Understanding Exercise Behaviour: Examining the Interaction of Exercise Motivation and Personality in Predicting Exercise Frequency

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This study tested the self-determination theory in relation to exercise participation with the aim of identifying whether degree of autonomy mediates the relationship between personality traits and exercise participation. One hundred gym attendees completed a questionnaire assessing Big Five personality traits, Behavioural Regulation scales, and frequency of exercise participation. As predicted by Self-Determination Theory, more autonomous forms of exercise motivation were more strongly correlated with increased exercise participation while External behavioural regulation and Amotivation were negatively correlated with exercise participation. In addition, Extraversion, Conscientiousness and Agreeableness predicted exercise frequency, with further analysis indicating that the Extraversion and Conscientiousness effects were mediated by Intrinsic and External motivation. Agreeableness was not mediated however, and indicates that individuals who are more self-focused are likely to engage in a more frequent exercise regime. These results help to elucidate previous contradictory findings on the effects of personality on exercise participation by emphasising the interaction of individual personality with the intrinsic motivation of a specific activity. Programs encouraging increased exercise should focus on helping participants to find intrinsically enjoyable activities and stress the importance of a certain level of self-focus in committing to a more active lifestyle if they are to succeed.

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Exercise can not only improve one’s physiological development, but can also promote psychological well-being. Participation in exercise dramatically improved the well-being of people suffering from chronic health conditions (Graham, Kremer and Wheeler, 2008), while individual components of well-being, including fortitude, stress management and coping, have all been shown to significantly improve when associated with a regular exercise schedule (Edwards, 2006). In addition, regular exercisers perceive themselves as having more autonomy, personal growth, purpose in life, positive relations with others and conditioning than non-exercisers (Edwards, Ngcobo, Edwards and Palavar, 2005). Yet according to the National Health Service in the United Kingdom (2006) only 35% of men and 24% of women reported achieving the physical adult recommendations of 30 minutes of moderate intensity exercise at least 5 times a week in 2004. With the evidence indicating that the notion of ‘healthy body, healthy mind’ really can exist, Jones, Harris, Waller and Coggins (2005) note that encouraging exercise is an essential area of health promotion. Identifying the individual factors which encourage exercise participation and gaining a deeper understanding of the relationship between personality, exercise motivation and exercise participation is therefore important in order to help promote healthy lifestyles.

Traits are conceptualised as cross-situational consistencies in behaviour and there is evidence of a certain level of genetic determination (Saudino and Plomin, 1996). Motives, while also showing long-term dispositional stability, are more dependent on the situation for arousal or expression in behaviour (Winter, John, Stewart, Klohn and Duncan, 1998). Research on personality traits and motivation generally concludes that the two systems are independent elements of personality but that they interact to predict behaviour (Winter et al, 1998). Both have been studied extensively in relation to sport and exercise behaviour.

The Big Five traits represent a universal, cross-cultural structure of individual differences (McCrae & Costa, 1997). There is a great deal of evidence for the ability of the Big Five to subsume other personality measures (McCrae & Costa, 1990), with these five traits accounting for the bulk of the variance in many samples, while other factors are small and specific and less useful for a broad taxonomy (Costa & McCrae, 1995). Briefly, the Big Five traits comprise Extraversion (the tendency to be assertive, sociable and outgoing), Agreeableness (warm, generous and trusting as opposed to more self-focused and untrusting), Conscientiousness (organised, thorough and dependable), Emotional Stability (calm and unperturbed through most of life’s events; the opposite pole of this trait is often referred to as Neuroticism) and finally, Openness to Experience (the extent to which a person is imaginative, curious and creative).

