

Brief Report

Physical activity in a pandemic: A new treatment target for psychological therapy

Rowan Diamond^{1,2,3*}  and Felicity Waite^{1,3} 

¹Department of Psychiatry, University of Oxford, UK

²Oxford Cognitive Therapy Centre, UK

³Oxford Health NHS Foundation Trust, UK

The COVID-19 pandemic and its management are placing significant new strains on people's well-being, particularly those with pre-existing mental health conditions. Physical activity has been shown to improve mental as well as physical health. Increasing activity levels should be prioritized as a treatment target, especially when the barriers to exercise are greater than ever. Promoting physical activity has not traditionally been the remit of psychologists. Yet psychological theory and therapeutic techniques can be readily applied to address physical inactivity. We present theoretical perspectives and therapy techniques relating to (1) beliefs about physical activity, (2) motivation to be physically active, and (3) the sense of reward achieved through being physically active. We outline strategies to initiate and maintain physical activity during the COVID-19 pandemic, thereby benefitting mental and physical health. COVID-19 is demanding rapid and substantial change across the whole health care system. Psychological therapists can respond creatively by addressing physical activity, a treatable clinical target which delivers both mental and physical health benefits.

Practitioner points

- Physical activity is essential for our mental and physical health.
- Yet COVID-19 presents novel barriers to physical activity.
- Psychological theory and techniques to address beliefs, motivation, and reward can be applied to increase physical activity during COVID-19.
- Physical activity is an important clinical target to sustain and improve mental health, especially in the current pandemic.

The COVID-19 pandemic, and attempts to contain it, have disrupted lives across the planet. The combination of restrictions of physical freedoms, the loss of professional and social identity, financial worries, the possibility of bereavement, and anxiety about one's own health have created a perfect storm, likely to exacerbate pre-existing mental health problems and contribute to the onset of others (Holmes *et al.*, 2020).

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

*Correspondence should be addressed to Rowan Diamond, Department of Psychiatry, University of Oxford, Warneford Hospital, Warneford Lane, Oxford OX3 7JX, UK (email: rowan.diamond@psych.ox.ac.uk).

One consistent piece of UK government advice to sustain, and even improve, our mental and physical well-being is to take regular physical activity. Indeed, the Chief Medical Officer has described exercise as a ‘miracle cure’ (McNally, 2015). We know exercise is beneficial for the general population and this is also the case for people with severe mental health problems. There is evidence that exercise can be an effective treatment for improving mental health symptoms across a broad range of diagnoses (Ashdown-Franks *et al.*, 2020). Yet levels of physical activity in people with severe mental health problems are typically very low and contribute towards the higher incidence of physical health problems and premature mortality (Firth *et al.*, 2019).

Psychological barriers have long been recognized as crucial to preventing activity, particularly amongst people with mental health problems. During this pandemic, there are likely to be additional barriers to increasing activity at the very time it may be most beneficial in alleviating physical and psychological stresses. For example, anxiety about leaving the house, the closure of gym facilities, and less opportunity to exercise with others. Whilst increasing physical activity has not traditionally been within the remit of psychological therapists in mental health services, it has been recognized that this may be an important modifiable factor for the improvement of mental health through COVID-19 (Diamond & Willan, 2020) and should be a focus of future research and endeavour (Holmes *et al.*, 2020). In the shifting landscape of the COVID-19 crisis, new priorities for treatment are emerging for which psychologists already have applicable skills. We propose that psychological therapists should engage in this area, and consider including physical activity as a treatable clinical target.

We outline key psychological theories and techniques which can be readily incorporated into therapy during the current pandemic, in order to increase physical activity and contribute to mental and physical well-being.

Psychological factors involved in physical activity

Psychological factors involved in activity include (1) beliefs about exercising, (2) motivation to be active, and (3) the sense of reward derived from exercise. Thoughts may focus on the exercise itself and its value, the ability to do it, the client’s identity as an ‘exerciser’ or not, and their beliefs about other peoples’ perceptions of them. Motivation to exercise will be influenced by the reward derived (both physical and mental; immediate and longer term). This complex set of considerations can be harnessed into a meaningful psychological approach through individualized formulations using psychological theory.

