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Exercise psychology meets public health: Avenues on health enhancing physical activity

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Across its many different forms, physical activity (PA) has multiplicative health, social and economic benefits. Thus, PA promotion, traditionally addressed by the sports and exercise sector, is now being targeted intersectorally, including public health and policy. Developments in evidence regarding the physical and mental health benefits of even light PA, for short periods of time, have facilitated the publication of solid guidelines, but challenge remains on how to promote it. The majority of the evidence uses behavioral-change models typically used in the field of health psychology, applied to all sets of ill-health behaviors. However, given all the specificities of PA-related behaviors (not confined to structured exercise), and their potential to be inherently intrinsic for one side, and automatically activated on the other, new approaches and models need to be further explored and tested.

This paper aims to reflect on how the advances in exercise psychology and their intersection with health psychology can contribute to public health efforts on addressing the physical inactivity pandemic, while exploring examples from micro and macro level approaches, including an overview of PA promotion models in health care settings and the potential of digital tools in this field.

KEY WORDS: Exercise Psychology, Physical Activity, Health.

Most people agree that exercise is good for health and scientific evidence has never been richer in pointing the health benefits of regular exercise. Physical activity (PA) is critical for health and quality of life. Its role is fundamental, not only regarding non-communicable diseases and mortality

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prevention (PA would prevent 5.3 million deaths worldwide, every year) (Lee et al., 2012), but also as a relevant therapy for more than 25 chronic diseases (Pedersen & Saltin, 2015). Beneficial effects also comprise cardiorespiratory and muscular fitness, improved body mass, body composition and bone health, physical and functional autonomy and improved cognitive function (Lee et al., 2012). These physical and mental health benefits, along with the potential reduction of the dramatic financial costs of poor health, provide great impetus for the promotion of physically active lifestyles as a public health goal (Ding et al., 2016; Lee et al., 2012). Furthermore, and beyond health, PA has multiplicative social and economic benefits across its many different forms. Increases in PA through, for example, more walking, cycling, active recreation, sport and play, can contribute to achieving many of the Sustainable Development Goals (SDG), as identified in the Bangkok Declaration on Physical Activity for Global Health and Sustainable Development in 2017 (International Society for Physical Activity and Health, 2017).

However, as it has been extensively documented, population adherence to regular PA is far from being achieved (almost one third of population is insufficiently active worldwide; in Europe, only 7% reports to exercise or play sport regularly and only 14% refers to regularly engage in other physical activities such as gardening, cycling from one place to another or dancing) (European Commission, 2018; Guthold, Stevens, Riley, & Bull, 2018). Besides well reported increasing worldwide levels of physical inactivity, another distressing problem is the high rate of dropout from exercise regimens. In the exercise psychology literature, average estimates of dropout from randomized controlled trials (RCT) involving PA interventions are often cited as around 50% (Marcus et al., 2006), a number coincident with estimations for other health related behavioral regimens (Brannon & Feist, 2009).

In lay terms, one can equate this paradox – not taking something that we know as good for us – as the "Tomato Effect", an expression created in the early 1980s to express the rejection of highly efficacious therapies in clinical settings (Goodwin & Goodwin, 1984). It is important to recognize that behavioral change - in this case concerning PA-related behaviors - is hard to undertake and maintain, given all the complexity involved, and has been poorly captured by the theoretical models traditionally used (Biddle & Vergeer, 2019). In this regard, this paper seeks to reflect on how the advances in exercise psychology and their intersection with health psychology can contribute to public health efforts on addressing the physical inactivity pandemic.

Exercise Psychology And The Cross-Fertilization Of Knowledge Benefits And Challenges

Generally, exercise and sport psychology reflects the field which studies the psychological factors that are associated with participation and performance in sport, exercise and other types of PA, and also the psychological outcomes of this participation. According to the American Psychological Association (American Psychological Association [APA], 2020) "exercise psychology is a discipline focused on the development and application of psychological theory for the understanding and modification or enhancement of human behavior in the sport and physical exercise environment". This arena picked up speed from the 80s and evolved from an exclusive focus on sports performance (sport psychology). Indeed, health and well-being through regular participation in vigorous PA programs have become of such interest to researchers and practitioners that the field is progressively evolving in two separate disciplines, as exercise psychology intersects with health psychology. This intersection is rich given that the last concerns: (a) the examination of the relationships between behavioral, cognitive, psychophysiological, social and environmental factors and the establishment, maintenance, and detriment of health; (b) the evaluation of physical and psychological status before, during, and after medical and psychological treatment; (c) the integration of psychological and biological research findings in the design of empirically based interventions for the prevention and treatment of illness (APA, 2020).