The Big Five personality traits have been associated with many health-related behaviours, including smoking (Cosci, Corlando, Fornai, Paoletti and Carrozzi, 2009), alcohol consumption
(Goldstein and Flett, 2009), healthy eating (MacNicol, Murray and Austin, 2003) and exercise (Huang, Lee and Chang, 2007). Exercise participation appears most commonly related to Extraversion, Conscientiousness and Neuroticism/Emotional Stability, although findings are often contradictory. Yeung and Hemsley (1997) associated high levels of Extraversion amongst women with low attendance on an eight-week aerobics exercise program. However, Rhodes (2006) identified Extraversion and Conscientiousness as consistent positive correlates of physical activity, with Neuroticism a consistent negative correlate. These findings were further corroborated and extended by work suggesting that regular exercise is associated with low levels of Neuroticism, anxiety and depression, and high levels of Extraversion and sensation seeking (De Moor, Beem, Stuibe and Boomsma, 2006). The positive relationship between Extraversion and fitness was further supported by Bogg, Voss, Wood and Roberts (2008), though the expected relationship with Conscientiousness was not found. These contradictory results may be due to a difference in outcome measurements, with the latter study using physical performance as the outcome rather than retrospective self-report of behaviour.

The inconsistencies in the relationship between personality and exercise have been acknowledged by a number of researchers, (e.g., Vollrath and Torgersen, 2002), who have responded by calling for further exploration and a different conceptualisation of the relationship. Given the known interaction between traits and motives in predicting behaviour, an integration of these two fields promises to be a rewarding field of study.

The Big Five traits are positively associated with exercise motivations including health, appearance, stress management, enjoyment and weight control, with Extraversion and Openness identified as the traits that most positively related to exercise enjoyment (Courneya and Hellsten, 1998). These findings were extended cross-culturally by Huang, Lee and Chang (2007) who sampled 142 members of fitness centres from Taiwan, Europe and the United States and found that participants with higher levels of physical and psychological motivation scored higher on all five personality traits: Emotional Stability (the opposite pole of Neuroticism), Extraversion, Openness to Experience, Agreeableness and Conscientiousness. Lin, Chen, Wang and Cheng (2007) suggested that people who score highly on Extraversion would be highly motivated to attend fitness centres because of their energy and outgoing nature, and identified a positive correlation between Extraversion and four leisure motivation dimensions: intellectual, social, competence-mastery and stimulus-avoidance (or relaxation).

Conscientious individuals have been found to have the ability to reappraise stressful events in a more positive manner (Watson and Hubbard, 1996) and may therefore interpret the stress encountered whilst exercising as enjoyable. In contrast, Neuroticism is described as involving "intense emotional and physical responses to stress and is therefore linked to attempts to minimize unpleasant arousal through disengagement strategies such as avoidance..."
and withdrawal" (Connor-Smith and Flachsbart, 2007, p. 1082). Confirmation of these suggestions is provided by Lochbaum and Lutz (2005) who related exercise enjoyment to higher levels of Conscientiousness and lower levels of Neuroticism. It appears that there may be some sex differences in personality relationships with motivation however, as Lochbaum, Bixby and John Wang (2007) found that while less motivated male and female participants scored lower on Extraversion and Conscientiousness than the more motivated individuals, Neuroticism was high only in less motivated male participants.

While these findings are useful, Ingledew, Markland and Sheppard (2004) suggest that it is insufficient to only look at the surface motivations of exercise, as they do not reveal valuable information about the underlying reasons for exercise, and recommend using self-determination theory (SDT) (Deci and Ryan, 2000) because it allows for a more differentiated view of motivation. SDT examines the extent to which human behaviours are self-determined and the degree to which people's actions are influenced by internal and external forces.

SDT distinguishes between intrinsic and extrinsic motivation and amotivation (for review see Ryan & Deci, 2007). Intrinsic motivation is seen in fully self-determined individuals: their motivation for particular behaviours is a fully integrated part of their sense of self and they take part in exercise because they find it inherently enjoyable. Extrinsic motivation is more instrumental; the activities are engaged in because of some desired end result rather than for the satisfaction of the activity itself. Several different types of extrinsic motivation can be identified, arranged on a continuum from more autonomous to more controlled. Integrated regulation is the most autonomous of these, where an activity satisfies fully integrated psychological needs. Identified regulation, while still a relatively autonomous form of motivation, involves the individual recognising and accepting "the underlying values of behaviour" (Deci and Ryan, 2000, p. 236). For example, if an individual understood and identified with the benefits of exercise for their own health, they would exercise volitionally in an attempt to achieve personally valued outcomes. In contrast to autonomous motivation, controlled motivation is seen in those individuals who feel pressured to behave in a certain way and is underpinned by introjected and external regulation. Introjected regulation involves motivation through self-inflicted sanctions such as guilt and pride, while external regulation is non-self-determined, where behaviour is controlled by external events such as rewards or punishments.

