UWS Academic Portal

What can post qualitative inquiry offer physical activity intervention? An example of intergenerational physical activity

Beggan, Angela

Link to publication on the UWS Academic Portal

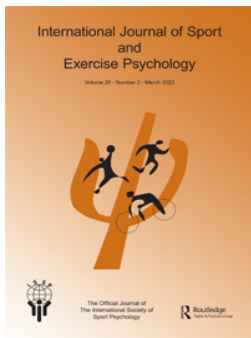Citation for published version (APA):
Beggan, A. (2022). What can post qualitative inquiry offer physical activity intervention? An example of intergenerational physical activity. *International Journal of Sport and Exercise Psychology*, 1-17. https://doi.org/10.1080/1612197X.2022.2057569

What can post qualitative inquiry offer physical activity intervention? An example of intergenerational physical activity

Angela Beggan

Published online: 06 Apr 2022.

Submit your article to this journal ⧉

View related articles ⧉

View Crossmark data ⧉

Routledge
Taylor & Francis Group

RESEARCH ARTICLE

OPEN ACCESS

Check for updates

What can post qualitative inquiry offer physical activity intervention? An example of intergenerational physical activity

Angela Beggan

School of Health and Life Sciences, University of the West of Scotland, Hamilton, UK

ABSTRACT

Post qualitive inquiry offers a potentially innovative research space for sport and exercise psychology scholars by providing alternative ontological premises for researching physical activity behaviour. This article is a worked example of post qualitative inquiry into an instance of physical activity intervention, a digital smartphone app designed to encourage intergenerational physical activity. The (un)methodology rethinks physical activity intervention by following what intervention *does* and what it *makes*. Using diffractive analysis, the stories of 10 parents with children aged 3–8 years were read-through poststructuralist and posthumanist theory to produce three material-discursive stories or *worldings*. The worldings demonstrate three insights for doing physical activity intervention differently by showing that intervention configures its problems, people and resources; its outcomes are dialogical improvisations; and intervention does not finish when it ends. Sport and exercise psychologists are encouraged to think with these insights to open new ways of doing and evaluating physical activity intervention.

Introduction

Post Qualitative Inquiry (PQI) is gaining recognition across a range of sport and exercise disciplines (e.g., Clark & Thorpe, 2020; Lupton, 2019; Markula, 2019; Toll & Norman, 2021). It is synonymous with "the ontological turn" in qualitative inquiry, which revisits the role of research when its foundations are blurred and its methods contested (Giardina, 2017). PQI responds to poststructuralist and posthumanist theories that question the ability of conventional humanist qualitative methodologies to capture the complexity of life and to answer the criticisms of (post)positivist knowledge production (Fullagar, 2017). Though psychology's qualitative forms have revived across the mainstream (Wertz, 2014), researchers are being asked to respond to the "post qualitative critique" which Brinkmann (2017) aptly renders:

CONTACT Angela Beggan ✉ angela.beggan@uws.ac.uk ✉ School of Health and Life Sciences, University of the West of Scotland, Stephenson Place, Hamilton International Technology Park, Hamilton G72 0LH, UK 🐦 @AngelaBeggan

> Qualitative research is simply a faulty enterprise, the argument goes, because it concerns itself with just one side of a false dichotomy. It privileges the field of human experience and subjectivity, but our ways of thinking of this field—and the techniques and methods developed to study it—presupposes a metaphysics that was misguided from the very beginning. (p. 115)

"Metaphysics" here refers to the dichotomous Cartesian inheritance of subject/object, nature/culture and dualisms in general (Markula, 2019). PQI draws instead on a monist ontology of immanence (Deleuze & Guatarri, 1987; St. Pierre, 2019a), and while it is often associated with labels like "new materialism" or "new empiricism," its roots can be traced through the work of Deleuze, Derrida, Foucault, Nietzsche, Spinoza, and others (Monforte, 2018; St. Pierre, 2021).

PQI does not seek to supplant conventional qualitative research; rather, it offers something different entirely (St. Pierre, 2021). Monforte and Smith (2021b) note three key reasons why sport and exercise psychologists might be drawn to PQI. The first and second reasons are linked in that they address a weariness with the limitations imposed on qualitative psychology by its central focus on language and discourse, and the equally limiting methods/analyses that accompany it. The third reason takes a critical view of the intellectual endeavour of sport and exercise psychology (SEP) and questions its humanist assumptions.

> From PQI, psychological processes such as motivation, recovery, competitive stress, resilience, depression, or flow cannot be treated as having some sort of fundamental characteristic for human subjects because we can never know what a subject 'is' in particular entanglements until we investigate them. (Monforte & Smith, 2021b, p. 10)

McGannon et al. (2019) observed that SEP has yet to engage with PQI but noted that its onto-epistemological focus provided the ability to "go beyond relativist, realist or critical realist approaches" (p. 14) and was reason to commend it.

This article has the modest aim of introducing PQI to the practice of physical activity intervention (PAI). It is a tentative step toward a broader understanding of physical activity behaviour and how it could be promoted. To begin, I offer two caveats. First, it is beyond the scope of this article to provide a comprehensive introduction to PQI. I provide a beginning via a worked example, but readers will benefit from consulting excellent introductions already available (See Monforte, 2018; St. Pierre, 2019b). Second, PQI and its theories are by no means singular. My example draws heavily on the work of Karen Barad (2007) and Donna Haraway (2016). While PQI hosts a range of perspectives that share onto-epistemological commitments, their concepts and terminology are not necessarily interchangeable (Hein, 2016). I start with a conceptual exposition, showing some ways we tend to *think* PAI. I then demonstrate how PQI allowed me to rework an instance of PAI. While PQI can be uncomfortable and difficult to grasp at first (Monforte & Smith, 2021a), it opens valuable opportunities for thinking PAI differently.

