



Using Physical Activity to Tackle Depression: The Neglected Positive Psychology Intervention

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Abstract: The treatment of depression has primarily been tackled through pharmaceuticals and cognitive interventions designed to reduce negative emotional states. This traditional psychology approach has had some success in reducing depressive symptoms but does not offer clients any understanding of how to explicitly achieve a state of wellbeing. In contrast, positive psychology promotes interventions that teach people how to build positive emotional states, as well as decrease negative ones. In this paper, we advocate for physical activity to be included as a positive psychology intervention both to treat and prevent depression as its effectiveness has been documented. We further encourage practitioners to include physical activity in their treatment plan recommendations as it targets many aspects of mental and physical wellbeing and conclude with recommendations for practitioners and policy makers in the United Arab Emirates.

يتم علاج الاكتئاب في الدرجة الأولى من خلال الأدوية والعلاجات النفسية المختلفة المصممة للحد من الحالات النفسية السلبية. وقد نجح هذا النهج التقليدي في جعل الأشخاص أقل اكتئاباً، ولكن في كثير من الأحيان بدون اكتساب أي مهارة في معرفة كيفية تحقيق حالة حقيقية ومثلى من الازدهار والايجابية. في المقابل، برز علم النفس الإيجابي كرد فعل لهذا التركيز الكلي على الضعف، وطرح أساليب وطرق تعلم الأشخاص كيفية بناء حالة نفسية إيجابية، وكذلك الحد من الحالات السلبية. في هذه الورقة، ندعو لإدراج النشاط البدني على وجه التحديد كأحد هذه الأساليب في العلاج والوقاية من الاكتئاب إذ تم توثيق فاعليتها جيداً وهو متكافئ مع العلاجات السائدة الأخرى. ومع ذلك، وعلى عكس العلاجات الأخرى، النشاط البدني يستهدف المجالات الكاملة من الصحة النفسية والجسدية ويعمل مع عدد قليل، أو دون آثار جانبية، ومع التطابق الديني المناسب لدولة الإمارات العربية المتحدة والمنطقة.

Keywords: positive psychology; positive psychology intervention; physical activity; depression; wellbeing; antidepressants; cognitive-behavioral therapy

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Depression is considered the world's leading cause of disability (World Health Organization, 2016). Thus, the search for accessible, low cost, and appealing treatments for depression is gaining pace the world over. With the increasing popularity of positive psychology in the Gulf Cooperation Council (GCC) region (Lambert, Pasha-Zaidi, Passmore, & York Al-Karam, 2015; Rao, Donaldson, & Doiron, 2015), there may be scope for, and interest in interventions which address depression from a positive lens where the removal of negative emotions and states is not the only preoccupation. Rather, the addition of positive emotions and experiences can serve as a means to increase wellbeing as well (Schueller, Kashdan, & Parks, 2014). The development of such interventions to increase wellbeing and decrease the negative states observed in depression is ongoing and consequently, we propose that physical activity (PA), the expenditure of physical energy above resting level, be formally included in the list of interventions currently offered to tackle this leading cause of disability. We highlight the benefits of this under-prescribed tool so that practitioners can better appreciate its ability to treat and prevent depression, as well as boost wellbeing. We frame our discussion in the context of the United Arab Emirates (UAE) and consider the relevant literature on the magnitude of PA and depression and conclude with our recommendations.

Positive Psychology and its Interventions

Positive psychology emerged at the turn of the millennium as a response to the pervasive negative orientation in mainstream psychology that focused on distress, disorder, and dysfunction (Seligman & Csikszentmihalyi, 2000). In contrast, positive psychology advocated for a return to its original aims, that of studying human excellence and promoting an empirical approach to wellbeing, health and optimal functioning as a source of inquiry (Linley, Joseph, Harrington, & Wood, 2006). In this approach is a focus on discovering the contributors to a good life so that individuals can be equipped with the skills to capitalize upon and confront challenges and opportunities, as well as foster a state of wellbeing (Vella-Brodrick, 2011). An outgrowth of this orientation is the development of positive psychology interventions (PPIs), intentional activities designed to increase positive emotions and experiences, as well as decrease negative emotions, though this is not their primary intent (Sin & Lyubomirsky, 2009). Examples of current PPIs include gratitude (Duckworth, Steen, & Seligman, 2005), savouring (Bryant & Veroff, 2006), and the development of meaning (Steger, Kashdan, Sullivan, & Lorentz, 2008) (see Lambert D'raven & Pasha-Zaidi (2014) for a comprehensive review).