Addressing beliefs about physical activity

The cognitive model (Beck, 1967) describes how people’s perceptions of situations influence their emotional and behavioural reactions. Beliefs about the self, other people, and the world may inhibit physical activity and conversely may be a key target for intervention to increase exercise. This may include thoughts pertaining to the current pandemic or longer-standing beliefs. Indeed, there may be specific fears related to the pandemic, for example fears of contracting COVID-19 whilst exercising outside of the house. Within this cognitive-behavioural framework, many established therapeutic techniques can be applied to promote physical activity (for easy access resources see

Table 1. Easy access clinical resources

Therapeutic strategy	Examples of application in practice	Resource
Psychoeducation: Benefits of exercise	Providing information on the benefits of exercise for physical and mental well-being	<p>https://www.gov.uk/government/publications/physical-activity-guidelines-infographics</p> <p>https://www.psychologytools.com/resource/what-does-exercise-do-for-the-mind-and-body/</p>
Psychoeducation: Physical activity for a range of health problems	<p>Providing information on the benefits of exercise and types of appropriate exercise/methods of adapting exercise</p> <p>Highlighting the importance of activity for health.</p>	<p>https://www.rcn.org.uk/clinical-topics/public-health-physical-activity</p> <p>https://gpcpd.heiw.wales/clinical/motivate-2-move/</p> <p>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf</p> <p>https://www.mind.org.uk/information-support/tips-for-everyday-living/physical-activity-and-your-mental-health/about-physical-activity/#HowCanPhysicalActivityHelpMyMentalHealth</p> <p>https://www.psychologytools.com/resource/problem-solving/</p> <p>https://www.psychologytools.com/professional/techniques/motivational-interviewing/</p> <p>https://www.getselfhelp.co.uk/docs/SMARTgoals.pdf</p>
Psychoeducation: Government physical activity guidelines	Highlighting the importance of activity for health.	
Psychoeducation: Physical activity and mental health	<p>Providing information and normalization about the challenges and benefits of physical activity.</p> <p>Generating ideas for implementation.</p>	
Problem-solving	Collaboratively working through barriers to exercise and identifying potential solutions	
Motivational interviewing	<p>Discussing reasons to exercise and reasons not to: building 'change talk'</p> <p>Setting reasonable targets with clients, for example 30 minutes of whatever exercise they prefer for 3 days per week</p>	
SMART goals		
Cognitive biases and cognitive restructuring	Addressing unhelpful thinking, for example 'I can't go to my usual gym class there is no point in exercising'.	<p>https://getselfhelp.co.uk/UnhelpfulThinkingHabitWithAlternatives.pdf</p>
Behavioural experiments	<p>Generating opportunities for learning. For example, testing out the effect of exercise on mood by measuring mood before and after activity.</p> <p>Identifying and discussing ways to reduce 'boom and bust' patterns of activity to avoid fatigue, pain, and injury</p>	<p>https://www.psychologytools.com/resources/behavioral-experiment/</p> <p>https://www.psychologytools.com/resource/pacing-for-pain-and-fatigue/</p>
Pacing		

Table 1). These techniques can be applied to cognitions related specifically to exercise or coronavirus.

Identification of cognitive biases

Cognitive biases or thinking styles are habitual ways of thinking that may result in negative outcomes through behaviour (Beck & Beck, 2011; Kennerley, Kirk, & Westbrook, 2016). Examples include thinking in 'all or nothing' terms, for example 'I can't do my full gym workout because of lockdown so I might as well not bother to do any exercise today' or emotional reasoning, for example 'I feel anxious so there must be something physically wrong with me – I'd better not exercise today'.

Cognitive restructuring

Cognitive restructuring is used to achieve more balance in the way that someone is thinking and therefore free them from overly negative interpretations of events (Beck & Beck, 2011; Kennerley *et al.*, 2016). For example, someone with a belief 'if I fail in my exercise goal partly, it is as bad as being a complete failure' may explore this with the therapist and examine evidence for and against its validity.

