Why do exercisers with a higher trait self-control experience higher subjective well-being? The mediating effects of amount of leisure-time physical activity, perceived goal progress, and self-efficacy

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Goal-selection
Physical exercise
Happiness
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ABSTRACT

A first goal of the present study consisted in examining the interrelationships between trait self-control, amount of leisure-time physical activity (LTPA), goal progress, self-efficacy and subjective well-being. A second goal of this study was to examine whether LTPA amount, goal progress and self-efficacy could mediate the beneficial effect of trait self-control on subjective well-being. Five hundred one individuals, who reported to perform LTPA regularly, took part voluntarily in the study. Preliminary analyses showed acceptable and significant estimates of the measurement and structural model (absolute GoF = 0.394, relative GoF = 0.990, outer model GoF = 0.998, inner model GoF = 0.991, R² = 18.02%, p = 0.000). Correlation analyses revealed that trait self-control, LTPA amount, goal progress, self-efficacy and subjective well-being were positively associated with each other (ρs = 0.138 to 0.711, ps < 0.002). Mediation analyses revealed that LTPA amount, goal progress and self-efficacy partially mediated the positive effect of trait self-control on subjective well-being. Interestingly, structural model analyses revealed that the effect of LTPA amount on subjective well-being vanished when goal progress and self-efficacy were included in the PLS model. Theoretical and practical implications for the study of the relationships between trait self-control and subjective well-being are discussed.

1. Introduction

Subjective well-being has captured the attention of politicians, scientists, and thinkers since research evidenced the capability of this variable to account for several indicators of adaptive functioning and development of society, groups, and people, such as economic development, attachment to law and human rights, citizenship, quality of life, longevity, work productivity, etc. (e.g., see Diener, Oishi, & Lucas, 2015). Subjective well-being corresponds to “people's overall evaluations of their lives and their emotional experiences” (Diener et al., 2017, p. 87). It refers to general appraisals comprising happiness, life satisfaction and positive emotions and feelings. Given the evidenced capability of this variable to foster adaptive psychosocial outcomes (e.g., Diener et al., 2017, 2015), advancing our understanding of its development is of great importance.

Recent studies showed that personality traits (e.g., temperament, Big Five personality traits) could influence subjective well-being (e.g., Briki, 2018; Chen, 2015; Soto, 2015). Briki (2018) demonstrated that approach and avoidance temperament (i.e., a general neurobiological sensitivity to appetitive and aversive stimuli, respectively) predicted trait self-control (i.e., stable capability to operate self-corrective adjustments while pursuing goals) and subjective well-being. He also demonstrated that approach (or avoidance) temperament positively (or negatively) predicted subjective well-being through experiencing higher (or lower) trait self-control. Additionally, the author proposed that the beneficial (or detrimental) influence of approach (or avoidance) temperament on subjective well-being would be due to the development of adaptive (or maladaptive) cognitions and behaviors, resulting from the activation of adaptive (or maladaptive) regulations. Following such a perspective, the goal of the present study was to explore why trait self-control could promote subjective well-being.

This study was conducted in the context of leisure-time physical activity (LTPA), which refers to “cumulative, acute bouts of physical activity that are planned, structured, and repeated and result in improvement or maintenance of one or more components of physical fitness, including cardiorespiratory capacity, muscle strength, body composition, and flexibility” (Puetz, O'Connor, & Dishman, 2006, p. 866). We presumed that LTPA amount, perceived goal progress and self-efficacy could account for the relationship between trait self-control and subjective well-being in exercisers.

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1.1. Trait self-control and subjective well-being

Although it could be viewed as a part of conscientiousness (a Big Five personality trait) (see Roberts, Chernyshenko, Stark, & Goldberg, 2005), trait self-control is more usually thought as the core component of self-regulation, which refers to the set of self-corrective actions taking place while pursuing desired goals (e.g., Carver & Scheier, 1998). Generally, trait self-control reflects a stable tendency of the self to activate appropriate adjustments while attempting to adapt to one’s external environment (Tangney, Baumeister, & Boone, 2004). Specifically, it refers to a stable capability of the self to promote goal-facilitating means and to override goal-disruptive desires (De Ridder & Gillebaart, 2016; Hagger, 2013, 2014). Research has revealed that trait self-control was positively associated with well-being indicators (e.g., positive emotions, self-esteem, happiness, life satisfaction), and negatively associated with ill-being indicators (e.g., depression, anxiety) (e.g., Briki, 2016; De Ridder, Lensvelt-Mulders, Finkenauser, Stok, & Baumeister, 2012).