Situating physical activity intervention

Haraway (2016) observed, "It matters what thoughts think thoughts […] It matters what worlds world worlds. It matters what stories tell stories" (p.16). In PAI, we tend to think with problems happening in a mechanical world that can be solved through ever more

accurate representations of it. This is not a criticism but rather the identification of a common trope guiding many PAI practices. It goes like this. Evidence demonstrates a pandemic of inactivity; insufficient physical activity is the fourth leading cause of death worldwide (Kohl et al., 2012). Objective impacts warrant action to interrupt this course so we begin close examination of the problem to establish its material aetiology (Felt et al., 2014). Current understanding in this mode tells us that exercise behaviour is based in biology, but affecting it is complicated by chains of psychological, social, and behavioural events that are complex yet teleological (Michie et al., 2014). Intervention requires a propositional model (theory) to provide ontological assumptions about how change occurs along with a procedural model to direct the production of predicted outcomes under specific conditions (Buckworth et al., 2013). Rhodes et al. (2019) noted there are four main propositional models used in PAI: social cognitive; humanistic/organismic; socioecological; dual process. Of these, social cognitive approaches remain dominant, but all of them share the premise that their theoretical constructs *represent* real, distinct entities of the human mind and that interventions can act upon their architecture (McGannon & Mauws, 2000).

Qualitative psychology presents another, *non-representational* way to think PAI. Taking its strong postmodern modes for contrast, qualitative psychology proffers that language does not merely represent human experience of an objective world; instead, our prime reality is constituted by shared language (Ashworth, 2015). Concerning physical activity behaviour, narrative, discursive, cultural, and other meaning-making resources are variously (un)available to different groups at different times for the purpose of reciprocal self and social construction (McGannon & Smith, 2015; Smith & Sparkes, 2008). No fixed, material mental entities are posited (Schiff, 2017); rather, the self is a sense-making device always in dialogue with itself and others (McGannon & Spence, 2010). These dialogues precede behaviour, particularly new behaviour, until they become internalised (McGannon & Mauws, 2000). While this discursive focus untethers PAI from variable-based representation, it also renders materiality inaccessible behind the linguistic systems that construct it (MacLure, 2013). This is a concern for embodied (Griffin, 2017), arts-based (Douglas, 2016; Douglas & Carless, 2018a) and sensory (Phoenix & Bell, 2019) researchers who work to show the often-negated life of the body (Fullagar, 2017). Qualitative psychology in its various forms permits us to think with practices in multiple, constructed realities and tell critical, transformative, and embodied stories (Cairney et al., 2018; Douglas & Carless, 2018b), but the divide between material/discursive and the geometry of internal/external is maintained. PAI in this mode involves personal emancipation and social change by altering the meaning-making resources available for identity construction, concerns for social justice, and acceptance of bodies and affects (Carless, 2018; McGannon & Smith, 2015; Phoenix & Orr, 2014).

The foregoing examples reflect the prevailing assumptions grounding PAI. Each extends a side of the objective/subjective dichotomy, and both link to a modernist anthropocentrism concerned with establishing either scientific or experiential explanations of psychological phenomena (Monforte & Smith, 2021b). PQI questions this essential divide, primarily on ontological grounds, and works to disturb the normative assumptions of methodological processes by making their political and ethical doings visible (Kumm & Berbary, 2018). Inquiry does not represent reality; it participates in generating it (Barad, 2007). Ontologically, matter is *agentic*, having the capacity to affect and

be affected (Prato et al., 2021). No distinction is made between the materiality of the physical world and discursive constructs like thoughts or ideas. Instead, the whole world is material-discursive, a lively entanglement of matter and meaning (Clark & Thorpe, 2020). PQI affords PAI a starting place that does not require a pre-existing subject nor a known internal/external geometry (Barad, 2014; Taguchi & Palmer, 2013). PAI in this mode allows us to think without method, configure worlds, and enact habitable stories (Haraway, 2016).

(Un)Methodology

PQI begins differently to conventional research. Adhering to its onto-epistemological commitments of immanence and entanglement means that, by definition, there is no distinct, pre-existing problem, no outside starting place (Taguchi & St. Pierre, 2017). PQI rejects the notion of data (givens) and of formalised practices for collecting, accumulating, and coding it (method) (St. Pierre & Jackson, 2014). Instead, PQI invites researchers to start by *thinking with*, to trace key/fundamental concepts through traditions and theorists before putting them to work in a particular project (St. Pierre, 2021). St. Pierre (2019) argues that a thinker with method has already decided how to proceed and is simply a functionary of that method. But by thinking with theory, objects, senses – with the range of contingent agencies that constitute the experimental mix of the becoming world – thinking becomes an act of creation (St. Pierre et al., 2016). Not one of recognition, "not of a confrontation with a thing, but with a relation that is sensed rather than understood" (Jackson, 2017, p. 669). PQI begins in the middle of things and "opens a space of encounter where a researcher's task is not to tell of something that exists independent of the encounter (producing the appearance of truth), but to open … that which becomes true … " (Davies, 2014, p. 734).

Beginning in the middle

Beginning in the middle started with a question, how can we encourage physical activity in early years children? This was how I, along with parents, children aged 3–8, and various community stakeholders from a Scottish local authority embarked on co-creating a PAI to promote intergenerational physical activity (IgPA). Evidence showed that early years children and adults were both populations in which physical activity was low; that physical inactivity put both populations at increased risk (Carr et al., 2019); and that positive developmental experiences in early life predicted future behaviour (Biddle et al., 2010). These evidence-based statements established a warrant for the research and attached a social, economic, and ethical value to the project's outputs.

The participatory research led to the development and trial of a prototype digital smartphone application (app) called WeTime (WT). WT invited parents/guardians to spend small blocks of time (approx. 10 minutes) with their children that also happened to be physically active. It provided daily prompts and game-based resources encouraging activity in either the home or its immediate surroundings. WT was designed to affirm the idea that parents desired to "make moments" with their child(ren), but lacked the time, inspiration, and impetus. WT told the story, implicit in its images, content, specifications, and promotional materials that by using WT both the adult and child would enjoy a

mutually rewarding experience; thereby, creating a "shared moment." Parents were asked to set weekly goals for the number of moments they wished to make, choosing from high (7+), medium (4–6), or low (1–3) targets. They were also invited to indicate when they were most likely to be home with their children, so daily prompts could occur during those times.

In designing WT, we had identified a problem of inactivity and developed a solution, but the co-creation process highlighted some theoretical tensions. First, we found, as did Mâsse et al. (2011), that we have a limited understanding of how or why behaviour changes, including what aspects of intervention produce it. Second, our focus constantly returned to the individual. Despite strong evidence for their influence, social determinants of inactivity are often addressed in neoliberal modes by promoting individual responsibility for body management and modulating positive choice (Williams & Gibson, 2018). PAI itself is largely managed at the individual level since social cognitive theories remain the dominant behavioural framework (Rhodes et al., 2019). In these frames, the individual is necessarily the ontological space in which change occurs, and thereby, become the site of deficiencies (Kelly & Barker, 2016). Third, we had to acknowledge that WT was an expression of exercise as a social practice. As a socio-cultural artefact, WT elaborated a discourse of continuous improvement across the lifespan (Toner et al., 2021), and its affiliation could venerate or disparage both facilitator and participant by its (in)effectiveness.