PPIs were designed with the recognition that actively building positive states beyond a baseline defined by an absence of negative ones is more important than previously recognized. Traditional psychology's view of wellbeing has often been defined simply by the absence of depressive states. However, Keyes (2005) proposed a fuller definition based on the concept of 'flourishing'. While depression is defined by the presence of negative emotions and experience, flourishing is a state of complete mental health and involves feeling good, functioning well and having good relationships and a robust state of health. Finally, languishing is used to describe the negative state of stagnation and emptiness. Studies show that a lack of flourishing mental health results in the same consequences as the presence of mental illness (Keyes, 2005), with individuals



in declining or languishing states four times more likely to have a mental illness than those who flourish (Keyes, 2010; Keyes, Dhingra, & Simoes, 2010). In sum, the absence of flourishing is known to contribute to the odds of mental illness, while gains in mental health decrease those odds.

The efficacy of PPIs is documented in two meta-analyses; Sin and Lyubomirsky (2009) reviewed 51 interventions (N=4226) showing that these improved well-being ($r=0.29$) and helped reduce depressive symptoms ($r=0.31$) albeit with small effect sizes. Bolier et al. (2013) had stricter inclusion guidelines (39 studies with over 6000 participants) and focused on studies with an explicit positive psychology orientation and PPIs versus wellbeing in general. That analysis showed smaller effect sizes, but the results were still significant and sustainable with subjective wellbeing ($r=0.34$), psychological wellbeing ($r=0.20$), and depression ($r=0.23$) positively affected by the use of PPIs with gains holding at three and six months post-treatment.

While analyses like these show that PPIs are effective, Schueller et al. (2014) propose that only considering studies with explicit positive psychology theories and/or concepts limit the field to those currently under review and overlooks other equally good candidate interventions. They propose the term *positive psychology* interventions be changed to *positive psychological* interventions defined by the intervention's goal (i.e., to increase positive emotion, life satisfaction, subjective wellbeing or other measures that address the positive, as well as reduce the negative), and the pathways through which the intervention operates, such as the means to harness positive emotions, cognitions, actions and all manner of accumulated knowledge that would support conditions of flourishing and redress deficits. As an aside, there is suggestion that PPIs are only for the non-distressed as they function primarily by increasing positive emotions and other wellbeing indicators and not explicitly to reduce negative states (Sin & Lyubomirsky, 2009). Yet, the first empirical studies conducted by the founder of the field specifically targeted the alleviation of depression (Seligman, Rashid, & Parks, 2006; Seligman, Steen, Park, & Peterson, 2005). Since then, PPIs have been trialled for smoking cessation (Kahler et al., 2014), cardiac illness rehabilitation (Huffman et al., 2011), and schizophrenia (Johnson et al., 2011; Meyer, Johnson, Parks, Iwanski, & Penn, 2012), all clearly negative conditions to be alleviated.

Accordingly, as PPIs serve to increase positive states and decrease negative ones, as well as rely on cognitive, behavioural, and affective means to support their success, we, like others, advocate for PA to be included as a PPI as the field has tended to be focused on cognitive and emotional strategies, avoiding the body altogether (Biddle, Mutrie, & Gorely, 2015; Faulkner et al., 2015; Hefferon, Mallery, Gay, & Elliott, 2013; Hefferon & Mutrie, 2012; Mutrie & Faulkner, 2004). We endorse its inclusion and recommend that practitioners working locally in the field of depression consider PA as a contender for its treatment and prevention for the reasons that follow.