Drawing from empirical and theoretical research, De Ridder and Gillebaart (2016) assumed that trait self-control could promote well-being because of its capability to regulate goal-directed behavior. Indeed, trait self-control would enhance well-being through both initiating desired behaviors and inhibiting undesired ones, and it would rely on adaptive routines requiring more effortless than effortful cognitive operations. Cheung, Gillebaart, Kroese, and De Ridder (2014) exhibited that promotion focus (i.e., motivational orientation concerned with gains and successes) and prevention focus (i.e., motivational orientation concerned with losses and failures) mediated the relationship between trait self-control and happiness, supporting the view that trait self-control would activate (or inhibit) adaptive (or maladaptive) means (e.g., De Ridder & Gillebaart, 2016). Moreover, Hofmann, Luhmann, Fisher, Vohs, and Baumeister (2014) found that people with a higher trait self-control reported less experiences of conflicting goals than did people with a lower trait self-control, supporting the view that trait self-control would inhibit goal-disruptive temptations (e.g., Hagger, 2013, 2014) thereby promoting greater sense of coherence among the different self-concepts (or life domains).

1.2. The mediating role of LTPA amount, perceived goal progress, and self-efficacy

Briki (2018) argued that goal selection would constitute a central mechanism of trait self-control. Goal selection represents the activity of the self consisting in embracing and eschewing goals depending on their relevance for the self (Carver & Scheier, 1998). Imagine, for example, a person willing to become a dynamic individual (i.e., ideal-self level) and considering that being physically active (i.e., behavioral aspirations level) constitutes an essential part of this ideal. It is likely that such representations lead her to schedule and execute LTPA sessions over the coming days, weeks, and months, leading her not only to reconsider the importance of her other life domains (e.g., work, friendship) (i.e., programs level) but also to influence her daily life behavioral reactions to external stimuli (i.e., concrete behaviors level). Indeed, enrolled in such a project the person may tend to behave more healthily (e.g., fastening the seat belt while driving, carrying out periodic medical check-ups, eating healthy foods) and to refrain from doing things that may harm her safety and health (e.g., drinking alcohol, consuming illicit drugs) (i.e., concrete behaviors). In accordance with that perspective, De Ridder and Gillebaart (2016) assumed that trait self-control would involve “an ‘active self’ that is able to prioritize long-term over short-term goals, even when these short-term goals are immediately gratifying” (p. 89). For example, an exerciser with a high trait self-control would be better at suppressing self-irrelevant goals (e.g., eating a fatty food, using the elevator) and at pursuing goals that are viewed as important and useful (e.g., eating a healthy food, taking the stairs) than would be another exerciser with a low trait self-control.

How does goal selection promote LTPA amount, goal progress and self-efficacy? Since goal selection is thought to enable the self to manage its own changes by developing ideals and aspirations and by promoting specific behaviors, we argue that goal selection is likely to trigger self-based and autonomous regulations, which are reputed to promote engagement and optimal functioning (e.g., Deci & Ryan, 2008). Indeed, research revealed that autonomous self-control was positively (or negatively) related to automatic attraction toward helpful goals (or temptations) (Milyavskaya, Inzlicht, Hope, & Koestner, 2015), thereby fostering perceptions of goal progress and performance (e.g., Jakubiak & Feeney, 2016; Muraven, 2008; Muraven, Gagné, & Rosman, 2008; Muraven, Rosman, & Gagné, 2007; Powers, Gorin, Hope, & Holding, 2015). Viewed as an essential self-regulatory variable, self-efficacy is thought to promote management of behaviors and emotions, adaptation to the environment, and goal attainment (e.g., Artuch-Garde et al., 2017). Research evidenced that perceived goal progress, self-efficacy, and LTPA amount positively predicted positive emotions and feelings as well as subjective well-being (e.g., Alessandri, Borgnini, Schaufeli, Caprara, & Consiglio, 2015; Gernigon, Briki, & Eykens, 2010; Hinkley et al., 2014; Klug & Maier, 2015; Koestner et al., 2006; Ku, Fox, & Chen, 2016; Mammen & Faulkner, 2013; Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015). Therefore, one can suppose that trait self-control could promote commitment to LTPA, perceived goal progress, and self-efficacy, which in turn could positively predict subjective well-being.