Thus, as stressed by Biddle & Vergeer (2019) there is an obvious overlap between the subfields of exercise and health psychology, as PA features heavily as a key behavior. Historically, the first textbook, *Psychology of Physical Activity and Exercise: A Health-Related Perspective*, was published in 1991 (Biddle & Mutrie, 1991), since then many more fruitful publications on this intersection occurred.

Recognizing exercise adoption and adherence as crucial challenges to the potential role of exercise in health promotion, researchers have typically been searching for correlates of PA via two main research traditions: i) examining the effects of exercise on psychological variables (e.g., mental health); ii) focusing on the role of psychological variables in the process of initiating PA behaviors, adhering to a regular schedule of activity or a prescribed regimen (e.g., frequency, intensity, duration), and maintenance *vs*. discontinuing or dropping out (Ekkekakis & Zenko, 2016). Apart from some common theories and methods, the link of exercise psychology with sport psychology (focusing mostly on performance) is much weaker than its connection both with health psychology and behavioral medicine, given that exercise and health behavior change within a wider social and environmental context (Biddle & Vergeer, 2019).

Thus, PA promotion, traditionally addressed by the sports and exercise sector, is now being targeted intersectorally, including public health and policy. A highlight was the recent launch of the Global Action Plan on Physical Activity 2018-2030 by the World Health Organization (World Health Organization [WHO], 2018), addressing 4 strategic objectives (Creating active societies by changing social norms; Creating active environments via promoting equitable access to safe places in which to engage in regular PA; Creating active people by promoting access to opportunities and programs, across multiple settings; Creating active systems by strengthen leadership, governance and multisectoral partnerships), each identified as an important and effective component of a population-based response to increasing PA and reducing sedentary behavior. In combination, they capture the whole-of-system approach required to create a society that intrinsically values and prioritizes policy investments in PA as a regular part of everyday life. This macro-level approach poses challenges to all areas involved in PA promotion: exercise psychology included.

From Exercise to Health-Enhancing Physical Activity: Weaknesses in the Actual Promotion Models

Developments in evidence regarding the physical and mental health benefits of PA have facilitated the publication of solid guidelines, indicating that even light PA for short periods of time can add to health (Powell et al., 2018; U.S. Department of Health and Human Services, 2018), a fact that has implications for promotion of PA, both at macro (policy) and micro (behavioral strategies) levels.

Generally, Health-Enhancing Physical Activity (HEPA) reflects any form of PA that benefits health and functional capacity of the organism without undue harm or risk (Bouchard, Blair, & Haskell, 2007). HEPA is achieved by engaging in light and moderate intensity activities at the recommended frequency, regardless of context (e.g., commuting, leisure time, household). Compelling evidence demonstrates positive physical health changes (e.g., cardiorespiratory, metabolic) stemming directly from HEPA (Bouchard et al., 2007; European Commission, 2008) and its mental health benefits are also being established (Mack et al., 2012).

In this regard, and despite the fact that the dominant approach to examining well-being in relation to PA has focused on the role afforded by structured exercise (i.e., structured bouts of movement usually with the intent of maintaining or improving fitness), as opposed to HEPA (Acevedo & Ekkekakis, 2006), evidence have been supportive of the relationship between naturally occurring changes in HEPA and well-being.

This offers increased flexibility when recommending strategies to increase well-being.

Given the diverse activities comprising HEPA, specific recommendations to active commuting (e.g., walk or cycle to work, to school, etc.) and strategies at work (e.g., taking the stairs as opposed to the elevator, going to the bathroom on a different floor) can be encouraged as ways of increasing PA levels. Further, activities tailored to individual preferences and interests (e.g., gardening) can be built into any PA program (Mack et al., 2012).

Indeed, the science for the benefits of HEPA is established, but HEPA promotion is just beginning. The challenge remains on how to best promote it, while counteracting sedentary behavior (Foster, 2000). The emerging emphasis on psychological and behavior change aspects of sedentary behavior (i.e., sitting time) and light PA (Rollo, Gaston, & Prapavessis, 2016) is also accompanied with the need to study physical movement and sedentary behavior using a 24-hour approach. In other words, it is not just about the 30 to 60 minutes of moderate to vigorous structured exercise in a day, but also about sitting, light movement, and sleep (Biddle & Vergeer, 2019; Pediši , Dumuid, & Olds, 2017).