PA's Relationship to Clinical Depression and Wellbeing

We propose PA as a treatment and preventive tool for clinical depression, as well as an intervention for greater flourishing as it is the only mental health disorder for which PA is recommended by the Royal Australian and New Zealand College of Psychiatrists, American College of Sports Medicine, and the UK's National Health Service and Royal College of Psychiatrists among others (Cleare et al., 2015; Ekkekakis, 2015). In meta-analyses and extensive



reviews, negative associations between depression and PA are common (Biddle et al., 2015; Ekkekakis, 2015; Ekkekakis, Hargreaves, & Parfit, 2013; Josefsson, Lindwall, & Archer, 2014; Krogh, Nordentoft, Sterne, & Lawlor, 2011; Lawlor & Hopker, 2001; Mammen & Faulkner, 2013; Rethorst, Wipfli, & Landers, 2009), with local studies finding the same (Barron, 2015; Moselhy et al., 2012). In particular, Cooney et al. (2013) used the Cochrane Collaboration review standards for their meta-analysis and showed PA to be an efficient treatment for depression with a pooled standardised mean deviation ranging from small (-0.4) to very large (-1.4).

In terms of treatment, studies comparing PA to medication showed equal effectiveness. For example, Blumenthal et al. (1999) compared PA to antidepressants, and antidepressants and PA combined in middle-aged patients. At 16 weeks, all three groups (PA, antidepressants, and PA/antidepressants) showed equal effects with the only difference being that the antidepressant group saw faster gains. At 10-month follow-up, the PA group maintained its gains and had lower relapse rates than the antidepressant group (Babyak et al., 2000; Hoffman et al., 2011). In 2007, Blumenthal et al. again compared PA to antidepressants and showed that after 16 weeks, about 40% of the PA group no longer met the conditions for depression and this was comparable to medication and higher than placebo.

Prospective studies (longitudinal studies conducted to see who becomes depressed and which rule out confounding variables like smoking and body mass index), also point to PA's preventive abilities. A study of over 10 000 Harvard alumni showed that individuals who took part in three or more hours of weekly activity had a 27% lower risk for depression after a 23 to 27 year follow-up (Paffenbarger, Lee, & Leung, 1994), while two studies in Mexico and the USA showed that the most inactive group members had higher incidences of depression at five and six year follow-up (Gallegoes-Carillo et al., 2013; Strawbridge, Deleger, Roberts & Kaplan, 2002). For adolescents in particular, Rothon et al. (2010) suggested that for every additional hour of PA, the odds of experiencing depressive symptoms dropped by 8%. Other studies suggest it is not so much a lack of PA, but low cardiorespiratory fitness levels that increases the risk of depression (Becofsky et al., 2015; Schuch, Vancampfort, Sui et al., 2016).

While the relationship between PA and depression has been contentious and plagued by charges of publication bias and too strict inclusion guidelines (i.e., clinical depression versus its symptoms and only accepting randomized controlled trials (RCTs) (Biddle et al., 2015; Ekkekakis, 2015), the most recently published meta-analysis conducted by Schuch, Vancampfort, Richards et al. (2016) on 25 RCTs published between 2013 and 2015 in the Cochrane review and other databases, concluded that previous analyses underrepresented the effects of PA on depression and that effect sizes were large and significant for depression symptoms and major depressive disorders.

Additional evidence further supports the promotion of PA as a tool for greater wellbeing. One theory among many and that is admittedly contested (Cowen, 2008; Cowen & Browning, 2015), is that depression is caused by low levels of serotonin, a neurotransmitter responsible for the regulation of mood, sleep, memory and learning (Albert & Benkelfat, 2013; Chaouloff, 1997; Charney, 1998; Mann, 2013; Stockmeier, 2003). The ability to regenerate brain cells, called neurogenesis, is helped by serotonin and believed to trigger depression when not adequately functional (Dranovsky & Hen, 2006; Lucassen et al., 2010); yet, PA, aerobic exercise in particular,



stimulates it (Fabel & Kempermann, 2008; Greenwood & Fleshner, 2011; Nokia et al., 2016; Szuhany, Bugatti, & Otto, 2014). The hormone irisin is also released after moderate levels of PA and besides slowing down the speed of aging by lengthening DNA caps called telomeres, also triggers neurogenesis (Rana et al., 2014), effectively helping depression to lift. SSRIs, selective serotonin reuptake inhibitors, a class of antidepressants, work in the same manner and it has been proposed that PA utilizes the same antidepressant pathways to explain its effects (Ekkekakis, 2015).