1.3. Research overview

This study attempted to investigate the interrelationships between trait self-control, LTPA amount, perceived goal progress, self-efficacy and subjective well-being, and to examine whether amount of LTPA, perceived goal progress and self-efficacy might mediate the relationship between trait self-control and subjective well-being. Using the structural equation model (SEM) method, we tested a model in which LTPA amount, goal progress, and self-efficacy constituted mid-level variables, situated between trait self-control (high-level variable) and subjective well-being (low-level variable) (see Fig. 1). Because trait self-control would optimize the goal-directed processes through the initiation of helpful behaviors, the inhibition of unhelpful behaviors, and the diminution of conflicting desires (e.g., De Ridder & Gillebaart, 2016; Hagger, 2013, 2014; Hofmann et al., 2014), we expected positive interrelationships between trait self-control, LTPA amount, perceived goal progress, self-efficacy and subjective well-being. In addition, we expected LTPA amount, goal progress and self-efficacy to mediate the positive influence of trait self-control on subjective well-being.

2. Method

2.1. Participants

Five hundred one volunteers from the USA took part in the study (294 females, 58.7%, and 207 males, 41.3%; M_age = 32.16, SD_age = 10.43, from 18 to 65 years old). We recruited them from an online platform (ClickWorker) and they reported to perform LTPA regularly. They were Caucasian American (n = 291, 58.0%), African American (n = 98, 19.6%), Hispanic American (n = 49, 9.9%), Asian American (n = 40, 8.0%) and other (n = 23, 4.6%). On Godin and Shephard’s (1985) LTPA index (see the “Measures” section below), this sample revealed a mean score of 67.0 (SD = 45.2), thus reflecting a sample of active exercisers.

2.2. Study design and procedure

We conducted this study following the recommendations of the Declaration of Helsinki and the Institutional Review Board of the author’s university. The whole study was performed online. The procedure...
consisted of the following chronological steps. First, the participants read the purpose of the study; we explicitly informed them that this study aimed at investigating the relationships between personality, LTPA, and feelings. Second, after providing them with a definition of LTPA, we stipulated that they had to perform LTPA regularly to take part in the study and thus they were kindly requested not to pursue if they were not exercisers. Third, they read that they would respond to some questionnaires, that their responses would remain completely anonymous and confidential, and that they would receive a 0.30$ remuneration for their contribution to the study. Once they accepted to partake in the study, they had to provide their consent.

2.3. Measures

2.3.1. Trait self-control

Trait self-control was measured through the 13-item questionnaire, developed by Tangney et al. (2004) (e.g., “I am able to work effectively toward long-term goals”), on a 7-point Likert-type scale ranging from 1 (“Not at all”) to 7 (“Very much so”) (α = 0.880; eigenvalues = 4.875, 1.032; factor loadings = 0.446 to 0.751).

2.3.2. Amount of LTPA

We employed the LTPA Questionnaire (Godin & Shephard, 1985) to assess the amount of LTPA per week. This questionnaire aims at measuring how many times, on the average, the individual performs three sorts of exercise (i.e., strenuous, moderate, and mild/light) for > 15 min during their free time during a typical 7-day period. In addition, the questionnaire enables to calculate the amount of LTPA via the following equation: Amount of LTPA = (9 × number of strenuous exercise per week) + (5 × number of moderate exercise per week) + (3 × number of light exercise per week). In the LTPA questionnaire, scores below 14, between 14 and 23, and above 23 mean “insufficiently active” (or “sedentary”), “moderately active”, and “active”, respectively.

2.3.3. Perceived goal progress and self-efficacy

We measured perceived goal progress and self-efficacy through the use of two single items, as follows: “In general, how much progress are you making toward your LTPA goals?” (perceived goal progress), and “In general, how much confidence in own your abilities do you have to reach your LTPA goals?” (self-efficacy). The participants answered both questions on a 7-point Likert-type scale ranging from 1 (“Not at all”) to 7 (“Very much so”).

2.3.4. Subjective well-being

Subjective well-being gathered two distinct scales: Happiness and life satisfaction. Happiness was measured through the 8-item Oxford Happiness Questionnaire (Hills & Argyle, 2002; e.g., “I feel fully mentally alter”). The items were assessed on a 6-point Likert-type scale ranging from 1 (“Strongly disagree”) to 6 (“Strongly agree”) (α = 0.772; eigenvalues = 2.679, 0.617; factor loadings = 0.284 to 0.736). We excluded one item from the questionnaire because it displayed an unsatisfactory score of factor loading (“I find beauty in some things”, factor loading = 0.284 < 0.400). The psychometric characteristics of the 7-item questionnaire revealed satisfactory scores (α = 0.787; eigenvalues = 2.512, 0.323; factor loadings = 0.426 to 0.736).

