

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills		
	10	
2. Knowledge and Understanding Skills		
	40	
3. Cognitive and Intellectual Skills		
	40	
4. Practical Application Skills		
5. Transferable Skills for Life and Professional Practice		
	10	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)		%
	Up to 1 week late (40% Max)		
	Over 1 week late (0%)		

Using relevant published research, critically appraise both the potential positive and negative psychological effects associated with being physically active and exercising.

In its constitution, the World Health Organisation (WHO) provides a clear definition of health as: “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” (World Health Organisation, 2021). In its 2020 report “Global Spending on Health: Weathering the storm” the WHO recorded that in 2018, global spending on health reached US\$ 8.3 trillion (World Health Organisation, 2020a) whilst a 2011 report by the World Economic Forum and Harvard School of Public Health predicted that global spend on non-communicable diseases (NCD) would cost US\$ 30 trillion by 2031 (Bloom *et al.*, 2011). Regular participation in exercise and being physically active has been associated with both physical and mental health wellbeing (Booth, Roberts and Laye, 2012; Legey *et al.*, 2017; Guthold *et al.*, 2018) and in recognition of this, in 2018 the WHO published its “Global action plan on physical activity 2018-2030: more active people for a healthier world” (World Health Organisation, 2018) which set out a guideline of 150 minutes of physical activity (PA) per week. In 2020, WHO updated its guidance to increase it from 150 to 300 minutes of PA per week (World Health Organisation, 2020b). In the context of a global Covid-19 pandemic, the timing of the updated guidance is somewhat interesting especially considering few people would have had the opportunity to achieve the 150 minutes previously recommended due to a number of factors, namely: lockdown restrictions; the closure of gyms and fitness facilities and limitations on time, locations and distances from home for the specific purpose of exercise/PA (McCarthy, Potts and Fisher, 2021).

This paper will examine the literature relating to potential positive and negative psychological effects of exercise and PA. It will consider how psychological models such as: the Health Belief model (HBM) (Becker, 1974); Self Efficacy Theory (SET) (Bandura, 1986, 1997); Cognitive Evaluation Theory (CET); Basic Needs Theory (BNT) and Organismic Integration Theory (OIT) as set out within Self Determination Theory (Deci and Ryan, 2017) relate to individual motivation to participate in exercise/PA for either mediation or prevention of adverse mental health.

And finally, it will assess how different motivations could lead to either positive or negative outcomes.

The role of exercise and PA as an intervention tool in the management of mental health has been studied extensively and in varying contexts (Stranges *et al.*, 2014; Legey *et al.*, 2017; Chekroud *et al.*, 2018; Fluetsch, Levy and Tallon, 2019; Coyle, Ghazi and Georgiou, 2020; Kandola *et al.*, 2020; Rogowska *et al.*, 2020). Kandola *et al.* (2020) studied 52,978 UK Biobank participants over a seven-year period and concluded that individuals with lower levels of cardiovascular fitness were at a higher risk of depression and anxiety. Similarly, those with lower grip strength were found to be at greater risk of general mental disorders, affirming the research that physical health can be a predictor of future mental health (Kandola *et al.*, 2020). A review by Saxena *et al.* in 2005 suggested that research conducted on the effectiveness of physical activity on mental health may be limited due to confounding variables such as bias towards the intervention in the volunteer subjects recruited to studies (Saxena *et al.*, 2005). Subsequent literature reviews have reported more positive conclusions. Fluetsch, Levy and Tallon (2019) analysed general population data for 441,456 adults in the United States from the 2015 “Behavioral Risk Factor Surveillance System” which recorded self-reported days of poor mental health (defined as anxiety, depression and/or stress) and physical activity behaviours. Their review of the data found an association between higher physical activity levels and lower poor mental health days although the study also acknowledges that it is not known whether a higher number of poor mental health days were the cause of lower levels of PA or vice versa (Fluetsch, Levy and Tallon, 2019).