In 2014, the American College of Sports Medicine (ACSM) published a book to guide professionals through the various approaches and issues in assisting people to becoming more active (Nigg, 2014). Despite being an important landmark, it is a fact that most interventions and behavior change techniques (BCT) developed and tested are based on promoting structured exercise and not daily physical activities, regardless of context (e.g., commuting, leisure time, household activities, etc.). That poses significant challenges and weaknesses the level of evidence to promote this last type of activities (Foster, 2000).

Indeed, although some BCTs and models were more frequently cited as being used as part of program design, little direct evidence is available to suggest that one particular health promotion model and derived techniques were more successful than another in what concerns HEPA. More research is needed to test the appropriateness of their application to HEPA promotion, and their influence upon determinants of HEPA, given the personal or environmental characteristics of this specific type of PA. Until more is known about the effectiveness of different models or theories, the value of using the theory as been pointed as improving the design phase, facilitating program structure and planning (Foster, 2000).

To add to the complexity of the challenge, systematic reviews and meta-analyses of intervention studies show that, compared with control, receiving some type of psychological intervention is associated with a small/medium magnitude of PA increase (Ekkekakis & Zenko, 2016). The lack of substantive progress in this area of research is causing great frustration to researchers

and policymakers in public health, who are coming to the realization that intervention methods proven effective in other contexts appear ineffective in the case of PA promotion (Barreto, 2013; Kamerow, 2015).

One possible explanation for the difficulties in achieving sustained and accountable results may have to do with the type of models used (as mentioned above, mainly coming from health psychology and linked to other type of ill-health behaviors). That may emphasize common (mis?)perceptions about human behaviour that often drive counterproductive ways of interact and counsel, especially in what concerns behaviour change. We often believe that we are rational and reflected decision makers, effective at information gathering and syntheses and that health is as a universal goal for everyone**.** These traditional views led to a PA promotion tradition heavily based on a utilitarian (i.e., "PA as mean to an end") approach: exercising will allow achieving health (and other) outcomes. Indeed, more than half of the European population points reasons related to "improve health" (54%) to engage in exercise (*vs.* 30% to have fun; 7% to develop new skills; 4% to better integrate in the society) (European Commission, 2018).This led to a drive for efficiently and effectively quantify, prescribe, and promote PA to increase the likelihood of a positive health outcome, as being the paradigmatic rationale for the use of "exercise psychology" (Ekkekakis & Zenko, 2016). Testimonials like "I exercise, so that I can eat what I want" and "I exercise, so that I maintain my blood pressure levels stable" reflect traditional theories from social and health psychology field, picturing the exerciser as a rational decision maker (Buchan, Ollis, Thomas, & Baker, 2012).

However, one has to note that not all behaviors are strongly driven by conscious intentions. The environmental contexts, as well as less conscious processes such as immediate pleasure *vs.* displeasure, have to be taken in consideration, as well as "nudge" or "stealth" techniques (Biddle & Vergeer, 2019; Ekkekakis, Hartman, & Ladwig, 2019). In this regard, current trends on exercise psychology debate if PA-related behaviors, given all their specificities, and the potential to be inherently intrinsic for one side, and automatically activated on the other, do not warrant the need for different type of approaches and models. "Dual-processing" models and eudaimonic approaches have been considered, with important implications for theory and practice (both at micro and macro levels). Indeed, despite the growth in research focusing on PA benefits and well-being, the literature needs to further address the distinction between hedonic and eudaimonic forms of well-being (Ryan, Huta, & Deci, 2008; Wilson, Mack, Blanchard, & Gray, 2009). Hedonic well-being concerns "people's cognitive and affective evaluations of their lives" and comprises components linked to greater satisfaction with life, higher positive affect, and low levels of negative affect. Eudaimonic Well-

Being (EWB) concerns the development of one's true potential (Ryff & Singer, 2008). Eudaimonic human flourishing involves engagement in activities deemed congruent with deeply held values and activities which challenge one's abilities, through six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Engagement in HEPA can contribute to all. Plausible mechanisms have been advanced based on relevant theories, such as the Dual Mode Theory (Acevedo & Ekkekakis, 2006; Mack et al., 2012) or the Basic Psychological Needs Theory embedded in Self-Determination Theory (Ryan & Deci, 2000). Literature in this regard has shown that HEPA contexts that facilitate the satisfaction of the need for competence, autonomy, and relatedness are associated with greater EWB (Mack et al., 2012; Wilson et al., 2009).