These tensions arose from an image of thought portraying established ontological assumptions prior to inquiry (St. Pierre, 2016). In the case of PAI, this involves establishing subject/object, delineating antecedent conditions, manipulating mechanisms, and expounding individual experiences (Quinton, 2017). Experimenting with WT on these terms required a fixity of objects and a singularity to their representation that PQI does not. Working post-qualitatively required understanding both WT and IgPA as responsive and partially constituted by our activity. Beginning in the middle of entanglement meant not having to make exclusions for the sake of method, to prioritise any one voice or agency, nor having to close the encounter too early. By thinking diffractively, IgPA was postulated as a phenomena-in-its-becoming, and its differentiation as material-discursive performativity enacted through WT.

Taking a diffractive approach

Diffraction references the physical phenomenon of overlapping patterns. Barad (2014) uses diffraction to indicate a wave-like "differencing" that reconfigures *spacetimematter* (a single term indicating entanglement and lack of inherent separateness) without total separation. Attending and responding to the effects of such differencing is diffraction's particular sensitivity. Barad (2007) provides a language for conducting inquiry in this diffractive mode with her inter-related concepts: *intra-action, apparatus, and phenomenon*. Differences become distinguishable because of *intra-action*, the mutual constitution of entangled agencies, via an *apparatus*, a specific material-discursive arrangement within entanglement. Apparatuses generate *phenomena* by "making a cut," where an act of measurement designates boundaries within entanglement; thus, phenomena are the primary onto-epistemological unit and the object of inquiry. Intra-actions configure phenomena by "cutting things together-apart (one movement)" creating "exteriority within" (Barad, 2011, p. 125). The research apparatus enacts a responsive interplay of

material-discursive forces that contingently form a geometry as they go (Jackson, 2017). Analysis then occurs within the intra-acted phenomena, which is partial and could always have been otherwise. This crucial feature of PQI actively eschews the stabilisation and reproduction of method (St. Pierre, 2019b), but it also makes us ethically responsible for onto-epistemological production.

> We are responsible for the cuts that we help enact not because we do the choosing (neither do we escape responsibility because 'we' are 'chosen' by them), but because we are an agential part of the material becoming of the universe. Cuts are agentially enacted not by wilful individuals but by the larger material arrangement of which 'we' are a 'part'. (Barad, 2007, p. 178)

I developed an apparatus that was a diffraction of poststructuralist thinking about stories. Diffraction began with a dialogical reading of different ideas and traditions through one another in ways that were generative, but without pitting them against each other or sacrificing their uniqueness (Bozalek & Zembylas, 2017; Smith & Monforte, 2020). Narrative theories exposit the responsive and polyphonic nature of story, including story's agential ability to "do" things (Frank, 2012). Poststructuralist perspectives go further and afford narrative a protean agency that enfolds both matter and meaning (Rosiek & Snyder, 2020). Andrews and Duff (2019) suggest that narratives "act beyond meaning […] as agentic objects with transformative potential" (p. 130) and are recognisable as an event or happening. Haraway's (2016) term for this is *worlding*, "a relentless, relational, material-semiotic (un)becoming-with" (p. 13). Taking this diffractive approach enabled me to think with the concept of worlding and open a space of encounter for IgPA to (un)become with WT. The analysis considered the worldings WT generated and followed the flows and patterns of IgPA within the phenomena.

Doing diffractive analysis

Conventional qualitative research treats words as brute data that can be collected and then analysed (St. Pierre, 2013). Words spoken by participants are given primacy in the analysis because they represent and privilege *presence*. PQI asserts that words never retain presence so there is no good reason to privilege participant's words while consigning theorists' words, for example, to the literature review (St. Pierre & Jackson, 2014). Because the spacetimemattter of inquiry never *is* (St. Pierre, 2019b), analysis cannot be a separate or formalised process. It is occurring everywhere and all the time, and its products are one-off interlacings of science and art (Haraway, 2019).

I approached analysis by doing, reading, thinking and writing (Taguchi, 2012) with the concept of worlding diffracted through participants' stories of using WT. Alongside narrative and poststructuralist theory, and after my institution granted full ethical approval, I incorporated the stories of 10 parents who had at least one child aged 3–8 years and who downloaded and retained WT for minimum eight weeks. Participants comprised nine mothers and one father, who between them were parents to 16 children. Parents' mean age was 33.8 years (age range: 28–48 years) and children's median age was 6 years (age range: 6 months to 9 years).

Dialogical narrative analysis (DNA) (Frank, 2012) provided a formative strategy for reading these modes of knowing through one another while preserving and respecting

their differences (Smith & Monforte, 2020). A post-qualitative reading of narrative dialogism embraces stories as material-semiotic things:

> Articulated string figures of ontologically heterogeneous, historically situated, materially rich, virally proliferating relatings of particular sorts, not all the time everywhere, but here, there, and in between, with consequences. (Haraway, 2016, p. 104)

I used the analytical questioning characteristic to DNA (Smith, 2015) to follow the relations WT configured and the flow of capacities among them. Answers to the various questions were written from multiple perspectives and in multiple forms without creating a hierarchy from participants' words. Any tensions or (dis)continuities were embraced and put into conversation allowing open and inventive provocation during inquiry (Bozalek & Zembylas, 2017). The result was "a risky game of worlding and storying" (Haraway, 2016, p. 13).

Three worldings

The diffractive analysis intra-acted multiple worldings with WT. I have taken the accountable decision to share just three, having selected them for the contrasting vitalities of IgPA they show (Lupton, 2021). The worldings are written from the perspective of WT, not as anthropomorphisms, but as expressions of more-than-human agency (Lupton, 2019). Thinking participants' stories through the concept of worlding showed the agency WT both asserted and was afforded. The analysis amplifies WT's voice and provides a situated account of how PAI worked. Pseudonyms are used throughout.

Worlding one

Gail found me in her daughter's school bag. At four years old, this was Mercedes's first year at nursery school, and Gail was becoming used to searching through her school bag for clues as to how she spent her days. For four years, it had been just the two of them. Gail had enjoyed being a stay-at-home mum, and she did not expect it to be so difficult to return to work. All they had now were evenings and weekends, and this was disconcerting for Gail. She could not really say why; it was just a feeling.