PA also mimics the effects of therapy, such that greater self-efficacy (Barnett, 2013; Welch, Hulley, & Beauchamp, 2010), self-esteem (Elavsky, 2010), positive emotional experiences (Giacobbi, Hausenblas, & Frye, 2005; McAuley, Elavsky, Jerome, Konopack, & Marquez, 2005), resilience (Biddle et al., 2015), quality of life (Elavsky et al., 2005), self-learning (Kimiecik & Newburg, 2009), self-regulation (Oaten & Cheng, 2006), and muting of the body's physiological response to stress (Von Haaren, 2016) have been identified. Qualitative studies showed that even elderly participants reported more purpose, less social isolation, stronger personal capability, and a sense of achievement as a result of PA (Stathi, Fox, & McKenna, 2002). Changes to emotional states were further confirmed by two meta-analyses suggesting that after regular PA, positive affect increased by half a standard deviation compared to controls (Reed & Buck, 2009; Reed & Ones, 2006) and that compared to the sedentary, individuals taking part in a bout of PA were about 65% more likely to report positive affect (Reed, 2013). Finally, the effects of PA were not limited to feeling good, but to building psychosocial resources. Hogan, Catalino, Mata and Fredrickson (2015) investigated whether the positive emotions stemming from PA generated resources like self-acceptance, environmental mastery, purpose in life, autonomy, and social integration finding not only a positive association between the two, but a negative association with sedentary behaviour.

Concerning the latter, sedentary behaviour (sitting and/or screen time including television) is also related to negative emotion and poor mental health outcomes. A meta-analysis of 11 studies (Teychenne, Ball, & Salmon, 2008) showed a positive association between sitting and depression in the majority of studies, while two showed a negative association with the authors concluding that Internet socializing likely accounted for the difference. Vallance et al. (2011) also showed that sedentary behaviour led to greater risk of depression in over 3000 US adults, while Hamer, Stamatakis and Mishra (2010) showed that poor mental health scores were associated with more than four hours of daily screen-based activity. Similar trends were noted in Spain at six-year follow up (Sanchez-Villegas et al., 2008) and in Australia where low quality of life scores were 4.5 times higher in individuals reporting no PA and greater screen time (Davies, Vandelanotte, Duncan, & van Uffelen, 2012). In sum, both mental and physical health influence one another.

Physical Inactivity and Depression in the UAE

As physical inactivity increases the world over (Kohl et al., 2012), it is considered one of the factors behind growing rates of depression, as well as the proliferation of at least 35 chronic diseases such as hypertension, coronary heart disease, diabetes and osteoporosis (Booth, Roberts, & Laye, 2012; Durstine, Gordon, Wang, Luo, 2013; Mutrie & Faulkner, 2004; Nunan, Mahtani, Roberts, & Heneghan, 2013). As with most rapidly developing societies, modernisation has taken a toll on Muslims and non-Muslims alike, particularly in the GCC region, resulting in low rates of



PA, increased calorie consumption and higher rates of cancer and cardiovascular disease (Loney et al., 2013). Activity rates have declined in the GCC region and vary between 9%-42% for men and 26%-28% for women (Mabry, Reeves, Eakin, & Owen, 2010). Urbanisation, the adoption of western attributes, values, and standards of living (Ghubash, El-Rufaie, Zoubeydi, Al-Shboul, & Sabri, 2004), a lack of domestic, occupational and leisure time PA and greater food consumption have impacted health outcomes (Al-Hazzaa & Musaiger, 2011; Davison et al., 2014). These include obesity, with Ng et al. (2014) reporting rates of overweight and obese individuals over the age of 20 in the UAE to be over 60%, and diabetes, whose prevalence reached 24% among citizens and 17% among expatriates (The UAE National Diabetes Committee, 2009) and is ranked one of the highest in the world with over one million cases registered in the country as of 2015 (International Diabetes Federation, 2015).

Further, in the UAE, the Dubai Health Authority (DHA) (2010) found that only 19% of national adults attained the standards for PA of 30 minutes of daily moderate PA five times per week, with a worrying figure for men aged 40 to 59 at a mere 7%, while only 5% of national women 60 years plus met the standard. They added that for both genders, rates of activity dropped as age increased but that as education levels rose, so did activity. A cross-sectional study of 628 homes (Ng et al., 2011) found that 41% of Emirati women had moderate to high levels of activity; yet, 75% of young teenaged females spent as much as five hours and more sitting per day. The authors noted that for urban dwellers, PA was less likely despite having more access to facilities, whereas rural individuals were more active as a result of daily activities like walking to the store or doing housework. They also found that the greater wealth households reported, the less activity they did.