SDT predicts that more autonomous motives for a particular behaviour will result in increased levels of that behaviour and there is extensive research to support this prediction. Intrinsic and identified motives have been linked with increased exercise participation (Ingledew and Markland, 2008; Standage, Sebire and Loney, 2008) and higher levels of physical activity (Wilson, LeBlanc and Blanchard, 2007) while more controlled types of motives have been identified as having a negative influence on activity levels (Craike, 2008). Autonomous mo-
tives are also associated with increased intentions to maintain exercise levels (Wilson, Mack, Muon, & LeBlanc, 2007), providing further support to the SDT concept of autonomous motives being underpinned by the satisfaction of psychological needs. However, in a study of adolescents, introjected motives were associated with higher levels of physical activity than expected (Gillison, Osborn, Standage, & Skevington, 2009) indicating that the more controlled forms of behaviour regulation, while negative in the long term, can have a positive effect in the short term. Research has also demonstrated that participation in exercise tends to be more extrinsically motivated than participation in sport does, but that the more autonomous forms of regulation are important in maintaining activity levels of both over time (Ryan & Deci, 2007).

Given that personality and motivation have separately been linked to exercise, Ingledew et al. (2004) investigated the relationship between personality and exercise motivation, finding that Neuroticism was associated with more introjected regulation, Extraversion with both more intrinsic and identified regulation, Openness with less external regulation, Conscientiousness with more intrinsic regulation and finally, Psychoticism (not one of the Big Five) with more external regulation. Agreeableness was not treated as a separate construct. The authors noted that the interpretations of these findings were speculative as the relationship between personality traits and self-determination had only just begun to be examined. More recently, Batia (2008) supported these findings, showing that self-determination scores increased with Extraversion, Conscientiousness and Openness, while Neuroticism was negatively associated with self-determination. In the same year, Ingledew and Markland (2008) examined the influence of personality traits on behavioural regulatory exercise motives and found conflicting results, with Openness associated with higher levels of identified exercise regulation, Conscientiousness related to both lower levels of external and introjected exercise regulation, and Neuroticism associated with higher external regulation.

Because exploration of the interaction between personality traits and motivations in predicting exercise behaviour is still at an early stage and results thus far are conflicting, this study seeks to explore and further define the interaction of personality and motivation in predicting exercise behaviour.

Specifically, this study expects to replicate findings that the more autonomous types of behavioural regulation (Intrinsic, Identified) are associated with higher Extraversion, Conscientiousness and Openness, while the more controlled types of regulation (External) are associated with lower Emotional Stability. The study will also extend previous research by including the Agreeableness trait and Amotivation.

As discussed above, motives are more situationally dependent than traits, and it is therefore further expected that while personality traits and motivations will independently predict exercise frequency, the influence of traits (which are measured in a generic form) will to
a certain extent be expressed through the motivational system (which is measured in relation to the specific activity).

The results produced by this current study will hopefully guide and facilitate the development of more personalised exercise programs by including the influence of personality on exercise motivation. In turn, it may help to encourage regular exercise amongst currently active people and increase the level of exercise participation amongst non-exercisers.

Method

Participants

Participants were members of the university gym at a large UK university, 50 male and 50 female. Ninety-five percent of respondents were undergraduate students, with the remaining 5% not indicating their status. Participation was voluntary and the study met the criteria for the university’s ethical approval process.

Procedure

As the study was interested in assessing reasons for exercising, a convenience sample of participants was recruited as they entered the university’s gym facilities. Individuals who agreed to take part in the study were taken aside to a designated area where they could complete the questionnaires without interruption.

Materials

To assess the Big Five traits, a 50-item questionnaire from the International Personality Item Pool (Goldberg et al. 2006) was used. Example items include “I have a vivid imagination” (Openness to Experience) and “I am interested in people” (Agreeableness), with participants indicating the extent to which these items described them on a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Cronbach alphas were all above .7, indicating reliable scales (Nunnally, 1978): Extraversion .89, Conscientiousness .79, Agreeableness .85, Emotional Stability .82 and Openness to Experience .82.

The Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2) developed by Markland and Tobin (2004) was used to assess exercise motivation. The BREQ-2, an extension of the BREQ (Mullan et al. 1997), is a self-report questionnaire consisting of 19 items measuring exercise regulation. It contains five subscales: Intrinsic, External, Introjected and Identified regulation, as well as Amotivation. Example items include “I value the benefits of exercise” (Identified regulation) and “I feel guilty when I don’t exercise” (Introjected regulation), rated on a five-point scale ranging from 0 (Not true for me) to 4 (Very true for me). Cronbach alphas
showed good reliability for Intrinsic (.92), External (.85), Identified (.87) regulation and Amotivation (.85). Despite showing acceptable reliability in other studies, Introjected regulation had a lower alpha (.62) in this sample and results on this scale should therefore be treated with caution.

A six point likert scale was used to rate exercise frequency, ranging from 1 (once a week) to 6 (more than five times a week).

**Results**

Descriptive statistics and zero order correlations are given in Table 1. Mean exercise frequency was 2.91 (standard deviation of 1.35). Comparison of males and females using independent t-tests showed that, in line with previous research, males ($M = 3.54, SD = 1.20$) exercised significantly more often than females ($M = 2.30, SD = 1.20$), $t (98) = 5.25, p < .005$, and differed on all the motive subscales except for Introjected regulation (see Table 2). Later regression analyses therefore included sex as a control variable.

**Correlational analyses**

The behavioral regulation subscales were correlated with each other in line with theoretical predictions (Deci and Ryan, 2000), with adjacent forms of regulation (e.g., Intrinsic and Identified) more positively associated than more distant forms of regulation (e.g., Intrinsic and Amotivation). As expected from previous research, Extraversion was positively correlated with Identified regulation ($r = .26, p = .009$), while Conscientiousness was negatively correlated with External regulation ($r = -.22, p = .027$) and Emotional Stability with Introjected regulation ($r = -.26, p = .009$). Amotivation was found to correlate with Extraversion only ($r = -.22, p = .025$).

Exercise frequency showed a significant positive correlation with Extraversion ($r = .27, p = .006$) and a significant negative correlation with Agreeableness ($r = -.30, p = .003$). In line with previous research and the predictions of Self-Determination Theory, the strength of correlations between motives and exercise frequency decreased as the motives became less autonomous, from Intrinsic ($r = .43, p = .001$) through Identified ($r = .42, p = .001$) to Introjected ($r = .21, p = .035$) and finally to External motivation ($r = -.26, p = .006$) and Amotivation ($r = -.41, p = .001$) which showed significant negative correlations with exercise frequency.