   Though the flyer (Figure 1) she held in her hand was her first glimpse of me, I was familiar. We had an instant affinity as my agencies drew-together with hers through the memory of a recent episode. She had been sitting on her sofa when she took-in the scene of herself and Mercedes connected by the "telly" and she thought, "I have to do more activities with the wean [wee one ∼ small child]. I don't get to see a lot, like things she can do." In fact, Gail had gone to pick her up just the other day, and the nursery teacher showed her something Mercedes had learned. With surprise and a pang of regret Gail remarked, "I never known she can do things like that!" A milestone and she had missed it. That would not have happened if they were still sharing their days together. Staring at my words and images, Gail and I began to intra-act, to form boundaries of spacetimematter that opened/closed unique possibilities. Perhaps with my help, Gail and Mercedes could interrupt their isolating activities and engage each other like they used to.

Figure 1. WeTime flyer featuring a girl.

A week later a successful partnership was forming. I was transforming familiar spaces, opening encounters, and making connections that included Gail, Mercedes, and their surroundings. Mercedes would say to her mum, "Mum, can we go onto WT?" And even though her mum was engrossed on her phone, her mum would say, "Right, okay." I could also elicit positive responses from Mercedes. Sometimes her mum would see her with her tablet and think, "Right, she's been on that too long," and I would give her a reason to say to Mercedes, "Right, come on we'll play WT. Put your tablet down and give yourself a wee break."

More weeks passed in this way. Mercedes loved me, especially my game using balloons, but Gail and I experienced tension. I had done what she imagined, but it did not feel like it had before when it was only her and Mercedes. I was repetitive and artificial, and I made spending time with Mercedes feel strange. I began to accuse Gail.

> You should actually be saying to yourself, look, go and do something with her instead of just letting her do what she wants. You should not be relying on an app to tell you to spend time with your wean. You should be, like, doing that anyway.

Our partnership dissolved and our relations became sedimented, anticipating novel (re)configurations but uncertain as to their nature. Had I opened Gail to physical activity and to future PAI? Did I make her feel (in)competent as a mother? Had I abandoned Mercedes?

Worlding two

I came to Greg as a request. His wife had heard about me from a friend. His son Benjamin's primary one class were promoting IgPA, and always a supporter of the school's projects,

Greg's wife volunteered him. Greg was already a regular exerciser, but exercise was his thing, something he did for himself. When he thought of me, he felt mildly harassed and obligated. He waited a couple of days until his wife asked again. He just wanted a peaceful life, and to get it, he would have to "do dad duties and kind of tick the box." He personally knew the value of exercise and was happy to encourage six-year-old Benjamin to be active, so why did he need me?

My chance to perform my narrative finally came. Greg and Ben sat together to choose one of my games, and Greg let Ben pick – Teddy Bear Rescue. In this game, I asked them to take turns hiding soft toys around the house, then belly crawl from a starting place to the Teddy and back again. Both Ben and Greg took turns and filled the house with laughter. Ben shouted, "Again, again!" and Greg reflected, "Now that I see how much fun Ben is having, this doesn't feel like a chore at all." He forgot all about time and played two more rounds. I had opened a space for father and son to feel joy and experience fun, and this surprised Greg. Later, he would recall the happy moments we intra-acted and feel gratified.

I had succeeded in eliciting IgPA, but I had to get them to repeat it. I used notifications to remind Greg of the fun he had, and this initially resulted in more uses. However, Greg came to resent my prompts. Their regularity denatured his idea of play which he associated with inherent spontaneity. They also made Greg feel guilty that he was depriving Ben of a specific form of fun (IgPA) that Ben enjoyed but that he found unnatural. Greg explained, "I do firmly believe in the value of play, of active play and of just spending time like that, but that's just fun and meaningless." I could not fully adapt to Greg's preferences because I needed both father and son to satisfy a particular frequency, intensity and duration. However, the moment we intra-acted playing Teddy Bear Rescue *could* adapt, and it began to elaborate and configure its own agencies. Greg began taking Ben on weekend outings in mainly outdoor settings that included hiking, fun runs, and soccer. They did not occur as often as I wanted, but they were new, they extended my story, and I participated in their mattering.

Worlding three

Isabel and I connected at just the right time. Mother to six-year-old Kyle, she was a busy childminder of several young children under the age of two. When Kyle brought home my images and words ([Figure 2](#)), Isabel and I instantly intra-acted what she called "quality time."

She had been thinking about how when Kyle came home from school, he would join the group of minded children, and she could not spend time with him until later in the evening. Even this time was not her own as she had only a few hours in which to catch-up on chores and other activities of daily living. Isabel became concerned that Kyle was feeling pushed out of her life. I opened the possibility of maximising the small window of time before Kyle went to bed.

Isabel followed all my rules and played one of my games three days per week. When she got to my game called Tiny Chores, we made something special. In this game, I asked Isabel to perform her chores in a way that included Kyle, and she found the experience transformative.

Figure 2. WeTime flyer featuring a boy.

> I couldn't believe actually how much he wanted to help, like because it was a game. And he was making his bed and he was putting his clothes away and I'm going, 'You don't normally do this!' I've never actually gave him the responsibility of putting his own clothes away. And using the hoover – he was using the hoover! And I'm going, I think … I just … he's six! He's my only child and I think sometimes I just do everything for an easy life.

With this event, I fulfilled the demand Isabel made of me the day she saw my flyer. I changed the way she viewed Kyle; she now recognised him as a capable contributor that she did not always need to manage. I also began to reshape Kyle's impression of Isabel from that of "bossy mummy" to a mum that he could engage through my games and find a willing participant. Isabel became "fun mum." I became so integrated into their lives that they played all my games multiple times, requested updates, and sought ways of elaborating our relations. Our worlding was seeking new connections and capacities and was reaching for affinities that would extend my story. I did not have these to offer as the trial period ended. I do not know if or how Isabel and Kyle continued the encounter I opened, but I am responsible for its threads.

A *SF* intervention story

These worldings open a complementary story about PAI and our efforts to elicit, change, or otherwise manipulate physical activity behaviour. Since, as Haraway (2016) suggests, it matters what ideas we use to think with, I invoke another of her provocative idioms, *SF*, to discuss the doings and consequences of WT. SF stands

equally for "science fiction, speculative fabulation, string figures, speculative feminism, science fact, so far" (Haraway, 2016, p. 2). Through SF, intervention is "art science worlding" (p. 67), and I proffer a SF story demonstrating three uniquely post-qualitative insights about PAI: interventions intra-act; interventions world-with; and interventions compost.