Local youth hardly differed. Haroon, El Saleh and Wood (2016) conducted a cross-sectional study on over 1000 students (915 nationals) aged 12 to 16 across 17 government schools in Dubai and found that only 37% reported playing sport or exercising and this differed greatly by gender; 52% for boys and 19% for girls. Further, Yammine's (2016) meta-analysis of over 12 000 UAE adolescents similarly found that one quarter reported no PA at all. Assessing existing data and devising a scorecard for the UAE with respect to youth meeting the recommended activity guidelines (60 minutes daily), Al Zaabi et al. (2016) found that rates between 2005 and 2010 actually declined from 19.9% to 17.2% and these results garnered the country a grade of D-.

Regarding depression, there are few studies from which to glean information. Across the MENA (Middle East/North Africa) region, Mokdad et al. (2014) found that for the years 1990, 2005, and 2010, major depressive disorder ranked the highest cause of years of life lived with disability, whereas in the GCC (UAE, Qatar, Kuwait, Oman, Saudi Arabia, and Bahrain), depression was ranked first in 2010 for attributable deaths associated with specific risk factors especially in adults aged 20 to 39 years where the highest burden was recorded. Further, Moselhy et al. (2012) used data from the Health and Life survey of 2089 citizens in the cities of Al Ain and Abu Dhabi (UAE), of which 1224 were asked about depression. Of them, 13.9% qualified with depression and the odds increased with age and the female gender. Finally, a second community-based survey conducted by the DHA (2011) released figures about depression noting that single, full-time employees and students between the ages of 18 and 39 reported the greatest likelihood of depression. Despite the few studies in the area, improvements to states of flourishing can be made.



For Practitioners: Addressing Resistance and Closing the Loop

Despite the plethora of studies, there is still resistance to offering PA as a tool for the treatment and prevention of depression. Practitioners routinely claim there is insufficient evidence for PA's effectiveness (Hébert, Caughy, & Shuval, 2012; Searle et al., 2012; Weir, 2011) and often consider antidepressants as a first line of treatment despite the fact that only 30% to 50% of individuals achieve remission through this route and often with negative side-effects (Smith, Dempster, Glanville, Freemantle, & Anderson, 2002; Trivedi & Daly, 2008; Warring, 2012). In addition, most psychological treatments are reported to produce only small to moderate effect sizes against no-treatment controls (Hunsley, Elliot, & Therrien, 2014). Even CBT, considered the gold standard for the treatment of depression, now shows equivocal results. Several meta-analyses have found small to medium effect sizes for its efficacy and no evidence for its claimed superiority over non-CBT treatments (Baardseth et al., 2013; Beltman, Oude Voshaar, & Speckens, 2010; Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012; Wampold et al., 2017). Further, while CBT aims to redress dysfunctional thoughts to offset negative emotions, it has been criticized for not teaching the skills required to be happier. As it is more focused on teaching the skills to be less depressed, clients are merely returned to a state of neutral, or languishing (Karwoski, Garratt, & Ilardi, 2006; Keyes, 2005).

The psychopharmacological approach has also come under scrutiny in recent years for whether its evidence is not better explained by the placebo effect (Blumenthal et al., 2007; Fournier et al., 2010; Kirsch, 2014). Like CBT, it does not include the acquisition of skills and may undermine the necessary self-efficacy and sense of control needed to take action in the remediation of depression (Gibson, Cartwright, & Read, 2016). In contrast with these approaches, when considering physical activity, it is difficult to attribute its success to anything other than the self (Faulkner, Hefferon, & Mutrie, 2015; Mutrie & Faulkner, 2004). Thus, the reluctance of practitioners to prescribe exercise is ungrounded; there is sufficient rationale for a treatment that targets positive and negative emotions and affects more than just one part of the body and aspect of functioning.