A challenge presents itself in how to motivate individuals in depressive states to participate in exercise when they may already be disinclined to want to participate in PA due to low energy and fatigue (Legrand, Race and Herring, 2018) despite being fully aware of the benefits to their health (Becker, 1974). In their 2009 Position Stand “Exercise and physical activity for older adults”, Chodzko-Zaiko *et al.* reported the link between participation in aerobic exercise training and reduced risk of depression or anxiety in older adults. They went on to discuss the role exercise plays in maintenance of self-esteem and mitigation of any sense of loss of control through

improved self-efficacy (Bandura, 1986, 1997) leading to increased competence (Chodzko-Zajko *et al.*, 2009).

Deci and Ryan's "Self Determination Theory's Taxonomy of Motivation", also described as a "continuum of internalization", (Ryan and Deci, 2000) is illustrated in figure 1 below:

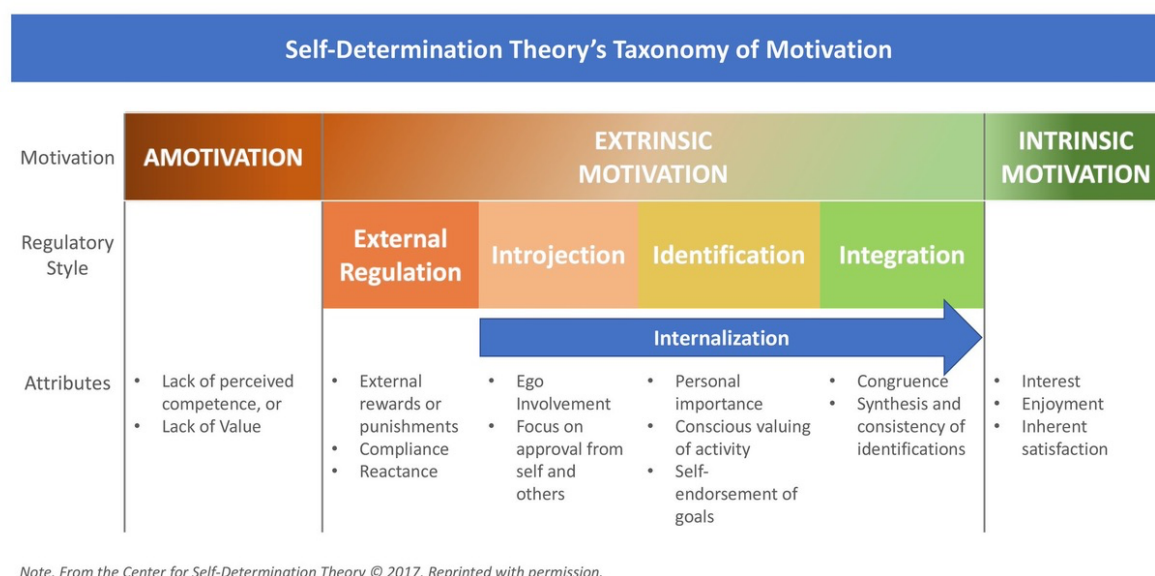


Figure 1: Self-Determination Theory's Taxonomy of Motivation (Centre for Self-Determination Theory, 2018)

The continuum describes three distinct motivational conditions: "amotivation", "extrinsic motivation" (Organismic Integration Theory) and "intrinsic motivation" (Cognitive Evaluation Theory) which are determined by the degree to which basic psychological needs ((Basic Psychological Needs Theory), defined by Deci and Ryan as autonomy, relatedness and competence, have been satisfied (Deci and Ryan, 1985). The continuum helps make sense of individual behaviours, motivations and barriers to exercise and PA across a wide range of circumstances and suggests how the transition from amotivation to volition may be achieved as basic psychological needs are met.

Exercise environment can be a positive motivator to exercise, particularly participating in nature through outdoor exercise which has been termed the "green space effect" (Knowles, Shanmugam and Lorimer, 2015). Yeh et al (2017)