Promoting exercise as an inherently rewarding activity, as a "way of being", congruent with perceived identity and internal values, as something that "adds" to life, that allows to strengthen ties with significant others, with the community and ultimately with the physical context where we live, has been demonstrated by a growing body of evidence and practice as a promising avenue for PA promotion (Rhodes, Kaushal, & Quinlan, 2016; Teixeira, Carraça, Markland, Silva, & Ryan, 2012).

The Challenge of Promoting Hepa in Health Care Settings

One additional challenge for exercise psychology, as PA promotion interventions are going more and more beyond exercise settings, is to contribute to the development and adequate implementation, testing and dissemination of HEPA promotion interventions in healthcare settings and clinical practice. From very brief counseling to exercise referral schemes, a raising number of initiatives exists (a raising number), often performed by healthcare professionals lacking the skills, and motivation, to promote HEPA, or doing it in the "utilitarian" manner described above. This group's function has been described as important to promote and disseminate the HEPA message to certain target patient groups within primary, secondary and tertiary settings (European Commission, 2008; Foster, 2000; WHO, 2018). Anecdotal evidence from around the world consistently reported the trust and expectations patients and the public have in receiving quality PA information, advice and support from their primary care providers. However, such support needs to be provided in a consistent and comprehensive format, which is not often the case (Foster, 2000). This is a field warranting the attention of exercise psychology and the development of applied tools and training programs according to state-of-the-art evidence.

Engaging health professionals involves to persuade them about the concept and role of HEPA within their work and then to support their skills to deliver HEPA as part of their work (Foster, 2000). Indeed, the already mentioned global action plan on PA (WHO, 2018) highlights the need to make PA assessment and promotion a medical standard of care, but challenge remains on how to do it in a way that engages clinicians and patients. It seems that only a minority of patients report to receive advice, despite the fact that the majority of physicians report to do so (Loprinzi & Beets, 2014); moving the field forward implies to understand this apparent discrepancy. Table I reflects a well-intended (although not well-succeed) consultation, one that we can all relate to.

A close look at the dialogue highlights the failure of all type of strategies, both at macro (building environment, security, work policies, etc.) and micro (motivational, communicational) levels. Regarding the latter, this type of communication will end up being highly time consuming and energy depleting for both the physician and the patient and will be likely to increase behavioral resistance (instead of managing it). At the individual level, the type of motivation matters (Ng et al., 2012; Teixeira et al., 2012). Most interventions focus simply on formulating a target goal without considering the reasons motivating its aim. Evidence has shown that not all goals are created equal: the reasons that fuel behavior matter to persistence. Indeed, and according to self-determination theory and evidence, intrinsic goals and autonomous regulations lead to more effortless behavioral self-regulation processes (less ego-depleting), allowing the maintenance of these processes and consequently the sustainability of behavioral change (Ryan & Deci, 2000; Santos, Silva, & Teixeira, 2016). Research around intervention techniques also received a major break though with the establishment of a taxonomy of BCTs, allowing to have standardized labels and definitions improving research and practice (Michie et al., 2013). Taken together, recent develop-

TABLE I
A well-intended, not well-succeed, health consultation to promote HEPA.

Clinician (C)	*You need to take up exercise to help you control your glycaemic levels.*
Patient (P)	*I know, I know! And I did start going to an exercise class, but I felt so embarrassed… I only went once, then gave up!!!*
C	*Well, you don't have to go to the gym, you could just go for a walk around the park.*
P	*In my area… no way… you will end up dead by a car or assaulted… I don't live in a secure area to walk…*
C	*In this case, you could always exercise at home. Why not using an app or download some practical examples?*
P	*mmmm… not sure how to do it... I don't have money to buy these devices and I am not a "tech" person…and I'm so unfit (I don't exercise since my school days) I'm afraid I might do myself more harm than good.*

ments have been summarized in systematic reviews reflecting the evidence on how to optimize the effectiveness of primary care PA counseling (Gagliardi, Abdallah, Faulkner, Ciliska, & Hicks, 2015; Howlett, Trivedi, Troop, & Chater, 2015; Orrow, Kinmonth, Sanderson, & Sutton, 2012; Samdal, Eide, Barth, Williams, & Meland, 2017; Sanchez, Bully, Martinez, & Grandes, 2015). Nonetheless, primary care providers require training and resources to carry out such counseling. Exercise and health psychology fields should provide the knowledge and evidence in where to base that training and resource development.