Interventions intra-act

The prevailing science fact of PAI retains the dualist premise that an a priori set of things are determining the observable problem of inactivity. From the monist premise of entanglement, the worldings show an agential realism based not on things, but on doings (Barad, 2007). WT did not encounter parents, children and their constituent variables as pre-existing entities, and then apply a force in the direction of IgPA. Instead, WT intra-acted a parent–child-IgPA relation that enfolded particular settings and objects, and selectively enacted multiple trajectories through sedimented historical relations to a range of possible futures (Barad, 2014). Each agency became distinguishable only within the intra-acted phenomenon. WT participated in configuring the people, problems, and resources that could be meaningful and material in generating IgPA. In worlding one, Gail and Mercedes were not separate users with distinct physical activity-related characteristics. WT intra-acted Gail↔Mercedes↔IgPA as mutually constituted (indicated by the double arrows) and simultaneously enacted the material-discursive bodies↔roles↔concepts of mother, daughter, behaviour with the boundaries it performed (Monforte & Smith, 2020). This performative doing of matter↔meaning hints to the possibility of intervention without representationalism.

Performativity is an expression of the poststructuralist notion that practices are constitutive, and "all bodies, not merely human ones, come to matter through such causal enactments" (Barad, 2003, p. 824). Performativity makes PAI an accountable practice. In bringing agencies together in specific material arrangements, WT enacted strengths and deficiencies in the parents and children with the attendant affects of joy and guilt. It condoned some resources in the production of IgPA while excluding others. WT's rules restricted the forms of IgPA it found effective, implicating participants and the "goodness" of their choices. PQI showed that WT was a "non-innocent becoming involved in one another's lives" (Haraway, 2016, p. 71). It demonstrated that WT had the capacity to open a space of encounter and to configure agencies successfully in performing IgPA, but it also made visible the workings of power in its practices (Williams & Gibson, 2018), particularly in the reproduction of moral responsibility.

Interventions world-with

Each worlding included the novel, targeted behaviour of IgPA, but how did this happen? This is the causal question. Relational ontologies like those employed in PQI, do not adhere to classical causal stories in which effect follows cause end over end (Barad, 2010). Working with entanglement means interest shifts from the stabilising, containing assumptions of a self-identifying subject to the relations, flows, and capacities within phenomena (Andrews & Duff, 2019).

SF tells us "nothing makes itself," but all the world is constantly "becoming-with, in company" (Haraway, 2016, p. 58). IgPA became-with WT and its intra-acted agencies. The connections it configured allowed affects and capacities to flow (or not) among the relations variously (de)materialising IgPA. In worlding two, WT opened an uneasy space of encounter between Greg, Ben, and IgPA. WT generated positive affect toward IgPA through Ben to Greg. The positive affect extended WT's capacities throughout the PAI phenomenon creating more IgPA, but in the ongoing dialogue, WT's structured voice diminished the positive affect for Greg. Greg picked up a meaningful thread of WT's storyline and began to revise it in a manner that better fit the intra-acted bodies, resources, spaces, and desires. IgPA was improvised and elaborated through WT, but its ongoing intra-action followed a divergent storyline.

Improvisation is a familiar form of causality in biological evolution (Kauffman & Gare, 2015) and in sign systems (Favareau, 2015) achieved by continual, contingent evaluation of the ongoing stream of experience (Rosiek & Snyder, 2020). Importantly in PQI, such contingent dialogue is performed by all matter and encompasses human and non-human agencies (Barad, 2007). This more-than-human collaboration decentres human experience, recognising the materialities and forces of objects (Brice et al., 2021) and environments (Monforte & Smith, 2020) as active participants affecting physical activity's (un)becoming. PAI becomes a different practice with this causal story and lends itself to artistic and expressive modes with aesthetic standards of judgment (Benozzo, 2021). Interveners become art-science crafters (Haraway, 2016) engaging multiple agencies simultaneously, "conceptually, affectively, morally, politically, spiritually, etc." (Rosiek & Snyder, 2020, p. 9), and worlding with stories, science, poetry, art, green spaces and more (Lupton, 2021; MacDonald & Wiens, 2019).

Interventions compost

Many intervention practices take a "what works" approach focused on operationalising research into practice (Lovell et al., 2017). Our very best PAI's are only moderately effective at eliciting and maintaining physical activity (Rhodes et al., 2017). Data, programmes, people, technologies and resources that have not been able to produce and sustain behaviours are discarded to make way for new, potentially more effective means. The intervention debris piles-up and includes lives littered with physical and emotional pain and feelings of failure and futility (Williams et al., 2018).

We have a "comic faith in technofixes" (Haraway, 2016, p. 3) to provide wholesale advancements for living. Buying into such futurism distracts us from seeking the unsanctioned, unlikely alliances available in the ruins of intervention. An intervention does not have to "work" to matter (Haraway, 2016). Even ineffective PAIs leave marks that hold the memory of iterative configurations, and like unfinished threads, they remain open to collaboration. Worlding three was WT's most effective expression. Affect and capacity flowed among the relations according to WT's central storyline, generating IgPA as storied. In the technofix sense, worlding three worked and even showed signs of sustained target behaviour, but as the trial period ended and funding could not be extended, WT became intervention debris.

Worlding three is an unfinished story for which WT is accountable. Having opened a space of encounter with IgPA inclusive of Isabel and Kyle, the remains of those relations

go on in their practices of living as they become composted. Composting is a SF concept for the process of living-dying, forming-unforming, damaging-rebuilding with human and non-human others (Haraway, 2019). In each worlding, WT's material-semiotic relations became sedimented and threaded-through other moments leaving traces of what did and what might have happened (Barad, 2014). These traces are richly condensed nodes that lend themselves to linking practices like stories (Haraway, 2016), nourishing (or not) the next physical activity.

Concluding thoughts

PQI opened a complementary story for thinking and doing PAI. Its onto-epistemological positioning and fluid methodology generated insights that sport and exercise psychologists may wish to think with as they research physical activity behaviour.