Regarding life satisfaction, we used the 5-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; e.g., “The conditions of my life are excellent”). The items were measured on a 7-point Likert-type scale ranging from 1 (“Strongly disagree”) to 7 (“Strongly agree”) (α = 0.912; eigenvalues = 3.401, 0.057; factor loadings = 0.715 to 0.886).

2.4. Analysis

Normality (Shapiro-Wilk) tests indicated that the distributions of the manifest variables were non-normal (ps = 0.031 to 0.001). Therefore, we used non-parametric tests to examine our hypotheses. First, we conducted Spearman’s ρ correlation analyses to examine the interrelationships between all the manifest variables. Second, we chose to employ PLS-SEM (XLSTAT-PLS) over CB-SEM (requiring normal distributions; e.g., AMOS) to assess the measurement and structural models (bootstrapping = 5000 resampling iterations) through Cronbach’s α, D. G.’s ρ, eigenvalues, GoF indexes, and R² (e.g., Astrachan, Patel, & Wanzenried, 2014; Tenenhaus, Esposito, Chatelin, & Lauro, 2005; Vinzi, Trinchera, & Amato, 2010). Third, we conducted mediation analyses using PLS-SEM. A mediating effect was reported when: (a) the direct effect (excluding the mediator) was significant; and
(b) when the indirect and total effects (including the mediator) were significant. When such conditions were satisfied, the direct effect (including the mediator) enabled to assess the strength of the mediating effect: While a significant direct effect indicated a partial mediation, a non-significant direct effect revealed the existence of a full mediation.

3. Results

3.1. Quality of the model

The analyses showed acceptable and significant estimates on the measurement and structural model (absolute GoF = 0.394, relative GoF = 0.990, outer model GoF = 0.998, inner model GoF = 0.991, R² = 18.02%, p < 0.001). Moreover, happiness and life satisfaction composed effectively subjective well-being (α = 0.842, D. G.’s ρ = 0.927, eigenvalues = 1.728, 0.272).

3.2. Correlations, PLS paths, and mediations

The correlation analyses revealed that all the manifest variables were positively associated with each other (ρs = 0.138 to 0.711, ps ≤ 0.002) (see Table 1). The PLS model yielded standardized path coefficients: (a) trait self-control positively predicted LTPA amount, perceived goal progress, self-efficacy, and subjective well-being (β = 0.130 to 0.455, ps ≤ 0.004, see Table 2); (b) perceived goal progress and self-efficacy positively predicted subjective well-being (β = 0.123 to 0.238, ps ≤ 0.006, see Table 2); and (c) LTPA amount did not predict subjective well-being (β = 0.014, p = 0.689, see Table 2).

The mediation analyses revealed that perceived goal progress and self-efficacy partially mediated the positive effect of trait self-control on subjective well-being (see Table 3). Despite the fact that the PLS model displayed that LTPA amount did not predict subjective well-being, the mediation analyses revealed that trait self-control predicted LTPA amount (β = 0.130, t = 2.934, p = 0.004), and that trait self-control (β = 0.571, t = 15.757, p = 0.000) and LTPA amount (β = 0.114, t = 3.141, p = 0.002) positively predicted subjective well-being. Additionally, LTPA amount appeared to mediate partially the influence of trait self-control on subjective well-being (see Table 3).

4. Discussion

The present study revealed that trait self-control, LTPA amount, perceived goal progress, self-efficacy and subjective well-being were positively related to each other, and that LTPA amount, perceived goal progress, self-efficacy mediated partially the positive influence of trait self-control on subjective well-being. Interestingly, this study revealed that the effect of LTPA amount on subjective well-being dropped and became non-significant when perceived goal progress and self-efficacy were included in the PLS model.

Table 1

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trait self-control</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Goal progress</td>
<td>0.293**</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.380***</td>
<td>0.591***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Happiness</td>
<td>0.584***</td>
<td>0.444***</td>
<td>0.427***</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>0.422***</td>
<td>0.374***</td>
<td>0.364***</td>
<td>0.711***</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>LTPA amount</td>
<td>0.138***</td>
<td>0.360***</td>
<td>0.247***</td>
<td>0.204***</td>
<td>0.175***</td>
<td>–</td>
</tr>
</tbody>
</table>

Note. LTPA = leisure-time physical activity.

