Indeed, while stories told by role models often reflect growth and positivity, celebrating and endorsing such stories may also silence alternative narratives, making these untellable (Day & Wadey, 2017).

Organisational functioning (e.g., communication), the physical environment (e.g., accessibility), and knowledge of LTPA (e.g., lack of knowledge) at an institution level also affected LTPA. For example, people within organisations were identified to lack knowledge, not promote knowledge, possess ‘incorrect’ knowledge, and/or transfer knowledge devoid of care and compassion. This included HCPs, gym instructors, coaches, and sales assistants. Regarding HCPs, these findings resonate with Williams, Smith, and Papathomas (2016) who interviewed 18 physiotherapists from the UK and Ireland. It was identified that although physiotherapists value LTPA, active promotion of LTPA remains largely absent from their practice. Therefore, there is a clear need to improve HCP's knowledge of how to promote LTPA, which

could include integrating our findings within University's curriculum and using them to inform professional development training programmes at rehabilitation centres. However, this recommendation needs to be considered in the wider political climate (Blake, Zhou, & Batt, 2013; Soundy, Roskell, & Smith, 2013; Speake et al., 2016). Indeed, HCPs face barriers to LTPA promotion, which include time pressures from increased administrative demands and a lack of time allocated to being with patients. Therefore, a change in healthcare settings in England is required, especially given that these barriers may undermine government targets. Yet, while HCPs and others (e.g., gym instructors, coaches, and sales assistants) have a critical role in LTPA promotion, it is important to acknowledge that many environmental factors that affect LTPA are outside of their control (e.g., home, work, neighbourhoods, transport).

At a community level, LTPA was identified to be affected by the structures and groups to which people belong, products and technology, and relationships among organisations. For example, poor links and flow of communication between governing bodies, charities, and limb centres were found to be a barrier to LTPA. There is a clear need to build stronger relationships between rehabilitation facilities and community-based sport and exercise programmes (Rimmer & Lai, 2015). Towards this agenda, Martin Ginis et al. (2016) recently recommended that rehabilitation professionals could share expertise on the needs of people with a disability, and the recreation sector could share information on locally available programming. Building stronger liaisons between sectors would also help patients with an amputation experience a smoother transition from hospital-based to community-based LTPA. Our findings would suggest that this transition is often currently impeded by a community that is underdeveloped to support LTPA, including inappropriate sport and fitness equipment for people with a disability. This is not to say that we recommend people with an amputation need specialised equipment developed for them, which can further reinforce a culture of isolation and separation. Rather, it is recommended that LTPA promotion strategies should seek to reach *all* community members, including people with disabilities (Rimmer, 2017). An example of how to 'bridge the gap' between hospital and community-based LTPA is provided by Rimmer and Lai (2015) who propose a Transformative Exercise Framework. The efficacy and effectiveness of this model however awaits future research.

At a policy level, findings identified government representation, government policies (e.g., Personal Independence Payment, Employment and Support Allowance), health policies (e.g., NHS initiatives), transportation, and costs of participating to impact LTPA. For example, a lack of disability representation in central and local government was identified as a barrier to LTPA. Specifically, this lack of representation was felt to lead to policies and practices that did not reflect the participants' lived experiences and therefore were not conducive to them leading an active life. For example, the eligibility criteria for disability benefits led to a perceived binary relationship: You can either receive financial support or lead an active life; you cannot have both. Yet over time, this perceived relationship became more complex. Those opting for benefits felt the eligibility criteria restricted LTPA participation, despite having the financial capital to participate. On the other hand, those who could opt for an active life grew in independence and life satisfaction, yet they faced alternative barriers (e.g., transportation and membership costs). Critically, both these scenarios led to circumstances that challenged eligibility criteria. For example, our findings demonstrate that people with amputations have 'good' and 'bad' days, weeks, months, and even years. Good days reflect greater independence, whereas bad days reflect the need for support. Although LTPA was identified to lead to more good days, having an amputation made life more unpredictable, which did not align with the government's criteria. All in all, increased government representation from people with a disability will help to shape public policy to better promote LTPA among people with an amputation in England.

5. Conclusion

This study provides an original and rigorous account of the barriers, facilitators, and benefits of LTPA among people with an amputation in England. Findings provide important implications for LTPA policies and practices at an intrapersonal, interpersonal, institutional, community, and policy level. Although LTPA promotion is complex, this study's finding help towards designing meaningful participation-enhancing polices, practices, and interventions. Yet, the term 'intervention' might imply an element of interference or intrusion, which might not necessarily be invited or welcome by people with an amputation in England. Perhaps future researchers therefore should move beyond the traditional medical model that places patients in the position of recipients. Evidence suggest that involving patients is critical for lifestyle change (Jun et al., 2014; Speake et al., 2016); therefore, one approach that lends itself to real-life interventions is action research (Reason & Bradbury, 2013). It seeks to bring together strategic action and critical reflection with others to produce original knowledge, solutions to practice problems and/or improvements in practice. This approach, amongst others, may help uncover the complexities with behaviour change in LTPA promotion efforts for people with an amputation in England and beyond.

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