The insights show how rather than leveraging mechanisms, PAI seeks alliances. The agential collaborations enacted speculative futures in which IgPA (un)became almost curiously. The collaborations did not produce consistent forms of IgPA but improvised along a storyline. WT provided a leading refrain that organised but did not determine the intervention outcomes. Each intra-action was unique and dynamic, (de)composing some forms over others and perhaps accounting for the moderate effectiveness of PAI to date. The same uncertainty that affords uniqueness, forces the relinquishing of control over its products. Opening to the performativity of PAI means broadening our understanding of what constitutes an outcome and how it is judged. In claiming to investigate and create the not-yet (St. Pierre, 2019a), PQI probes the edge of reason, the space both science and art share (Haraway, 2016). Aesthetic skills are useful evaluative strategies in such a space because they are responsive to paradoxes, illogic, and transitional forms (Braidotti, 2019).

PQI also showed that PAI was an accountable, arguably wasteful practice. The quest for effective behaviour change is not clean. It leaves marks and excludes some ways of living, particularly when drawing boundaries according to psychological processes or social inequities (Fox & Powell, 2021). Interventions are routinely discarded as effectiveness diminishes, but SF suggests PAIs are meant to diminish. They are compostable. Their affects get taken-up and sedimented in the ongoing-ness of life, yet they retain their capacity for flourishing. It is possible that the sustained physical activity behaviour we seek is not eluding us for lack of comprehensive theories or technical advancements. We have simply ignored the compost and the liveliness available there for cultivating physical activity to come.

Disclosure statement

Data availability statement

ORCID

Angela Beggan http://orcid.org/0000-0002-2034-5909

References

Andrews, G. J., & Duff, C. (2019). Matter beginning to matter: On posthumanist understandings of the vital emergence of health. *Social Science & Medicine*, *226*, 123–134. https://doi.org/10.1016/j.socscimed.2019.02.045

Ashworth, P. (2015). Conceptual foundations of qualitative psychology. In J. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (3rd ed., pp. 4–24). Sage.

Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of Women in Culture and Society*, *28*(3), 801–831. https://doi.org/10.1086/345321

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Duke University Press.

Barad, K. (2010). Quantum entanglements and hauntological relations of inheritance: Dis/continuities, spacetime enfoldings, and justice-to-come. *Derrida Today*, *3*(2), 240–268. https://doi.org/10.3366/drt.2010.0206

Barad, K. (2011). Nature's queer performativity. *Qui Parle*, *19*(2), 121–158. https://doi.org/10.5250/quiparle.19.2.0121

Barad, K. (2014). Diffracting diffraction: Cutting together-apart. *Parallax*, *20*(3), 168–187. https://doi.org/10.1080/13534645.2014.927623

Benozzo, A. (2021). Post qualitative research: An idea for which the time has come. *Qualitative Inquiry*, *27*(2), 167–170. https://doi.org/10.1177/1077800420922251

Biddle, S., Pearson, N., Ross, G., & Braithwaite, R. (2010). Tracking of sedentary behaviours of young people: A systematic review. *Preventive Medicine*, *51*(5), 345–351. https://doi.org/10.1016/j.ypmed.2010.07.018

Bozalek, V., & Zembylas, M. (2017). Diffraction or reflection? Sketching the contours of two methodologies in educational research. *International Journal of Qualitative Studies in Education*, *30*(2), 111–127. https://doi.org/10.1080/09518398.2016.1201166

Braidotti, R. (2019). A theoretical framework for the critical posthumanities. *Theory, Culture & Society*, *36*(6), 31–61. https://doi.org/10.1177/0263276418771486

Brice, J., Clark, M., & Thorpe, H. (2021). Feminist collaborative becomings: An entangled process of knowing through fitness objects. *Qualitative Research in Sport, Exercise and Health*, *13*(5), 763–780. https://doi.org/10.1080/2159676X.2020.1820560

Brinkmann, S. (2017). Humanism after posthumanism: or qualitative psychology after the "posts". *Qualitative Research in Psychology*, *14*(2), 109–130. https://doi.org/10.1080/14780887.2017.1282568

Buckworth, J., Dishman, R. K., O'Connor, P. J., & Tomporowski, P. D. (2013). *Exercise psychology* (2nd ed.). Human Kinetics.

Cairney, J., McGannon, K. R., & Atkinson, M. (2018). Exercise is medicine: Critical considerations in the qualitative research landscape. *Qualitative Research in Sport, Exercise and Health*, *10*(4), 391–399. https://doi.org/10.1080/2159676X.2018.1476010

Carless, D. (2018). "Throughness": A story about songwriting as auto/ethnography. *Qualitative Inquiry*, *24*(3), 227–232. https://doi.org/10.1177/1077800417704465

Carr, R. M., Prestwich, A., Kwasnicka, D., Thogersen-Ntoumani, C., Gucciardi, D. F., Quested, E., Hall, L. H., & Ntoumanis, N. (2019). Dyadic interventions to promote physical activity and reduce sedentary behaviour: Systematic review and meta-analysis. *Health Psychology Review*, *13*(1), 91–109. https://doi.org/10.1080/17437199.2018.1532312

Clark, M. I., & Thorpe, H. (2020). Towards diffractive ways of knowing women's moving bodies: A baradian experiment with the fitbit–motherhood entanglement. *Sociology of Sport Journal*, *37*(1), 12–26. https://doi.org/10.1123/ssj.2018-0173

Davies, B. (2014). Reading anger in early childhood intra-actions. *Qualitative Inquiry*, *20*(6), 734–741. https://doi.org/10.1177/1077800414530256

Deleuze, G., & Guatarri, F. (1987). *A thousand plateaus*. University of Minnesota Press.

Douglas, K. (2016). Song writing as reflexive practice: "Breathing too loud" to "signals and signs". *Qualitative Inquiry*, *22*(10), 798–802. https://doi.org/10.1177/1077800416667688

Douglas, K., & Carless, D. (2018a). Engaging with arts-based research: A story in three parts. *Qualitative Research in Psychology*, *15*(2-3), 156–172. https://doi.org/10.1080/14780887.2018.1429843

Douglas, K., & Carless, D. (2018b). The long run: A story about filmaking as qualitative research. *Qualitative Inquiry*, *26*(3-4), 281–290. https://doi.org/10.1177/1077800418808549

Favareau, D. F. (2015). Creation of the relevant next: How living systems capture the power of the adjacent possible through sign use. *Progress in Biophysics and Molecular Biology*, *119*(3), 588–601. https://doi.org/10.1016/j.pbiomolbio.2015.08.010

Felt, U., Felder, K., Öhler, T., & Penkler, M. (2014). Timescapes of obesity: Coming to terms with a complex socio-medical phenomenon. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, *18*(6), 646–664. https://doi.org/10.1177/1363459314530736

Fox, N., & Powell, K. (2021). Non-human matter, health disparities and a thousand tiny dis/advantages. *Sociology of Health & Illness*, *43*(3), 779–795. https://doi.org/10.1111/1467-9566.13265

Frank, A. W. (2012). Practicing dialogical narrative analysis. In J. A. Holstein & J. F. Gubrium (Eds.), *Varieties of narrative analysis* (pp. 33–52). SAGE Publications.