** p < 0.01 for a two-tailed test.

*** p < 0.001 for a two-tailed test.

4.1. Interrelationships between all the variables

The correlation analyses showed positive relationships between trait self-control, LTPA amount, perceived goal progress, self-efficacy, happiness, and life satisfaction, supporting the view that trait self-control is associated with a number of adaptive cognitive (e.g., self-confidence), affective (e.g., happiness), and behavioral (e.g., greater effort) variables (e.g., De Ridder et al., 2012; Tangney et al., 2004). This result also supports recent studies showing positive relationships between: (a) conscientiousness and work engagement (e.g., Akhtar, Boustani, Tsvirikos, & Chamorro-Premuzic, 2015); (b) work engagement, self-efficacy, and subjective well-being (e.g., Alessandri et al., 2015; Shimazu et al., 2015); and (c) perceived goal progress, self-efficacy, and subjective well-being (e.g., Klug & Maier, 2015; Koestner et al., 2006).

4.2. LTPA amount, perceived goal progress, and self-efficacy

The mediation analyses revealed that perceived goal progress and self-efficacy partially mediated the positive effect of trait self-control on subjective well-being (see Tables 2 and 3 and Fig. 2). The partial nature of these mediating effects indicates that trait self-control could affect directly subjective well-being, and indirectly through experiencing higher levels of goal progress and self-efficacy. The direct effect may signify that trait self-control would produce greater sense of well-being that may result from greater sense of coherence among the different life domains within the self. Research revealed that high trait self-control induced decreased sense of conflicting desires (Hofmann et al., 2014), which is probably caused by the inhibition of goal-disruptive impulses (e.g., Hagger, 2013, 2014). Because subjective well-being results from an “affect balance—experiencing more pleasant than unpleasant emotions” (Diener et al., 2017, p. 91), one can suggest that the experience of little amount of problematic desires would be associated with a higher sense of subjective well-being. Regarding the indirect effect, it may reflect the powerful role of trait self-control in the goal-directed processes that aim at promoting goal attainment and success, thereby fostering positive emotions and feelings.

The mediation analyses also showed that LTPA amount partially mediated the positive influence of trait self-control on subjective well-being, supporting studies that showed that LTPA amount promoted subjective well-being (e.g., Ku et al., 2016; Mammen & Faulkner, 2013). This result also supports our view that trait self-control (through goal selection) can produce self-based regulations leading to develop intrinsic interest in specific activities. Such interest, in turn, is likely to promote higher levels of commitment to the pursued activities, positive emotions, and subjective well-being. Notwithstanding, and interestingly, the PLS paths showed that the effect of LTPA amount on subjective well-being vanished when both perceived goal progress and self-efficacy were entered in the model (see Table 2 and Fig. 2). This result suggests that the relationship between trait self-control and subjective well-being would be more sensitive to self-regulatory constructs (e.g., goal progress, self-efficacy) than to the amount of LTPA per se.

Since studies evidenced the beneficial effect of performing exercise on health-related outcomes (e.g., Sjögren et al., 2006), one can suggest that the quantity of performed LTPA would influence essentially biological health-related indicators (e.g., cardiovascular capacity), whereas the quality of performed LTPA (in terms, for instance, of autonomous vs. controlled regulations driving the goal-directed behaviors) would influence essentially subjective health-related indicators (e.g., subjective well-being). In line with such a supposition, a huge amount of studies exhibited that performing LTPA for autonomous reasons (i.e., based on self-initiation, volition, and willingness) positively predicted positive cognitive-affective appraisals (e.g., self-esteem, body satisfaction, life satisfaction) (e.g., Briki, 2016; Sebire, Standage, & Vansteenkiste, 2009). By contrast, performing LTPA for controlled reasons (i.e., based on internal or external pressures) appeared to be negatively related or unrelated to such appraisals (e.g., Briki, 2016; Sebire et al., 2009).
Finally, our result suggests that trait self-control can promote well-being because of its capability to activate cognitive mechanisms giving rise to agreeable life experiences.