Yet, we acknowledge that exercise has its limits. Certainly, when suicidality is a concern, treatment must be more aggressive and immediate than PA, CBT, or PPIs for that matter. Hence, professional judgement remains critical. Further, a decline in PA during depression is common as are procrastination, indecision, low interest, and loss of self-efficacy. Therefore, enhancing PA may require additional action planning and motivational interviewing (Rubak, Sandbæk, Lauritzen, & Christensen, 2005) to address the lack of initiation and high rates of early termination common to all interventions (Blumenthal, Smith, & Hoffman, 2012; Gerber, Holsboer-Trachsler, Pühse, & Brand, 2016; Krämer, Helmes, & Bengel, 2014; Krämer, Helmes, Seelig, Fuchs, & Bengel, 2014). In fact, we suggest that clients be encouraged to try PA several times before deciding on its adoption; much like sky diving, no amount of imagination can prepare individuals for the real thing and as with all new activities, once the initial emotional experience has been had, time and practise are needed for its mastery. PA may also not be appropriate for those with time constraints like parenting, full-time work, long commutes, taking care of aging parents, or all of these combined.



The fit of a PPI is also critical such that personality characteristics and preference (Hyde, Maher, & Elavsky, 2013; Schueller, 2010) matter in the success of any intervention.

Gender is also a factor, particularly in the GCC region, where women report less engagement in PA due to cultural constraints (Dubai Health Authority, 2010; Yammine, 2016). As a guide to the prescription of health based treatments in the region, we recognize the resistance practitioners may have in promoting PA to Muslim females especially. However, Muslims believe that their bodies are given to them as a trust by God and that on the Day of Judgement, they will be held accountable for how they treated their bodies in life. Physical health through good nutrition and movement is thought to be paramount to mental health and towards the fulfilment of one's religious obligations (such as the five daily prayers; fasting during Ramadan; and for Hajj, the pilgrimage to Mecca). With some exceptions, anything that results in a clear mind and physical rejuvenation is encouraged; thus, for practitioners to 'prescribe' PA (Nunan, 2016), is indeed in accordance with both empirical science and Islamic belief. Yet, PA should not delay prayers, lead to unnecessary mixing of the sexes or loss of dignity through improper clothing or movement. Familial and cultural beliefs may further influence activity (Dun, 2016) and must be considered when discussing PA as part of a treatment plan; however, with more segregated community sport facilities and inclusion in high-level government-funded competitive sports (including by females), it is envisioned that in the future more individuals will be inspired to keep fit.

For the motivated professional, we encourage the development of community-based PA programs in addition to or instead of traditional 'sit & talk' therapy. Group PA sessions can be held in parks, walking tracks, the beach, or in outdoor gym areas removing the stigma of mental health treatment and offering clients a distraction from problems and a chance to meet others in non-clinical settings (Privitera, Antonelli, & Szal, 2014). PA programs provide the opportunity to develop psychological skills of confidence and self-efficacy, as well as the tools for goal setting, a sense of mastery and social skills too (Biddle et al., 2015). In the absence of organized activities, practitioners can opt to conduct individual 'walk & talk' sessions (Mutrie & Faulkner, 2004). Creating new positive experiences is an aim of PPIs, and a focus on the positive aspects of activity (i.e., socializing, being outdoors, learning, etc.) can make the negative more distant, fade in importance and become less urgent for clients with depression (Seligman et al., 2006). In fact, the experience of positive emotions generated as a result of participating in PA appear not only to increase the likelihood of future adherence (Garcia & Archer, 2014), but also to serve as cyclical feedback to greater physical wellbeing. Positive emotions and other indicators of wellbeing boost subsequent health by moderating the cognitive and physiological results of negative emotions, reducing reactivity to stress and bolstering the immune system (Bower, Moskowitz, & Epel, 2009; Fredrickson, Mancuso, Branigan, Tugade, 2000; Huang, Webb, Zourdos, & Acevedo, 2013).

In sum, we encourage traditional psychologists to consider the positive, health psychologists to think of mental health and positive psychologists to think of physical health, and embolden all professionals who work with depression to do so collaboratively and with the aim of understanding what works, versus only considering the respective tools at their immediate disposal. Thus, a call for the broader inclusion and integration of all factors that lead to greater wellbeing is repeated here (Hefferon & Mutrie, 2012). We also call on psychology associations in the region to advocate for



the inclusion of PA as a mental health and public health policy agenda (Woods & Mutrie, 2012), where PA is adopted within the recommended guidelines for the prevention and treatment of depression by the relevant health authorities.