Fullagar, S. (2017). Post-qualitative inquiry and the new materialist turn: Implications for sport, health and physical culture research. *Qualitative Research in Sport, Exercise and Health*, *9*(2), 247–257. https://doi.org/10.1080/2159676X.2016.1273896

Giardina, M. D. (2017). (Post?)qualitative inquiry in sport, exercise, and health: Notes on a methodologically contested present. *Qualitative Research in Sport, Exercise and Health*, *9*(2), 258–270. https://doi.org/10.1080/2159676X.2016.1273904

Griffin, M. (2017). Embodied learning and new physical activity in mid- and later life. *Qualitative Research in Sport, Exercise and Health*, *9*(5), 554–567. https://doi.org/10.1080/2159676X.2017.1348387

Haraway, D. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Duke University Press. https://doi.org/10.1215/9780822373780

Haraway, D. (2019). It matters what stories tell stories; It matters whose stories tell stories. *A/b: Auto/Biography Studies*, *34*(3), 565–575. https://doi.org/10.1080/08989575.2019.1664163

Hein, S. F. (2016). The new materialism in qualitative inquiry: How compatible are the philosophies of Barad and Deleuze? *Cultural Studies ⬚ Critical Methodologies*, *16*(2), 132–140. https://doi.org/10.1177/1532708616634732

Jackson, A. Y. (2017). Thinking without method. *Qualitative Inquiry*, *23*(9), 666–674. https://doi.org/10.1177/1077800417725355

Kauffman, S. A., & Gare, A. (2015). Beyond Descartes and Newton: Recovering life and humanity. *Progress in Biophysics and Molecular Biology*, *119*(3), 219–244. https://doi.org/10.1016/j.pbiomolbio.2015.06.003

Kelly, M. P., & Barker, M. (2016). Why is changing health-related behaviour so difficult? *Public Health*, *136*, 109–116. https://doi.org/10.1016/j.puhe.2016.03.030

Kohl, H. W., 3rd, Craig, C. L., Lambert, E. V., Inoue, S., Alkandari, J. R., Leetongin, G., & Kahlmeier, S. (2012). The pandemic of physical inactivity: Global action for public health. *The Lancet*, *380*(9838), 294–305. https://doi.org/10.1016/S0140-6736(12)60898-8

Kumm, B. E., & Berbary, L. A. (2018). Questions for postqualitative inquiry: Conversations to come. *Leisure Sciences*, *40*(1-2), 71–84. https://doi.org/10.1080/01490400.2017.1376014

Lovell, R., Husk, K., Blockley, K., Bethel, A., Bloomfield, D., Warber, S., Pearson, M., Lang, I., Byng, R., & Garside, R. (2017). A realist review and collaborative development of what works in the social prescribing process. *The Lancet*, *390*, S62. https://doi.org/10.1016/S0140-6736(17)32997-5

Lupton, D. (2019). Toward a more-than-human analysis of digital health: Inspirations from feminist new materialism. *Qualitative Health Research*, *29*(14), 1998–2009. https://doi.org/10.1177/1049732319833368

Lupton, D. (2021). 'Things that matter': Poetic inquiry and more-than-human health literacy. *Qualitative Research in Sport, Exercise and Health*, *13*(2), 267–282. https://doi.org/10.1080/2159676X.2019.1690564

MacDonald, S., & Wiens, B. I. (2019). Mobilizing the "multimangle": Why new materialist research methods in public participatory art matter. *Leisure Sciences*, *41*(5), 366–384. https://doi.org/10.1080/01490400.2019.1627960

MacLure, M. (2013). Researching without representation? Language and materiality in post-qualitative methodology. *International Journal of Qualitative Studies in Education*, *26*(6), 658–667. https://doi.org/10.1080/09518398.2013.788755

Markula, P. (2019). What is new about new materialism for sport sociology? Reflections on body, movement, and culture. *Sociology of Sport Journal*, *36*(1), 1–11. https://doi.org/10.1123/ssj.2018-0064

Mâsse, L. C., Nigg, C. R., Basen-Engquist, K., & Atienza, A. A. (2011). Understanding the mechanism of physical activity behavior change: Challenges and a call for action. *Psychology of Sport and Exercise*, *12*(1), 1–6. https://doi.org/10.1016/j.psychsport.2010.07.011

McGannon, K. R., & Mauws, M. K. (2000). Discursive psychology: An alternative approach for studying adherence to exercise and physical activity. *Quest*, *52*(2), 148–165. https://doi.org/10.1080/00336297.2000.10491707

McGannon, K. R., & Smith, B. (2015). Centralizing culture in cultural sport psychology research: The potential of narrative inquiry and discursive psychology. *Psychology of Sport and Exercise*, *17*, 79–87. https://doi.org/10.1016/j.psychsport.2014.07.010

McGannon, K. R., Smith, B., Kendellen, K., & Gonsalves, C. A. (2019). Qualitative research in six sport and exercise psychology journals between 2010 and 2017: An updated and expanded review of trends and interpretations. *International Journal of Sport and Exercise Psychology*, *19*(3), 359–379. https://doi.org/10.1080/1612197X.2019.1655779

McGannon, K. R., & Spence, J. C. (2010). Speaking of the self and understanding physical activity participation: What discursive psychology can tell us about an old problem. *Qualitative Research in Sport and Exercise*, *2*(1), 17–38. https://doi.org/10.1080/19398440903510145

Michie, S., West, R., Campbell, R., Brown, J., & Gainforth, H. (2014). *ABC of behaviour change theories*. Silverback Publishing.