5. Conclusion and perspectives

To conclude, the present study revealed that LTPA amount, perceived goal progress and self-efficacy mediated the positive influence of trait self-control on subjective well-being. An important weakness of this study is its static and correlational design. In this study, we tested a specific model arranged from trait self-control to self-efficacy, perceived goal progress and LTPA amount to subjective well-being. However, it is also possible that subjective well-being be a predictor of trait self-control, self-efficacy, perceived goal progress and LTPA amount. However, this study attempted to advance our understanding of well-being development. For that reason, subjective well-being was considered as the output variable of the model. Nonetheless, the results of this study invite us to employ longitudinal designs in order to test more rigorously the causal relationships. Another limitation of this study is that we used single items to measure perceived goal progress and self-efficacy. Further studies should use validated questionnaires or at least multiple items in order to verify the reliability of the employed items.

From an applied perspective, the results of the present study emphasized the adaptive and healthy effects of trait self-control. For that reason, any applied strategies should consist in promoting the

![Fig. 2. PLS paths of the structural equation model. **p < 0.01 and ***p < 0.001 for a two-tailed test. TSC = trait self-control; LTPA = leisure-time physical activity; GP = goal progress; SE = self-efficacy; HAP = happiness; SAT = satisfaction with life.](image)

Table 2
Path estimates of the PLS model.

<table>
<thead>
<tr>
<th>Effects</th>
<th>Path</th>
<th>β</th>
<th>SE</th>
<th>t-Values</th>
<th>p-Values</th>
<th>f²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Trait self-control → Subjective well-being</td>
<td>0.588</td>
<td>0.036</td>
<td>16.218</td>
<td>0.000</td>
<td>0.527</td>
</tr>
<tr>
<td>Mediating</td>
<td>Trait self-control → Goal progress</td>
<td>0.320</td>
<td>0.042</td>
<td>7.545</td>
<td>0.000</td>
<td>0.114</td>
</tr>
<tr>
<td></td>
<td>Trait self-control → Self-efficacy</td>
<td>0.407</td>
<td>0.041</td>
<td>9.959</td>
<td>0.000</td>
<td>0.199</td>
</tr>
<tr>
<td></td>
<td>Trait self-control → LTPA amount</td>
<td>0.130</td>
<td>0.044</td>
<td>2.934</td>
<td>0.004</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
<td>Trait self-control → Subjective well-being</td>
<td>0.455</td>
<td>0.057</td>
<td>12.268</td>
<td>0.000</td>
<td>0.303</td>
</tr>
<tr>
<td></td>
<td>Self-efficacy → Subjective well-being</td>
<td>0.123</td>
<td>0.044</td>
<td>2.769</td>
<td>0.006</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>Goal progress → Subjective well-being</td>
<td>0.238</td>
<td>0.044</td>
<td>5.410</td>
<td>0.000</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>LTPA amount → Subjective well-being</td>
<td>0.014</td>
<td>0.036</td>
<td>0.400</td>
<td>0.689</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note. LTPA = leisure-time physical activity.

Table 3
Mediating effects.

<table>
<thead>
<tr>
<th>Effects without mediator</th>
<th>Path</th>
<th>Mediator</th>
<th>Direct effect</th>
<th>Indirect effect</th>
<th>Total effect</th>
<th>Type of mediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Trait self-control → Subjective well-being</td>
<td>–</td>
<td>0.588***</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Indirect with mediator</td>
<td>Trait self-control → Subjective well-being</td>
<td>Self-efficacy</td>
<td>0.477***</td>
<td>0.107***</td>
<td>0.585***</td>
<td>Partial</td>
</tr>
<tr>
<td></td>
<td>Trait self-control → Subjective well-being</td>
<td>Goal progress</td>
<td>0.486***</td>
<td>0.099***</td>
<td>0.585***</td>
<td>Partial</td>
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<td></td>
<td>Trait self-control → Subjective well-being</td>
<td>LTPA amount</td>
<td>0.571***</td>
<td>0.015</td>
<td>0.586***</td>
<td>Partial</td>
</tr>
</tbody>
</table>

Note. LTPA = leisure-time physical activity.

⁎ p < 0.05 for a two-tailed test.

*** p < 0.001 for a two-tailed test.
development of trait self-control. In that regard, recent research has revealed that both approach-based regulations (e.g., Briki, 2018; Cheung et al., 2014) as well as autonomous-based regulations (e.g., Briki, 2016, 2017) appeared to promote trait self-control and subjective well-being. Therefore, orientating people (e.g., children, employees, athletes, exercisers) toward (real or imaginary) positive stimuli (e.g., competence, advancement, achievement) and taking care of their basic psychological needs (i.e., relatedness, autonomy and competence) would allow them to experience higher sense of trait self-control and subjective well-being.

References


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