In the last decade(s), several good examples emerged, exploring how to promote patients' PA using health services, especially in primary care, potentiating available resources and developing some promising models, as a clinical practice standard of care. Two main approaches emerged – "brief counseling" and "referral scheme" models. A PA brief counseling, or brief intervention, comprises an interaction involving verbal encouragement, discussion, negotiation and/or a written recommendation for PA practice, with or without follow-up. It varies from a basic counseling, taking a few seconds, or a more in-debt focused advice, a little more extended in time. It should address patients' PA motivations, barriers and preferences, as well as their readiness to practice, health status, daily opportunities to enhance PA and potential health risks (National Institute for Health and Care Excellence [NICE], 2013). An exercise referral scheme, on the other hand, involves a primary care or allied health professional referencing a patient to an exercise specialist or service after assessing his/her PA levels. Based on further assessments, the patient is then directed to the most appropriate PA community resource (e.g, program) available (NICE, 2014). The brief counseling model may be applied in isolation or used as an intervention previous to a more demanding one, as a "referral scheme" or an "exercise prescription". An exercise prescription is an intervention much less described in primary care than in community settings and involves a complete assessment of patient cardiorespiratory fitness, functionality, and body composition (if relevant), a careful selection and explanation of exercises according to the evaluation made, and patient's clinical limitations, goals and motivation. Exercise prescription also involves systematic and planned follow-up and monitoring over time (American College of Sports Medicine, 2018; Order No. 8932/2017, 2017). As in other settings, studies of effectiveness of these approaches in health settings had presented mixed results (no effects to medium effects on PA increase) when compared with minimal or usual care control arms (U.S. Department of Health and Human Services, 2018).

Using "brief counseling" and/or "referral schemes" as core components, several models were built and implemented around the world. One of the first

models began to be implemented in early 90's in United States of America, the Physician-based Assessment and Counseling for Exercise (PACE) program, coordinated by the Centers for Disease Control and Prevention (CDC). In PACE, primary and secondary healthcare professionals and office staff were trained to conduct PA assessment and brief counseling. Several materials were made available to professionals and the intervention integrated principles of behavioral science. PACE has grown and now covers different projects, aiming to create tools for health professionals and citizens, in order to improve, not only PA, but also dietary and other lifestyle behaviors (Ward, 2016).

In 2007, the Exercise is Medicine (EIM) initiative was developed and introduced by the ACSM, aiming to elevate PA as a standard part of health care regarding non-communicable disease prevention and treatment. It grew since then as a "Global Health Initiative" and it is now implemented in more than 40 countries worldwide. EIM intervention model relies on three main components: a) assessment of weekly PA levels (as a vital sign); b) brief counseling using established tools (e.g., shared decision making, the 5As approach, BCTs); c) patients referral to evidence-based exercise resources in community; and is supported by the use of health technology and decision support systems (Lobelo, Stoutenberg, & Hutber, 2014).

In recent years, several European countries also developed their own approaches within health services. Switzerland implemented PAPRICA (Physical Activity Promotion in Primary Care), an evidence-based model to promote effective PA brief counseling practices by primary healthcare physicians. The training is based on motivational interviewing techniques, providing background knowledge and hands-on experience, allowing professionals to develop more effective brief counseling skills. PAPRICA offers targeted continuing training sessions and implementation has been successfully tested in some Switzerland regions (Martin et al., 2014).

In Sweden, the Physical Activity on Prescription (PAP; FaR in Swedish) model, combines individualized PA counseling with a written prescription, aiming to increase lifestyle PA, implemented by licensed/trained health care professionals supported by an evidence-based handbook (i.e., "Physical Activity in the Prevention and Treatment of Disease" – FYSS). It comprises a patient-centered counseling, follow up procedures and collaborations with activity organizers in the community, in order to promote a PA supporting environment (Raustorp & Sundberg, 2014). This model seems to increase patients' PA levels and quality of life (Kallings, Leijon, Hellénius, & Ståhle, 2008; Onerup et al., 2018) and is now being tested and transferred to several European countries, through the implementation of the "EUPAP – An European Model for Physical Activity on Prescription", a research project co-financed by the European Commission.

An alternative approach is the use of an intermediary between primary healthcare and community PA resources. The "Care Sport Connectors" in Netherlands (Leenaars, Smit, Wagemakers, Molleman, & Koelen, 2018) or the "Physical Activity Coach" in Belgium assist the connection between these two sectors. Patients are referred by general practice doctors to these professionals, who guide patients on programs towards local PA opportunities.