Taking the lead: Policy Makers and Government Recommendations

As governments play a role in influencing and setting the tone for broad-based policies and actions, their role is also central to our discussion. Paradoxically, attempts to develop policies against physical ill-health may in fact, undermine the development of positive physical lifestyles (Bombak, 2014). For instance, PA is often encouraged specifically to combat obesity; yet, aiming public health interventions in this way can result in PA being considered a weight-centric approach confined to one group rather than stressing its impact on physical and mental health for everyone (Bombak, 2014; Kimiecik, 2002). Instead, the effects of PA should be portrayed as having an immediate value to one's psychological health, emotional state, and overall wellbeing, all of which have been put forward as reasons for why individuals maintain PA and should be considered by policy makers (Conner, Rhodes, Morris, McEachan, & Lawton, 2011; Dolan, Kavetsos, & Vlaev, 2013). Thus, the most successful means of addressing depression and physical inactivity may be to focus on health and wellbeing versus weight loss and the minimization of negative emotion, the stated philosophy of positive psychology itself (Seligman & Csikszentmihalyi, 2000).

Currently, PA is mandatory in UAE government schools (Al Zaabi et al., 2016), but no similar policy is provided for the broader community. We suggest that just as the declaration of the Year of Reading brought about greater awareness of the benefits of reading and is supported by the allowance of one hour of reading during official worktime for government employees (The National, 2016), the same priority must be given to PA across the community, workplace and higher education. Yet, to do so, PA must be part of a social movement versus yet another public awareness and education campaign (Foo, Vijaya, Sloan, & Ling, 2013). We highlight one example from which to take inspiration. In the 1970's, ParticipACTION (www.participaction.ca), a non-profit organization launched by the Canadian government was designed to promote a national state of active living, achieve greater health aims, increase public awareness about the benefits of physical recreation and sport, and reduce healthcare costs. Over time, it took many forms including the promotion of PA through music videos, daily televised public service clips, school competitions, national fitness tests, community awards, social media initiatives, and all matter of PA information and research. We propose such a broad UAE-based wellbeing program and to spearhead the initiative, suggest adopting well-respected, media savvy national role models. Given the popularity of many of the UAE royal families' social media pages filled with images of their participation in local and international PA, we feel this is an exemplar role for leadership, and youth leadership at that, to play in the promotion of active living and wellbeing in the nation.

While we salute the leaders of the UAE for taking a proactive role in promoting excellence and establishing ministers for happiness, youth, tolerance and the future, we would like to add one more, that of physical and mental wellbeing with PA as the main goal through which this can be achieved and under which many existing efforts can be unified. These successful efforts earned the government a B+ in terms of their strategies and investments in Al Zaabi et al.'s (2016) score card



system. Coupled with the actions of the Dubai and Abu Dhabi Sport Councils, UAE Athletics Federation, various sporting clubs and associations, urban planning and transportation departments, municipalities, as well as individual sheikhs, PA in the country is supported through the funding and establishment of national and local teams (cycling, fencing, endurance riding, etc.), development of world-class infrastructure like cycling venues, running paths, outdoor gyms, volleyball and basketball courts, as well as the sponsorship of international and local events. These efforts concurrently generate greater community wellbeing, where it has been suggested that when PA is the norm, communities develop stronger social capital as individuals come together to play, participate, meet, share and make use of resources, including one another, in ways that boost social trust, develop a sense of community, reduce social isolation, and promote human excellence (Faulkner et al., 2015; Hefferon & Mutrie, 2012).

Conclusion

In conclusion, we return to our two aims; encouraging the inclusion of PA as a PPI towards the treatment and prevention of depression, as well as the promotion of flourishing states of mental and physical wellbeing, and second, advocating for the inclusion of PA in the arsenal of tools practitioners currently use. To do so, we highlighted several studies demonstrating the efficacy of PA in terms of treatment and prevention, as well as in comparison to CBT and antidepressant treatments, and addressed concerns that PA may be antithetical to Islam. We hope our recommendations will be taken up by practitioners and policy makers alike with the aim of achieving a true state of wellbeing in the UAE; that is, one defined by the presence of positive emotions and states and not merely by the absence of disease and dysfunction.

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