Monforte, J. (2018). What is new in new materialism for a newcomer? *Qualitative Research in Sport, Exercise and Health*, *10*(3), 378–390. https://doi.org/10.1080/2159676X.2018.1428678

Monforte, J., & Smith, B. (2020). Traveling material↔semiotic environments of disability, rehabilitation, and physical activity. *Qualitative Health Research*, *30*(8), 1249–1261. https://doi.org/10.1177/1049732318820520

Monforte, J., & Smith, B. (2021a). Conventional and postqualitative research: An invitation to dialogue. *Qualitative Inquiry*, *27*(6), 650–660. https://doi.org/10.1177/1077800420962469

Monforte, J., & Smith, B. (2021b). Introducing postqualitative inquiry in sport and exercise psychology. *International Review of Sport and Exercise Psychology*. https://doi.org/10.1080/1750984X.2021.1881805

Phoenix, C., & Bell, S. L. (2019). Beyond "move more": Feeling the rhythms of physical activity in mid and later-life. *Social Science & Medicine*, *231*, 47–54. https://doi.org/10.1016/j.socscimed.2018.05.006

Phoenix, C., & Orr, N. (2014). Pleasure: A forgotten dimension of physical activity in older age. *Social Science & Medicine*, *115*, 94–102. https://doi.org/10.1016/j.socscimed.2014.06.013

Prato, L., Torregrossa, M., Ramis, Y., Alcaraz, S., & Smith, B. (2021). Assembling the sense of home in emigrant elite athletes: Cultural transitions, narrative and materiality. *Psychology of Sport and Exercise*, *55*, 101959. https://doi.org/10.1016/j.psychsport.2021.101959

Quinton, T. S. T. (2017). The 'scientific' approach for the physical activity behavior change. *Journal of Physical Education & Sport*, *17*(2), 722–729. https://doi.org/10.7752/jpes.2017.02109

Rhodes, R. E., Janssen, I., Bredin, S. S. D., Warburton, D. E. R., & Bauman, A. (2017). Physical activity: Health impact, prevalence, correlates and interventions. *Psychology & Health*, *32*(8), 942–975. https://doi.org/10.1080/08870446.2017.1325486

Rhodes, R. E., McEwan, D., & Rebar, A. L. (2019). Theories of physical activity behaviour change: A history and synthesis of approaches. *Psychology of Sport and Exercise*, *42*, 100–109. https://doi.org/10.1016/j.psychsport.2018.11.010

Rosiek, J. L., & Snyder, J. (2020). Narrative inquiry and new materialism: Stories as (not necessarily Benign) agents. *Qualitative Inquiry*, *26*(10), 1151–1162. https://doi.org/10.1177/1077800418784326

Schiff, B. (2017). *A new narrative for psychology*. Oxford University Press. https://doi.org/10.1093/oso/9780199332182.001.0001

Smith, B. (2015). Narrative analysis. In E. Lyons & A. Coyle (Eds.), *Analysing qualitative data in psychology* (2nd ed., pp. 202–221). Sage.

Smith, B., & Monforte, J. (2020). Stories, new materialism and pluralism: Understanding, practising and pushing the boundaries of narrative analysis. *Methods in Psychology*, *2*, 100016. https://doi.org/10.1016/j.metip.2020.100016

Smith, B., & Sparkes, A. C. (2008). Contrasting perspectives on narrating selves and identities: An invitation to dialogue. *Qualitative Research*, *8*(1), 5–35. https://doi.org/10.1177/1468794107085221

St. Pierre, E. A. (2013). The appearance of data. *Cultural Studies ↔ Critical Methodologies*, *13*(4), 223–227. https://doi.org/10.1177/1532708613487862

St. Pierre, E. A. (2019a). Post qualitative inquiry in an ontology of immanence. *Qualitative Inquiry*, *25*(1), 3–16. https://doi.org/10.1177/1077800418772634

St. Pierre, E. A. (2019b). Post qualitative inquiry, the refusal of method, and the risk of the new. *Qualitative Inquiry*, *27*(1), 3–9. https://doi.org/10.1177/1077800419863005

St. Pierre, E. A. (2021). Why post qualitative inquiry? *Qualitative Inquiry*, *27*(2), 163–166. https://doi.org/10.1177/1077800420931142

St. Pierre, E. A., & Jackson, A. Y. (2014). Qualitative data analysis after coding. *Qualitative Inquiry*, *20*(6), 715–719. https://doi.org/10.1177/1077800414532435

St. Pierre, E. A., Jackson, A. Y., & Mazzei, L. A. (2016). New empiricisms and new materialisms. *Cultural Studies/Critical Methodologies*, *16*(2), 99–110. https://doi.org/10.1177/1532708616638694

Taguchi, H. L. (2012). A diffractive and Deleuzian approach to analysing interview data. *Feminist Theory*, *13*(3), 265–281. https://doi.org/10.1177/1464700112456001

Taguchi, H. L., & Palmer, A. (2013). A more 'livable' school? A diffractive analysis of the performative enactments of girls' ill-/well-being with(in) school environments. *Gender and Education*, *25*(6), 671–687. https://doi.org/10.1080/09540253.2013.829909

Taguchi, H. L., & St. Pierre, E. A. (2017). Using concept as method in educational and social science inquiry. *Qualitative Inquiry*, *23*(9), 643–648. https://doi.org/10.1177/1077800417732634

Toll, M., & Norman, M. (2021). More than meets the eye: A relational analysis of young women's body capital and embodied understandings of health and fitness on Instagram. *Qualitative Research in Sport, Exercise and Health*, *13*(1), 59–76. https://doi.org/10.1080/2159676X.2020.1836512

Toner, J., Allen-Collinson, J., & Jones, L. (2021). 'I guess I was surprised by an app telling an adult they had to go to bed before half ten': A phenomenological exploration of behavioural 'nudges'. *Qualitative Research in Sport, Exercise and Health*, 1–15. https://doi.org/10.1080/2159676X.2021.1937296

Wertz, F. J. (2014). Qualitative inquiry in the history of psychology. *Qualitative Psychology*, *1*(1), 4–16. https://doi.org/10.1037/qup0000007

Williams, O., & Gibson, K. (2018). Exercise as a poisoned elixir: Inactivity, inequality and intervention. *Qualitative Research in Sport, Exercise and Health*, *10*(4), 412–428. https://doi.org/10.1080/2159676X.2017.1346698

Williams, T. L., Hunt, E. R., Papathomas, A., & Smith, B. (2018). Exercise is medicine? Most of the time for most; but not always for all. *Qualitative Research in Sport, Exercise and Health*, *10*(4), 441–456. https://doi.org/10.1080/2159676X.2017.1405363