Socratic dialogue

Socratic dialogue refers to the process of questioning, with the aim of discovering the client's view. The client is an active part of the process: (1) gathering data, (2) examining this in different ways, and then (3) devising their own plans to proceed with this new information. The majority of us have no experience of living through a pandemic like this one, nor of being mandated to remain at home. As such, psychologists must seek to understand clients' experiences and sense-making in this unprecedented situation.

Behavioural experiments

Behavioural experiments represent a powerful method to gather evidence, test specific cognitions, and generate learning. For example, the thought 'If I exercise I will feel too tired afterwards' may be tested out by careful design and implementation of a behavioural experiment. Experiments such as this one can still be set up even when the therapist and client are not physically occupying the same space.

Savouring

Looking forward to an activity, enjoying it in the moment, or reminiscing after the event can all derive mental health benefits (Bryant, Chadwick, & Kluwe, 2011). Savouring involves the specific focusing of attention on pleasurable aspects before, during, or after an activity. Many will be familiar with the satisfaction of completing a run or walk. We can use savouring techniques to bring to mind this memory and use it to motivate before repeating the activity.

Imagery

Images, or mental pictures, often carry emotional intensity (Holmes & Mathews, 2010). Imagery re-scripting may be used to reduce the power of unhelpful images (e.g., the image of oneself trying to exercise and getting it wrong) or to generate positive future images. Creating an image of ourselves completing a task can increase confidence and the likelihood of us engaging in it (Libby, Shaeffer, Eibach, & Slemmer, 2007). Indeed, imagery is used to enhance performance in sport at all levels (Suinn, 1997).

Addressing motivation

The motivation to engage in a behaviour is key to its implementation. Several strategies are employed by psychologists to enhance it.

Goal setting

A detailed discussion of what the client wishes to gain through therapy can help set realistic expectations and inspire hope. Therapists are trained to work collaboratively to generate goals, sometimes using the SMART framework (Doran, 1981) to identify goals which are specific, measurable, achievable, realistic, and time-based.

Goal-setting is a widely used strategy for promoting physical activity. Recent work has suggested that performance goals may be less helpful to those starting activity than goals directed at learning new strategies or processes (Swann *et al.*, 2020). For example, the goal to 'find four ways to increase your step count this week' may be more effective than the goal to 'achieve 10,000 steps per day'.

Mental contrasting

Mental contrasting is a self-regulation strategy that helps commitment to a goal. It involves imagining a desired future and contrasting this with the current state. It is commonly paired with implementation intentions (Gollwitzer, 1993). These are aimed at reducing the gap between intentions and actual performance of a behaviour. They consist of 'if... then' plans, specifying when, where, and how to act in order to implement the desired behaviour. For example, 'If I am not allowed to leave the house, then I will still exercise using an online exercise video'. The pairing of mental contrasting with implementation intentions has been shown to increase activity (Stadler, Oettingen, & Gollwitzer, 2009).

Motivational interviewing

Motivational interviewing (MI) (Miller & Rollnick, 1991) is an approach in which therapist and client explore and resolve ambivalence to behaviour change, with the aim of moving the client further towards making that change. MI has been applied in briefer interventions, by asking the following four questions: (1) Where are you on a scale of 0–10 in wanting to be more physically active? (2) Why are you a [specified number] and not lower? (3) Why are you a [specified number] and not higher? (4) How would you move from a [specified number] to a higher one? This method readily identifies barriers and motivators to becoming more physically active. This may be particularly important given the additional barriers imposed by the pandemic, such as restricted access to facilities, or suspension of team sports and activity classes.

Imagining a different future

Brief solution-focussed therapy employs the ‘miracle question’ (DeJong & Berg, 1998), in which clients are asked to imagine that a miracle has occurred and how this might look. For example, ‘if a miracle had happened overnight and you didn’t feel so tired, what would you notice first?’ Following this, people are asked to imagine in detail what would be different about life without the obstacles currently perceived.