**Personality and Motivation predictors of Exercise Frequency**

Hierarchical multiple regression analysis was used to test the hypothesis that personality prediction of exercise frequency is partly mediated through motivation. As previous research has consistently found a difference between males’ and females’ participation in exer-
Table 1. Descriptives and Zero Order Correlations for All Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>1. Extraversion</td>
<td>3.49</td>
<td>.75</td>
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<td></td>
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<tr>
<td>2. Conscientiousness</td>
<td>3.42</td>
<td>.67</td>
<td>-.20*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Agreeableness</td>
<td>3.93</td>
<td>.60</td>
<td>.10</td>
<td>.24*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Emotional Stability</td>
<td>3.08</td>
<td>.70</td>
<td>.03</td>
<td>.27*</td>
<td>.21*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Openness</td>
<td>3.50</td>
<td>.64</td>
<td>.35**</td>
<td>.22*</td>
<td>.35**</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6. Intrinsic</td>
<td>3.76</td>
<td>1.02</td>
<td>.19</td>
<td>.04</td>
<td>.02</td>
<td>.17</td>
<td>-.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Identified</td>
<td>3.82</td>
<td>.87</td>
<td>.26**</td>
<td>.04</td>
<td>-.04</td>
<td>-.04</td>
<td>-.03</td>
<td>.71**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Introjected</td>
<td>2.58</td>
<td>.93</td>
<td>.11</td>
<td>-.09</td>
<td>-.09</td>
<td>-.26**</td>
<td>-.05</td>
<td>.23*</td>
<td>.23*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. External</td>
<td>1.50</td>
<td>.71</td>
<td>-.01</td>
<td>-.22*</td>
<td>-.09</td>
<td>.00</td>
<td>-.18</td>
<td>-.21*</td>
<td>-.12</td>
<td>.44**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Amotivation</td>
<td>1.43</td>
<td>.75</td>
<td>-.22*</td>
<td>.00</td>
<td>.05</td>
<td>.02</td>
<td>-.15</td>
<td>-.50**</td>
<td>-.62**</td>
<td>-.14</td>
<td>.40**</td>
<td></td>
</tr>
<tr>
<td>11. Exercise Freq</td>
<td>2.91</td>
<td>1.35</td>
<td>.27**</td>
<td>.07</td>
<td>-.30**</td>
<td>.01</td>
<td>.09</td>
<td>.43**</td>
<td>.42**</td>
<td>.21</td>
<td>-.26**</td>
<td>-.41**</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01
Table 2. *T*-Tests for sex differences in Behavioural Regulation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Female M (SD)</th>
<th>Male M (SD)</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic</td>
<td>3.55 (.11)</td>
<td>3.97 (.88)</td>
<td>2.12</td>
<td>98</td>
<td>.037</td>
</tr>
<tr>
<td>Identified</td>
<td>3.63 (.96)</td>
<td>4.02 (.73)</td>
<td>2.29</td>
<td>98</td>
<td>.024</td>
</tr>
<tr>
<td>Introjected</td>
<td>2.49 (.89)</td>
<td>2.67 (.96)</td>
<td>1.01</td>
<td>98</td>
<td>.318</td>
</tr>
<tr>
<td>External</td>
<td>1.65 (.69)</td>
<td>1.36 (.72)</td>
<td>-2.03</td>
<td>98</td>
<td>.045</td>
</tr>
<tr>
<td>Amotivation</td>
<td>1.61 (.91)</td>
<td>1.25 (.50)</td>
<td>-2.49</td>
<td>98</td>
<td>.014</td>
</tr>
</tbody>
</table>

cise, which was replicated in this study, participants’ sex was controlled for by being dummy coded and entered into the regression equation Step 1, explaining 22% of the variance in exercise frequency. Personality traits were entered as a block in Step 2, explaining an additional 10% of the variance, F change (5, 93) = 2.81, p = .021. Motivation subscales were entered as a block in Step 3, explaining a further 15% of the variance, F change (5, 88) = 5.01, p < .001. The final model explained 47% of the variance in exercise frequency, F (10, 89) = 7.17, p < .001, with sex (β = .21, p = .024), Agreeableness (β = -.32, p = .001), Intrinsic motivation (β = .26, p = .036) and External motivation (β = -.16, p = .098) emerging as statistically significant predictors. Table 3 gives the beta values for all variables in all steps.

Discussion

This study aimed to further clarify the relationship between individuals’ personality, exercise motivations and exercise frequency. As expected from previous research (e.g., Rhodes, 2006), Extraversion was found to be positively correlated with exercise frequency, though no relationships were found for Emotional Stability, Conscientiousness or Openness. McCrae and John (1992) argue that Extraversion is associated with increased activity levels, positive emotionality, assertiveness and in some cases sensitivity to reward, all of which would tend to encourage exercise participation. Given the largely consistent relationship between Extraversion and exercise across many studies and the clear theoretical basis for hypothesising that higher Extraversion will be related to a more active, outgoing lifestyle, this finding may help to
Table 3. Summary of Hierarchical Regression Analysis for Variables Predicting Exercise Frequency (N=100)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.47*</td>
<td>.34**</td>
<td>.21*</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.26*</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.19*</td>
<td>.12</td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.25*</td>
<td>-.31**</td>
<td></td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>.02</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.05</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>ΔR²</td>
<td>.10*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic</td>
<td></td>
<td>.26*</td>
<td></td>
</tr>
<tr>
<td>Identified</td>
<td></td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Introjected</td>
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<td>.13</td>
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</tr>
<tr>
<td>External</td>
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<td>-.16**</td>
<td></td>
</tr>
<tr>
<td>Amotivation</td>
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<td>-.05</td>
<td></td>
</tr>
<tr>
<td>ΔR²</td>
<td></td>
<td>.15**</td>
<td></td>
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</tbody>
</table>

*p<0.05  
**p<0.01
contribute to the conclusion that Extraversion is related to many types of exercise outcomes, such as participation, frequency and performance.