specifically compared the psychological effects of indoor treadmill running using an artificial environment designed to imitate nature. Participants completed a Sport Emotion Questionnaire before and after exercising, the results clearly showed enhanced levels of happiness for participants running in the nature-based environment compared to a traditional gym environment (Yeh *et al.*, 2017). Covid-19 lockdowns provided a rich source of global studies into the psychological impacts of restrictions in access to outdoor space for the purposes of leisure and exercise. Jenkins *et al.* (2021) research conducted during the lockdowns in New Zealand using BREQ-3 questionnaires to measure motivation reported that nature-based exercise did not enhance perceived wellbeing compared to non nature-based exercise however their study did identify that PA driven by ego or a sense of obligation (extrinsic motivation) was less likely to derive psychological benefits than PA driven by virtue of pleasure and enjoyment (intrinsic motivation) irrespective of environment (Jenkins *et al.*, 2021). The authors speculate that this may be due to Covid-19 regulations relating to social distancing and the requirement to maintain a 2m distance from companions. On narrow tracks or trails, social distancing removes opportunities for socialisation whilst exercising, reducing relatedness and enjoyment in outdoor PA. This illustrates the potential for interjects in motivation, where a previously enjoyable activity is no longer enjoyable and if motivation cannot be recovered, can lead to a reduction in or cessation of the activity or a shift from intrinsic motivation to extrinsic where an individual loses their enjoyment but continues the activity out of “mustivation” rather than “wantivation” (Deci and Ryan, 2017).

It is within the “mustivation” concept in the form of internally controlled motivation that negative psychological effects of exercise can manifest themselves and unhealthy behaviours such as exercise addiction or negative body image (with or without eating disorders) can develop due to low self-esteem, guilt or shame (Bruno *et al.*, 2014). An obvious target for research into this subject is the fitness industry however there is limited literature exploring associations between, whether and how excessive exercise can be a modality for expression of mental health disorders such as eating disorders and/or body dysmorphia. A recent study conducted in Norway looked at the prevalence and relationship between compulsive exercise, depression, anxiety and eating disorders amongst fitness instructors. Using a Compulsive

Exercise Test (CET), Hopkins Symptoms Check List with ten items (SCL-10), Beck Depression Inventory (BDI) and Eating Disorder Examination Questionnaire (EDE-Q) to measure responses, their findings were in line with other studies into cohorts that exercise regularly: greater symptoms of depression, anxiety and eating disorders in participants with CET scores above clinical cut off. These results were found to be “much higher” than would be expected in the general adult population (Gjestvang, Bratland-Sanda and Mathisen, 2021). Possible explanations may be due to negative extrinsic motivations borne by a pressure on fitness instructors from employers and clients to live up to their role model status (Bratland-Sanda, Nilsson and Sundgot-Borgen, 2015) or extrinsic interjects arising from exposure to unrealistic images portrayed in social media (Hurst *et al.*, 2017).

These concerning behaviours extend beyond individuals working within the fitness industry. Corazza *et al* (2019) conducted a four-country cross sectional study into the emergence of exercise addiction, body dysmorphia, and image related psychological disorders specifically amongst adult exercisers. Their study of 1171 adult exercisers lasted for nine months between April 2015 and January 2016 and used Exercise Addiction Inventory, Rosenberg Self-Esteem Scale and Appearance Anxiety Inventory as instruments to measure responses. Their results revealed “an alarmingly high prevalence of appearance anxiety and low body satisfaction across the four countries” along with low levels of self-esteem. The results of this study found levels of Appearance Anxiety in excess of those found in the general population and even in groups undergoing aesthetic surgery. The study offers the view that “likes” received on social media platforms are perceived as rewards, creating and driving a desire for physical perfection (Corazza *et al.*, 2019). This behaviour would be low on the motivation continuum and there are no questions in the study relating to whether low body satisfaction was a motivator for commencing exercise or whether exercising was previously undertaken for enjoyment and has subsequently been overtaken by the quest for perfection.

There is a vast body of literature demonstrating the benefits of exercise and PA on physical and mental health and numerous theories and frameworks exploring the motivations of individuals, despite which, compliance with recommended PA has been in decline (Du *et al*, 2019). Conversely, there is emerging research linking

exercise to adverse mental health disorders such as exercise addiction, body and muscle dysmorphia and disordered eating in the quest for what is perceived to be a perfect body. With adequately monitoring and support there are individual health benefits at both ends of the motivation continuum which would roll up to financial benefits to national economies by way of reduced healthcare costs. Overcoming this challenge of motivating individuals from a state of amotivation or velleity to that of a lasting state of total volition in respect of their participation in exercise for the benefit of their overall health will be key to the successful implementation of effective public health policies if current trends are to be reversed and WHO 2020 guidelines achieved.

Word Count: 1807

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