Psychoeducation

Another way to boost motivation is to identify the benefits of change. The physical benefits of exercise are relatively well known in the general population but people are often unaware of the psychological benefits, and even less so of the benefits of reducing sedentary behaviours. Educating people about the benefits to mood and anxiety and aiming for change in these areas may be more fruitful than targeting weight loss which is notoriously hard to achieve through exercise alone (Hearon *et al.*, 2018). In this sense, physical activity can be seen as a mechanism for improving mood and reducing stress.

Addressing the sense of reward

The rewards derived from a behaviour are key to its maintenance. In order for physical activity to be initiated and maintained, there must be a sufficient notion of reward or advantage.

Behavioural interventions

The behavioural paradigm is based upon learning theory and notions of reward and reinforcement are key. If a behaviour is rewarded with a positive consequence, we are more likely to repeat it. Whilst many people experience immediate reward from exercising (release of ‘feel good’ hormones; endorphins, dopamine, and serotonin), others may find it uncomfortable or aversive, especially if they are not used to exercise, have physical health problems, or are overweight. Psychologists can utilize pacing and activity scheduling to help someone choose the right amount of activity for them (e.g., by starting slowly) and explore ways of making sure that the experience was rewarding and not aversive.

Problem-solving

During the process of therapy, clients are likely to come across barriers which will disrupt the sense of reward and achievement. Problem-solving may be especially difficult during lockdown, when the usual resources or familiar routines are not available. Tackling barriers collaboratively during therapy may assist. This includes generating multiple possible solutions and considering the advantages and disadvantages of each. This can facilitate the choice and testing of a solution, breaking the feeling of deadlock or ‘stuckness’. This may include identifying innovative methods to be active in the home, such as accessing online exercise classes, or working out how to maintain distancing whilst exercising outside the house. This problem-solving approach has been used effectively to promote physical activity in many different populations (Lakerveld *et al.*, 2013) (Allen, Whitemore, & Melkus, 2011).

The therapeutic process

Physical activity may be the core focus of treatment. More often, the therapist may tackle activity levels as a key focus in early sessions. This may provide the client and therapy process a ‘quick win’, improving mental health, well-being, sense of confidence and self-efficacy. After this initial piece of work, therapy focussed on other targets may ensue. We recommend maintaining awareness of physical activity levels throughout therapy, in the same way one might routinely ‘check in’ on mood or risk. We believe that the benefits of this for physical and mental health could be substantial, particularly during the COVID-19 pandemic.

Conclusion

COVID-19 poses a threat to the mental well-being of those with and without pre-existing mental health conditions. At a time in which physical activity is so much needed and yet so challenging to perform, every health care worker has a role in encouraging it. Psychologists are uniquely placed to assist with this by applying their knowledge of psychological theory and therapeutic tools. These could be implemented directly to help their own clients or to share with other members of multi-disciplinary teams so that a wider group of clients can benefit. COVID-19 is demanding flexibility and creativity to adapt care across the whole health care service. Now is the time for psychologists to apply their relevant skills to a target that has the potential to deliver both mental and physical benefits when these are most needed.

Acknowledgements

This project was funded by the NIHR Oxford Health Biomedical Research Centre (BRC-1215-20005). The views expressed are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health.

Conflicts of interest

All authors declare no conflict of interest.

Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

References

- Allen, N., Whittemore, R., & Melkus, G. (2011). A continuous glucose monitoring and problem-solving intervention to change physical activity behavior in women with type 2 diabetes: a pilot study. *Diabetes Technology & Therapeutics*, *13*, 1091–9. <https://doi.org/10.1089/dia.2011.0088>
- Ashdown-Franks, G., Firth, J., Carney, R., Carvalho, A. F., Hallgren, M., Koyanagi, A., . . . Stubbs, B. (2020). Exercise as Medicine for Mental and Substance Use Disorders: A Meta-review of the Benefits for Neuropsychiatric and Cognitive Outcomes. *Sports Medicine*, *50*(1), 151–70. <https://doi.org/10.1007/s40279-019-01187-6>

- Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. Hoeber Medical Division, Harper & Row.
- Beck, J. S., & Beck, A. (2011). *Cognitive behavior therapy*. New York: Basics and beyond. Guilford Publication.
- Bryant, F. B., Chadwick, E. D., & Kluwe, K. (2011). Understanding the processes that regulate positive emotional experience: Unsolved problems and future directions for theory and research on savoring. *International Journal of Wellbeing, 1*(1).
- DeJong, P., & Berg, I. K. (1998). *Interviewing for solutions*. Pacific Grove, CA: Brooks. In: Cole Publishing Co.
- Diamond, R., & Willan, J. (2020). Achieving good mental health during COVID-19 social isolation. *British Journal of Psychiatry, 1–6*, <https://doi.org/10.1192/bjp.2020.91>
- Doran, G. T. (1981). There's a SMART way to write management's goals and objectives. *Management Review, 70*(11), 35–6.
- Firth, J., Siddiqi, N., Koyanagi, A., Siskind, D., Rosenbaum, S., Galletly, C., . . . Stubbs, B. (2019). The Lancet Psychiatry Commission: a blueprint for protecting physical health in people with mental illness. *Lancet Psychiatry, 6*, 675–712. [https://doi.org/10.1016/S2215-0366\(19\)30132-4](https://doi.org/10.1016/S2215-0366(19)30132-4)
- Gollwitzer, P. M. (1993). Goal Achievement: The Role of Intentions. *European Review of Social Psychology, 4*(1), 141–85. <https://doi.org/10.1080/14792779343000059>
- Hearon, B. A., Beard, C., Kopeski, L. M., Smits, J. A. J., Otto, M. W., & Bjorgvinsson, T. (2018). Attending to timely contingencies: promoting physical activity uptake among adults with serious mental illness with an exercise-for-mood vs. an exercise-for-fitness prescription. *Behavioral Medicine, 44*(2), 108–15. <https://doi.org/10.1080/08964289.2016.1276428>
- Holmes, E. A., & Mathews, A. (2010). Mental imagery in emotion and emotional disorders. *Clinical Psychology Review, 30*(3), 349–62. <https://doi.org/10.1016/j.cpr.2010.01.001>
- Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., . . . Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry, 7*(6), 547–60. [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Kennerley, H., Kirk, J., & Westbrook, D. (2016). *An introduction to cognitive behaviour therapy: Skills and applications*, London: Sage.
- Lakerveld, J., Bot, S. D., Chinapaw, M. J., van Tulder, M. W., Kostense, P. J., Dekker, J. M., & Nijpels, G. (2013). Motivational interviewing and problem solving treatment to reduce type 2 diabetes and cardiovascular disease risk in real life: a randomized controlled trial. *International Journal of Behavioral Nutrition and Physical Activity, 10*, 47. <https://doi.org/10.1186/1479-5868-10-47>
- Libby, L. K., Shaeffer, E. M., Eibach, R. P., & Slemmer, J. A. (2007). Picture yourself at the polls: visual perspective in mental imagery affects self-perception and behavior. *Psychological Science, 18*(3), 199–203. <https://doi.org/10.1111/j.1467-9280.2007.01872.x>
- McNally, S. (2015). *Exercise: The miracle cure and the role of the doctor in promoting it*. London UK: Academy of Medical Royal Colleges.
- Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing People to change addictive behaviour*. New York, NY: Guilford Press.
- Stadler, G., Oettingen, G., & Gollwitzer, P. M. (2009). Physical activity in women: effects of a self-regulation intervention. *American Journal of Preventive Medicine, 36*(1), 29–34. <https://doi.org/10.1016/j.amepre.2008.09.021>
- Suinn, R. M. (1997). Mental practice in sport psychology: where have we been, where do we go? *Clinical Psychology: Science and Practice, 4*(3), 189–207.
- Swann, C., Rosenbaum, S., Lawrence, A., Vella, S. A., McEwan, D., & Ekkekakis, P. (2020). Updating goal-setting theory in physical activity promotion: a critical conceptual review. *Health Psychology Review, 1–17*. <https://doi.org/10.1080/17437199.2019.1706616>