Conner, Rodgers and Murray (2007) conducted a study using a sample of University students and identified that Conscientiousness significantly influenced exercise intentions during an unusual week, such as a reading week, but had no influence when the behaviour was performed during a normal week of term. As the current study collected data during a normal week of University, Conner et al.’s (2007) findings may provide an explanation for the lack of relationship with Conscientiousness. Previous findings on Emotional Stability and Openness relating to exercise have also been contradictory and this research further confirms that finding relationships is heavily dependent on the sample and type of exercise outcome.

Finally, Agreeableness, a factor less thoroughly examined in previous research, was found to be negatively correlated with exercise frequency. Low scores on Agreeableness indicate a lower willingness to adapt to other people and may indicate that those who are less focused on others and more on their own needs or desires are more likely to engage in exercise. It should be noted that the dependent variable in this study was an individual type of physical activity (gym attendance) and further research of team sport activities may well find that this relationship with Agreeableness does not hold.

All five of the exercise motivation scales were correlated with exercise frequency. As predicted by self-determination theory, the strength of these correlations increased and the direction of correlation became positive as autonomy increased. This provides support for the continuum of motivation suggested by Deci and Ryan (2000), further validating Self-determination Theory, and makes for a strong recommendation that programs designed to encourage exercise participation should focus on increasing autonomous exercise regulation rather than external factors. Indeed, external regulation had a negative relationship with exercise participation and indicates that, for those already engaged in physical activity at least, providing external rewards or punishments may well decrease exercise frequency.

The strongest predictor of exercise frequency was participants’ sex, with males engaging in exercise more often than females. This supports many previous studies (e.g., Santos, Page, Ribeiro and Mota, 2009; Buckworth and Nigg, 2004) which indicate males have more active lifestyles than females. After controlling for sex, however, personality traits predicted a substantial amount of variance in exercise frequency, with Extraversion, Conscientiousness and Agreeableness emerging as the strongest predictors. As expected, the effects of the personality traits were mostly subsumed into the motivation variables, which themselves made a further substantial contribution to predicting exercise frequency. It appears that the Extraversion and Conscientiousness traits are mediated by Intrinsic and External behaviour regulation. External behaviour regulation is known to be more important for exercise participa-
tion than for sports, as many participants engage in exercise for external rewards, such as looking fit (Ryan & Deci, 2007). It is possible that the trait of Conscientiousness encourages regular participation in exercise through External regulation as the perceived benefits can only be reaped with regular and consistent activity. Intrinsic regulation, on the other hand, occurs when the activity is enjoyed for its own sake rather than engaged in for a specific outcome, and this analysis provides evidence that personality traits may influence the type of activity that a person finds inherently enjoyable. This also helps to elucidate the conflicting findings in previous research by emphasising the importance of taking account of the specific activity being studied when attempting to establish relationships between personality and exercise.

Interestingly, the effect of the Agreeableness trait is not mediated and has a strong, direct effect on exercise frequency, with those who scored lower on Agreeableness engaging in more frequent physical activity. As described above, it seems that a certain level of “selfishness” is required for the engagement in frequent exercise; time spent at the gym tends to be time devoted to the self. In this case, the effect on behaviour is a direct outcome of this focus on the self rather than mediated through a motivational system.

Like many other psychological studies investigating exercise motivation (Bogg et al. 2008; Lochbaum et al. 2007), the sample was mostly made up of undergraduate students. In addition, participants were recruited at the University fitness centre. These two factors may limit the extent to which the findings can be generalised to the general population and to different types of physical activity. Also, as noted by Huang et al. (2007) there is an exhaustive list concerning the reasons for participating in exercise and the current study may be criticised for not exploring more of these. Future research could therefore extend this work to a wider population using a more extensive list of exercise reasons.

Considering the effects of personality and behavioural regulation together has helped to define more clearly what it is that makes people engage in more frequent exercise. These findings indicate that programs to increase peoples’ activity levels would do well to focus on helping people to find activities that are intrinsically enjoyable to them, recognising that these are likely to differ among individuals. In addition, programs could emphasise the importance of “me-time” to improve participants’ physical and psychological well-being.
References


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