Learning from, while also leveraging these approaches, in 2017, the Portuguese government introduced an advanced approach in primary care, combining PA brief counseling (for all), a referral scheme and a pioneer PA consultation, with individual exercise prescription implemented by a Sports Medicine doctor together with an exercise professional (Mendes et al., 2020; Order No. 8932/2917, 2017). Digital tools introduced in health software and training resources were developed to assist this model that is currently under cost-effectiveness testing. In both cases (brief counseling and PA consultation), patients can also be referred to PA resources in the near community (Mendes et al., 2020).

Irrespectively of the model used and the need to adjust interventions to the characteristics of each population, the implementation of motivational interviewing techniques to guide patients is considered a key-enabler (Ward, 2016). Also, approaches incorporating behavioral modification principles, namely validated self-regulatory tools (e.g., self-monitoring, goals setting), leading to a greater perception of autonomy and capability by the patient, seem (approaches) to be more effective (Gagliardi et al., 2015; Howlett et al., 2015; Samdal et al., 2017; Sanchez et al., 2015), highlighting the role of exercise psychology in this specific context.

Minimal Interventions & Digital Tools: A Way Forward?

As already mentioned, intervention success in PA promotion has been modest, and skeptic literature has been equating the effect size achieved by most of the existing interventions to what one can expect by merely administering self-report measures of PA (Rodrigues, O'Brien, French, Glidewell, & Sniehotta, 2015). A more in depth reflection may point, not to a barrier, but to an avenue of further consideration. Completing such measures triggers a variety of psychological processes (e.g., self-awareness via self-monitoring; seeking further information/intervention) and is worth of further investment/research, not as assessment instruments, but as minimal intervention tools. Digital trackers and the platforms they provide serve the sustained dissemination of such tools.

The first published meta-analytical studies looking into the potential impact of digital behavior change interventions (DBCI) on health behaviors (e.g., Webb, Joseph, Yardley, & Michie, 2010) showed that, on average, the effect sizes of DBCI were small. However, more extensive use of theory, more BCTs, and diversified modes of delivery (e.g., video, text, interactive games) had significantly better results. More recent reviews confirmed these findings (Direito, Carraça, Rawstorn, Whittaker, & Maddison, 2017; Michie, Abraham, Whittington, McAteer, & Gupta, 2009) and showed the potential of DBCI usage at the population and public health levels, as they are easily scalable.

Notwithstanding, the evidence is pointing to the development of hybrid interventions (i.e., integrating face-to-face contacts with the remote contents), and that wearable technologies are mostly facilitators, not drivers, of health behavior change (Patel, Asch, & Volpp, 2015).

Conclusion

Estimates have pointed that, even modest success, such as reducing the number of individuals who remain physically inactive by 10% globally, could prevent more than a half million deaths annually (Lee et al., 2012). Advances in exercise psychology need to be part of the formula for that success. Exercise psychology can greatly contribute to behavioral medicine, strengthening the boundaries in the study of exercise, HEPA, and public health. PA behavior change research requires knowledge of physical health outcomes, behavioral measurement issues, environmental influences, and social/cultural context among many others, such as affective, reflective/automatic process, contributing to a more diverse research agenda.

Nonetheless, given that the ultimate objective of any field of applied science is to develop empirically supported methods to improve the lives of people worldwide, we have to consider from micro to macro approaches (cross-sectorial application and policy). Ekkekakis, Hartman, and Ladwig (2019) assert that "Exercise psychology aspires to be more than an academic discipline engaged in basic research (…) the ultimate objective of exercise psychology is to directly benefit human health and well-being on a global scale" (p. 45). Thus, there is an identified need to translate knowledge into professional practice, such as through individual, group, community, environmental, and policy work. For that, future trends have been pointed, including a call to greater integration of new exercise psychological approaches (going beyond the traditional "utilitarian" perspective) into broader public health, social, environmental, and policy approaches (Biddle & Vergeer, 2019). The challenge for

HEPA promoters is to tackle physical inactivity by mobilizing political, organizational and community support. The development of new recommendations for more moderate types of physical activities that can enhance health may contribute to meeting this challenge. Indeed, moderate amounts of brisk activities as part of daily living, transport and leisure may offer the least active sections of populations the chance to become more active (Foster, 2000).

This paper reflected on how advances in exercise psychology and the intersection with health psychology can contribute to public health efforts on addressing the physical inactivity pandemic, while exploring examples from micro and macro levels within this light.

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